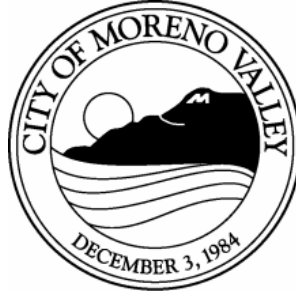

PLANNING COMMISSIONERS

JEFFREY BARNES
Chair

PATRICIA KORZEC
Vice-Chair

RAY L. BAKER
Commissioner



JEFFREY SIMS
Commissioner

ALVIN DEJOHNETTE
Commissioner

JOANN STEPHAN
Commissioner

ROBERT HARRIS
Commissioner

PLANNING COMMISSION

Regular Meeting

Agenda

Thursday, July 26, 2018 at 7:00 PM
City Hall Council Chamber – 14177 Frederick Street

CALL TO ORDER

ROLL CALL

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

APPROVAL OF AGENDA

CONSENT CALENDAR

All matters listed under Consent Calendar are considered to be routine and all will be enacted by one roll call vote. There will be no discussion of these items unless Members of the Planning Commission request specific items be removed from the Consent Calendar for separate action.

APPROVAL OF MINUTES

Planning Commission – Regular Meeting – May 24, 2018 7:00 PM

PUBLIC COMMENTS PROCEDURE

Any person wishing to address the Commission on any matter, either under the Public Comments section of the Agenda or scheduled items or public hearings, must fill out a "Request to Speak" form available at the door. The completed form must be submitted to the Secretary prior to the Agenda item being called by the Chairperson. In speaking to the Commission, member of the public may be limited to three minutes per person, 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.

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 Guy Pegan, 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.

NON-PUBLIC HEARING ITEMS

PUBLIC HEARING ITEMS

- 1.** Case: LGL17-0014 (Street Vacation)
Owner: OM Macarther, Tilak Chopra
Representative: Design Concepts, Shiv Talwar
Location: 23778 and 23798 Hemlock Avenue approximately 1,200 feet west of Heacock Street
Staff: Vince Giron, Associate Engineer
Council District: Approval
- 2.** Case: PEN17-0134 - Zone Change and PEN17-0135 - Conditional Use Permit
Applicant: Winchester Associates, Inc.
Owner: Gossett Development
Representative: Winchester Associates, Inc.
Location: Near the southwest corner of Perris Boulevard and John F. Kennedy Drive
Staff: Jeff Bradshaw
Council District: 4
- 3.** Case: PEN16-0086 – General Plan Amendment
PEN16-0087 – Zone Change
PEN16-0088 – Conditional Use Permit
Applicant: Yum Yum Donuts
Owner: Yum Yum Donuts
Representative: A&S Engineering, Inc.
Location: Northeast corner of Perris Boulevard and Cottonwood Avenue

Case Planner: Jeff Bradshaw

Council District: 3

OTHER COMMISSION BUSINESS

STAFF COMMENTS

PLANNING COMMISSIONER COMMENTS

ADJOURNMENT

Planning Commission Next Regular Meeting, August 9, 2018 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
May 24, 2018**

CALL TO ORDER

This Regular Meeting of the Planning Commission of the City of Moreno Valley was called to order at 7:02 p.m. by Chair Barnes in the Council Chamber located at 14177 Frederick Street.

ROLL CALL

Planning Commission:	Patricia Korzec	Vice Chairman	Present
	Robert Harris	Commissioner	Present
	JoAnn Stephan	Commissioner	Present
	Jeffrey Sims	Commissioner	Present
	Ray L. Baker	Chairman	Present
	Jeffrey Barnes	Commissioner	Present
	Alvin Dejohnette	Commissioner	

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Commissioner, Ray Baker.

APPROVAL OF AGENDA

Motion made by Commissioner Baker and seconded by Vice Chair Korzec.

Vote: 6-0-0-1
Ayes: Vice Chair Korzec, Commissioners Harris, Stephan, Baker, Dejohnette, and Chair Barnes
Noes:
Abstain:
Action: Approved
Excused: Commissioner Sims

STAFF PRESENT

Paul Early	City Attorney
Albert Armijo	Interim Planning Manager
Chris Ormsby	Senior Planner
Jeff Bradshaw	Associate Planner
Claudia Manrique	Associate Planner
Gabriel Diaz	Associate Planner
Vera Sanchez	Senior Administrative Assistant
Chris Cox	Fire Safety Specialist

Minutes Acceptance: Minutes of May 24, 2018 7:00 PM (APPROVAL OF MINUTES)

CONSENT CALENDAR

1. DENIAL OF THE MORENO BEACH COMMERCIAL CENTER - PROPOSAL TO DEVELOP A COMMERCIAL CENTER WITH A GAS STATION, CONVENIENCE STORE, A DETACHED SELF SERVE CAR WASH AND RETAIL/RESTAURANT SPACE (Report of: Planning Commission)

Public Comments:

Rafael Brugueras supported the denial.

Craig Fry requested the Planning Commission support the denial without prejudice.

Rose Baldwin supported the denial.

Motion made by Vice Chair Korzec and seconded by Commissioner Baker.

Vote: 6-0-0-1
Ayes: Vice Chair Korzec, Commissioners Harris, Stephan, Baker, Dejohnette, and Chair Barnes
Noes:
Abstain:
Action: Approved
Excused: Commissioner Sims

2. DENIAL OF AN AMENDMENT TO THE CITY'S EXISTING TEMPORARY USE PERMIT (TUP) REGULATIONS (SECTION 9.02.150 OF THE MUNICIPAL CODE) ADDING "SAFE AND SANE" FIREWORKS SALES AS A PERMITTED TEMPORARY USE (Report of: Planning Commission)

Public Comments:

Rafael Brugueras supported the denial.

Ken Iglesias supported the denial but indicated any potential future sales should be regulated.

Motion made by Vice Chair Korzec and seconded by Commissioner Baker.

Vote: 6-0-0-1
Ayes: Vice Chair Korzec, Commissioners Harris, Stephan, Baker, Dejohnette, and Chair Barnes
Noes:
Abstain:
Action: Approved
Excused: Commissioner Sims

Minutes Acceptance: Minutes of May 24, 2018 7:00 PM (APPROVAL OF MINUTES)

APPROVAL OF MINUTES

Planning Commission - Regular Meeting - Apr 12, 2018 7:00 PM

Planning Commission - Regular Meeting - Apr 26, 2018 7:00 PM

Motion made by Commissioner Baker and seconded by Commissioner Harris.

Vote: 6-0-0-1

Ayes: Vice Chair Korzec, Commissioners Harris, Stephan, Baker, Dejohnette,
and Chair Barnes

Noes:

Abstain:

Action: Approved

Excused: Commissioner Sims

PUBLIC COMMENTS PROCEDURE

No Public Comments

NON-PUBLIC HEARING ITEMS

No items for Discussion

PUBLIC HEARING ITEMS

1. REQUEST FOR A CONDITIONAL USE PERMIT TO ALLOW FOR ALCOHOLIC BEVERAGE SALES FROM A PREVIOUSLY APPROVED CONVENIENCE STORE (Report of: Planning Commission)

Recommendations:

Staff recommends that the Planning Commission APPROVE Resolution No. 2018-29 and thereby take the following actions:

1. CERTIFY that the proposed Conditional Use Permit is exempt from the provisions of the California Environmental Quality Act (CEQA), as a Class 5 Categorical Exemption, CEQA Guidelines, Section 15305 (Minor Alterations in Land Use Limitations); and
2. APPROVE Conditional Use Permit PEN18-0022 based on the findings contained in Planning Commission Resolution 2018-29, subject to the conditions of approval included as Exhibit A of the Resolution.

Public Hearing Opened: 7:34 p.m.

Public Comments:

Rafael Brugueras supported the item.

Ken Iglesias supported the item and wanted to ensure sales were regulated appropriately.

Public Hearing Closed: 7:38 p.m.

Motion made by Commissioner Baker and seconded by Commissioner Dejohnette.

Vote: 6-0-0-1
 Ayes: Vice Chair Korzec, Commissioners Harris, Stephan, Baker, Dejohnette, and Chair Barnes
 Noes:
 Abstain:
 Action: Approved
 Excused: Commissioner Sims

OTHER COMMISSION BUSINESS

No items for Discussion

STAFF COMMENTS

No items for Discussion

PLANNING COMMISSIONER COMMENTS

No items for Discussion

ADJOURNMENT

There being no further business to come before the Planning Commission, Chairman Barnes adjourned the meeting at 7:45 AM.

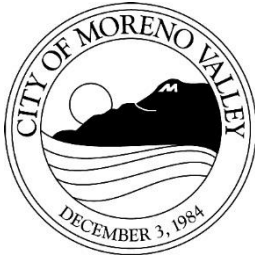
Submitted by:

Approved by:

Ashley Aparicio
 Planning Commission Secretary

Jeffrey Barnes
 Chair

Minutes Acceptance: Minutes of May 24, 2018 7:00 PM (APPROVAL OF MINUTES)



PLANNING COMMISSION

STAFF REPORT

Meeting Date: July 26, 2018

STREET VACATION OF A PORTION OF HEMLOCK AVENUE, WESTERLY OF HEACOCK STREET AND EASTERLY OF SWEGLES LANE ALONG THE FRONTAGE OF AN APPROVED MULTI-FAMILY PROJECT

Case: LGL17-0014 (Street Vacation)

Applicant: July 26, 2018

Owner: OM Macarther, Tilak Chopra

Representative: Design Concepts, Shiv Talwar

Location: 23778 and 23798 Hemlock Avenue approximately 1,200 feet west of Heacock Street

Staff: Vince Giron, Associate Engineer

Council District: Approval

SUMMARY

The applicant has submitted a request for the vacation of a portion of Hemlock Avenue west of Heacock Street in accordance with the Conditions of Approval for an approved multi-family residential project, Plot Plan PA14-0027.

PROJECT DESCRIPTION

Project

On August 25, 2016, the City Council of the City of Moreno Valley approved Plot Plan PA14-0027 for the development of 39 unit apartment complex on three parcels, Assessor's Parcel Numbers 292-211-001, 292-181-001, and 292-181-002, on Hemlock Avenue totaling 2.6 acres. The site is easterly of Swegles Lane.

The project conditions of approval require that seven (7) feet of the existing right of way along the project frontage on Hemlock Avenue be vacated due to excess right of way and to accommodate the project's proposed on-site improvements. Specifically, the street vacation must be completed prior to the issuance of building permits.

Pursuant to the provisions of Division 9, Part 3, Chapter 2 of the Streets and Highways Code of the State of California, a finding from the Planning Commission that the vacation of a portion of Hemlock Avenue is in conformance with the current General Plan and Zoning Ordinance is required prior to formal review and action by the City Council on the requested street vacation.

Surrounding Area

To the north of the project site are single-family residences zoned R5, which is intended for suburban residential. To the south, east, and west is a mixture of single-family residences and apartment complexes zoned for multi-family (R15, maximum 15 dwelling units per acre).

REVIEW PROCESS

Land Development staff has reviewed the request for the street vacation based on the applicable subdivision map and other property information provided by the applicant. This portion of Hemlock Avenue was dedicated for public use through the Sunnymead Orchard Farms Tract recorded on March 10, 1926. At the time of recordation, the dedication for half-street right of way was 40 feet. Currently, Hemlock Avenue is designated a Collector street with a required half street right of way of 33 feet. Staff has determined that seven (7) feet of the existing 40 feet of right of way along the project frontage is no longer necessary. Vacation of the seven (7) feet of right of way along Hemlock Avenue, as described and shown in the exhibits attached to the proposed resolution, is in accordance with the Streets & Highway Code.

Planning staff has reviewed the applicant's request to vacate the portion of Hemlock Avenue and has determined that it is consistent with the City's Zoning Ordinance and General Plan. Hemlock Avenue is not a required General Plan street and 33 feet of remaining right of way will provide access to the proposed development project and adjacent properties. Any existing utilities will be protected in place with easements or relocated by the applicant.

NOTIFICATION

A notice was published in the newspaper and a public display notice was posted on the project site and at required City locations. Written notice of the intent to vacate Hemlock Avenue has been sent to the various utility companies, in addition to those businesses and residents within 300-feet of the project boundaries.

REVIEW AGENCY COMMENTS

Staff received the following responses to the Notice of Vacation; which was sent to all potentially affected utility purveyors.

<u>Utility</u>	<u>Response Date</u>	<u>Comments</u>
Southern California Gas Company	02-08-2018	Requested an easement for existing utilities.
Eastern Municipal Water District	05-28-2015	Requested an easement for existing utilities.
Southern California Edison	02-08-2018	Requested an easement for existing utilities.

As previously noted, existing utilities will be protected in place with easements or relocated.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-39, and thereby **FINDS** that the vacation of Hemlock Avenue is in conformance with the General Plan and current zoning, and **RECOMMENDS** that the City Council approve the street vacation for a portion of Hemlock Avenue, LGL17-0014.

Prepared by:
Ashley Aparicio
Administrative Assistant

Approved by:
Albert Armijo
Interim Planning Manager

ATTACHMENTS

1. Newspaper Notice
2. 300 ft Mailing Notice
3. Aerial Photograph
4. Resolution 2018-39
5. Exhibit "A" Legal Description
6. Exhibit "B" PLAT



Notice of PUBLIC HEARING

This may affect your property. Please read.

Notice is hereby given that a Public Hearing will be held by the Planning Commission of the City of Moreno Valley on the following item(s)

CASE: PA14-0027 – Street Vacation

APPLICANT/OWNER: OM Macarther, Tilak Chopra

REPRESENTATIVE: Design Concepts, Shiv Talwar

LOCATION: 23778 & 23798 Hemlock Avenue west of Heacock Street

PROPOSAL: Street vacation of a portion of Hemlock Avenue approximately 1,200 feet west of Heacock Street as required by approved Plot Plan PA14-0027, condition of approval LD46.

ENVIRONMENTAL DETERMINATION: The vacation of a portion of Hemlock Avenue falls within the scope of the approved project and is categorically exempt from environmental review pursuant to CEQA Section 15332 (In-Fill Development) approved by the Planning Commission on August 25, 2016, therefore, no new or additional environmental review or determination is required.

COUNCIL DISTRICT: 1

STAFF RECOMMENDATION: Approval

Any person interested in any listed proposal can contact the Community Development Department, Planning Division, at 14177 Frederick St., Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday, 7:30 a.m. to 4:30 p.m. Friday), or may telephone (951) 413-3206 for further information. The associated documents will be available for public inspection at the above address.

In the case of Public Hearing items, any person may also appear and be heard in support of or opposition to the project or recommendation of adoption of the Environmental Determination at the time of the Hearing.

The Planning Commission, at the Hearing or during deliberations, could approve changes or alternatives to the proposal.

If you challenge any of these items in court, you may be limited to raising only those items you or someone else

raised at the Public Hearing described in this notice, or in written correspondence delivered to the Planning Commission at, or prior to, the Public Hearing.



LOCATION N ↑

PLANNING COMMISSION HEARING

City Council Chamber, City Hall
14177 Frederick Street
Moreno Valley, Calif. 92553

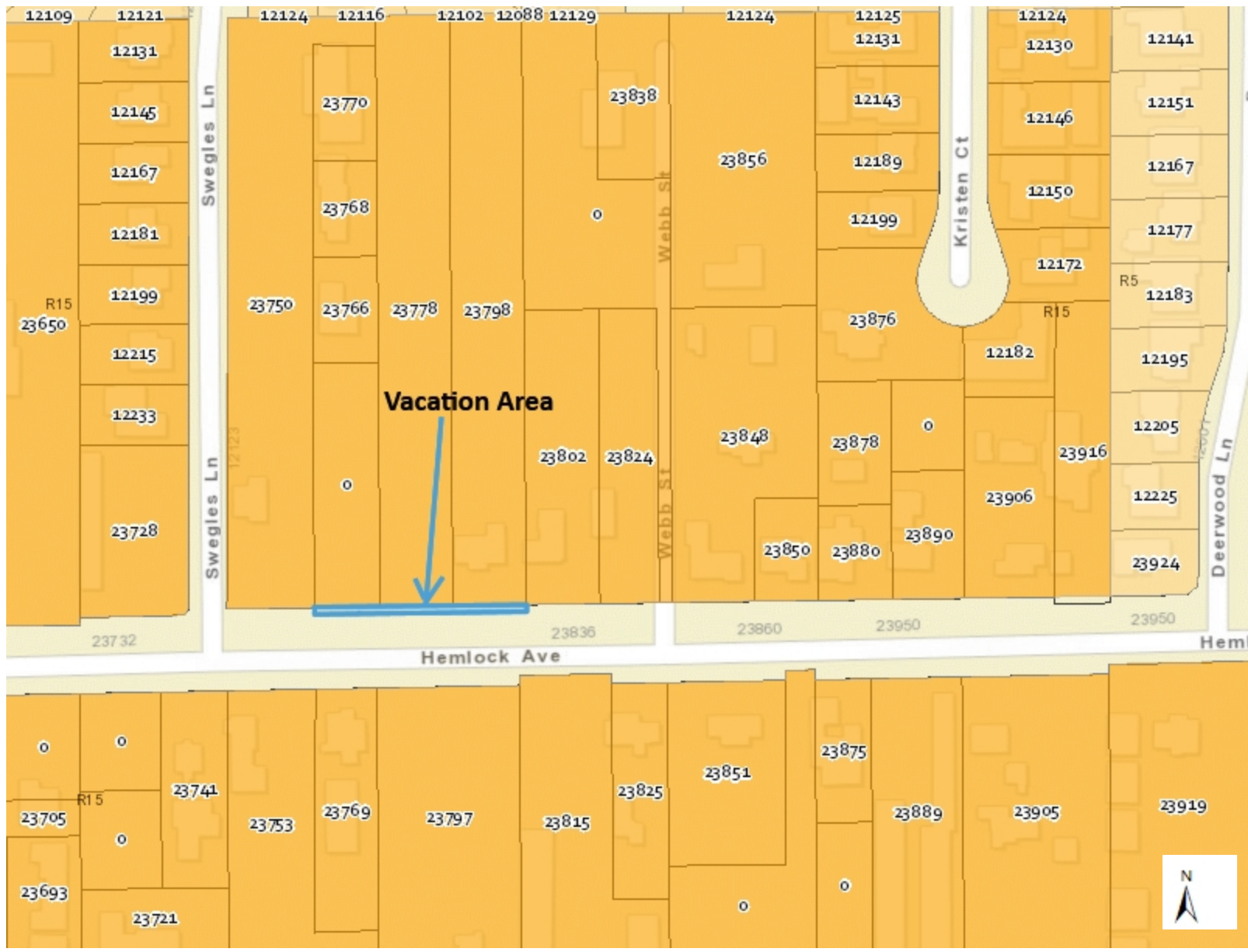
DATE AND TIME: July 26, 2018 at 7PM

CASE ENGINEER: Vince Giron

PHONE: (951) 413-3120

Attachment: 300 ft Mailing Notice (3179 : Vacation of a Portion of Hemlock Avenue)

Hemlock Avenue Vacation



Legend

Zoning

- Commercial
- Industrial/Business Park
- Public Facilities
- Office
- Planned Development
- Large Lot Residential
- Residential Agriculture 2 DU/AC
- Residential 2 DU/AC
- Suburban Residential
- Multi-family
- Open Space/Park

Master Plan of Trails

- Bridge
- Improved
- Multiuse
- Proposed
- Regional
- State

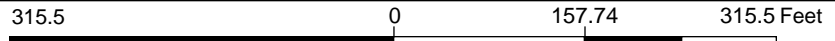
Parcels

City Boundary

Sphere of Influence

Attachment: Aerial Photograph (3179 : Vacation of a Portion of Hemlock Avenue)

Notes
ATTACHMENT 3



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.

PLANNING COMMISSION RESOLUTION NO. 2018-39

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE APPLICATION NO. LGL17-0014: A VACATION OF A PORTION OF HEMLOCK AVENUE LOCATED WESTERLY OF HEACOCK STREET AND EASTERLY OF SWEGLES LANE

WHEREAS, the applicant OM Macarther, filed Application No. LGL17-0014, requesting the vacation of a portion of Hemlock Avenue located westerly of Hemlock Avenue and easterly of Swegles Lane, as described in the title of this Resolution and more particularly described in the attached Exhibits A and B.

WHEREAS, on July 26, 2018, the Planning Commission of the City of Moreno Valley (Planning Commission) held a public hearing to determine that the vacation of a portion of Hemlock Avenue is in conformance with the current General Plan and Zoning Ordinance prior to formal review and action by the City Council.

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred.

WHEREAS, the vacation of a portion of Hemlock Avenue, located along the frontage of the approved Plot Plan PA14-0027, is required as a condition of approval of the project. Therefore, the street vacation implements the project and is within the scope of the approved project. PA14-0027 was determined to be categorically exempt from environmental review pursuant to CEQA Section 15332 as approved by the Planning Commission on August 25, 2016.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the Planning Commission as follows:

- A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.
- B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:
 1. **Conformance with General Plan Policies** – The proposed general plan amendment and zone change are consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: Hemlock Avenue is not a required General Plan street and access is maintained to the proposed development project and adjacent properties. Therefore, the proposed street vacation is consistent with General Plan Section 9.5.2 Circulation Element Objectives and Policies.

All existing utilities will be protected in place within easements or relocated by the applicant to the satisfaction of the affected utility.

2. **Conformance with the Zoning Regulations** – The proposed zoning is consistent with the purposes and intent of Title 9 of the City of Moreno Valley Municipal Code.

FACT: As proposed, the vacation of a portion of Hemlock Street located west of Heacock Street is consistent with the surrounding multi-family and single-family residential zones. Hemlock Avenue is not a required General Plan street and provides access to the proposed development project and adjacent properties. The proposed street vacation is consistent with the purposes and intent of Municipal Code Sections 9.03 Residential Districts and 9.14 Land Divisions, and 9.16.160 of Title 9.

3. **Health, Safety and Welfare** – The proposed vacation will not be detrimental to the public health, safety or welfare.

FACT: The vacation of a portion of Hemlock Avenue, located along the frontage of the approved Plot Plan PA14-0027, is required as a condition of approval of the project. Therefore, the street vacation implements the project and is within the scope of the approved project. PA14-0027 was determined to be categorically exempt from environmental review pursuant to CEQA Section 15332 as approved by the Planning Commission on August 25, 2016. No new or additional environmental review or determination is required for the street vacation.

BE IT FURTHER RESOLVED that the Planning Commission **FINDS** that the vacation of Hemlock Avenue is in conformance with the General Plan and current zoning, and **HEREBY RECOMMENDS** that the City Council:

1. **RECOGNIZE** that the vacation, LGL17-0014, is required as a condition of approval of PA14-0027, and is within the scope of the approved project. No new or additional environmental review or determination is required for the street vacation.
2. **APPROVE** LGL17-0014 for the vacation of a portion of Hemlock Avenue located westerly of Heacock Street and easterly of Swegles Lane, based on the findings contained in this resolution.

APPROVED this 26th day of July, 2018.

Ayes:
Noes:
Abstain:

Jeffrey Barnes
Chair, Planning Commission

ATTEST:

Albert Armijo, Interim Planning Official
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

ATTACHED: Exhibit B

Attachment: Resolution 2018-39 (3179 : Vacation of a Portion of Hemlock Avenue)

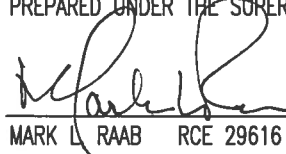
EXHIBIT 'A' LEGAL DESCRIPTION STREET VACATION

A PORTION OF THE NORTHERLY 7.00 FEET OF HEMLOCK AVENUE, 40.00 FEET WIDE, AS SHOWN ON A MAP OF THE SUNNYMEAD ORCHARD FARMS TRACT, AS RECORDED IN BOOK 14 PAGES 12-13 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF LOT 30 OF SAID SUNNYMEAD ORCHARD FARMS TRACT, SAID CORNER ALSO LYING ON THE NORTHERLY RIGHT OF WAY LINE FOR HEMLOCK AVENUE, 40.00 FEET WIDE; THENCE ALONG THE NORTHERLY RIGHT OF WAY LINE FOR HEMLOCK AVENUE, AND ALONG THE SOUTHERLY LINE OF SAID LOT 30, NORTH 89°01'30" EAST, 87.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID NORTHERLY RIGHT OF WAY LINE FOR HEMLOCK AVENUE AND ALONG THE SOUTHERLY LINE OF LOT 30 AND 31 OF SAID SUNNYMEAD ORCHARD FARMS TRACT, NORTH 89°01'30" EAST, 221.00 FEET TO THE SOUTHEAST CORNER OF SAID LOT 31; THENCE LEAVING SAID NORTHERLY RIGHT OF WAY LINE ALONG THE SOUTHERLY PROLONGATION OF THE EASTERLY LINE OF SAID LOT 31, SOUTH 00°08'15" WEST, 7.00 FEET TO A POINT WHICH IS DISTANT 33.00 FEET NORTHERLY, AS MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF SAID HEMLOCK AVENUE; THENCE PARALLEL WITH THE SOUTHERLY LINE OF SAID LOTS 30 AND 31, SOUTH 89°01'30" WEST, 47.85 FEET; THENCE NORTH 45°58'30" WEST, 5.66 FEET; THENCE PARALLEL WITH THE SOUTHERLY LINE OF SAID LOTS 30 AND 31, SOUTH 89°01'30" WEST, 32.01 FEET; THENCE SOUTH 44°01'30" WEST, 5.66 FEET TO A POINT WHICH IS DISTANT 33.00 FEET NORTHERLY, AS MEASURED AT RIGHTS ANGLES TO THE CENTERLINE OF SAID HEMLOCK AVENUE; THENCE PARALLEL WITH THE SOUTHERLY LINE OF SAID LOTS 30 AND 31, SOUTH 89°01'30" WEST, 133.14 FEET TO A POINT LYING ON THE SOUTHERLY PROLONGATION OF THE WESTERLY LINE OF THE EASTERLY 67.00 FEET OF SAID LOT 30; THENCE NORTHERLY ALONG SAID PROLONGATION NORTH 00°08'15" EAST, 7.00 FEET TO THE TRUE POINT OF BEGINNING.

CONTAINS 1402.90 SQUARE FEET, MORE OR LESS.

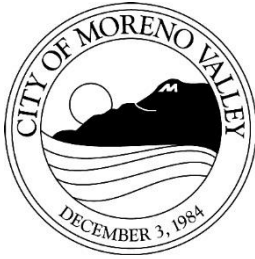
PREPARED UNDER THE SUPERVISION OF:


MARK L. RAAB RCE 29616 2/7/18
DATE



PA14-0027
LGL17-0014
SHEET 1 OF 1

Attachment: Exhibit "A" Legal Description (3179 : Vacation of a Portion of Hemlock Avenue)



PLANNING COMMISSION

STAFF REPORT

Meeting Date: July 26, 2018

CONDITIONAL USE PERMIT AND ZONE CHANGE FOR MORENO VALLEY STORAGE, A PROPOSED 538 UNIT MINI-STORAGE FACILITY WITH A CARETAKER'S RESIDENCE. THE ZONE CHANGE FROM NEIGHBORHOOD COMMERCIAL TO COMMUNITY COMMERCIAL IS REQUIRED FOR THE PROPOSED USE TO BE APPROVED.

Case: PEN17-0134 - Zone Change and PEN17-0135 -
Conditional Use Permit

Applicant: Winchester Associates, Inc.

Owner: Gossett Development

Representative: Winchester Associates, Inc.

Location: Near the southwest corner of Perris Boulevard and
John F. Kennedy Drive

Case Planner: Jeff Bradshaw

Council District: 4

SUMMARY

The proposal is to develop a 4.47 acre site located near the southwest corner of Perris Boulevard and John F. Kennedy Drive with a 538 unit mini-storage facility. The project requires approval of a Zone Change from Neighborhood Commercial to Community Commercial (CC) to allow for the storage use as a conditionally permitted use at this location. A mini-storage facility is not permitted within the Neighborhood Commercial

(NC) zone.

PROJECT DESCRIPTION

Project

The applicant, Winchester Associates, Inc., on behalf of Gossett Development submitted applications for a Conditional Use Permit and Change of Zone for the Moreno Valley Storage project. This project proposes to develop a 4.47 acre site located near the southwest corner of Perris Boulevard and John F. Kennedy Drive with a 538 unit mini-storage facility.

Zone Change

The project site along with the adjoining developed parcels at the southwest corner of Perris Boulevard and John F. Kennedy (JFK) Drive are currently zoned Neighborhood Commercial (NC) with a Commercial General Plan land use designation.

The proposed mini-storage facility is not permitted within the NC zone. The applicant requested a Zone Change for the project site to Community Commercial which would allow for the storage use subject to approval of a Conditional Use Permit. Through the development review process, Planning staff expressed concerns that a Zone Change for only the project site would result in assigning a more intense Commercial zone to the property located adjacent to existing residential uses.

While mini-storage is the current development proposal, it is important to note that the change from NC to CC will allow for a broader range of commercial land uses, which in some cases might be considered more intense than those currently permitted under the existing NC zone.

Staff worked with the applicant to coordinate with adjoining property owners of the existing retail development to participate in the proposed Zone Change to ensure consistent zoning for commercial properties located at the southwest corner of Perris and JFK. The property owners for Family Dollar, O'Reilly Auto Parks and El Pollo Loco all agreed to the zone change and authorized the applicant to include these parcels as part of the Zone Change application. However, representatives for CVS Pharmacy and the property ownership did not agree to participate in the Zone Change. Therefore, the CVS Pharmacy site is not be included in the zone change and will remain Neighborhood Commercial. This does not preclude CVS or the property owners from requesting a zone change to Community Commercial for the CVS site at a future date under a separate application.

The total area proposed to change from Neighborhood Commercial to Community Commercial is 6.83 acres.

Conditional Use Permit

The City's Municipal Code allows for storage lots and mini-warehouses in the Community Commercial zone with approval of a Conditional Use Permit, and also in the Industrial zone as a permitted use.

The facility will include a 1,500 square foot caretaker's residence and garage along with six standard parking spaces and one accessible parking space. The project layout will place a row of buildings along the western and southern property lines with a 12 foot to 15 foot landscaped setback area to act as a buffer between the mini-storage operation and the existing tract homes located immediately adjacent to the south and west.

The architectural design proposes single-story buildings with finish that includes a combination of brown split face block, corrugated metal, and stucco with spandrel glazing and an aluminum and glass store front. Colors are brown and tan earth tones with a green accent. The perimeter enclosure will include black wrought iron gates and fencing with stucco coated pilasters.

Site

The project site is located westerly of the southwest corner of Perris Boulevard and John F. Kennedy Drive. The undeveloped site is located between the rear of existing commercial development and the backyards of existing single-family tract homes on topography that varies from level to gently sloping downward to the southwest corner of the site. The project site is a remainder area created after the property owner subdivided the vacant land at the southwest corner of Perris Boulevard and John F. Kennedy Drive and leased or sold the four parcels on Perris Boulevard to individual retail users that include CVS Pharmacy, Family Dollar, O'Reilly Auto Parts, and El Pollo Loco.

The area proposed for development is comprised of two parcels of vacant land totaling 4.47 acres that will be combined into a single parcel through a lot line adjustment. The completion of the lot line adjustment prior to construction is a condition of approval of the project.

Surrounding Area

The project is surrounded by existing development. The project is bounded by a mobile home park on the north side of John F. Kennedy Drive, existing residences on the west and south in the R5 zone, and on the east by existing commercial development. The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan and is compatible with existing and proposed land uses in the vicinity.

Access/Parking

The primary access to the proposed development will be from driveways on John F. Kennedy Drive to the parking lot at the entrance to the facility with gated access to the interior of the storage facility from the parking lot. The project has been conditioned to

maintain the existing shared access with the adjoining parcels to the east (rear alley access to CVS Pharmacy and Family Dollar).

The project as designed satisfies all parking requirements of the City's Municipal Code including ADA accessible parking, customer parking, employee parking and parking for fuel efficient vehicles.

The driveways and interior drive aisles within the site have been reviewed and approved for adequate truck maneuvering and turnaround for delivery trucks and trash pick-up, and have been reviewed and approved by the Fire Prevention Bureau for fire truck access.

Design/Landscaping

The project has been designed to meet required design and landscape standards and objectives set forth in the City's Municipal Code. The landscape elements of the project include the landscape setback areas along John F. Kennedy Drive, street trees, parking lot landscaping, and landscape treatments along the perimeter of the site and within the bio-retention basin.

REVIEW PROCESS

In accordance with established procedures the project application materials were circulated for review by all appropriate City Departments and Divisions, as well as applicable outside agencies/entities (e.g. Utilities, ALUC, Tribes). In accordance with Municipal Code regulation the project was also reviewed through the Project Review Staff Committee (PRSC), in October 2017. Throughout this plan review process, comments and proposed conditions of approval regarding the project were provided in writing to the applicant.

Revised plans were submitted in March and May 2018. Upon review of revised plans, and subsequent submittals, completion of required consultation with local Native American Tribal groups, and preparation of a Preliminary Water Quality Management Plan, a determination was made to schedule this project for a public hearing before the Planning Commission on July 26, 2018.

ENVIRONMENTAL

Lilburn Corporation prepared an Initial Study in compliance with California Environmental Quality Act (CEQA) Guidelines. The Initial Study examined the potential of the proposed project to have an impact on the environment. The Initial Study provides information in support of the findings for a Mitigated Negative Declaration. Studies prepared for this project included a traffic study, an air quality study/greenhouse gas analysis, a cultural resource assessment, a preliminary hydrology study, a geotechnical study, a general biological assessment and burrowing owl study, and a Preliminary Water Quality Management Plan.

The traffic study evaluated all potential permitted and conditionally land uses allowed under the City's Community Commercial zone as listed in the Permitted Uses Table of the Municipal Code (MC 9.02.020).

Project impacts were found to be less than significant for all categories in the Initial Study checklist. However, mitigation measures have been introduced with the project to ensure compliance with City General Plan policies and other requirements related to Cultural Resources. The Mitigation Monitoring Program prepared for this project will ensure implementation of the mitigation measures (see Attachment 4).

Public notice of the availability of the Initial Study / Mitigated Negative Declaration was published in the newspaper 20 days in advance of the Planning Commission public hearing.

NOTIFICATION

The public hearing notice for this project was published in the local newspaper on July 6, 2018. Public notices were sent to all property owners of record within 300 feet of the project site on July 12, 2018. The public hearing notice for this project was posted on the project site on July 16, 2018.

As of the date of report preparation, staff has received no phone calls or correspondence in response to the noticing for this project.

REVIEW AGENCY COMMENTS

Staff has coordinated with outside agencies. Where applicable, staff has included conditions to address concerns from the responding agencies, including the Riverside County Airport Land Use Commission.

STAFF RECOMMENDATION

- A. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-32, and thereby **RECOMMEND** that the City Council:
 1. **CERTIFY** that the Mitigated Negative Declaration prepared for Zone Change PEN17-0134 and Conditional Use Permit PEN17-0135 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and that the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A; and
 2. **APPROVE** the Mitigation Monitoring Program prepared for Zone Change PEN17-0134 and Conditional Use Permit PEN17-0135, attached hereto as Exhibit B.

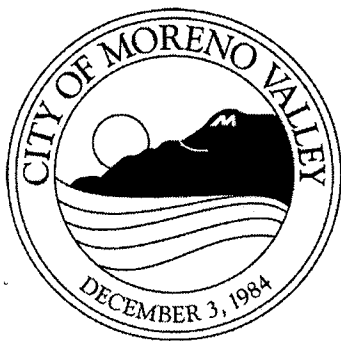
- B. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-33, and thereby **RECOMMEND** that the City Council:
1. **APPROVE** Zone Change application PEN17-0134 based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.
- C. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-34, and thereby **RECOMMEND** that the City Council:
1. **APPROVE** Conditional Use Permit PEN17-0135 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

Prepared by:
Jeffrey Bradshaw
Associate Planner

Approved by:
Albert Armijo
Interim Planning Manager

ATTACHMENTS

1. Public Hearing Notice
2. Radius Map
3. Resolution No 2018-32 - Mitigated Negative Declaration
4. Exhibit A to Resolution No 2018-32 - Initial Study
5. Exhibit B to Resolution No 2018-32 - Mitigation Monitoring Program
6. Resolution No 2018-33 - Zone Change
7. Exhibit A to Resolution No 2018-33
8. Resolution No 2018-34 - Conditional Use Permit
9. Exhibit A to Resolution No 2018-34 - Conditions of Approval
10. Project Exhibits
11. Project Location Map
12. Air Quality and Green House Gas Analysis
13. Bio Assessment & MSHCP Consistency
14. Cultural Resources Assessment
15. Hydrology and Hydraulic Study
16. Noise Impact Analysis
17. Focused Traffic Analysis
18. Preliminary Water Quality Management Plan



Notice of PUBLIC HEARING

This may affect your property. Please read.

Notice is hereby given that a Public Hearing will be held by the Planning Commission of the City of Moreno Valley on the following item(s):

CASES: PEN17-0134 – Zone Change
PEN17-0135 – Conditional Use Permit

APPLICANT: Winchester Associates, Inc.

OWNER: Gossett Development

REPRESENTATIVE: Winchester Associates, Inc.

LOCATION: Westerly of the southwest corner of Perris Boulevard and John F. Kennedy Drive

PROPOSAL: The Moreno Valley Storage project proposes to develop a 4.47 acre site located near the southwest corner of Perris Boulevard and John F. Kennedy Drive with a 538 unit mini-storage facility (shaded area on the map). The project site along with the adjoining developed parcels at the southwest corner of Perris Boulevard and John F. Kennedy (JFK) Drive are currently zoned Neighborhood Commercial (NC). The project requires approval of a Zone Change from Neighborhood Commercial to Community Commercial (CC) to allow for the storage use as a conditionally permitted use at this location. Adjoining commercial properties to the east, with the exception of the corner parcel, have also been included in the Zone Change to ensure consistent zoning for all commercial properties located at the southwest corner of Perris and JFK (cross hatched on the map).

ENVIRONMENTAL DETERMINATION: Mitigated Negative Declaration

COUNCIL DISTRICT: 4

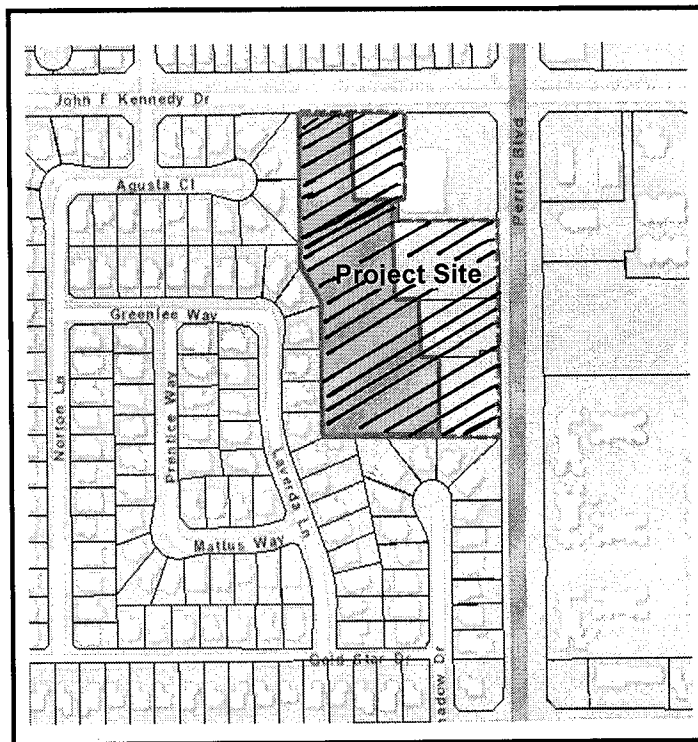
STAFF RECOMMENDATION: Approval

Any person interested in any listed proposal can contact the Community Development Department, Planning Division, at 14177 Frederick St., Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Fridays from 7:30 a.m. to 4:30 p.m.), or may telephone (951) 413-3206 for further information. The associated documents will be available for public inspection at the above address.

In the case of Public Hearing items, any person may also appear and be heard in support of or opposition to the project or recommendation of adoption of the Environmental Determination at the time of the Hearing.

The Planning Commission, at the Hearing or during deliberations, could approve changes or alternatives to the proposal.

If you challenge any of these items in court, you may be limited to raising only those items you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the Planning Commission at, or prior to, the Public Hearing.



LOCATION N ↑

PLANNING COMMISSION HEARING

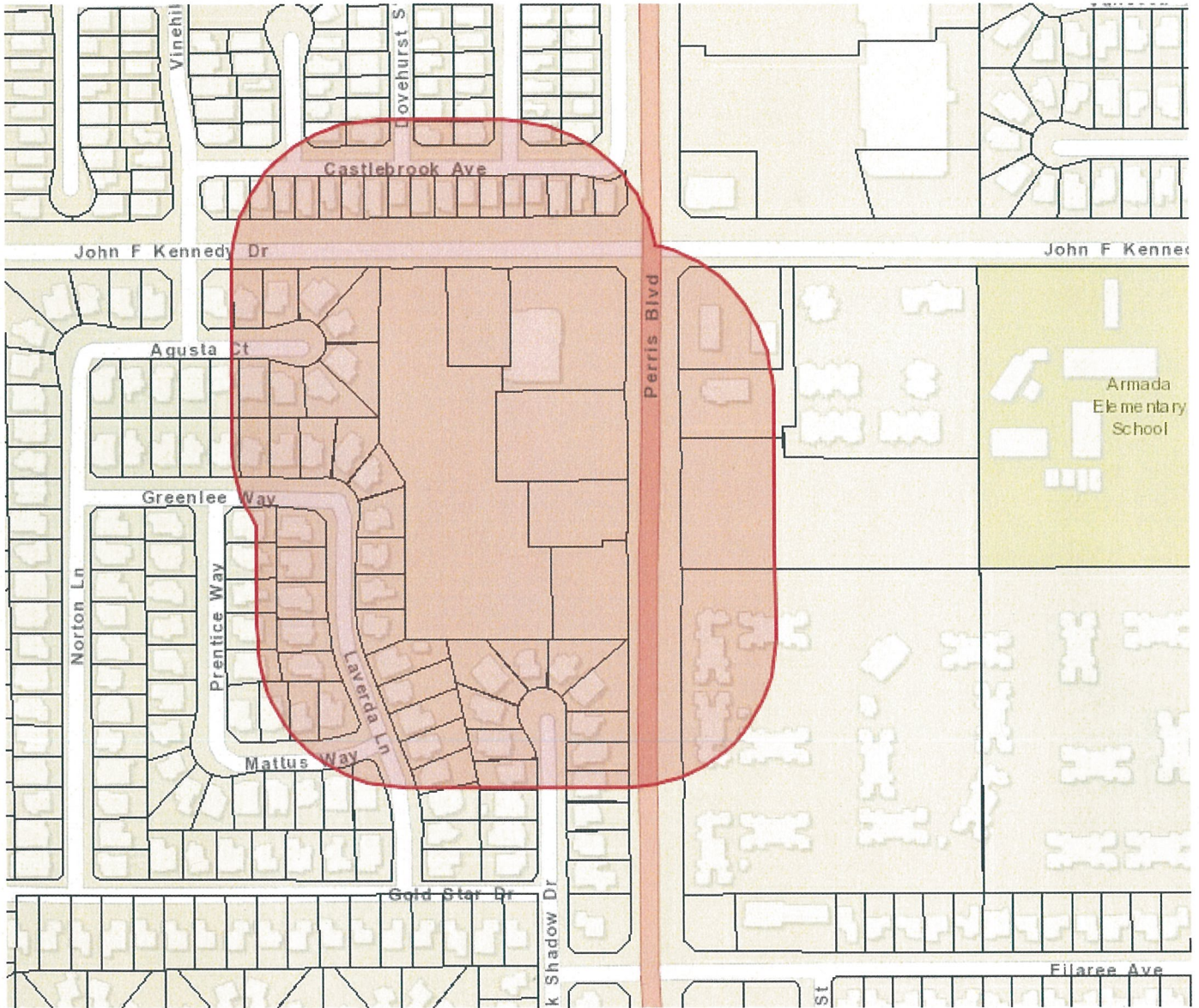
City Council Chamber, City Hall
14177 Frederick Street
Moreno Valley, Calif. 92553

DATE AND TIME: July 26, 2018 at 7 PM
CONTACT PLANNER: Jeff Bradshaw
PHONE: (951) 413-3224

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 Guy Pegan, ADA Coordinator, at 951.413.3120 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.

PEN17-0134 - Change of Zone (CZ)
PEN17-0135 - Conditional Use Permit (CUP)

300 FOOT RADIUS MAP
Assessor Parcel Numbers: 485-081-037, 038, 039, 041 & 043



Attachment: Radius Map (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

PLANNING COMMISSION RESOLUTION NO. 2018-32

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL, CERTIFY THE MITIGATED NEGATIVE DECLARATION AND APPROVE THE MITIGATION MONITORING AND REPORTING PROGRAM FOR THE MORENO VALLEY STORAGE PROJECT (PEN17-0134 and PEN17-0135).

WHEREAS, the applicant, Winchester Associates, Inc. on behalf of Gossett Development, filed applications for the Moreno Valley Storage Project ("Project"), which include Zone Change PEN17-0134 and Conditional Use Permit PEN17-0135. The Project shall not be approved unless the Final Mitigated Negative Declaration (PEN17-0138) is certified and approved; and

WHEREAS, the applications for the Project have been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, an Initial Study, supporting technical studies, and Mitigated Negative Declaration for the Project were prepared, consistent with the California Environmental Quality Act (CEQA); and

WHEREAS, a 20-day public review period of the Initial Study and Mitigated Negative Declaration commenced on July 7, 2018 and concluded on July 26, 2018. The public Notice of Intent to adopt the Mitigated Negative Declaration was mailed to interested parties, public agencies as well as published in the local newspaper on July 7, 2018 and filed with the Riverside County Clerk; and

WHEREAS, the City, in conducting its own independent analysis of the Final Mitigated Negative Declaration, determined that a Mitigated Negative Declaration is an appropriate environmental determination for the Project as there is substantial evidence that demonstrates the Project with mitigation would not result in any significant environmental impacts; and

WHEREAS, a Mitigation Monitoring and Reporting Program (MMRP) has been prepared in accordance with CEQA Guidelines, and is designed to ensure compliance with the identified mitigation measures outlined in the Final Mitigated Negative Declaration through Project implementation; and

WHEREAS, The City of Moreno Valley, Community Development Department, located at 14177 Frederick Street, Moreno Valley, California 92552 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based; and

WHEREAS, the Planning Commission of the City of Moreno Valley considered the Project, including all environmental documentation, at a public hearing held on July 26, 2018; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA), and based on the Initial Study including all supporting technical evidence, it was determined that the project impacts are expected to be less than significant with mitigation, and approval of a Mitigated Negative Declaration is an appropriate environmental determination for the Project.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This Planning Commission specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on July 26, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:

1. Independent Judgment and Analysis - City staff coordinated the preparation of the Mitigated Negative Declaration/Initial Study and related technical studies with Lilburn Corporation for the Moreno Valley Storage project. The documents were properly circulated for public review in accordance with the California Environmental Quality Act Guideline. The Mitigated Negative Declaration/Initial Study has been completed along with the Mitigation Monitoring and Reporting Program (MMRP) to ensure compliance with all mitigation through project implementation. All environmental documents that comprise the Mitigated Negative Declaration, including all technical studies, were independently reviewed by the City. On the basis of the whole record, there is no substantial evidence that the Project as designed, conditioned and mitigated, will have a significant effect on the environment. The Mitigated Negative Declaration prepared and completed, in accordance with the CEQA Guidelines, reflects the independent judgment and analysis of the City.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-32, and RECOMMENDS that the City Council:

1. CERTIFY that the Mitigated Negative Declaration prepared for Zone Change PEN17-0134 and Conditional Use Permit PEN17-0135 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and that the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A and
2. APPROVE the Mitigation Monitoring Program prepared for Conditional Use Permit PEN17-0135, attached hereto as Exhibit B.

APPROVED AND ADOPTED this 26th day of JULY, 2018.

AYES:
NOES:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

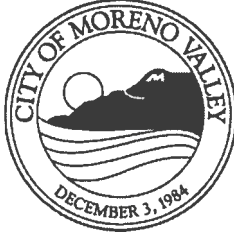
ATTEST:

Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

Exhibit A and Exhibit B



**INITIAL STUDY/
ENVIRONMENTAL CHECKLIST FORM
CITY OF MORENO VALLEY**

1. Project Title:
Moreno Valley Storage Facility
2. Lead Agency Name and Address:
City of Moreno Valley - Planning Department
14177 Frederick St, Moreno Valley, CA 92553
3. Contact Person and Phone Number:
Jeff Bradshaw, Associate Planner (951) 413-3224
4. Project Location:
Southwest corner of Perris Boulevard and John F. Kennedy Drive, Moreno Valley, CA
5. Project Sponsor's Name and Address:
Gossett Development, Inc.
207 Monarch Bay
Dana Point, CA 92629
6. General Plan Designation:
Commercial
7. Zoning:
Neighborhood Commercial (NC) to be rezoned to Community Commercial (CC)
8. Description of the Project:

Project Summary

Gossett Development, Inc. (Project Proponent) is proposing the construction and operation of an approximate 4.47-acre self-storage facility at the southwest corner of Perris Boulevard and John F. Kennedy Drive in the City of Moreno Valley. Project approvals required include a Zone Change from Neighborhood Commercial (NC) to Community Commercial (CC).

This Initial Study addresses the potential impacts of the proposed Gossett Development, Inc., Moreno Valley Storage Facility (Proposed Project), including all the associated discretionary actions and approvals required, as well as all subsequent construction and operational activities. As part of the Proposed Project, the City of Moreno Valley will consider Change of Zone application PEN17-0135. Additionally, permits and approvals may be required from other public entities, including but not necessarily limited to the Santa Ana Regional

Water Quality Control Board, the Riverside County Flood Control and Water Conservation District, and Eastern Municipal Water District.

No other discretionary actions are anticipated on the part of the City to approve the Proposed Project; nonetheless, this Initial Study covers any and all other discretionary and administrative approvals that may be required of the City of Moreno Valley or other governmental agencies to fully implement the Proposed Project.

Project Location

The City of Moreno Valley is located in the northwestern portion of Riverside County, California. The Project Site is located in the southern portion of the City of Moreno Valley, approximately three miles east of Interstate 215 (I-215) and 2.5 miles south of State Route 60 (SR-60). Figure 1, Regional Location, depicts the location of the Project Site in context to its regional setting. As shown on Figure 2, Project Vicinity, the Project Site incorporates approximately 4.47 acres located at the southwest corner of Perris Boulevard and John F. Kennedy Drive in the City of Moreno Valley. The property lies within the eastern half of Section 19, Township 3 South, Range 3 West, San Bernardino Baseline and Meridian, and includes the following Assessor Parcel Numbers: 485-081-037 and 485-081-043.

Description of the Proposed Project

The Proposed Project is an Application and Zone Change request to allow the development of an approximate 4.47-acre self-storage facility, on currently vacant property (APN 485-081-037 and -043) located in the City of Moreno Valley. The 4.47-acre property is located at the southwest corner of Perris Blvd. and John F. Kennedy Drive, in the southern portion of the City that is currently developed with residential and commercial uses.

The proposed self-storage facility includes the construction of eight one-story buildings for self-storage and ancillary office uses which will cover a total of 90,538 square feet. The Proposed Project will include paving for circulation and a parking lot with seven parking spaces. Landscaped area is proposed with an approximate 7,927 square-foot bioretention basin to be located at the southeast corner of the site as shown on Figure 3, Site Plan. The Project Site is currently vacant and zoned for NC uses. A Zone Change from NC to CC is proposed for the Project Site as well as the existing commercial developments (i.e., CVS, Family Dollar, O'Reilly Auto Parts, El Pollo Loco, etc.) located adjacent to the east boundary of the Project Site.

Existing General Plan Designation and Zoning

The Project Site is designated Commercial by the City's General Plan, Figure 2-2, Land Use Map. Within the Commercial land use area, the Project Site is zoned for NC uses. The NC zoning designation allows for construction of conveniently located neighborhood centers which provide limited retail commercial services which must be compatible with the surrounding residential communities. Project approval would rezone the Project Site and adjacent existing commercial uses from NC to CC. The CC zoning designation is intended to provide for the general shopping needs of area residents and workers with a variety of business, retail, personal and related or similar services.

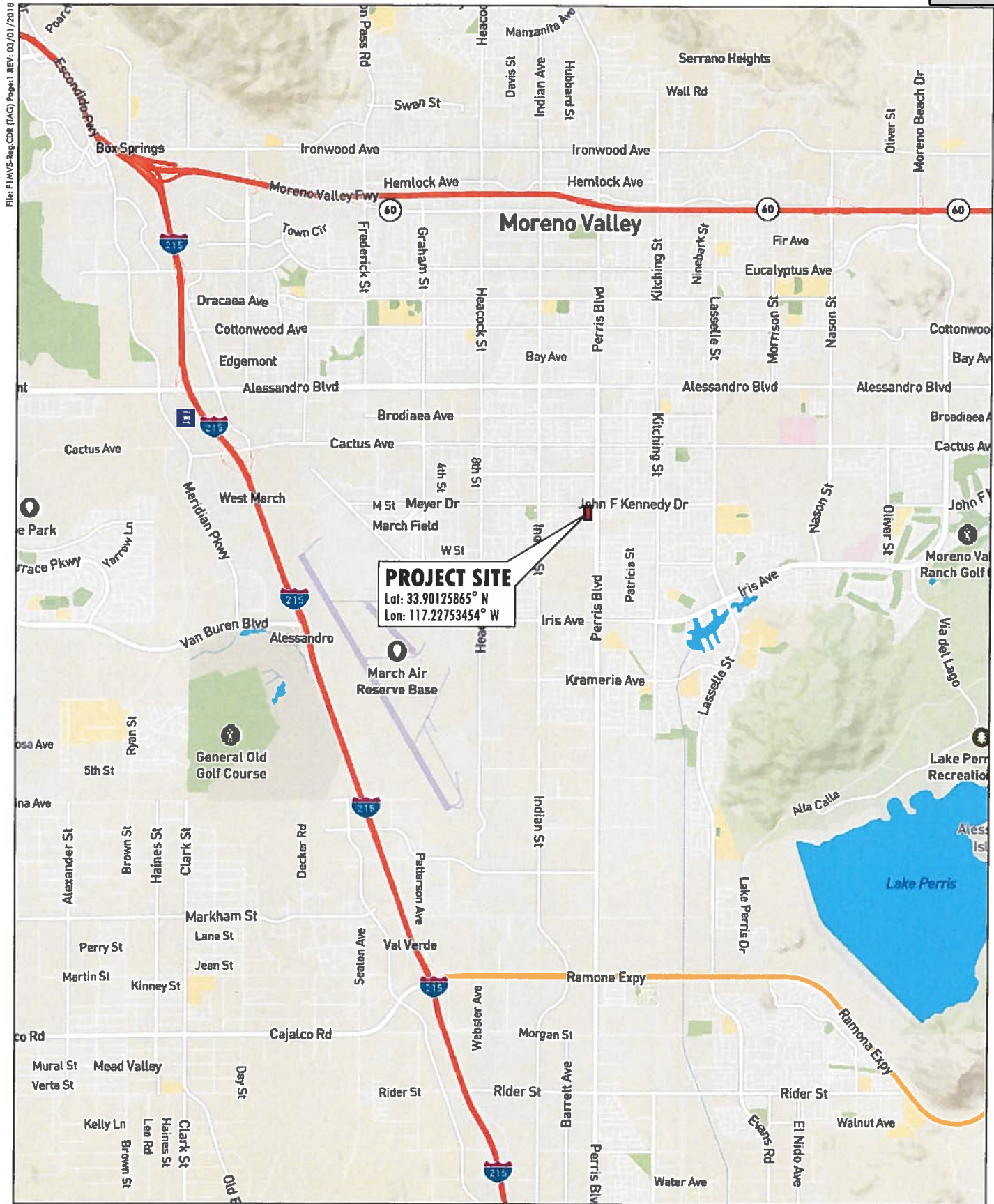
9. Surrounding Land Uses and Setting:

The Project Site is located in the southern portion of the City of Moreno Valley. The vicinity is currently developed with residential and commercial uses. Land uses located north of the Project Site are designated for Residential: Maximum 15 dwelling units per net acre (du/ac). Land uses located east of the Project Site are designated for Commercial uses. Land uses located south and west of the Project Site are designated for

Residential: Maximum 5 du/ac. Parcels north, west, and south of the Project Site currently support residential development while parcels east of the Project Site support existing commercial development (i.e., CVS, Family Dollar, O'Reilly Auto Parts, El Pollo Loco, etc.).

10. Other public agencies whose approval is required:

- Santa Ana Regional Water Quality Control Board (Construction Activity General Construction Permit; NPDES Permit)
- Riverside County Flood Control and Water Conservation District (Water Quality Management Permit and storm drain design)
- Eastern Municipal Water District (domestic water and sewer system design).



REGIONAL LOCATION

Moreno Valley Storage
City of Moreno Valley, California

0 1.2
MILE

Source: Lilburn Corp., 02/2018.

LILBURN
CORPORATION

Attachment: Exhibit A to Resolution No 2018-32 - Initial Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility

FIGURE 1
Packet Pg. 33



LILBURN
CORPORATION

PROJECT VICINITY
Moreno Valley Storage
City of Moreno Valley, California

FIGURE 2
Packet Pg. 34

Attachment: Exhibit A to Resolution No 2018-32 - Initial Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility

PROJECT DATA

PARCEL NUMBER 485-081-037 & 043
 PROJECT AREA 4.47 ACRES
 GP LAND USE DESIGNATION EXISTING: COMMERCIAL
 EXISTING: COMMERCIAL
 EXISTING: NEIGHBORHOOD
 PROPOSED: COMMUNITY COMMERCIAL
 VACANT
 PROPOSED LAND USE SELF STORAGE FACILITY

STORAGE BUILDING GROSS AREA	SQ. FT.
BUILDING 'A'	5,586
BUILDING 'B'	1,520
BUILDING 'C'	4,575
BUILDING 'D'	6,750
BUILDING 'E'	18,201
BUILDING 'F'	21,315
BUILDING 'G'	18,508
BUILDING 'H'	12,986
TOTAL STORAGE	89,441
OFFICE*	600
APARTMENT - 2ND STORY	1,500
TOTAL	90,941

*INCLUDED AS PART OF BLDG E SQUARE FOOTAGE

LOT COVERAGE

BUILDING COVERAGE	89,441	SQ. FT. (45.93%)
PAVEMENT AREA*	78,032	SQ. FT. (40.08%)
LANDSCAPED AREA	27,240	SQ. FT. (13.99%)
TOTAL	194,713	SQ. FT. (100%)

*INCLUDES DRIVEWAYS & PARKING AREAS

SETBACKS

PER CODE 9.04.040.B.1. SETBACK EQUAL TO BUILDING HEIGHT APPLIED ON BOTH THE WESTERN AND SOUTHERN BOUNDARIES.

PARKING

PARKING REQ'D:
 RATIO FOR STORAGE:
 (1 PER 100 STORAGE SPACES)
 538 STORAGE SPACES
 TOTAL REQ'D:
 PROVIDED:
 STANDARD 6 STALLS
 ADA 1 STALLS
 2 CAR GARAGE (FOR ONSITE MANAGER'S RESIDENCE) 2 STALLS
 9 STALLS



MORENO VALLEY SELF STORAGE

JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY SITE PLAN

SCALE: 1" = 40' 0"
 DATE: 04/18/18
 PROJECT NUMBER: 181001

OWNER/APPLICANT
 OWNER:
 PROFESSORS FUND IV, LLC
 990 HIGHLAND DR., SUITE 204
 SOLANA BEACH, CA 92075
 PHONE: (604) 984-6400
 CONTACT: BOB EMRI

APPLICANT:
 GOSSETT DEVELOPMENT, INC.
 207 MONARCH BAY
 DANA POINT, CA 92629
 CONTACT: GARRETT GOSSETT
 PHONE: (949) 735-6041
 EMAIL: GARRETTGOSSETT@GMAIL.COM

CIVIL ENGINEER
 WINCHESTER ASSOCIATES, INC.
 DAVID J. SLAWSON
 23640 TOWER STREET, SUITE 3
 PO BOX 280
 MORENO VALLEY, CA 92556-0280
 PHONE: (951) 924-5425

ASSESSORS PARCEL NO.
 485-081-037 & 043

TYPES OF CONSTRUCTION
 ALL BUILDINGS: II-B

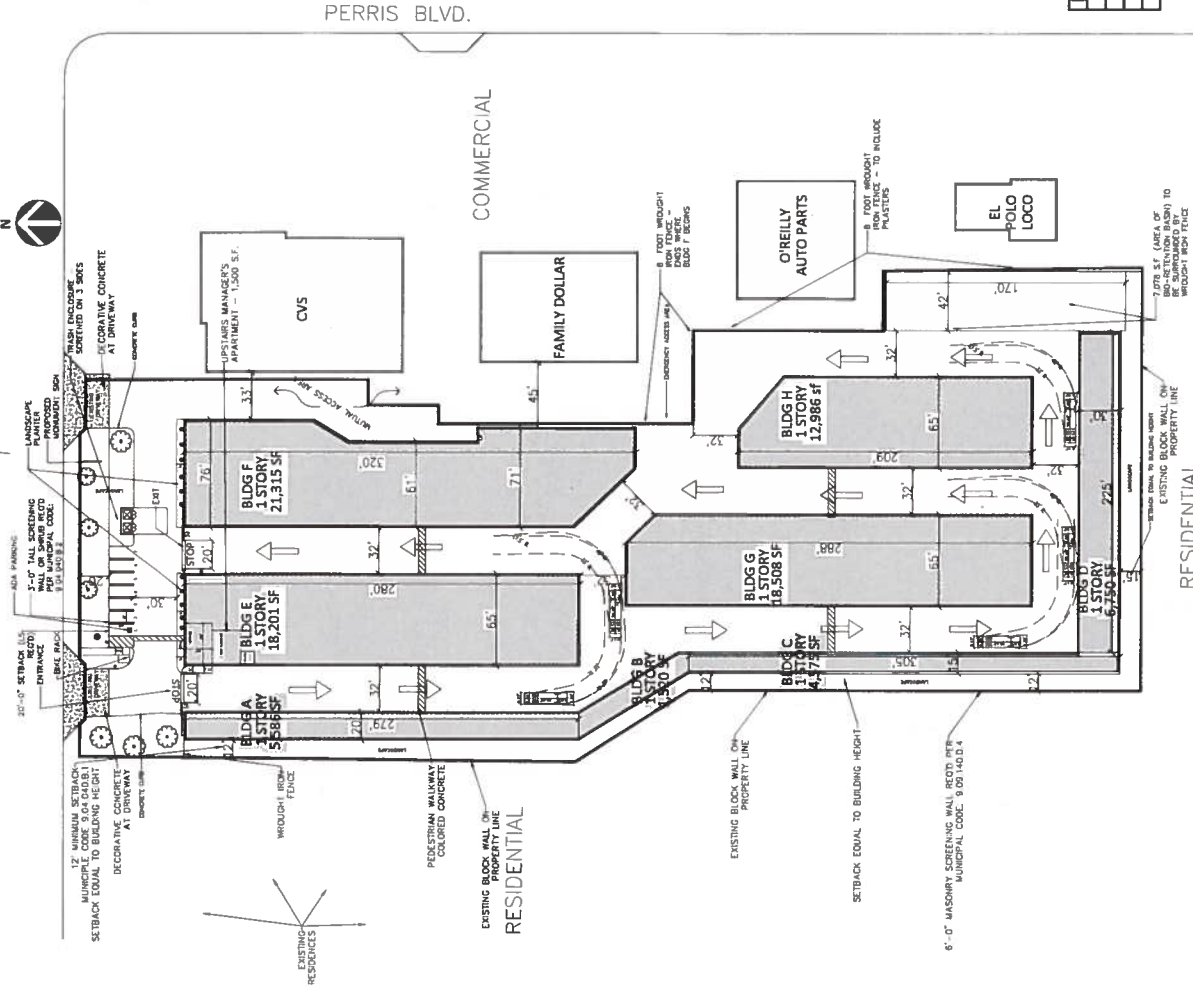
SPRINKLERED
 BUILDINGS SHALL BE FULLY SPRINKLERED

OCCUPANCY CLASSIFICATIONS
 STORAGE: S-1 OFFICE: B
 APARTMENT: R-3 GARAGE: U

FLOOD HAZARD
 THE SUBJECT TRACT IS IN ZONE X AND NOT WITHIN THE 100 YEAR FLOOD PLAIN, FEMA FLOOD INSURANCE PANEL 06065C0765G

THOMAS BROTHERS GUIDE
 PAGE 717 G-7

MARK	BY	DATE	REVISIONS



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.

	Aesthetics		Hazards & Hazardous Materials		Recreation
	Agricultural & Forestry Resources		Hydrology/Water Quality		Transportation/Traffic
	Air Quality		Land Use/Planning		Tribal Cultural Resources
	Biological Resources		Mineral Resources		Utilities/Service Systems
	Cultural Resources		Noise		Mandatory Findings of Significance
	Geology/Soils		Population/Housing		
	Greenhouse Gas Emissions		Public Services		

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 “potential significant impact” 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 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 _____ Date 07/05/18

Jeff Bradshaw
 Printed Name _____ For _____

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 may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Potentially Significant Unless Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less 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 “Earlier Analysis,” as described in (5) below, may be cross-referenced).
- 5) Earlier analysis may be used where, pursuant to the tiering, program EIR, or other 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 Analysis 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 analysis of each issue should identify: (a) the significance criteria or threshold used to evaluate each question; and (b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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I. AESTHETICS. Would the project:

a) Have a substantial adverse effect on a scenic vista?				■
---	--	--	--	---

The Proposed Project is located within the City of Moreno Valley, which lies within a relatively flat valley floor surrounded by hills and mountains. Scenic vistas within Moreno Valley are defined by the Box Springs Mountains and Reche Canyon area to the north, the “Badlands” to the east, and Mount Russell to the south. According to the City’s General Plan Figure 7-2, Major Scenic Resources, the Project Site, which is located in the southern portion of the City, is not in close proximity to any major scenic resources and is not located within an identified view corridor or along an identified scenic route. Therefore, the Proposed Project would have no impact on scenic vistas, and no mitigation measures are required.

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?				■
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According to City’s General Plan, Conservation Element, Figure 7-2, the Project Site is not located within or adjacent to a scenic highway corridor and does not contain trees, rock outcroppings, or historic buildings. Additionally, there are no State-designated or eligible scenic highways within the City of Moreno Valley (Caltrans). Because the Project site is not visible from a state scenic highway and contains no scenic resources, the Proposed Project would not adversely impact the viewshed within a scenic highway corridor and would not damage important scenic resources within a scenic highway corridor, including trees, rock outcroppings, and historic buildings. No impact would occur, and no mitigation measures are required.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?			■	
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Implementation of the Proposed Project would result in the visual conversion of the site from an undeveloped lot to that of an approximate 4.47-acre self-storage facility, including the construction of eight one-story buildings for self-storage and ancillary office uses which will cover a total of approximately 90,565 square feet.

The Project Site is located in the southern portion of the City of Moreno Valley. The vicinity is currently developed with residential and commercial uses. Land uses located north of the Project Site are designated for Residential: Maximum 15 dwelling units per net acre (du/ac). Land uses located east of the Project Site are designated for Commercial uses. Land uses located south and west of the Project Site are designated for Residential: Maximum 5 du/ac. Parcels north, west, and south of the Project Site currently support residential development while parcels east of the Project Site support existing commercial development (i.e., CVS, Family Dollar, O’Reilly Auto Parts, El Pollo Loco, etc.).

Implementation of the Proposed Project would amend the City’s Zoning Map for the Project Site as well as the existing commercial developments located adjacent to the east boundary of the Project Site by rezoning the sites from NC to CC. The rezoning would not substantially degrade the visual character or quality of the site or the site’s surroundings. The proposed building is compatible with the size, scale, height, and aesthetic nature of other similarly developed properties in the immediate vicinity; landscaping would be installed as required by the City.

The temporary visibility of construction equipment and activities would not substantially degrade the visual character of the surrounding area. The visual character of the site would change, but the change would not be degrading to the existing visual character or quality of the property or its surroundings, resulting in a less than significant impact. No mitigation measures are required.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			■	
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The Proposed Project is anticipated to include the installation of exterior lighting to the proposed storage buildings, which is required to comply with City lighting requirements. As stated in Section 9.16.280, General Requirements, of the Moreno Valley Municipal Code, lighting shall serve both safety and aesthetic purposes, while reducing unnecessary light pollution and maintaining dark skies. Effective lighting will highlight building features and add emphasis to important spaces and entryways, while limiting glare and light trespass onto adjacent properties.

The Proposed Project is located within the Airport Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Influence Area (AIA). As stated in File No. ZAP1288MA17 – Letter 1 of 2, the Airport Land Use Commission (ALUC) Director finds the Proposed Project consistent with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan (March ALUCP). As stated in File No. ZAP1288MA17 – Letter 2 of 2, the ALUC Director finds the Proposed Project consistent with the 2014 March ALUCP, provided that the City of Moreno Valley applies the following recommended conditions regarding light and glare:

1. Any new outdoor lighting that is installed shall be hooded or shielded so as to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.
2. The following uses/activities are not included in the Proposed Project and shall be prohibited at the site.
 - a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward landing at an airport, other than an FAA-approved navigational signal light or visual approach indicator.
 - b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards landing at an airport.

Demonstration of compliance with the standards set forth in the City of Moreno Valley Municipal Code is required before the City will issue a building permit. In addition, the Project Proponent shall be required to adhere to the conditions recommended by the ALUC Director at the City’s discretion. Compliance would ensure that the Proposed Project does not produce substantial amounts of light or glare from artificial lighting sources that would adversely affect the day or nighttime views in the area. Less than significant impacts would occur, and no mitigation measures are required.

II. AGRICULTURE AND FORESTRY 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 Department 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. Would the project?

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?			■	
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The California Department of Conservation’s Farmland Mapping and Monitoring Program identifies the Project Site as “Urban and Built-up Land” in its California Important Farmland Finder. No prime farmland, unique farmland, or farmland of statewide importance occurs at the Project Site or within the immediate vicinity. The Proposed Project would not convert farmland to a non-agricultural use. No impacts would occur, and no mitigation measures are required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			■	
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The California Department of Conservation’s Division of Land Resource Protection identifies the Project Site as “Non-enrolled Land” and “Urban and Built-up Land” in its Riverside County Williamson Act Contract FY 2015/2016 Sheet 1 of 3. Additionally, the

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Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>City of Moreno Valley Land Use Map does not designate any lands within the Project Site or within the immediate vicinity for agricultural use. No impacts would occur, and no mitigation measures are required.</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>				■
<p>The Project Site does not support existing agricultural uses and no agricultural uses occur in the immediate vicinity of the Project Site. Additionally, the Proposed Project would not result in the conversion of farmland to non-farmland use. No impacts would occur, and no mitigation measures are required.</p>				
<p>d) Result in the loss of forest land or conversion of forest land to non-forest use?</p>				■
<p>The Project Site does not support forest land. Implementation of the Proposed Project would not result in loss of forest land or conversion of forest land to non-forest use. No impacts would occur, and no mitigation measures are required.</p>				
<p>e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?</p>				■
<p>Implementation of the Proposed Project would not result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. No impacts are identified or are anticipated, and no mitigation measures are required.</p>				
<p>III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</p>				
<p>a) Conflict with or obstruct implementation of the applicable air quality plan?</p>			■	
<p>The Project Site is located in the South Coast Air Basin (SCAB). The South Coast Air Quality Management District (SCAQMD) has jurisdiction over air quality issues and regulations within the SCAB. The Air Quality Management Plan (AQMP) for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal air quality standards. The most recent AQMP (2016 AQMP) was adopted by the SCAQMD on March 3, 2017. The 2016 AQMP incorporates the latest scientific and technological information and planning assumptions, including transportation control measures developed by the Southern California Association of Governments (SCAG) from the 2016 Regional Transportation Plan/Sustainable Communities Strategy, and updated emission inventory methodologies for various source categories.</p> <p>The Proposed Project includes the development of a self-storage facility on approximately 4.47 acres. The Project Site is designated Commercial by the City's General Plan, Figure 2-2, Land Use Map. Within the Commercial land use area, the Project Site is zoned for NC uses. Project approval would rezone the Project Site from NC to CC. The CC zoning designation is intended to provide for the general shopping needs of area residents and workers with a variety of business, retail, personal and related or similar services. As stated in the Moreno Valley Municipal Code Permitted Uses Table 9.02.020-1, the Proposed Project is an acceptable use within the CC zone with attainment of a Conditional Use Permit (CUP). Therefore, the Proposed Project would be consistent with the City of Moreno Valley General Plan and the Proposed Project is not anticipated to exceed the AQMP assumptions for the Project Site. Furthermore, Kunzman Associates, Inc. prepared an Air Quality and Global Climate Change Impact Analysis in February 2018 (available at City offices for review), which states that the Proposed Project's construction and operation-source emissions would not conflict with the AQMP. Therefore, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. Less than significant impacts are anticipated, and no mitigation measures are required.</p>				
<p>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</p>			■	

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Issues and Supporting Information

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The Proposed Project's construction and operational emissions were screened by Kunzman Associates, Inc. using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 prepared by the SCAQMD. CalEEMod was used to estimate the on-site and off-site construction and operational emissions. The criteria pollutants screened for include: nitrous oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), and particulates (PM₁₀ and PM_{2.5}). In addition, volatile organic compounds (VOC) emissions are analyzed. Two of the analyzed pollutants, VOC and NO_x, are ozone precursors.

Construction Emissions

Construction activities associated with the Proposed Project would have the potential to generate air emissions, toxic air contaminant emissions, and odor impacts. Assumptions for the phasing, duration, and required equipment for the construction of the Proposed Project were obtained from the Project Applicant. The construction activities for the Proposed Project are anticipated to include: grading of approximately 4.47 acres, building construction of a 90,565 square foot self-storage facility, paving of approximately 77,074 square feet (including a parking lot with seven parking spaces), landscaping of approximately 27,101 square feet, and application of architectural coatings. For purposes of CalEEMod modelling, Kunzman Associates, Inc. estimated that construction of the Proposed Project would begin in September 2018 and would take less than 12 months to complete. The construction-related criteria pollutant emissions for each phase are shown below in Table 1.

Table 1
Construction-Related Regional Pollutant Emissions
(Pounds per Day)

Activity	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Grading	2.86	30.73	17.32	0.03	4.30	2.79
Building Construction	3.29	27.60	22.39	0.05	2.66	1.75
Paving	1.67	12.83	13.20	0.02	0.94	0.72
Architectural Coating	54.64	1.89	2.55	0.00	0.31	0.18
Total of Overlapping Phases*	59.60	42.32	38.14	0.07	3.91	2.65
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds	No	No	No	No	No	No

*Construction, painting, and paving phases may overlap.

Source: Kunzman Associates, Inc.'s Air Quality and Global Climate Change Analysis (2018)

Table 1 shows that none of the Proposed Project's emissions will exceed regional thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the Proposed Project.

The Proposed 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 miles per hour (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 Site (approximately 4.47 acres) 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 is 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 as a condition of project approval.

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Operational Emissions

The operating emissions for the Proposed Project were based on the year 2019, which is the anticipated opening year for the Proposed Project. Mobile sources include emissions from the additional vehicle miles generated from the Proposed Project. The vehicle trips associated with the Proposed Project have been analyzed by inputting the project-generated vehicular trips from the Focused Traffic Analysis prepared by Kunzman Associates, Inc. in February 2018 (available at the City offices for review), into the CalEEMod Model. The Focused Traffic Analysis found that the Proposed Project will generate approximately 137 total trips. The Focused Traffic Analysis included a trip generation rate of 1.51 trips per thousand square-foot per day under the mini-warehouse land use type, which was determined by Kunzman Associates, Inc. to be the most accurate representation of the Proposed Project in accordance with the Institute of Transportation Engineers' Trip Generation Manual. As the land use "mini-warehouse" is not available in CalEEMod, the Proposed Project was modeled as an unrefrigerated warehouse – no rail. 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 worst-case summer or winter VOC, NO_x, CO, SO₂, PM₁₀, and PM_{2.5} emissions created from the Proposed Project's long-term operations have been calculated and are summarized below in Table 2.

**Table 2
Regional Operational Pollutant Emissions
(Pounds per Day)**

Activity	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Area Source	2.07	0.00	0.02	0.00	0.00	0.00
Energy Usage	0.01	0.05	0.04	0.00	0.00	0.00
Mobile Sources	0.36	2.64	4.80	0.02	1.27	0.35
Total Emissions	2.43	2.69	4.86	0.02	1.27	0.36
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Thresholds	No	No	No	No	No	No

Source: Kunzman Associates, Inc.'s Air Quality and Global Climate Change Analysis (2018)

Table 2 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the Proposed Project.

As shown in Table 1 and Table 2, the Proposed Project would not emit criteria pollutants in excess of the regional emissions thresholds. Therefore, the Proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Less than significant impacts would occur, and no mitigation measures are required.

c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				■
The Proposed Project would not exceed any SCAQMD thresholds for criteria pollutants during construction (see Table 1). Operational emissions are less than significant and would not result in a considerable net increase of any criteria pollutant (see Table 2). No impacts would occur, and no mitigation measures are required.				
d) Expose sensitive receptors to substantial pollutant concentrations?			■	
SCAQMD has developed a methodology to assess the localized impacts of emissions from a proposed project as outlined within the Final Localized Significance Threshold (LST) Methodology report; completed in June 2003 and revised in July 2008. The use of LSTs is voluntary, to be implemented at the discretion of local public agencies acting as a lead agency pursuant to CEQA. LSTs apply to projects that must undergo CEQA or the National Environmental Policy Act (NEPA) review and are five acres or less. The LSTs were developed to analyze the significance of potential air quality impacts of proposed projects to sensitive receptors (i.e. schools,				

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single family residences, etc.) and provide screening tables for small projects (one, two, or five acres). Projects are evaluated based on geographic location and distance from sensitive receptors (25, 50, 100, 200, or 500 meters from the site).

For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be a receptor such as a residence, hospital, convalescent facility or anywhere that it is possible for an individual to remain for 24 hours. Additionally, schools, playgrounds, child care centers, and athletic facilities can also be considered as sensitive receptors. Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain on-site for a full 24 hours, but are usually present for shorter periods of time, such as eight hours.

Construction Emissions

The local air quality emissions from construction were analyzed using the SCAQMD’s Mass Rate Look-Up Tables and the methodology described by the Final LST Methodology. The Mass Rate Look-Up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NO_x, PM10, and PM2.5 from the Proposed Project could result in a significant impact to the local air quality. The emission thresholds were calculated based on the Perris Valley source receptor area (SRA) 24 and a disturbance value of two acres per day (as the two-acre thresholds are more stringent than the five-acre thresholds). According to LST Methodology, any receptor located closer than 25 meters (982 feet) shall be based on the 25-meter thresholds. The nearest sensitive receptors are the existing residential uses located adjacent to the west and south of the Project Site; therefore, the SCAQMD Look-Up Tables for 25 meters were used. Table 3, below, shows the on-site emissions from the CalEEMod model for the different construction phases and the calculated emissions thresholds.

**Table 3
Local Construction Emissions at the Nearest Receptors
(Pounds per Day)**

Phase	NO _x	CO	PM10	PM2.5
Grading	30.67	16.58	4.13	2.74
Building Construction	23.39	17.58	1.5	1.41
Paving	12.76	12.31	0.72	0.66
Architectural Coating	1.84	1.84	0.13	0.13
SCAQMD Thresholds	170	883	7	4
Exceeds Threshold?	No	No	No	No

Source: Kunzman Associates, Inc.’s Air Quality and Global Climate Change Analysis (2018)

The data provided in Table 3 shows that none of the analyzed criteria pollutants would exceed the calculated 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.

Operational Emissions

According to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources (such as heavy-duty trucks) that may spend long periods idling at the site; such as industrial warehouse/transfer facilities. The Proposed Project does not include such uses. Therefore, no long-term localized significance threshold analysis is warranted. As shown and Table 3, the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations as a result of construction, and analysis of operational emissions impact on sensitive receptors is not warranted. Therefore, less than significant impacts would occur, and no mitigation measures are required.

e) Create objectionable odors affecting a substantial number of people?			■	
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As stated in the Air Quality and Global Climate Change Impact Analysis prepared by Kunzman Associates, Inc., 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 short-term in nature and the odor emissions are expected to cease

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upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the Proposed 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. Regarding operations-related odor impacts, potential sources that may emit odors during the on-going operations of the Proposed Project would include odor emissions from diesel truck emissions and trash storage areas.

Due to the short-term nature and limited amounts of odor producing materials being utilized, less than significant impact related to odors would occur during construction of the Proposed Project. Through compliance with SCAQMD's Rule 402, less than significant impact related to odors would occur during the on-going operations of the Proposed Project. No mitigation measures are required.

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 Wildlife or U. S. Fish and Wildlife Service?				■
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In February 2018, Jericho Systems, Inc. prepared a Biological Resources Assessment (BRA) and a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for the Proposed Project (available at the City offices for review). Data for the BRA was obtained through database and aerial imagery review as well as field investigations. The U.S. Fish and Wildlife Service (USFWS) threatened and endangered species occurrence data overlay and the most recent versions of the California Natural Diversity Database (CNDDB) were also reviewed.

The BRA notes that the Project Site is highly disturbed and vegetation on the site consists of ruderal and exotic species. Specifically, vegetation on-site consists of tumbleweed (*Salsola tragus*), annual burweed (*Ambrosia acanthicarpa*), and saltgrass (*Distichlis sp.*). Additionally, a few California fan palms (*Washingtonia filifera*) are found on-site. The Project Site shows evidence of recent disking and as such very little vegetation has regrown on the site. No wildlife was observed on the Project Site. Some species that were observed adjacent to the Project Site and are likely to utilize the Project Site include feral cat (*Felis catus*), mourning dove (*Zenaida macroura*), white-crowned sparrow (*Zonotrichia leucophrys*), house sparrow (*Passer domesticus*), and house finch (*Haemorhous mexicanus*).

The Project Site is within the MSHCP Burrowing Owl Survey Area for Criteria Species. Therefore, additional analysis was performed for burrowing owl (*Athene cuniculara*; BUOW). BUOW is a small, ground-dwelling owl that is protected under the Migratory Bird Treaty Act (MBTA) and by the California Department of Fish and Wildlife (CDFW) as a Species of Special Concern. In southern California, BUOW can be found in grassland, shrub steppe, and desert habitat types consisting of short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils. They can also be found in agricultural areas, ruderal grassy fields, vacant lots and pastures, and flood control facilities. Most importantly, BUOWs require underground burrows or other cavities for nesting, roosting, and shelter. Burrows used by the owls are usually dug by other species, termed host burrowers. In California, California ground squirrel (*Spermophilus beecheyi*) and round-tailed ground squirrel (*Citellus tereticaudus*) burrows are frequently used by BUOW, but they may use dens or holes dug by other fossorial species. They are active during the day and night, generally observed in the early morning hours or at twilight. The breeding season for BUOW is February 1 through August 31.

The habitat assessment determined that there is no suitable habitat on-site for BUOW. The Project Site is highly disturbed, and the presence of feral cats in the vicinity of the Project Site creates a potential threat of predation. No burrows of any kind were observed on the Project Site or the adjacent areas. No evidence of BUOW, including whitewash, cast pellets, feathers, or BUOW individuals were observed. The BRA concludes that no state and/or federally listed threatened or endangered species, or other sensitive species or other sensitive habitat were observed on the Project Site during surveys. Therefore, the Proposed Project is not anticipated to have a substantial adverse effect on any species identified as a candidate, sensitive, or special status species. No impact would occur, and no mitigation measures are required.

b) Have a substantially 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. Wildlife Service?				■
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As stated in the BRA, Section 6.1.2 of the MSHCP identifies Riparian/Riverine resources as lands which contain habitat dominated by trees, shrubs, persistent emergent vegetation, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from nearby fresh water sources, or areas with freshwater flow during all or a portion of the year. Riverine habitat includes

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all wetlands and deep-water habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Riverine habitat is bounded on the landward side by upland, by the channel bank (including natural and man-made levees), or by wetlands dominated by trees, shrubs, persistent emergent, mosses, or lichens. In braided streams, the system is bounded by the banks forming the outer limits of the depression within which the braiding occurs. Springs discharging into a channel are considered part of the riverine habitat.

There are no mapped flow lines in the area, and historical aerials do not indicate past flow occurred on-site. In the southwest corner of the Project Site, there is a detention basin that, based on historical aerials, appears to have been created in the past year with the addition of a third and fourth building in the adjacent commercial strip. The basin is approximately 150 feet long, with a top edge-to-edge width of 30 feet and sloped sides leading to a bottom width of eight feet. Erosion rills exist on the northern edge of the basin, suggesting that runoff enters from the northern edge, which is closest to the paved areas of the commercial strip. During the site visit performed by Jericho Systems, Inc., the sprinkler system was observed to be a drip line with heavy flow. This also contributes to the erosion rills noted. There is an overflow drain in the southern portion of the basin approximately one and a half feet tall. This basin is not a riverine/riparian area, as it is constructed for the purpose of retaining water and allowing it to percolate into the ground.

Vegetation is mostly non-native, is thicker around and in the basin, although no riparian or wetland species were observed. Younger and greener Russian thistle was observed, as was shortpod mustard (*Hirschfeldia incana*). The MSHCP Vegetation mapping was reviewed to ensure that past vegetation was consistent with current observations. The 1994 vegetation mapping has the Project Site listed as Agricultural Land, and subsequent mapping from CNPS in 2005 and the MSHCP Review in 2012 have the area listed entirely as Disturbed/Developed vegetation. There is no historic record of riparian or wetland vegetation on the Project Site. Therefore, no riparian/riverine areas exist on-site and no impacts to these resources will occur as a result of the implementation of the Proposed Project. No mitigation measures are required.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?



As stated in the BRA, Section 6.1.2 of the MSHCP defines vernal pools as seasonal wetlands that occur in depression areas that have wetland indicators of all three 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 wetland plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The MSHCP dictates that determinations as to the presence or absence of vernal pools should consider the length of time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.

The Project Site lacks wetland vegetation but does have the potential for wetland hydrology in the detention basins, as runoff from the paved parking areas and irrigation from the ornamentals planted by the adjacent buildings supply water to the basin. The soil was observed to be damp during the survey, likely from these factors and recent rainfall in the area. Therefore, soil pits were dug within the basin to determine if clay soils, which are needed to support vernal pools, were present. A follow-up site visit was conducted by Jericho System, Inc. on February 1, 2018 to test the soils. The soil tests found that soils on-site ranged from coarse sandy loam to a fine sandy loam. No clay soils were detected, and no hydric soils indicators, including redox features, histosols, or gleying, were present. No restrictive layers were noted. Wetlands do not occur on the Project Site. Therefore, vernal pool areas are not supported on the Project Site and no impacts to these resources will occur as a result of the implementation of the Proposed Project. No mitigation measures are required.

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<p>d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?</p>				■
<p>The Project Site is surrounded by residential and commercial development. The Project Site does not provide wildlife connectivity between blocks of habitat and is therefore consistent with MSHCP policies and conditions for Urban/Wildlands Interface. As such, the Proposed Project will not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors or impede the use of native wildlife nursery sites. No impacts would occur, and no mitigation measures are required.</p>				
<p>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</p>				■
<p>Field surveys performed by Jericho Systems, Inc. found a few California fan palms (<i>Washingtonia filifera</i>) on the Project Site. All existing vegetation, including the California fan palms are anticipated to be removed in accordance with site development. Removal of existing vegetation would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No impacts would occur, and no mitigation measures are required.</p>				
<p>f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?</p>				■
<p>The Project Site is subject to the provisions of the Western Riverside County MSHCP. The Project Site is located within the Reche Canyon/Badlands Area Plan of the MSHCP. The Project Site is not located within an area plan sub-unit or within a criteria cell group. The Project Site is not located within areas that need additional surveys for Criteria Area Species or Amphibian Species, however, the Project Site is within the Burrowing Owl Survey Area. As such, additional analysis was performed for the BUOW. Per Section 6 of the MSHCP all projects within the MSHCP Plan Area must be reviewed for compliance with plan policies pertaining to Riparian/Riverine resources, narrow endemic plant species, urban/wildlands interface, and additional survey needs as applicable. The following findings are included in the Western Riverside County MSHCP Consistency Analysis prepared by Jericho Systems, Inc. for the Proposed Project:</p> <p><u>MSHCP Section 6.1.2: Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools</u> Based on a January 2018 field survey, the Project Site does not contain riparian/riverine resources. There are no mapped flow lines in the area, and historical aerials do not indicate past flow occurred on-site. In the southwest corner of the Project Site, there is a detention basin that, based on historical aerials, appears to have been created in the past year with the addition of a third and fourth building in the adjacent commercial strip. The basin is approximately 150 feet long, with a top edge-to-edge width of 30 feet and sloped sides leading to a bottom width of eight feet. Erosion rills exist on the northern edge of the basin, suggesting that runoff enters from the northern edge, which is closest to the paved areas of the commercial strip. During the site visit performed by Jericho Systems, Inc., the sprinkler system was observed to be a drip line with heavy flow. This also contributes to the erosion rills noted. There is an overflow drain in the southern portion of the basin approximately one and a half feet tall. This basin is not a riverine/riparian area, as it is constructed for the purpose of retaining water and allowing it to percolate into the ground.</p> <p>Vegetation is mostly non-native, is thicker around and in the basin, although no riparian or wetland species were observed. Younger and greener Russian thistle was observed, as was shortpod mustard (<i>Hirschfeldia incana</i>). The MSHCP Vegetation mapping was reviewed to ensure that past vegetation was consistent with current observations. The 1994 vegetation mapping has the site listed as Agricultural Land, and subsequent mapping from CNPS in 2005 and the MSHCP Review in 2012 have the area listed entirely as Disturbed/Developed vegetation. There is no historic record of riparian or wetland vegetation on the Project Site. As there are no riverine/riparian habitat areas on the Project Site, focused surveys for least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo are not necessary to comply with the measures of the MSHCP.</p> <p>Based on a January 2018 field survey, the Project Site does not contain vernal pools or other vernal pool indicators. The Project Site lacks wetland vegetation but does have the potential for wetland hydrology in the detention basins, as runoff from the paved parking areas and irrigation from the ornamentals planted by the adjacent buildings supply water to the basin. The soil was observed to be damp during the survey, likely from these factors and recent rainfall in the area. Therefore, soil pits were dug within the basin to determine if clay soils, which are needed to support vernal pools, were present. A follow-up site visit was conducted by Jericho System, Inc. on February 1, 2018 to test the soils. The soil tests found that soils on-site ranged from coarse sandy loam to a fine sandy</p>				

Attachment: Exhibit A to Resolution No 2018-32 - Initial Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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loam. No clay soils were detected, and no hydric soils indicators, including redox features, histosols, or gleying, were present. No restrictive layers were noted. There are no soils on-site that could result in the development of vernal pools or support vernal pool species. Further, there is no historical, biological, or hydrological evidence that would indicate the historic presence of vernal pools on the Project Site. No further analysis is required. Because no vernal pools occur on site, no habitat exists for any of the fairy shrimp species. No further analysis is required.

MSHCP Section 6.1.3: Protection of Narrow Endemic Plant Species

The Project Site is not located within a Narrow Endemic Plant Species Survey Area. No further analysis is required.

MSHCP Section 6.1.4: Guidelines Pertaining to the Urban/Wildlands Interface

The Project Site is surrounded by residential and commercial development. Additionally, the Project Site is not within or adjacent to any MSHCP conservation areas. No further analysis is required.

MSHCP Section 6.3.2: Additional Survey Needs and Procedures (Burrowing Owl Survey)

Based on a January 2018 field survey, the Project Site does not contain suitable habitat for BUOW. There was evidence of recent disturbance such as disking. No burrowing owls were observed during the site visit. No burrows of any kind were located on the Project Site. No portion of the Project Site showed any evidence of past or present BUOW activity. No feathers, white wash, or castings were found. No suitable habitat exists on the Project Site; therefore, no further analysis is required.

The Proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impacts would occur, and no mitigation measures are required.

V. CULTURAL RESOURCES. Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?		■		
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BCR Consulting LLC prepared a Cultural Resources Assessment for the Proposed Project in January of 2018 (available at the City offices for review). Prior to fieldwork, a records search was conducted at the Eastern Information Center (EIC), the local clearinghouse for cultural resource records. The research included review of the status of all recorded historic and prehistoric cultural resources, and survey and excavation reports completed within one mile of the Project Site. Additional resources reviewed included the National Register of Historic Place, the California Register of Historical Resources (California Register), and documents and inventories published by the California Office of Historic Preservation. These include the lists of California Historical Landmarks, California Points of Historical Interest, listing of National Register Properties, and the Inventory of Historic Structures. Research completed through the EIC revealed that six cultural resources have been recorded within one mile of the Project Site. Of these, one previously assessed a small portion of the Project Site resulting in one isolated prehistoric pestle fragment (P-33-15301) located within its boundaries.

An archaeological field survey of the Project Site was conducted on January 5, 2018. The survey was conducted by walking parallel transects spaced approximately 15 meters apart across 100 percent of the Project Site. Soil exposures were carefully inspected for evidence of cultural resources. No cultural resources were recovered within the Project Site during the field survey. The previously identified P-33-15301 was not re-discovered. Isolated artifacts have limited data potential and are not considered eligible for the California Register. Therefore, it is not a historical resource and does not require further consideration under CEQA. Although BCR Consulting has determined that the Project Site is not anticipated to support historical or archaeological resources, the following mitigation measures shall be implemented to ensure that less than significant impact occur:

Mitigation Measure CR-1:

Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

- a. Project grading and development scheduling;
- b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;
- c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

Mitigation Measure CR-2:

Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

Mitigation Measure CR-3:

In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

- a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:
 - i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.
 - ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Mitigation Measure CR-4:

The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

Mitigation Measure CR-5:

If potential historic or cultural 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 (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric 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 Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

Mitigation Measure CR-6:

If human remains are discovered, no further disturbance shall occur in the affected area 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).

With compliance to existing rules and regulations and Mitigation Measures CR-1 through CR-6, project-related activities are anticipated to be less than significant.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		■		
See response to Section V(a), above.				
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		■		

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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A Paleontological Overview was completed for the Project Site by Dr. Samuel McLeod of the Los Angeles Natural History Museum, as a part of BCR Consulting’s Cultural Resources Assessment. The paleontological overview found that shallow excavations in younger Quaternary Alluvium on the Project Site are unlikely to uncover significant vertebrate fossil remains. Deep excavations at the Project Site that extend down into older Quaternary deposits, however, may well encounter significant vertebrate fossils. As such, McLeod recommends that sediment samples should be collected if excavations extend down into older Quaternary deposits and processed to determine the small fossil potential at the Project Site. Additionally, McLeod recommends that any substantial excavations at the Project Site should be monitored closely to professionally recover any fossil remains discovered while not impeding development. In accordance with McLeod’s recommendation, the following mitigation measure shall be implemented:

Mitigation Measure CR-7:

In the event fossil specimens are unearthed, the Project Proponent shall have a paleontological consultant assess the specimens and report to the City of Moreno Valley. If the consultant and City concur, a paleontological monitoring program shall be implemented for the remainder of earth moving activities.

Collection and analysis of sediment samples to determine the small fossil potential at the Project Site shall occur at the City’s discretion. With compliance to existing rules and regulations and Mitigation Measure CR-7, project-related activities are anticipated to be less than significant.

d) Disturb any human remains, including those interred outside of formal cemeteries?		■		
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Construction activities, particularly grading, could potentially disturb human remains interred outside of a formal cemetery. Thus, the potential exists that human remains may be unearthed during grading and excavation activities associated with Project construction. If human remains are encountered during any earth-moving operations associated with the Proposed Project, all work in that area shall be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds as detailed under Mitigation Measure CR-6, listed in Section V(a), above. Less than significant impacts are anticipated with implementation of Mitigation Measure CR-6. No additional mitigation measures are required.

VI. GEOLOGY AND SOILS. Would the project:

a) Expose people or structures to 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 Division of Mines and Geology Special Publication 42.				■
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As shown by Riverside County’s Map My County GIS database, the Project Site is not located within or in the vicinity of a delineated Alquist-Priolo Earthquake Fault Zone. The nearest mapped fault is the San Jacinto Fault, which is located approximately six miles to the northeast of the Project Site as depicted on Figure 5.6-2, Seismic Hazards, of the City’s General Plan EIR. No faults are located on or within the vicinity of the Project Site, therefore there the Proposed Project is not anticipated to expose people or structures to adverse effects related to ground rupture. Less than significant impacts are anticipated, and no mitigation measures are required.

(ii) Strong seismic ground shaking?			■	
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The Project Site is located in seismically active southern California with numerous fault systems in the region, therefore ground shaking resulting from earthquakes associated with nearby and more distant faults may occur at the Project Site. During the life of the Proposed Project, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the Project Site. As a mandatory condition of project approval, the Proposed Project would be required to construct proposed structures in accordance with the California Building Standards Code (CBSC), also known as California Code of Regulations (CCR), Title 24 and the City Building Code. The CBSC and City Building Code are designed to preclude significant adverse effects associated with strong seismic ground shaking. With mandatory compliance with standard design and construction measures, potential adverse impacts would be reduced to less than significant and the Proposed Project would not expose people or structures to substantial adverse effects, including loss, injury or death, involving seismic ground shaking. No mitigation measures are required.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>(iii) Seismic-related ground failure, including liquefaction?</p> <p>Liquefaction is a phenomenon in which cohesion-less, saturated, fine-grained sand and silt soils loose shear strength due to ground shaking. As demonstrated by Figure 5.6-2, Seismic Hazards, of the City’s General Plan EIR., the Project Site is not located within or in the immediate vicinity of an area that is recognized for potential seismic-related ground failure, including liquefaction. In addition, the Proposed Project would be designed in accordance with the latest applicable seismic safety guidelines, including the requirements of the CBSC, which is anticipated to reduce the risk of seismic-related ground failure. As such, the Proposed Project is anticipated to result in less than significant risks related to seismic-related ground failure, including liquefaction, and no mitigation measures are required.</p>			■	
<p>(iv) Landslides?</p> <p>A site visit performed by Lilburn Corporation in February 2018 found the Project Site to be relatively flat with no prominent geologic features occurring on or within the vicinity of the Project Site. Additionally, review of Riverside County’s Map My County GIS database showed that there are no hillsides or steep slopes on or within the vicinity of the Project Site. Accordingly, the Project Site is located within an area with no potential for landslides, and development on the subject property would not be exposed to risk of landslide. No impacts would occur, and no mitigation measures are required.</p>				■
<p>(b) Result in substantial soil erosion or the loss of topsoil?</p> <p>The State of California is authorized to administer various aspects of the National Pollutant Discharge Elimination System (NPDES). Construction activities covered under the State’s General Construction permit include removal of vegetation, grading, excavation, or any other activity that causes the disturbance of one acre or more.</p> <p>The General Construction permit requires developments of one-acre or more to reduce or eliminate non-storm water discharges into storm water systems, and to develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The Regional Water Quality Control Board (RWQCB), Santa Ana Region has issued an area-wide NPDES Storm Water Permit for the County Riverside, the Riverside County Flood and Water Conservation District Control District, and the incorporated cities of Riverside County within the Santa Ana Region. The City of Moreno Valley then requires implementation of measures for a project to comply with the area-wide permit requirements. The SWPPP would include Best Management Practices (BMP’s) to prevent construction of the project to pollute surface waters. This is a standard condition of approval applicable to this project. BMP’s would include, but would not be limited to, street sweeping of adjacent roads during construction and the use of hay bales or sand bags to control erosion during the rainy season.</p> <p>Compliance with the NPDES permit requirements, and implementation of a SWPPP would protect the site from the loss of topsoil and off-site sedimentation. A less than significant impact would result, and no mitigation measures are 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> <p>A site visit performed by Lilburn Corporation in February 2018 found the Project Site to be relatively flat with no prominent geologic features occurring on or within the vicinity of the Project Site. Additionally, review of Riverside County’s Map My County GIS database showed that there are no hillsides or steep slopes on or within the vicinity of the Project Site. Accordingly, the Project Site is located within an area with no potential for landslides, and development on the subject property would not be exposed to risk of landslide.</p> <p>Liquefaction is a phenomenon in which cohesion-less, saturated, fine-grained sand and silt soils loose shear strength due to ground shaking. As demonstrated by Figure 5.6-2, Seismic Hazards, of the City’s General Plan EIR, the Project Site is not located within or in the immediate vicinity of an area that is recognized for potential seismic-related ground failure, including liquefaction. In addition, the Proposed Project would be designed in accordance with the latest applicable seismic safety guidelines, including the requirements of the CBSC, which is anticipated to reduce the risk of seismic-related ground failure. As such, the Proposed Project is anticipated to result in less than significant risks related to seismic-related ground failure, including liquefaction.</p> <p>Ground subsidence is a process characterized by downward displacement of surface material caused by natural phenomena such as a removal of underground fluids, natural consolidation, or dissolution of underground minerals, or by man-made phenomena such as</p>			■	

Attachment: Exhibit A to Resolution No 2018-32 - Initial Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

underground mining. As discussed within the City’s General Plan EIR, Chapter 5.6, Geology and Soils, no impacts associated with subsidence is anticipated to occur within the planning area. As such, the Proposed Project is not anticipated to result in significant risks associated with ground subsidence.

Seismically induced lateral spreading involves primary lateral movement of earth materials over underlying materials which are liquefied due to ground shaking. It differs from slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. Review of available database and geologic map resources did not reveal a determination regarding the Project Site’s possible location on a geologic unit or soil that is potentially unstable, or that would become unstable as a result of the project and potentially result in on- or off-site lateral spreading.

Although the Project Site is located in an area in which impacts related to later spreading have not been determined, as a mandatory condition of project approval, the Proposed Project would be required to construct proposed structures in accordance with CBSC Title 24 and the City Building Code. With mandatory compliance with standard design and construction measures, less than significant impacts are anticipated, and no mitigation measures are required.

(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			■	
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Expansive soils, sometimes referred to as shrink-swell soils, are fine-grained silts and clays which are subject to swelling and contracting. The amount of swelling and contracting is subject to the amount of fine-grained clay materials present in the soils and the amount of moisture either introduced or extracted from the soils. The United States Department of Agriculture (USDA) Natural Resources Conservation Service’s (NRCS) Web Soil Survey identified the presence of Hanford coarse sandy loam (HcA) and Hanford fine sandy loam (HgA) on the Project Site. Due to the lack of fine-grained clay materials in HcA and HgA, the Project Site is not anticipated to be located on expansive soil that would create substantial risks to life or property. Less than significant impacts are anticipated, and no mitigation measures are required.

(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?				■
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The Proposed Project would connect to the existing sewer system. No septic tanks or alternative wastewater disposal is proposed. No impacts would result, and no mitigation measures are required.

VII. GREENHOUSE GAS EMISSIONS. Would this project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			■	
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According to the Air Quality and Global Climate Change Impact Analysis prepared by Kunzman Associates, Inc., the Proposed Project is anticipated to generate greenhouse gas (GHG) emissions from area sources, energy usage, mobile sources, waste, water, and construction equipment. CalEEMod Version 2016.3.2 was used to calculate the GHG emissions from the Proposed Project. The Proposed Project’s emissions were compared to the tier 3 SCAQMD draft screening threshold of 3,000 metric tons CO₂e per year for all land uses. A summary of the results is shown below in Table 4.

**Table 4
Project-related Greenhouse Gas Emissions
(Metric Tons per Year)**

Category	CO ₂	CH ₄	N ₂ O
Area Sources	0.00	0.00	0.00
Energy Usage	106.91	0.00	0.00
Mobile Sources	279.73	0.01	0.00
Solid Waste	17.28	1.02	0.00

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Water and Wastewater	130.53	0.69	0.02	
Construction	9.92	0.00	0.000	
Total Emissions (CO ₂ e)	529.77			
SCAQMD Screening Threshold	3,000			
Exceeds Threshold?	No			

Source: Kunzman Associates, Inc.'s Air Quality and Global Climate Change Analysis (2018)

As shown in Table 4, the Proposed Project's GHG emissions are below the SCAQMD screening threshold and therefore the impacts from GHGs are considered to be less than significant. Operation of the Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and no mitigation measures are required.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			■	
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As stated in the Air Quality and Global Climate Change Impact Analysis, 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 with conformance to the GHG emissions reductions as mandated under AB 32.

The SCAQMD's 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 will be phased in starting 2012.

The Proposed Project's emissions meet the threshold for compliance with Executive Order S-3-05, the Proposed Project's emissions also comply with the goals of AB 32. Additionally, as the Proposed Project meets the current interim emissions targets/thresholds established b SCAQMD (as described in Section III. Air Quality of this Initial Study), the Proposed Project would also be on track to meet the reduction target of 40 percent below 1990 levels by 2030 as 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 Proposed Project will be required to comply with these regulations as they come into effect.

As discussed in Section III. Air Quality of this Initial Study, the Proposed Project's GHG emissions fall below the Tier 3 SCAQMD draft screening threshold of 3,000 metric tons of CO₂ equivalent per year for all land uses and the Proposed Project is in compliance with the reduction goals AB 32 and SB 32. Furthermore, the Proposed Project will comply with applicable Green Building Standards and the City of Moreno Valley's policies regarding sustainability (as dictated by the City of Moreno Valley General Plan, City of Moreno Valley Energy Efficiency and Climate Action Strategy, and City of Moreno Valley Greenhouse Gas Analysis). Impacts are considered to be less than significant, and the Proposed Project will not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. No mitigation measures are required.

VIII. 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?			■	
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Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>The Proposed Project includes the construction and operation of a self-storage facility. Hazardous or toxic materials transported in association with construction may include items such as oils, paints, and fuels. All hazardous materials required during construction will be kept in compliance with existing federal, state, and local laws. Construction activities are not anticipated to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, because construction of the Proposed Project is not anticipated to involve such activities. Similarly, operational activities at the self-storage facility are not anticipated to involve the routine transport or use of hazardous materials. Less than significant impacts are anticipated, and no mitigation measures are 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>			■	
<p>Hazardous or toxic materials transported in association with construction may include items such as oils, paints, and fuels. All hazardous materials required during construction will be kept in compliance with existing federal, state, and local laws. With implementation of Best Management Practices (BMPs) and compliance with all applicable regulations, potential impacts from the use of construction-related hazardous materials create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions is considered less than significant. No mitigation measures are 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>			■	
<p>The school nearest to the Project Site is Armada Elementary School, which is located approximately 1,060 feet (0.2-mile) to the east. However, the Proposed Project is not anticipated to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Therefore, less than significant impacts are anticipated, and no mitigation measures are required.</p>				
<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>				■
<p>As reviewed on March 1, 2018, the Project Site was not found on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 by the California Department of Toxic Substances Control's EnviroStor data management system. Therefore, no impacts would result, and no mitigation measures are required.</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 for people residing or working in the project area?</p>			■	
<p>The airport located nearest to the Project Site is the March Air Reserve Base, located approximately 1.5 miles southwest of the Project Site. The Proposed Project is located within the Airport Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Influence Area (AIA). As stated in File No. ZAP1288MA17 – Letter 1 of 2, the Airport Land Use Commission (ALUC) Director finds the Proposed Project consistent with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan (March ALUCP). As stated in File No. ZAP1288MA17 – Letter 2 of 2, the ALUC Director finds the Proposed Project consistent with the 2014 March ALUCP, provided that the City of Moreno Valley applies the following recommended conditions:</p> <ol style="list-style-type: none"> 1. Any new outdoor lighting that is installed shall be hooded or shielded so as to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing. 2. The following uses/activities are not included in the Proposed Project and shall be prohibited at the site. <ol style="list-style-type: none"> a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward landing at an airport, other than an FAA-approved navigational signal light or visual approach indicator. 				

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- b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards landing at an airport.
 - c) Any use which would generate smoke or water vapor, or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, production of cereal grains, sunflower, and row crops, composting operations, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators.)
 - d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft and/or aircraft instrumentation.
3. The landowner shall provide the attached notice to all potential purchasers of the property.
4. Any new aboveground detention or water quality basins on the site shall be designed so as to provide for a maximum 48-hour detention period following the conclusion of the storm event for the design storm (may be less, but not more), and to remain totally dry between rainfalls. Vegetation in and around the detention basins that would provide food or cover for bird species that would be incompatible with airport operations shall not be utilized in project landscaping.

No residential uses are associated with the Proposed Project resulting in a safety hazard for people. Demonstration of compliance with the standards set forth in the City of Moreno Valley Municipal Code is required before the City will issue a building permit. In addition, the Project Proponent shall be required to adhere to the conditions recommended by the ALUC Director at the City's discretion. Compliance would ensure that the Proposed Project does not in safety hazards related to airport operations. Less than significant impacts would occur, and no mitigation measures are required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				■
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The Project Site is not located within the vicinity of a private airstrip. Therefore, the Proposed Project would not expose people to excessive noise levels associated with operations at a private airstrip. No impacts would occur, and no mitigation measures are required.

g) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?				■
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The Project Site does not contain any emergency facilities, nor does it serve as an emergency evacuation route. During construction and long-term operation, the Proposed Project would be required to maintain adequate emergency access for emergency vehicles as required by the City. Adequate design features will be verified before the City will issue a building permit. No impacts are anticipated, and no mitigation measures are required.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				■
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As shown on City's General Plan EIR, Figure 5.5-2, Floodplains and High Fire Hazard Areas, the Proposed Project is not located within a high wildfire hazard area. The Project Site is located in an area that has been developed with both residential and commercial land uses. No wildlands are located on or adjacent to the Project Site. Accordingly, the Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. No impacts would occur, and no mitigation measures are required.

IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?			■	

The Proposed Project would disturb approximately 4.47 acres and is therefore subject to the National Pollution Discharge Elimination System (NPDES) permit requirements. The State of California is authorized to administer various aspects of the NPDES.

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Construction activities covered under the State’s General Construction permit include removal of vegetation, grading, excavating, or any other activity that causes the disturbance of one acre or more. The General Construction permit requires recipients to reduce or eliminate non-storm water discharges into stormwater systems, and to develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The purpose of a SWPPP is to: 1) identify pollutant sources that may affect the quality of discharges of stormwater associated with construction activities; and 2) identify, construct and implement stormwater pollution control measures to reduce pollutants in stormwater discharges from the construction site during and after construction.

The RWQCB has issued an area-wide NPDES Storm Water Permit for the County of Riverside to the Riverside County Flood Control and Water Conservation District, and the incorporated cities of Riverside County. The County of Riverside requires implementation of measures for a project to comply with the area-wide permit requirements. A SWPPP is based on the principles of BMPs to control and abate pollutants. The SWPPP must include BMPs so that construction of the project would not pollute surface waters. The BMPs may include, but are not limited to, street sweeping of paved roads around the site during construction, and the use of hay bales or sand bags to control erosion during the rainy season. BMPs may also include or require:

- The contractor to avoid applying materials during periods of rainfall and protect freshly applied materials from runoff until dry.
- All waste to be disposed of in accordance with local, state and federal regulations. The contractor will be required to contract with a local waste hauler or ensure that waste containers are emptied weekly. Waste containers cannot be washed out on-site.
- All equipment and vehicles are to be serviced off-site.

In addition to complying with NPDES requirements, the County also requires the preparation of a Water Quality Management Plan (WQMP). In accordance with the County’s requirements, Winchester Associates, Inc. prepared a WQMP for the Proposed Project, dated February 2018 (available at the City offices for review). The WQMP has identified various BMPs which shall be implemented by the Proposed Project. Mandatory compliance with the WQMP, in addition to compliance with NPDES Permit requirements, would ensure that all potential pollutants of concern are minimized or otherwise appropriately treated prior to being discharged into receiving waters. Therefore, implementation of the Proposed Project would not violate any water quality standards or waste discharge requirements. Impacts would be less than significant, and no mitigation measures are required.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			■	
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As shown on the City’s General Plan EIR Figure 5.7-2, Groundwater Basins, the Project Site overlies the Perris North Groundwater Basin. There are few domestic uses for groundwater in the watershed as the City primarily relies upon imported water delivered by the Eastern Municipal Water District (EMWD). The Proposed Project does not propose the installation of any wells that would directly extract groundwater; however, the change in pervious surfaces to impervious surfaces that would occur with development of the site could reduce the amount of water percolating into the underground aquifer that underlies the Project Site. However, and as noted in the City’s General Plan EIR (Page 5.7-12), “the impact of an incremental reduction in groundwater would not be significant as domestic water supplies are not reliant on groundwater as a primary source.” Additionally, 13.9 percent of the Project Site shall be landscaped, and porous pavement will be implemented as a low impact development (LID) BMP where feasible. Therefore, development of the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Less than significant impacts are anticipated, and no mitigation measures are required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			■	
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As identified within the Hydrology and Hydraulic Studies Report prepared by Winchester Associates, Inc., in February 2018 (available at the City offices for review), the Project Site is approximately 4.47 acres, of which 0.48-acre contains existing paving and 3.99 acres is undeveloped. In the pre-developed conditions, the stormwater runoff accumulated by the existing 0.48-acre of paving drains to the parking lot of the commercial development located east of the Project Site then discharges into Perris Boulevard.

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Additionally, in the pre-developed conditions, stormwater runoff accumulated from the remaining 3.99 acres sheets southeasterly through the Project Site and is intercepted by an existing temporary detention basin at the southeast corner of the Project Site, which then drains to an existing 18-inch reinforced concrete pipe (RCP), and finally is directed to an existing Sunnymead ADP Line M-4 (48-inch RCP) in Perris Boulevard.

Under post-developed conditions, the drainage patterns of the existing 0.48-acre of paving will remain the same, however, self-treating and self-retaining areas would be incorporated into the previously developed 0.48-acre of paving to the maximum extent practicable. Furthermore, under post-developed conditions, the remaining 3.99 acres would drain to an approximate 7,927 square foot structural LID BMP bioretention basin at the southeast corner of the Project Site, which then would drain to the existing 18-inch RCP, and lastly discharge into the existing Sunnymead ADP Line M-4 (48-inch RCP).

The Hydrology and Hydraulic Studies Report concludes that the Proposed Project does not create any impact to the downstream storm drain system as the existing Sunnymead ADP Line M-4 was sized to accept and convey the peak flow rates for 100-year one-hour return frequency storm events during post-developed conditions. Therefore, the Proposed Project would not substantially alter the existing drainage pattern of the Project Site or area in a manner which would result in substantial erosion or siltation on- or off-site or would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Less than significant impacts are anticipated, and no mitigation measures are required.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or surface runoff in a manner which would result in flooding on- or off site?			■	
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See response to Section IX(c), above.

e) Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			■	
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The Hydrology and Hydraulic Studies Report concludes that the Proposed Project does not create any impact to the downstream storm drain system as the existing Sunnymead ADP Line M-4 was sized to accept and convey the peak flow rates for 100-year one-hour return frequency storm events during post-developed conditions. The Proposed Project's WQMP has identified various BMPs which shall be implemented by the Proposed Project to eliminate any sources of polluted runoff. Therefore, the Proposed Project would not create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Less than significant impacts are anticipated, and no mitigation measures would occur.

f) Otherwise substantially degrade water quality?				■
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The Proposed Project does not present any conditions beyond what is described above that could result in the substantial degradation of water quality. Therefore, no impact is anticipated, and no mitigation measures are required.

g) Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				■
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The Proposed Project does not include the development of housing; therefore, the Proposed Project will not place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. No impacts would occur, and no mitigation measures are required.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				■
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According to the City's General Plan Figure 6-4, Flood Hazards, the Project Site occurs outside of the 100-year and 500-year flood zones. Therefore, no impacts would occur, and no mitigation measures are required.

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i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding, as a result of the failure of a levee or dam?				■
According to City's General Plan Figure 6-4, Flood Hazards, the Project Site occurs outside of the 100-year and 500-year flood zones and is not located within a potential dam inundation area. Therefore, no impacts would occur, and no mitigation measures are required.				
j) Inundation by seiche, tsunami, or mudflow?				■
Due to the inland distance from the Pacific Ocean and any other significant body of water, tsunamis and seiches are not considered to be potential hazards. Dams or other water-retaining structures may fail as a result of large earthquakes, resulting in flooding and mudflow production, however, the Project Site is not located within a designated Dam Inundation area as identified by the City's General Plan Figure 6-4, Flood Hazards. Therefore, the risk of inundation by seiche, tsunami, or mudflow is considered low. Therefore, no impacts are anticipated, and no mitigation measures are required.				
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?			■	
The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not physically divide an established community as the CC zone is an acceptable classification within the Commercial land use area. Additionally, the Project Site is located in an area that is developed with a combination of residential and commercial land uses. Parcels north, west, and south of the Project Site currently support residential development while parcels east of the Project Site support existing commercial development (i.e., CVS, Family Dollar, O'Reilly Auto Parts, El Pollo Loco, etc.); these properties would also be re-zoned to CC. Therefore, less than significant impacts are anticipated, and no mitigation measures are required.				
b) Conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			■	
The Proposed Project includes a zone change from NC to CC within a Commercial-designated land use area. The change of zone from NC to CC would not conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect as the CC zone is an acceptable classification within the Commercial land use area. Furthermore, the Proposed Project is an acceptable use within the CC zone with attainment of a Conditional Use Permit (CUP). Therefore, the Proposed Project would be consistent with the City of Moreno Valley General Plan. Less than significant impacts are anticipated, and no mitigation measures are required.				
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				■
As discussed in Section IV(f), the Proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impacts would occur, and no mitigation measures are required.				
XI. MINERAL RESOURCES. Would the project:				
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?				■
As discussed within the City's General Plan EIR, Chapter 5.14, Mineral Resources, there are no regionally or statewide significant mineral resources within the City planning area. The Project Site is not located within an area known to be underlain by regionally- or locally-important mineral resources, or within an area that has the potential to be underlain by regionally- or locally-important mineral resources. No loss of valuable mineral resource will occur with the development of the Proposed Project. The Proposed Project will demand aggregate resources during construction consisting primarily of concrete, and asphalt which will be required as part of the construction. These resources are commercially available in the southern California region without any constraint and no				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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potential for adverse impacts to the natural resources base supporting these materials is forecast to occur over the foreseeable future. The Proposed Project's demand for mineral resources is not significant due to the abundance of available local aggregate resources. No impacts would occur, and no mitigation measures are required.

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?				■
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See response to Section XI(a), above.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XII. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			■	

Kunzman Associates, Inc. prepared a Noise Impact Analysis (NIA) for the Proposed Project in December 2017 (available at the City office for review). The findings of the report are summarized herein.

Noise Fundamentals

The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the “A-weighted” noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA. Average noise levels over a period of minutes or hours are usually expressed as dBA_{Leq}, or the equivalent noise level for that period of time. For example, L_{eq(3)} would represent a three-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (L_{dn}). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five DB to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. L_{dn} is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of three dBA; that a change of five dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation’s Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

Construction Noise

The NIA notes that existing single-family detached residential dwelling units located adjacent to the west and south of the Project Site may be affected by short-term noise impacts associated with the transport of workers, the movement of construction materials to and from the Project Site, ground clearing, excavation, grading, and building activities.

Project-generated construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. Site grading is expected to produce the highest sustained construction noise levels. A likely worst-case construction noise scenario during grading assumes the use of a grader, a dozer, an excavator, a backhoe, and a water truck (modeled as a dump truck) operating between 25 and 200 feet from the property line. Assuming a usage factor of 40 percent for each piece of equipment, unmitigated noise levels have the potential to reach 87.3 dBA L_{eq} and 91 dBA L_{max} at the property line during grading.

The City of Moreno Valley Municipal Code Section 8.14.040E limits the hours of construction to 6:00 AM to 8:00 PM Monday through Friday (except for holidays), and 7:00 AM to 8:00 PM on weekends and holidays, unless written approval is obtained from the city building official or city engineer. Section 8.21.0500 further restricts the grading portion of construction to 7:00 AM to 6:00 PM Monday through Friday and 8:00 AM to 4:00 PM on weekends and holidays. In addition, Section 11.80.00D of the City’s Municipal Code does not allow construction between the hours of 8:00 PM and 7:00 AM that creates a noise disturbance, defined as being audible at a distance of 200 feet from the property line.

Construction noise would have a temporary or periodic increase in the ambient noise levels above existing levels within the project vicinity, however, construction is anticipated to occur during the permissible hours according to the City’s Municipal Code. Therefore, implementation of the Proposed Project is anticipated to have a less than significant impact regarding noise levels produced by construction.

Although the Proposed Project is anticipated to have a less than significant impact regarding noise levels produced by construction, the City of Moreno Valley General Plan Objective 6.5 requires the minimization of noise impacts from significant noise generators such as construction and Policy 6.5.2 states that construction activities shall be operated in a manner that limits noise impacts on surrounding uses; therefore, the following will be implemented to further reduce construction noise:

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1. During all Project Site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project Site.
3. Equipment shall be shut off and not left to idle when not in use.
4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the Project Site during all project construction.
5. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded, and noise shall be directed away from sensitive receptors.

Noise Impacts to Off-Site Receptors Due to Project Generated Trips

Existing and existing plus project traffic noise was modeled utilizing project trip generation information obtained from the Focused Traffic Analysis prepared by Kunzman Associates, Inc. as well as the existing traffic volume counts provided by the City of Moreno Valley Transportation Engineering Division (2017). A worst-case scenario that assumes that all project-generated vehicle trips will pass one or both of the single-family residential neighborhoods along John F. Kennedy Drive or Perris Boulevard was modeled. The Proposed Project is expected to generate approximately 137 average daily trips and 15 peak hour trips. Per the City of Moreno Valley, existing average daily traffic volumes on John F. Kennedy Drive, west of the Project Site, are approximately 10,800 vehicles per day and existing average daily trips along Perris Boulevard, south of the Project Site, are approximately 30,200 vehicles per day. The project-generated trips are projected to result in 0.01-0.03 dB increases in existing ambient noise levels which would not be noticeable and would not result in substantial increases in ambient noise levels.

Transportation Noise Impacts to the Proposed Project

The City of Moreno Valley General Plan does not identify criteria in order to assess traffic noise impacts to commercial land uses. Therefore, the NIA utilized the standards contained in the General Plan Guidelines, a publication of the California Office of Planning and Research, to assess transportation noise impacts to the Proposed Project. As stated by these standards, commercial land uses are considered to be “acceptable” in environments where the exterior noise level reach up to 70 CNEL and “conditionally acceptable” in environments where the exterior noise level reaches up to 80 CNEL. In areas where the noise level exceeds 70 CNEL, new construction or development should be undertaken only after a detailed noise analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

Federal Highway Administration (FHWA) modeling was conducted to calculate noise levels associated with buildout vehicle traffic noise from each of these roadways. Buildout traffic noise levels could reach up to 73.7 CNEL at the proposed self-storage building that lies closest to John F. Kennedy Drive, approximately 120 feet south of the roadway; and up to 72.3 CNEL at the proposed self-storage building that lies closest to Perris Boulevard, approximately 250 feet west of the roadway. Therefore, the exterior noise levels at the Proposed Project site are anticipated to fall within the County’s conditionally acceptable standards for commercial land uses.

Noise Impacts to Off-Site Receptors Due to On-Site Operational Noise

Sensitive receptors that may be affected by the Proposed Project’s operational noise include single-family detached residential dwelling units located adjacent to the west and south of the Proposed Project. The SoundPLAN model was utilized to model operational noise associated with loading/unloading. A worst-case analysis assumed that eight loading or unloading activities would occur on the Project Site during peak hour. This assumption was based on the peak hour trip generation provided in the Focused Traffic Analysis. Under the worst-case scenario, operational noise levels associated with the Proposed Project are expected to range between 36.6 to 44.6 dBA L_{eq} at adjacent sensitive receptors which will not be readily noticeable over the existing noise levels that range between 52.2 to 55.4 dBA L_{eq} during daytime hours. Existing nighttime noise levels are expected to be five decibels lower than daytime hours, but peak hour operations are also not expected to occur during nighttime hours. Nighttime project operational noise levels will not be readily noticeable and will not result in substantial increases in ambient noise levels. Therefore, the Proposed

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Project is not expected to exceed the City’s daytime operational noise level standards of 65 dBA L_{eq} or the City’s nighttime noise level standard of 60 dBA L_{eq} at adjacent sensitive receptors.

Conclusion
 The NIA concludes that the Proposed Project will not result in the exposure of persons to or generation of noise levels in excess of standards established in the City of Moreno Valley General Plan and Municipal Code. Less than significant impacts are anticipated, and no mitigation measures are required.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			■	
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The NIA prepared by Kunzman Associates, Inc. for the Proposed Project included analysis of project generated vibration. The findings of the report are summarized herein.

Construction operations generally include a wide range of activities that can generate groundborne vibration. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, or the differential settlement of pavement all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions. Typically, peak particle velocity (PPV) or acceleration (measured in gravites) is used to describe vibration.

Vibration levels in the project vicinity may be influenced by construction. The City of Moreno Valley does not have standards or guidelines regarding groundborne vibration, therefore potential impacts were evaluated in accordance with the California Department of Transportation’s Transportation and Construction Vibration Guidance Manual (2013). Groundborne vibration is annoying to people in buildings at 0.20 PPV and may cause architectural damage and possible minor structural damage at PPV levels between 0.4 and 0.6. A large bulldozer operating within 15 feet of the nearest single-family detached residential dwelling unit may reach up to 0.027 PPV and is not expected to result in annoyance to nearby receptors. Additionally, use of a bulldozer within 15 feet of adjacent single-family detached residential dwelling units would not result in architectural damage. Therefore, less than significant impacts regarding groundborne vibration and groundborne noise levels are anticipated, and no mitigation measures are required.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			■	
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The proposed construction is anticipated to generate short-term construction noise. As discussed in Section XII(a), above, project-generated vehicle trips are projected to result in 0.01-0.03 dB increase in existing ambient noise levels which would not be noticeable and would not result in substantial increases in ambient noise levels. Furthermore, the Proposed Project is not expected to exceed the City’s daytime operational noise level standards of 65 dBA L_{eq} or the City’s nighttime noise level standard of 60 dBA L_{eq} at adjacent sensitive receptors. Therefore, implementation of the Proposed Project is anticipated to have a less than significant impact regarding permanent increase in ambient noise levels. No mitigation measures are required.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			■	
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The proposed construction is anticipated to generate short-term construction noise. As discussed in Section XII(a), above, construction noise would have a temporary or periodic increase in the ambient noise levels above existing levels within the project vicinity, however, construction is anticipated to occur during the permissible hours according to the City’s Municipal Code. Therefore, implementation of the Proposed Project is anticipated to have a less than significant impact regarding temporary or periodic increase in ambient noise levels. No mitigation measures are required.

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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 expose people residing or working in the project area to excessive noise levels?			■	
The airport located nearest to the Project Site is the March Air Reserve Base, located approximately 1.5 miles southwest of the Project Site. According to the City's General Plan EIR, Figure 5.4-1, March Air Reserve Base Noise Impact Area, the Project Site is located outside of a 60 dBA CNEL noise contour and would not be subjected to excessive noise levels due to operations at the air base. Due to the Project Site's distance from the March Air Reserve Base, impacts associated with airport-related noise would be less than significant. No mitigation measures are required.				
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				■
The Project Site is not located within the vicinity of a private airstrip. Therefore, the Proposed Project would not expose people to excessive noise levels associated with operations at a private airstrip. No impacts would occur, and no mitigation measures are required.				
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			■	
The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not result in growth that was not already anticipated by the City's General Plan and evaluated in the City's General Plan EIR as the CC zone is an acceptable classification within the Commercial land use area. The Project Site is served by existing public roadways and utility infrastructure exists to serve the property. As such, implementation of the Proposed Project would not result in direct or indirect growth in the area. Less than significant impacts would occur, and no mitigation measures are required.				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				■
The Project Site is currently undeveloped land and therefore the Proposed Project would not displace existing housing units or people, necessitating the construction of replacement housing elsewhere. No impact would result, and no mitigation measures are required.				
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				■
See response to Section XIII(b), above.				
XIV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government 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:				
a) Fire protection?			■	
The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not result in the requirement of fire protection that was not already anticipated by the City's General Plan and evaluated in the City's General Plan EIR as the CC zone is an acceptable classification within the Commercial land use area. Based upon the City's General Plan, Figure 6-1, Fire Stations, the Proposed Project would be primarily served by the Kennedy Park Fire Station (Station No.65), an existing station located approximately 0.4-mile west of the Project Site. The Proposed Project is required to provide a minimum of fire safety and support fire suppression activities, including type of building construction, fire sprinklers, a fire hydrant system and paved access to the Proposed Project area. In addition, the Proposed Project is required to comply with the provisions of the City of Moreno Valley's Development Impact Fee Ordinance (Ordinance No. 695), which requires a fee payment that the City applies to the funding of public facilities, including fire protection facilities. Mandatory compliance with the Development Impact Fee Ordinance would be required prior to the issuance of building permits. The Proposed Project would receive				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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adequate fire protection service and would not result in the need for new or physically altered fire protection facilities. Impacts to fire protection facilities are therefore considered less than significant, and no mitigation measures are required.

b) Police protection?			■	
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The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not result in the requirement of police protection that was not already anticipated by the City's General Plan and evaluated in the City's General Plan EIR as the CC zone is an acceptable classification within the Commercial land use area. Additionally, prior to the issuance of building permits, the Project Applicant shall comply with the provisions of the City of Moreno Valley's Development Impact Fee Ordinance (Ordinance No. 695), which requires a fee payment that the City applies to the funding of public facilities, including police facilities. The Proposed Project is anticipated to require minimal police protection services and would not result in the need for new or physically altered police protection facilities. Impacts to police protection facilities are considered less than significant, and no mitigation measures are required.

c) Schools?			■	
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The Proposed Project would not create a direct demand for public school services, as the subject property would be developed as a self-storage facility in the CC zone of the Commercial land use area of the City of Moreno Valley and would not generate any school-aged children requiring public education. The Project is not expected to draw new residents to the region or indirectly generate additional school-aged students requiring public education, thus the Proposed Project would not result in the need to construct new or physically altered public school facilities. Less than significant impacts would occur, and no mitigation measures are required.

d) Parks?				■
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The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not result in the requirement of park facilities that was not already anticipated by the City's General Plan and evaluated in the City's General Plan EIR as the CC zone is an acceptable classification within the Commercial land use area. The Proposed Project does not include any type of 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 in the vicinity. Accordingly, implementation of the Proposed Project would not result in the increased use or substantial physical deterioration of an existing neighborhood or regional park. No impacts are anticipated, and no mitigation measures are required.

e) Other public facilities?				■
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The Proposed Project is not expected to result in a demand for other public facilities/services, such as libraries, community recreation centers, and/or animal shelters. Implementation of the Proposed Project would not adversely affect other public facilities or require the construction of new or modified facilities. Therefore, no impacts are anticipated, and no mitigation measures are required.

XV. RECREATION.

a) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				■
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The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not result in the requirement of recreational facilities that was not already anticipated by the City's General Plan and evaluated in the City's General Plan EIR as the CC zone is an acceptable classification within the Commercial land use area. No 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 in the vicinity is proposed. 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, no impacts are anticipated, and no mitigation measures are required.

Attachment: Exhibit A to Resolution No 2018-32 - Initial Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				■
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See response to Section XV(a), above.

XVI. TRANSPORTATION/TRAFFIC. Would the project:

a) Conflict 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 and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			■	
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Kunzman Associates, Inc. prepared a Focused Traffic Analysis addressing the Proposed Project in February 2018. Pursuant to scoping discussions with the City of Moreno Valley staff, the study intersection analysis locations are depicted below:

Study Intersection	Jurisdiction
Indian Street (NS) at: John F. Kennedy Drive (EW) - #1	City of Moreno Valley
Project West Access (NS) at: John F. Kennedy Drive (EW) - #2	City of Moreno Valley
Project East Access (NS) at: John F. Kennedy Drive (EW) - #3	City of Moreno Valley
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	City of Moreno Valley

The technique used to assess the performance of an intersection is known as the intersection delay method based on the procedures contained in the 2010 Highway Capacity Manual. The methodology compares the volume of traffic using the intersection to the capacity of the intersection to calculate the delay associated with the traffic control at the intersection. The intersection delay is then correlated to a performance measure known as a Level of Service (LOS) based on the following thresholds:

Level of Service	Description	Average Total Delay per Vehicle (seconds)	
		Signalized	Unsignalized
A	LOS A occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	LOS B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	LOS C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	LOS D generally result sin noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 to 55.00	25.01 to 35.00

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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E	LOS E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00	
F	LOS F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up	

In accordance with the City of Moreno Valley General Plan, LOS C is the design objective for all movements; however, LOS D is applicable to intersections and roadway segments that are adjacent to freeway on/off ramps, and/or adjacent to employment generating land uses, and/or boundary intersections. The entirety of the study area has a defined standard of LOS D.

Existing Conditions

Regional access to the Project Site is provided by the I-215 to the west and the SR-60 to the north. Local access is provided by Indian Street, Perris Boulevard, and John F. Kennedy Drive. The local access streets are described by the following:

- Indian Street is a four-lane divided roadway trending in a north-south direction. It is classified as a Minor Arterial in the City of the Moreno Valley General Plan Circulation Element. Sidewalks are provided in the project area on Perris Boulevard. There are Class III bikes lanes in the project vicinity and parking is not permitted.
- Perris Boulevard is a six-lane divided roadway trending in a north-south direction. It is classified as a Divided Arterial in the City of Moreno Valley General Plan Circulation Element. Sidewalks are provided in the project area on Perris Boulevard. There are no bike facilities in the project vicinity and parking is not permitted.
- John F. Kennedy Drive is a four-lane divided roadway trending in an east-west direction. It is classified as an Arterial in the City of Moreno Valley General Plan Circulation Element. Sidewalks are provided on both sides of John F. Kennedy Drive along the project frontage. There are Class II bike lanes in the project vicinity and parking is not permitted.

Existing traffic conditions were calculated based on peak period intersection turning movement counts obtained in January 2017. The morning peak period was counted between 7:00 AM and 9:00 AM and the evening peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. The existing intersection delay and LOS for existing traffic conditions were calculated and were found to operate within acceptable LOS during the peak hours.

Trip Generation

Trip generation rates were determined for daily trips, morning peak hour inbound and outbound trips, and evening peak hour inbound and outbound trips for the proposed land use in accordance with the Institute of Transportation Engineers' Trip Generation Manual, 10th Edition. By multiplying the trip generation rates by the land use quantity, the traffic volumes were determined.

The existing zoning identified in the City of Moreno Valley zoning code is NC. The City of Moreno Valley does not specify a maximum floor area ratio (FAR) for this zone, but 0.40 is common, which means 40% of the site can be occupied by buildings. Under the existing NC zoning designation, a FAR of 0.40 could result in development of an approximately 77,885 square foot commercial development. A 77,885 square foot commercial development within the existing NC zoning designation has the potential to generate approximately 5,072 total daily trips, 191 of which would occur during the morning peak hour and 452 of which would occur during the evening peak hour.

In accordance with the Institute of Transportation Engineers' Trip Generation Manual, the Proposed Project's estimated trip generation was modeled within the mini-warehouse land use type, which was determined by Kunzman Associates, Inc. to most accurately represent the proposed commercial development. In comparison to the potential trip generation associated with the

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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existing zoning, the Proposed Project, which includes a change of zone from NC to CC and construction and operation of a self-storage facility on approximately 4.47 acres, is estimated to generate approximately 137 total daily trips, nine of which would occur during the morning peak hour and 15 of which would occur during the evening peak hour. Therefore, in comparison to the potential trips generated by acceptable buildout within the existing NC zoning designation, the Proposed Project would result in approximately 4,935 less daily trips, 182 less trips during the morning peak hour and 437 less trips during the evening peak hour.

Future Conditions

The traffic volumes for Existing Plus Project conditions were derived by adding the project generated trips to the existing traffic volumes. Calculation of the intersection delay and LOS for Existing Plus Project conditions are forecast to operate within acceptable LOS during the peak hours for Existing Plus Project traffic conditions.

Furthermore, to derive Opening Year (2023) Without Project traffic volumes, existing traffic volumes were increased by an areawide growth rate of two percent per year over a five-year period. Additionally, future trips forecast to be generated by other developments were calculated and assigned to the study area, as applicable. The current Economic Development New Development Activity Map from the City of Moreno Valley website was utilized to determine the list of cumulative development in the study area. In order to provide a “conservative” analysis, the other development projects were added to obtain Opening Year (2023) traffic conditions. The intersection delay and LOS for Opening Year (2023) Without Project conditions are forecast to operate within acceptable LOS during the peak hours for Opening Year (2023) without Project traffic conditions. Likewise, the intersection delay and LOS for Opening Year (2023) With Project conditions are forecast to operate within acceptable LOS during the peak hours for Opening Year (2023) With Project traffic conditions.

Queuing Analysis

Pursuant to the scoping discussions with City of Moreno Valley staff, the study area includes analysis of the following queuing areas:

Study Intersection	Queuing Movement
Project West Access (NS) at: John F. Kennedy Drive (EW) - #2	Eastbound Right Turn Westbound Left Turn
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	Eastbound Left Turn

The potential for vehicles to queue while entering the project gate was also evaluated. Kunzman Associates, Inc. utilized Vistro software and methodology provided by the Institute of Transportation Engineers’ Transportation and Land Development to perform queuing analysis. Generally, for signalized intersections, a left turn lane is recommended when the turning volume exceeds 100 vehicles per hour, and dual turn lanes are recommended when the turn volume exceeds 300 vehicles per hour. In general, right turning movement delays are less critical than left turning movement delays; however, right turn storage lanes can be justified based on capacity analysis and accident records. Queuing analysis found that no queuing demands are projected to exceed existing vehicle queuing storage areas.

Conclusion

Kunzman Associates, Inc. concludes that no off-site mitigation measures are required since the Proposed Project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed. Sufficient on-site parking shall be provided to meet City of Moreno Valley parking code requirements. On-site traffic signing/stripping shall be implemented in conjunction with detailed construction plans for the Project Site. Furthermore, as is the case for any roadway design, Kunzman Associates, Inc. recommends that the City of Moreno Valley periodically review traffic operations in the vicinity of the Project Site once the project is constructed to assure that the traffic operations are satisfactory. The Proposed Project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system and would not conflict with an applicable congestion management program. Less than significant impacts are anticipated, and no mitigation measures are required.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			■	
See response to Section XVI(a), above.				
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				■
The Proposed Project would not include an air travel component (i.e., helipad) and products transported to and from the Project Site would not be done so by air. Accordingly, the Proposed Project would not have any effect on air traffic patterns, including an increase in traffic levels or a change in flight path location that results in substantial safety risks. As such, no impact would occur, and no mitigation measures are required.				
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?				■
The Proposed Project is not anticipated to create substantial hazards due to a design feature or incompatible uses. The Proposed Project would provide access to John F. Kennedy Drive through two existing driveways. No significant changes to the width or location of access points are proposed. Adequate design features will be verified by the City Engineer before the City will issue a building permit. No impacts would occur, and no mitigation measures are required.				
e) Result in inadequate emergency access?				■
The Proposed Project would provide access to John F. Kennedy Drive through two existing driveways. No significant changes to the width or location of access points are proposed. The Proposed Project shall adhere to City requirements for emergency vehicle access. Adequate design features will be verified by the City Engineer before the City will issue a building permit. No impacts are anticipated, and no mitigation measures are required.				
f) Conflict with adopted policies or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				■
As stated in Section XVI(a), above, Indian Street and John F. Kennedy Drive support Class III bike lanes within the vicinity of the Project Site; John F. Kennedy Drive is located immediately adjacent to the north boundary of the Project Site and provides access to the site. As stated in the City of Moreno Valley General Plan, the Class III routes are designated bikeways, not striped, and are shared with vehicles. These bikeways provide the opportunity for an alternative mode of transportation for both recreational and commuting uses. As such, the Proposed Project shall adhere to the City of Moreno Valley Municipal Code requirements regarding bikeways. With adherence to City standards, the Proposed Project would not conflict with adopted policies, plans or programs regarding public transit, bikeways or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities. No impacts are anticipated, and no mitigation measures are required.				
XVII. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21704 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:				
a) 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			■	
California Assembly Bill 52 (AB 52) was approved by Governor Brown on September 25, 2014. AB52 specifies that CEQA projects with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource may have a significant effect on the environment. As such, the bill requires lead agency consultation with California Native American tribes traditionally				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>and culturally affiliated with the geographic area of a proposed project, if the tribe requested to the lead agency, in writing, to be informed of proposed projects in that geographic area. The legislation further requires that the tribe-requested consultation be completed prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.</p>				
<p>BCR Consulting LLC prepared a Cultural Resources Assessment in January 2018. The Cultural Resources Assessment included a cultural resources records search, reconnaissance-level pedestrian field survey, tribal scoping, and paleontological overview. Although BCR concludes that the Project Site is not anticipated to support historical or archaeological resources, the potential for earth-moving activities to reveal unanticipated finds remains, and therefore Mitigation Measure CR-1 and Mitigation Measure CR-2, listed in Section V(a) above, shall be implemented to ensure that less than significant impacts occur. No additional mitigation measures are required.</p>				
<p>b) 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.</p>			■	
<p>BCR Consulting LLC contacted the Native American Heritage Commission (NAHC) to inquire into the presence/absence of sacred or religious sites in or near the Project Site. A record search of the NAHC Sacred Lands File was completed for the area of potential project effect (APE) with negative results. The NAHC notes that the absence of specific site information in the Sacred Lands File does not indicate the absence of Native American cultural resources in any APE. Further correspondence between the NAHC and the City of Moreno Valley shall occur at the City's discretion. Less than significant impacts are anticipated with implementation of Mitigation Measures CR-1, CR-2, and CR-3, listed in Section V(a) and Section V(c), above. No additional mitigation measures are required.</p>				
<p>XVIII. UTILITIES AND SERVICE SYSTEMS. Would the project:</p>				
<p>a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?</p>			■	
<p>The Project Site is located within the EMWD service area. EMWD is responsible for all wastewater collection and treatment in its service area. EMWD is required to operate all of its treatment facilities in accordance with the waste treatment and discharge standards and requirements set forth by the Regional Water Quality Control Board (RWQCB). The Proposed Project would not install or utilize septic systems or alternative wastewater treatment systems; therefore, the Proposed Project would have no potential to result in exceedances of the applicable wastewater treatment requirements established by the RWQCB. Accordingly, impacts would be less than significant, and no mitigation measures are required.</p>				
<p>b) Require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</p>			■	
<p>Domestic water and wastewater services are provided to the Project Site by EMWD. The Proposed Project would connect to existing water and sewer mains to receive water and wastewater services from EMWD and would be required to pay EMWD connection fees, as applicable. The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not require construction of new water or wastewater treatment facilities or expansion of existing facilities that were not already anticipated by the City's General Plan and evaluated in the City's General Plan EIR as the CC zone is an acceptable classification within the Commercial land use area. See d) and e) below for estimated water use and wastewater generation. Less than significant impacts are anticipated to result from implementation of the Proposed Project, and no mitigation measures are required.</p>				

Attachment: Exhibit A to Resolution No 2018-32 - Initial Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			■	
<p>As discussed in Section IX(c), above, the Hydrology and Hydraulic Studies Report concludes that the Proposed Project does not create any impact to the downstream storm drain system as the existing Sunnymead ADP Line M-4 was sized to accept and convey the peak flow rates for 100-year one-hour return frequency storm events during post-developed conditions. Therefore, the Proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities. Less than significant impacts are anticipated, and no mitigation measures are required.</p>				
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			■	
<p>The Proposed Project includes a zone change from NC to CC within the Commercial land use area. The change of zone from NC to CC would not require water supplies that were not already anticipated by the City's General Plan and evaluated in the City's General Plan EIR as the CC zone is an acceptable classification within the Commercial land use area. As stated in EMWD's 2015 Urban Water Management Plan (UWMP), EMWD will have sufficient supplies to meet both retail and wholesale demands from 2020 to 2040 under multiple-dry year conditions. The UWMP incorporates General Plan land use and projected population data to determine future water needs. Additionally, during periods of increase demands, EMWD would be able to utilize stored groundwater from the proposed Enhanced Recharge and Recovery Program or import additional water supply from the Metropolitan Water District of Southern California to meet demands, if necessary. Therefore, impacts would be less than significant, and no mitigation measures are required.</p>				
e) Result in a determination by the wastewater treatment provider which serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			■	
<p>The Proposed Project would generate wastewater that would be conveyed to the Moreno Valley Regional Water Reclamation Facility (RWRf), located in the southwestern portion of the City, which is owned and operated by EMWD. As discussed in the City's General Plan EIR this facility has a daily treatment capacity of 16 million gallons per day (MGD) and an ability to expand that capacity to 41 MGD. The utilization of plant capacity in the year 2002 was 11 million gallons per day. The WQMP estimates that the Proposed Project would include two daily toilet users a day and the maximum amount of water utilized per toilet flush is approximately seven gallons. Due to the relatively small amount of wastewater that is anticipated to be generated by the Proposed Project (e.g. < 100 gallons per day) and the amount of available capacity at the Moreno Valley RWRf, it is determined that the wastewater treatment provider has sufficient capacity to treat wastewater generated by the Proposed Project. Impacts would be less than significant, and no mitigation measures are required.</p>				
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			■	
<p>The Project Applicant will be required to comply with City of Moreno Valley Ordinance No. 706, which requires a minimum of 50 percent of all construction waste and debris to be recycled. According to the State of California CalRecycle Waste Generation Rates the commercial land use will generate approximately five pounds per 1,000 square-feet per day. Based on a general commercial use, operation of the Proposed Project would be estimated to generate approximately 975 pounds of solid waste per day during operation.</p> <p>Solid waste generated by the Proposed Project is anticipated to be disposed at the Badlands, El Sobrante, and/or the Lambs Canyon Sanitary Landfills. According to the CalRecycle facility directory, Badlands Sanitary Landfill (33-AA-0006), has a maximum throughput of 4,800 tons per day, an expected operational life through 2022, and a remaining capacity of 15,748,799 cubic yards as reported in January of 2015; El Sobrante Landfill (33-AA-0217), has a maximum throughput of 16,054 tons per day, an expected operational life through 2045, and a remaining capacity of 145,530,000 tons as reported in April of 2009; and Lambs Canyon Sanitary Landfill (33-AA-0007), has a maximum throughput of 5,500 tons per day, an expected operational life through 2029, and a remaining capacity of 19,242,950 cubic yards as reported in January 2015. Additionally, the Proposed Project would be required to comply with mandatory waste reduction requirements as described in Section XVII(g), below. The landfills have sufficient capacity to accept solid waste generated by the Proposed Project's construction and operational phases; therefore, impacts would be less than significant, and no mitigation measures are required.</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Comply with federal, state, and local statutes and regulations related to solid waste?			■	
<p>The Proposed Project would be required to comply with the City of Moreno Valley’s waste reduction programs, including recycling and other diversion programs to divert the amount of solid waste deposited in landfills. As such, the Project Applicant would be required to work with future refuse haulers to develop and implement feasible waste reduction programs, including source reduction, recycling, and composting. Additionally, in accordance with the California Solid Waste Reuse and Recycling Act of 1991 (Cal Pub Res. Code § 42911), the Proposed Project would provide adequate areas for collecting and loading recyclable materials where solid waste is collected. The collection areas are required to be shown on construction drawings and be in place before occupancy permits are issued. The implementation of these programs would reduce the amount of solid waste generated by the Proposed Project and diverted to landfills, which in turn will aid in the extension of the life of affected disposal sites. The Proposed Project would comply with all applicable solid waste statutes and regulations. Therefore, less than significant impacts would occur, and no mitigation measures are required.</p>				
XVIV. MANDATORY FINDINGS OF SIGNIFICANCE.				
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, 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>Critical habitat identifies specific areas that are essential to the conservation of a listed species and, with respect to areas within the geographic range occupied by the species. In February 2018, Jericho Systems, Inc. prepared a BRA and a Western Riverside County MSHCP Consistency Analysis for the Proposed Project. The habitat assessment determined that there is no suitable habitat on-site for BUOW. The Project Site is highly disturbed, and the presence of feral cats in the vicinity of the Project Site creates a potential threat of predation. No burrows of any kind were observed on the Project Site or the adjacent areas. No evidence of BUOW, including whitewash, cast pellets, feathers, or BUOW individuals were observed. The BRA concludes that no state and/or federally listed threatened or endangered species, or other sensitive species or other sensitive habitat were observed on the Project Site during surveys. The Proposed Project is consistent with the MSHCP. Therefore, the Proposed Project is not anticipated to have a substantial adverse effect on any species identified as a candidate, sensitive, or special status species.</p> <p>BCR Consulting LLC prepared a Cultural Resources Assessment for the Proposed Project in January of 2018. No cultural resources were recovered within the Project Site during the associated field survey. The previously identified P-33-15301 was not re-discovered. Isolated artifacts have limited data potential and are not considered eligible for the California Register. Therefore, it is not a historical resource and does not require further consideration under CEQA. Although BCR Consulting has determined that the Project Site is not anticipated to support historical or archaeological resources, Mitigation Measure CR-1 and Mitigation Measure CR-2 shall be implemented to ensure that less than significant impacts to California history, prehistory, and culture occurs; no additional mitigation is warranted.</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 projects, and the effects of probable future projects)?				■
<p>The Proposed Project would not have impacts that are considered individually limited, but cumulatively considerable. The location of planned and/or foreseeable future projects in the area to which this proposed project would add cumulative impacts have either existing or planned infrastructure that is sufficient for all planned uses as identified in the City’s General Plan and General Plan EIR without generating any cumulatively significant impacts. No impacts are identified or are anticipated, and no mitigation measures are required.</p>				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				■
<p>The incorporation of design development requirements, standards, and policies included in the City of Moreno Valley General Plan and Development Code would ensure that the Proposed Project would not have substantial adverse effects on human beings, either directly or indirectly on an individual or cumulative basis. No impacts are identified, and no mitigation measures are required.</p>				

Attachment: Exhibit A to Resolution No 2018-32 - Initial Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility

References

- BCR Consulting LLC, *Cultural Resources Assessment, Moreno Valley Storage Project*, January 29, 2018.
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Moreno Valley Storage – Mitigation Monitoring and Reporting Program Zone Change (PEN17-0134) and Conditional Use Permit (PEN17-0135)

Introduction

This Mitigation Monitoring and Reporting Program has been prepared for use in implementing mitigation for the Mitigated Negative Declaration (MND) for the Moreno Valley Storage Project. The program has been prepared in compliance with State law and the MND prepared for the project.

The California Environmental Quality Act (CEQA) requires adoption of a reporting or monitoring program for those measures places on a project to mitigated or avoid adverse effects on the environment (Public Resources Code Section 21081.6). The law states that the reporting or monitoring program shall be designed to ensure compliance during project implementation.

The monitoring program contains the following elements:

- 1. The mitigation measures are recorded with the action and procedure necessary to ensure compliance. In some instances, one action may be used to verify implementation of several mitigation measures.
- 2. A procedure for compliance and verification has been outlined for each action necessary. This procedure designates who will take action, what action will be taken and when, and to whom and when compliance will be reported.
- 3. The program has been designed to be flexible. As monitoring progresses, changes to compliance procedures may be necessary based upon recommendations by those responsible for the program. As changes are made, new monitoring compliance procedures are records will be developed and incorporated into the program.

Mitigation Monitoring and Responsibilities

As the Leady Agency, the City of Moreno Valley is responsible for ensuring full compliance with the mitigation measures adopted for the proposed project. The City will monitor and report on all mitigation activities. Mitigation measures will be implemented at different stages of development throughout the project. In this regards, the responsibilities for implementation have been assigned to the Applicant, Contractor, or a combination thereof. If during the course of project implementation, any of the mitigation measures identified herein cannot be successfully implemented, the City shall be immediately informed, and the City will then inform any affected responsible agencies. The City, in conjunction with any affected responsible agencies, will then determine if modification to the project is required and/or whether alternative mitigation is appropriate.

Mitigation Monitoring and Reporting Program Checklist

Project: Moreno Valley Storage

Applicant: Winchester Associates, Inc., on behalf of Gossett Development

Date: July 26, 2018

Mitigation Measure No.	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
Cultural Resources						
<p>CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:</p>	<p>City of Moreno Valley Planning and Land Development Division s</p>	<p>Once prior to Grading and during grading and construction operations.</p>	<p>Prior to issuance of Grading Permit</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Grading Permit or Issuance of a Stop Work Order</p>

<p>a. Project grading and development scheduling;</p> <p>b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural</p>						
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<p>resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;</p> <p>c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of</p>						
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<p>inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.</p>						
<p>CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code</p>	<p>City of Moreno Valley Planning and Land Development Division s</p>	<p>Once prior to Grading and during grading and construction operations.</p>	<p>Prior to issuance of Grading Permit</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Grading Permit or Issuance of a Stop Work Order</p>

<p>Section 21083.2.</p> <p>CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:</p> <p>a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:</p> <p>i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.</p> <p>ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.</p>	<p>City of Moreno Valley Engineering and Building and Safety Planning Division</p>	<p>Ongoing during grading and construction operations.</p>	<p>Ongoing during grading and construction operations.</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Grading Permit or Issuance of a Stop Work Order</p>
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<p>CR-4: The City shall verify that the following note is included on the Grading Plan:</p> <p>"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."</p>	<p>City of Moreno Valley Engineering and Building and Safety Planning Division</p>	<p>During construction operations.</p>	<p>Prior to issuance of Building Permit</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Building Permit or Issuance of a Stop Work Order</p>
<p>CR-5: If potential historic or cultural 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 (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric 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 Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.</p>	<p>City of Moreno Valley Engineering and Building and Safety Planning Division</p>	<p>Once prior to Grading and during grading and construction operations.</p>	<p>Prior to issuance of Grading Permit</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Grading Permit or Issuance of a Stop Work Order</p>

<p>CR-6: If human remains are discovered, no further disturbance shall occur in the affected area 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).</p>	<p>City of Moreno Valley Engineering and Building and Safety Planning Division</p>	<p>Ongoing during grading and construction operations.</p>	<p>Ongoing during grading and construction operations.</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Grading Permit or Issuance of a Stop Work Order</p>
<p>CR-7: In the event fossil specimens are unearthed, the Project Proponent shall have a paleontological consultant assess the specimens and report to the City of Moreno Valley. If the consultant and City concur, a paleontological monitoring program shall be implemented for the remainder of earth moving activities.</p>	<p>City of Moreno Valley Engineering and Building and Safety Planning Division</p>	<p>Once prior to Grading and during grading and construction operations.</p>	<p>Prior to issuance of Grading Permit</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Grading Permit or Issuance of a Stop Work Order</p>

PLANNING COMMISSION RESOLUTION NO. 2018-33

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE ZONE CHANGE APPLICATION NO. PEN17-0134: AN AMENDMENT TO THE OFFICIAL ZONING ATLAS, CHANGING THE ZONING CLASSIFICATION FROM NC TO CC FOR APPROXIMATELY 6.83 ACRES GENERALLY LOCATED AT THE SOUTHWEST CORNER OF PERRIS BOULEVARD AND JOHN F. KENNEDY DRIVE (ASSESSOR'S PARCEL NUMBERS: 485-081-037, 485-081-038, 485-081-039, 485-081-041 AND 485-081-043).

WHEREAS, the applicant, Winchester Associates, Inc., on behalf of Gossett Development, filed Application No. PEN17-0134, requesting an amendment to Pages 110 and 124 of the Official Zoning Atlas to the zoning classification for certain property, as described in the title of this resolution and the attached Exhibit A; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the proposed application for the Zone Change has been fully evaluated and considered with respect to the City's General Plan; and

WHEREAS, the City completed an independent review of the project for consistency with the California Environmental Quality Act (CEQA). Based on a thorough analysis including preparation of a detailed Initial Study, staff determined that that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended; and

WHEREAS, on July 26, 2018, the Planning Commission of the City of Moreno Valley held a public hearing to consider the subject applications and all of the environmental documentation prepared for the project; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found and determined and resolved by the Planning Commission of the City of Moreno Valley as follows:

- A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.
- B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:
1. Conformance with General Plan Policies – The proposed Change of Zone is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: The project area for the proposed Zone Change includes two vacant parcels (APNs: 485-081-037 and -043) totaling 4.47 acres and three adjacent developed commercial parcels (APNs: 485-081-038, -039 and -041) totaling 2.36 acres. The current General Plan Land Use designation for the project area is Commercial with a Neighborhood Commercial (NC) zoning designation.

The vacant parcels with the project area remain undeveloped with site challenges that include no direct access from Perris Boulevard and limited visibility from this same prominent arterial roadway.

This project proposes to change the zone from Neighbor Commercial (NC) to Community Commercial (CC) to allow for development of a mini-storage facility on the vacant parcels and establish consistent commercial zoning over the majority of the parcels located at southwest corner of Perris Boulevard and John F. Kennedy Drive.

It is the intent of the Land Use Element of the General Plan referenced in Objective 2.4, to provide commercial areas within the City that are conveniently located, efficient, attractive, and have safe and easy pedestrian and vehicular circulation in order to serve the retail and service commercial needs of Moreno Valley residents and businesses.

Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

The proposed zone change from NC to CC is compatible with the site's Commercial General Plan land use designation. The proposed change is also consistent with the intent of General Plan Community Goal 2.1, to establish a pattern of land uses,

which organizes future growth, minimizes conflicts between land uses, and which promotes the rational utilization of presently underdeveloped and undeveloped parcels.

2. Conformance with the Zoning Regulations – The proposed zoning is consistent with the purposes and intent of Title 9 of the City of Moreno Valley Municipal Code.

FACT: As proposed, the Change of Zone from NC to CC for the 6.83 acre project area is consistent with the purposes and intent of Title 9. Future commercial development under the CC would continue to further the comprehensive and orderly development of the vacant 4.47 acres located within the project area.

The proposed Zone Change to CC is compatible with the established zoning designations of the parcels located at other prominent intersections along Perris Boulevard such as Alessandro Boulevard to the north and Iris Avenue to the south. The change from the existing NC to CC for the project area considers the land use patterns in this area of the community.

3. Health, Safety and Welfare – The proposal will not be detrimental to the public health, safety or welfare.

FACT: The proposed Zone Change is a legislative action and will not result in any direct physical impacts; therefore, the action itself could not be detrimental to the public health, safety or welfare. Further, the Zone Change is consistent with the City's General Plan which was developed to guide the future development of the City.

Development of the vacant 4.47 acres within the project area will be required to comply with the City's General Plan policies and land use designation and the City's Municipal Code. This will ensure that future development is consistent with the General Plan, zoning, and public health safety and welfare.

The proposed Zone Change will not adversely affect the public health, safety or general welfare. The California Environmental Quality Act (CEQA) is a statewide environmental law contained in Public Resources Code §§21000-21177. CEQA applies to most public agency decisions to carry out, authorize, or approve actions that have the potential to affect the environment. CEQA requires that public agencies analyze and acknowledge the environmental consequences of their discretionary actions and consider alternatives and mitigation measures that could avoid or reduce significant adverse impacts to the environment when avoidance or reduction is feasible. The CEQA compliance

process provides public agencies and the general public an opportunity to comment on a proposed project's environmental effects.

The Mitigated Negative Declaration is an informational document that provides the City, other public agencies, and the public at-large with an objective assessment of the potential environmental impacts that could result from implementation of the proposed project.

An Initial Study was prepared which assessed the potential of the proposed Zone Change, to impact the environment. The Initial Study provided the documentation of the factual basis for the finding in the Mitigated Negative Declaration that the proposed project will not have a significant effect on the environment. The City as the Lead Agency has prepared a Mitigated Negative Declaration (MND) pursuant to Sections 15070 et seq. of the State CEQA Guidelines. The preparation and review of the Initial Study / Mitigated Negative Declaration reflects the independent judgment of the City.

The Mitigated Negative Declaration has been considered by the Planning Commission and there is no evidence that the proposed project will have a significant impact on public health or be materially injurious to surrounding properties of the environment as a whole.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-32, and RECOMMENDS that the City Council:

1. ADOPT a Mitigated Negative Declaration for Application No. PEN17-0134 pursuant to the California Environmental Quality Act (CEQA) Guidelines; and
2. APPROVE Change of Zone Application No. PEN17-0134, based on the findings contained in this resolution and the Zoning Map attached hereto as Exhibit A.

APPROVED this 26th day of July, 2018.

AYES:
NOES:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

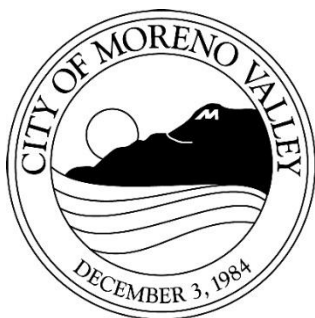
ATTEST:

Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

ATTACHED: Zone Change Map



ZONE CHANGE
 Application No. PEN17-0134
 APNs: 485-081-037, -043, -035, -038, -039, and -041
 Resolution No. 2018-33

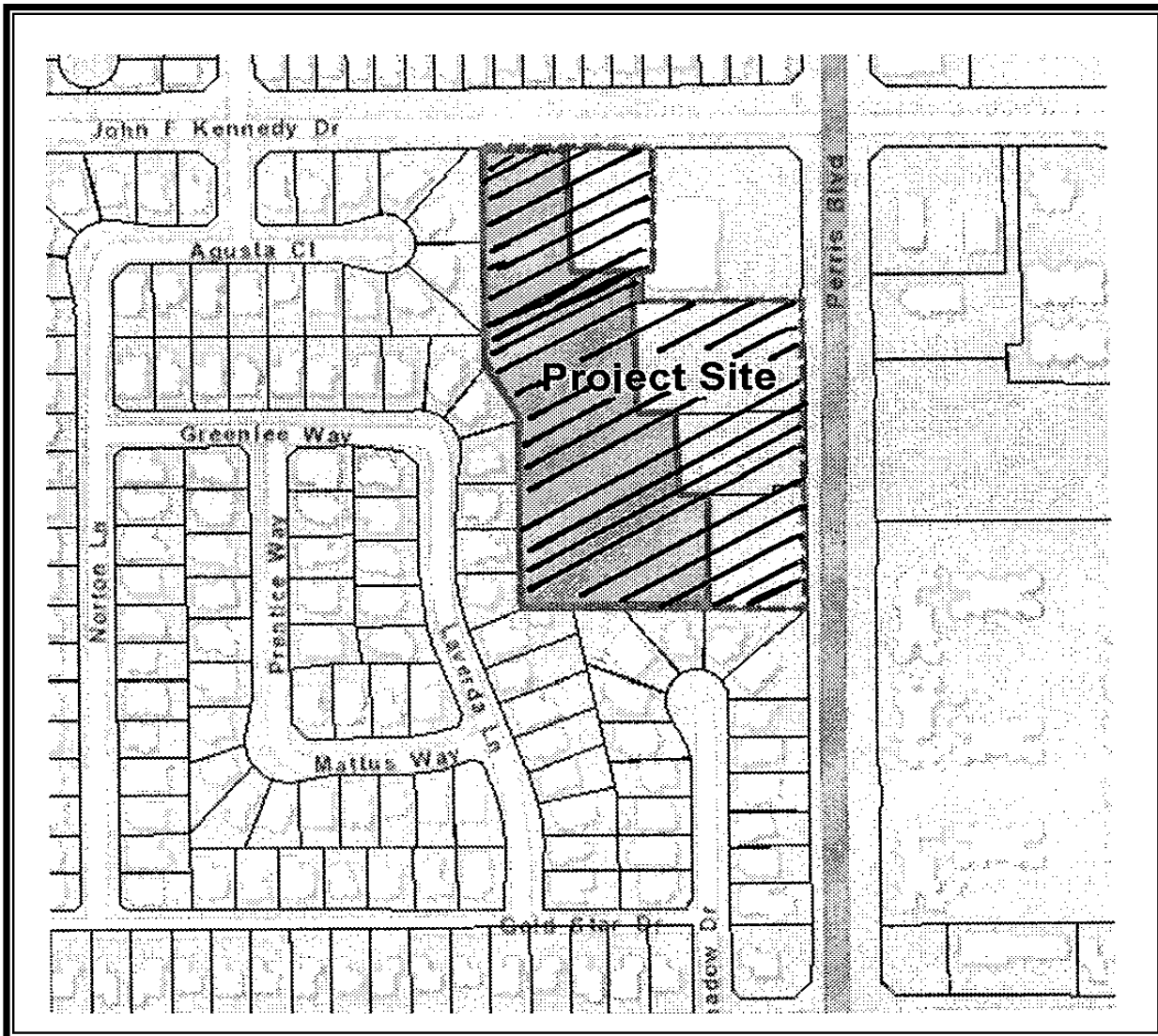


Exhibit A to ATT 3

Attachment: Exhibit A to Resolution No 2018-33 (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

PLANNING COMMISSION RESOLUTION NO. 2018-34

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE CONDITIONAL USE PERMIT APPLICATION PEN17-0135 FOR DEVELOPMENT OF A 538 UNIT MINI-STORAGE FACILITY ON 4.47 ACRES LOCATED WESTERLY OF THE SOUTHWEST CORNER OF PERRIS BOULEVARD AND JOHN F. KENNEDY DRIVE. (ASSESSOR'S PARCEL NUMBERS 485-081-037 AND 485-081-043).

WHEREAS, Winchester Associates, Inc. on behalf of Gossett Development, has filed an application for the approval of Conditional Use Permit PEN17-0135 for development of a mini-storage facility as described in the title above; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the City has reviewed this project and determined that it is consistent with the site's General Plan designation of Commercial, all applicable General Plan policies; and

WHEREAS, approval of the proposed mini-storage facility is subject to approval of Zone Change (case number PEN17-0134) for the project site from Neighborhood Commercial (NC) to Community Commercial (CC); and

WHEREAS, the City worked with Lilburn Corporation in the preparation of an Initial Study and Mitigated Negative Declaration for the project consistent with the California Environmental Quality Act (CEQA) and based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis; and

WHEREAS, upon completion of a thorough development review process the project was appropriately agendized and noticed for a public hearing before the Planning Commission of the City of Moreno Valley (Planning Commission); and

WHEREAS, the public hearing notice for this project was published in the local newspaper on July 7, 2018. Public notice was sent to all property owners of record within 300 feet of the project site on July 12, 2018. The public hearing notice for this project was also posted on the project site on July 16, 2018;

WHEREAS, on July 26, 2018, the Planning Commission held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the Planning Commission as follows:

A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on July 26, 2018, including written and oral staff reports, public testimony and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: The General Plan Land Use designation for the project site is Commercial. General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan. The proposed project is consistent with the General Plan and with its goals, objectives, policies, and programs established within the Plan.

2. Conformance with Zoning Regulations – The proposed use complies with all applicable zoning and other regulations.

FACT: The project site is currently zoned Neighborhood Commercial. The proposed mini-storage facility is not a permitted use within the Neighborhood Commercial zone. The applicant requested a Zone Change for the project site to Community Commercial which would allow for the self-storage use subject to approval of a Conditional Use Permit. Approval of the proposed self-storage use is subject to City Council approval of the zone change at this location.

The project is designed in accordance with the provisions of Chapter 9.04 Commercial Districts, Chapter 9.09.140 Self Storage Warehouse, and Chapter 9.16.150 Commercial Design Guidelines of the City's Municipal Code. The project as designed and conditioned would comply with all applicable zoning and other regulations.

3. Health, Safety and Welfare – The proposed use will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

FACT: The proposed Conditional Use Permit as designed and conditioned will provide acceptable levels of protection from natural and man-made hazards to life, health, and property consistent with General Plan Goal 9.6.1. The project site is located approximately one half mile from Fire Station No. 65 located to the west at John F. Kennedy Park. Therefore, adequate emergency services can be provided to the site consistent with General Plan Goal 9.6.2.

The proposed project as designed and conditioned will result in a development that will minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding as provided for in General Plan Objective 6.1 and General Plan Objective 6.2.

The project as designed and conditioned will not be detrimental to the adjacent uses. The proposed project site is located westerly of the southwest corner of Perris Boulevard and John F. Kennedy Drive. The area immediately to the west and south is developed with single-family tract homes with a mobile home park to the north. Immediately to the east are developed commercial parcels with a service station / convenience store and a fast food restaurant located across the street at the southwest corner of Perris and JFK. Farther east are apartments and the campus for Armada Elementary School. Northwest of the site is a shopping center.

The project as designed is consistent with the City's Municipal Code Section 9.09.140 Self Storage Warehouse and will satisfy all City requirements related to light and noise. Planning staff worked with Lilburn Corporation in the preparation of an Initial Study and Mitigated Negative Declaration in accordance with the provisions of the California Environmental Quality Act (CEQA) based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis.

4. Location, Design and Operation – The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

FACT: The project proposes to develop vacant property subject to approval of a Zone Change from Neighborhood Commercial to Community Commercial. Permitted uses for the project site would be those land uses listed under the Community Commercial zone in the City's Municipal Code, including storage lots and mini-warehouses.

The area immediately to the west and south is developed with single-family tract homes with a mobile home park to the north. Immediately to the east are developed commercial parcels with a service station / convenience store and a fast food restaurant located across the street at the southwest corner of Perris and JFK. Farther east are apartments and

the campus for Armada Elementary School. Northwest of the site is a shopping center.

Municipal Code Section 9.04.020 Commercial Districts states that the primary purpose of the community commercial (CC) district is to provide for the general shopping needs of area residents and workers with a variety of business, retail, personal and related or similar services. These uses must be compatible with the surrounding residential communities. As designed and conditioned, and with implementation of mitigation measures, the project is compatible with existing and proposed land uses in the vicinity.

FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee, Transportation Uniform Mitigation Fee (TUMF), Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Habitat Conservation Fee, Underground Utilities in lieu Fee, Area Drainage Plan Fee, Bridge and Thoroughfare Mitigation fee (Future) and Traffic Signal Mitigation Fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this Resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN17-0135, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d)(1), NOTICE IS FURTHER GIVEN that the 90 day period to protest the imposition

of any impact fee, dedication, reservation, or other exaction described in this Resolution begins on the effective date of this Resolution and any such protest must be in a manner that complies with Government Code Section 66020(a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservations, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-34, and thereby:

1. ADOPT a Mitigated Negative Declaration for Conditional Use Permit Application No. PEN17-0135 pursuant to the California Environmental Quality Act (CEQA) Guidelines; and
2. APPROVE Conditional Use Permit Application No. PEN17-0135, based on the findings contained in this resolution, and the conditions of approval attached hereto as Exhibit A and

APPROVED this 26th day of July, 2018.

AYES:

NOES:

ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

ATTEST:

Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN17-0135)

Page 1

CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Conditional Use Permit (PEN17-0135)

EFFECTIVE DATE:

EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT**Planning Division**

1. Conditional Use Permit PEN17-0135 is approved for development of a 538 unit mini-storage facility including eight buildings totaling 89,441 square feet, a 600 square foot office, a 1,500 square caretakers apartment and six parking spaces.
2. Any expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)
3. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)
4. 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. (MC 9.02.230)
5. In the event the use hereby permitted ceases operation for a period of one (1) year or more, or as defined in the current Municipal Code, this permit may be revoked in accordance with provisions of the Municipal Code.
6. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)
7. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)
8. 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

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permitted in the public right of way. (MC 9.12)

9. 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.
10. 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.

Special Conditions

11. The following Mitigation Measures apply to this project:

CR-1: Prior to the issuance of a grading permit, the City shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

- a. Project grading and development scheduling;
- b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

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c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

CR-2: Prior to the issuance of a grading permit, the City of Moreno Valley shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The City is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2. (only applicable if tribes require monitoring)

12. CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:
- a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:
 - i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.
 - ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

CR-4: The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

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CR-5: If potential historic or cultural 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 (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric 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 Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

CR-6: If human remains are discovered, no further disturbance shall occur in the affected area 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).

CR7: In the event fossil specimens are unearthed, the Project Proponent shall have a paleontological consultant assess the specimens and report to the City of Moreno Valley. If the consultant and City concur, a paleontological monitoring program shall be implemented for the remainder of earth moving activities.

Prior to Grading Permit

13. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be completed to the satisfaction of the Community Development Director and shall be printed on the grading plans.
14. 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 dwellings with open spaces and/or recreational uses or commercial/industrial buildings with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)
15. Prior to issuance of any grading permits, mitigation measures contained in the

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- 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)
16. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)
 17. 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.
 18. Prior to approval of any grading permits, plans for any security gate system shall be submitted to and approved by the Planning Division.
 19. 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. [apply to commercial and multi-family project, and major entry driveways for industrial]
 20. Prior to issuance of grading permits, the developer shall submit wall/fence plans to the Planning Division for review and approval as follows:
 - A. A maximum 8 foot high solid decorative block perimeter wall with pilasters and a cap shall be required adjacent to all residential zoned areas.
 - B. 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.
 - C. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.
 - D. Walls and fences for visual screening are required when there are adjacent residential uses or residentially zone property. The height, placement and design will be based on a site specific review of the project. All walls are subject to the approval of the Planning Official. (DC 9.08.070)
 21. 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.

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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.
22. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.
 23. Prior to issuance of any building permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be completed to the satisfaction of the Community Development Director and shall be printed on the building plans.
 24. 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.
 25. Prior to the issuance of building permits, proposed covered trash enclosures shall be included in the Planning review of the Fence and Wall plan or separate Planning submittal. The trash enclosure(s), including the roof materials, shall be compatible with the architecture, color and materials of the building(s) design. Trash enclosure areas shall include landscaping on three sides. Approved design plans shall be included in a Building submittal (Fence and Wall or building design plans). (GP Objective 43.6, DG)
 26. 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.
 - 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. Drought tolerant landscape shall be used. No sod shall be installed.
 - D. Street trees shall be provided every 40 feet on center in the right of way.
 - E. 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

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for the portions of the building visible from a parking lot or right of way. Trees may be massed for pleasing aesthetic effects.

F. 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.

G. Landscaping on three sides of any trash enclosure.

H. 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.

27. 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)
28. 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)
29. 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)
30. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.
31. 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 Planning Division for review and approval 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

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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. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, 9.16.280)

32. 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.

Prior to Building Final or Occupancy

33. 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).
34. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.
35. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).
36. Prior to building final, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be completed to the satisfaction of the Community Development Director.

Building Division

37. 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.
38. 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.
39. Contact the Building Safety Division for permit application submittal requirements.
40. All new buildings 10,000 square feet and over, shall include building

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commissioning in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (OPR). All requirements in The 2016 California Green Building Standards Code, sections 5.410.2 - 5.410.2.6 must be met.

41. Any construction within the city shall only be completed between the hour of seven a.m. to seven p.m. Monday through Friday, excluding holidays and from eight a.m. to four p.m. on Saturday, unless written approval is obtained from the city building official or city engineer (Municipal Code Section 8.14.040.E).
42. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.
43. The proposed development is subject to the payment of applicable processing fees as required by the City's current Fee Ordinance at the time a building permit application is submitted or prior to the issuance of permits as determined by the City.
44. 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.
45. 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 2016 CBC.
46. The proposed non-residential project shall comply with 2016 California Green Building Standards Code, Section 5.106.5.3, mandatory requirements for Electric Vehicle Charging Station (EVCS).
47. 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 2016 California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.
48. 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

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Fire Prevention Bureau

49. 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])
50. 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])
51. Prior to issuance of Building Permits, the applicant/developer shall provide the Fire Prevention Bureau with an approved site plan for Fire Lanes and signage. (CFC 501.3)
52. Prior to issuance of Certificate of Occupancy or Building Final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations in accordance with City specifications. (CFC 509.1 and MVLT 440A-0 through MVLT 440C-0)
53. Existing fire hydrants on public streets are allowed to be considered available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads. (CFC 507, 501.3) a - After the local water company signs the plans, the originals shall be presented to the Fire Prevention Bureau for signatures. 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.
54. Final fire and life safety conditions will be addressed when the Fire Prevention Bureau reviews building plans. These conditions will be based on occupancy, use, California Building Code (CBC), California Fire Code (CFC), and related codes, which are in effect at the time of building plan submittal.
55. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)
56. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty-four (24) feet and an unobstructed vertical clearance of not less than thirteen (13) feet six (6) inches. (CFC 503.2.1 and MVMC 8.36.060[E])
57. Prior to issuance of a Certificate of Occupancy or Building Final, a "Knox Box Rapid

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- 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)
58. 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)
 59. During phased construction, dead end roadways and streets which have not been completed shall have a turn-around capable of accommodating fire apparatus. (CFC 503.1 and 503.2.5)
 60. Plans for private water mains supplying fire sprinkler systems and/or private fire hydrants shall be submitted to the Fire Prevention Bureau for approval. (CFC 105 and CFC 3312.1)
 61. 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 B105.1. 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)
 62. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

PUBLIC WORKS DEPARTMENT**Land Development**

63. 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]
64. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically

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placed on mylar sheets and included in the Grading and Street Improvement plans.

65. 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.
66. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.
67. 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]
68. 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.
69. 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. Rough grading w/ erosion control plan (prior to grading permit issuance);
 - b. Precise grading plan (prior to building permit issuance);
 - c. Final drainage study (prior to grading plan approval);
 - d. Final WQMP (prior to grading plan approval);
 - e. Lot line adjustment

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- f. As-Built revision for all plans (prior to Occupancy release)
70. 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

71. Resolution of all drainage issues shall be as approved by the City Engineer.
72. 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.
73. 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 overflow pipes or spillways.
74. 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

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- final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.
75. 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.
 76. 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.
 77. 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.
 78. The developer shall pay all remaining plan check fees.
 79. 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.
 80. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recycables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.
 81. 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.

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82. LD43. Prior to rough grading plan approval, the Applicant shall prepare and submit for approval a final, project-specific water quality management plan (F-WQMP). The F-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 one (1) bio-retention basin. 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; one bin for trash and one bin for recyclables.

Prior to Grading Permit

83. 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)]
84. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.
85. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN17-0135)

Page 16

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)]

86. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]
87. The developer shall pay all applicable inspection fees.
88. Prior to issuance of a grading permit, rough grading plans shall be submitted for review and approved.

Prior to Improvement Plan Approval

89. 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 for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.
90. 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 (or precise grading plans if public improvement plans are not required) 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

91. All applicable inspection fees shall be paid.
92. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

93. 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.

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN17-0135)

Page 17

94. 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.
95. 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 handicap access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant may be required to post security to cover the cost of the repairs and complete the repairs within the time allowed in a public improvement agreement used to secure the improvements.
96. 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).
97. A lot line adjustment shall be submitted for review, approval, and recorded. The lot line adjustment shall include Parcel 1 of Lot Line Adjustment/Certificate of Compliance No. 1032 and Parcel 2 of Parcel Map 36449. The purpose of the lot line adjustment is to combine the two said parcels into one parcel in order to accommodate the proposed Building "F" in such a way that the building is not constructed across property lines and to meet all minimum building setbacks.
98. Prior to issuance of a building permit, precise grading plans shall be submitted for review and approved. The plans shall include, but not be limited to, the proposed improvements within the public right of way such as street lights, water and sewer laterals, and storm drain laterals.

Prior to Occupancy

99. 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.
100. The final/precise grade certification shall be submitted for review and approved by the City Engineer.
101. 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

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN17-0135)

Page 18

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 Government Code & Municipal Code]

102. For commercial, industrial and multi-family projects, a “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” 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 “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” can be obtained by contacting the Land Development Division.
103. 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.
104. 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.

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN17-0135)

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Special Districts Division

105. Prior to the issuance of the first building permit for this project, the Developer shall pay Advanced Energy 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.
106. 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.

107. This project is conditioned to provide a funding source for the following special financing program(s):

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN17-0135)

Page 20

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

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 and prior to acceptance of any improvements.

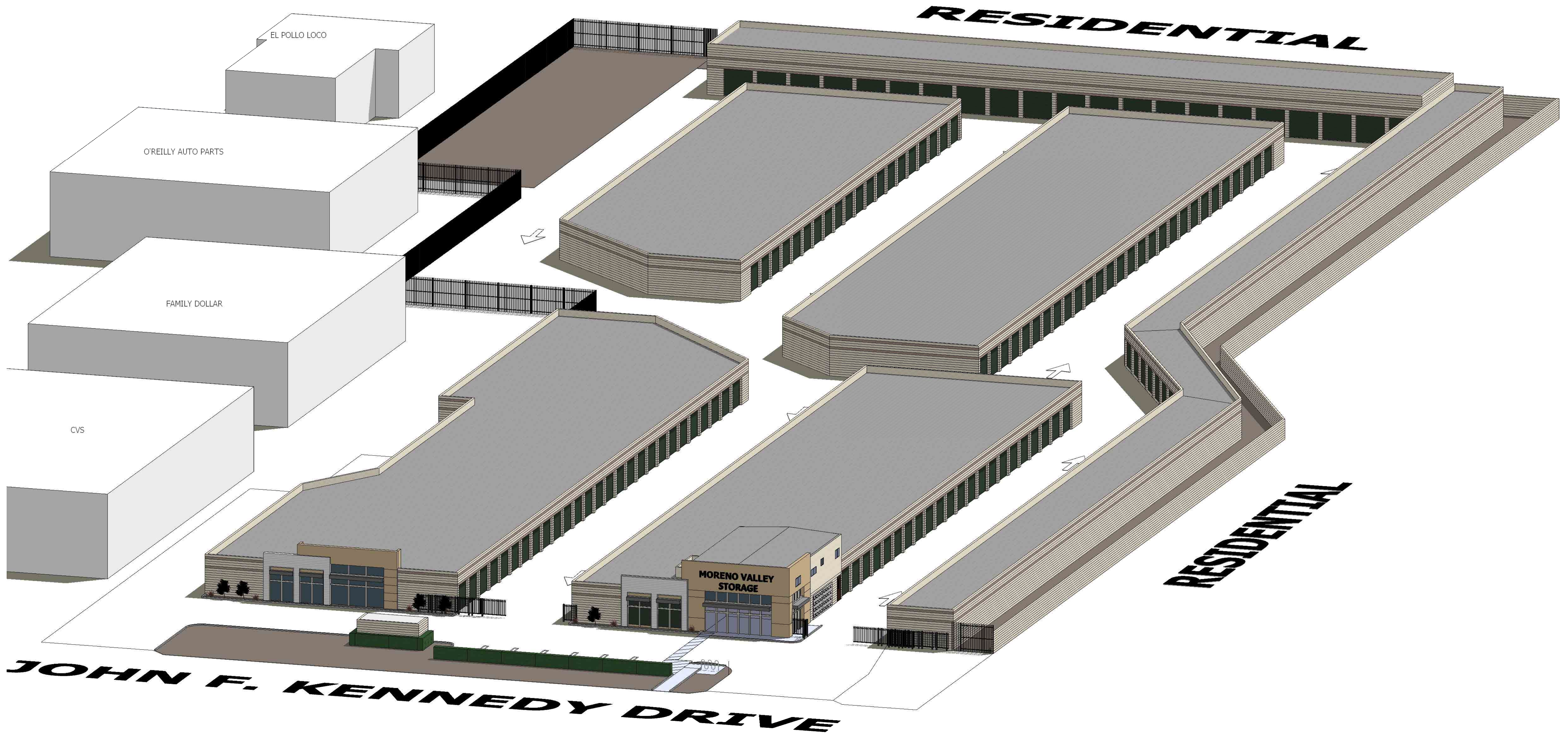
108. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations 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.)

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN17-0135)

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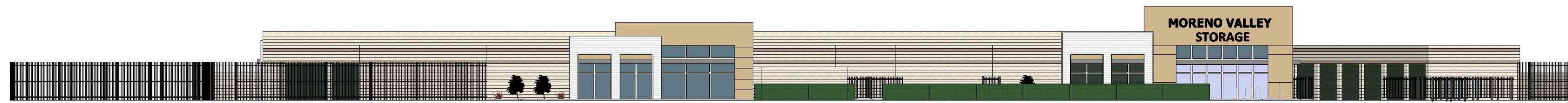
109. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest 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.)
110. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.
111. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.
112. 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.
113. 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.



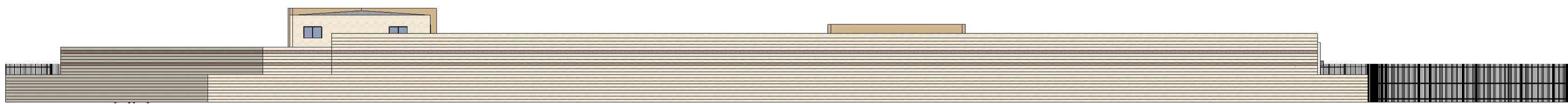
MORENO VALLEY SELF STORAGE
JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PROPERTY RENDERING

PROJECT: PEN17-0135
 DATE: 7/2/18



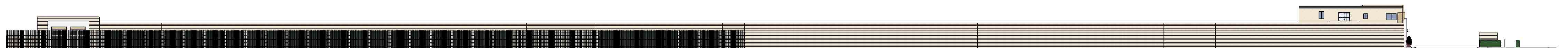
NORTH



SO. TH



WEST



EAST

MORENO VALLEY SELF STORAGE
JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

RESPECTIVE RENDERINGS

PROJECT: PEN17-0135
DATE: 7/2/18

PROJECT DATA

PARCEL NUMBER 485-081-037 & 043
 PROJECT AREA 4.47 ACRES
 194,713 SQ FT
 GP LAND USE DESIGNATION EXISTING: COMMERCIAL
 PROPOSED: COMMERCIAL
 ZONING EXISTING: NEIGHBORHOOD
 COMMERCIAL PROPOSED: COMMUNITY COMMERCIAL
 EXISTING USE VACANT
 PROPOSED LAND USE SELF STORAGE FACILITY

STORAGE BUILDING GROSS AREA

BUILDING 'A'	5,586	SQ FT
BUILDING 'B'	1,520	SQ FT
BUILDING 'C'	4,575	SQ FT
BUILDING 'D'	6,750	SQ FT
BUILDING 'E'	18,201	SQ FT
BUILDING 'F'	21,315	SQ FT
BUILDING 'G'	18,508	SQ FT
BUILDING 'H'	12,986	SQ FT
TOTAL STORAGE	89,441	SQ FT
OFFICE*	600	SQ FT
APARTMENT - 2ND STORY	1,500	SQ FT
TOTAL	90,941	SQ FT

*INCLUDED AS PART OF BLDG E SQUARE FOOTAGE

LOT COVERAGE

BUILDING COVERAGE	89,441	SQ FT (45.93%)
PAVEMENT AREA*	78,032	SQ FT (40.08%)
LANDSCAPED AREA	27,240	SQ FT (13.99%)
TOTAL	194,713	SQ FT (100%)

*INCLUDES DRIVEWAYS & PARKING AREAS

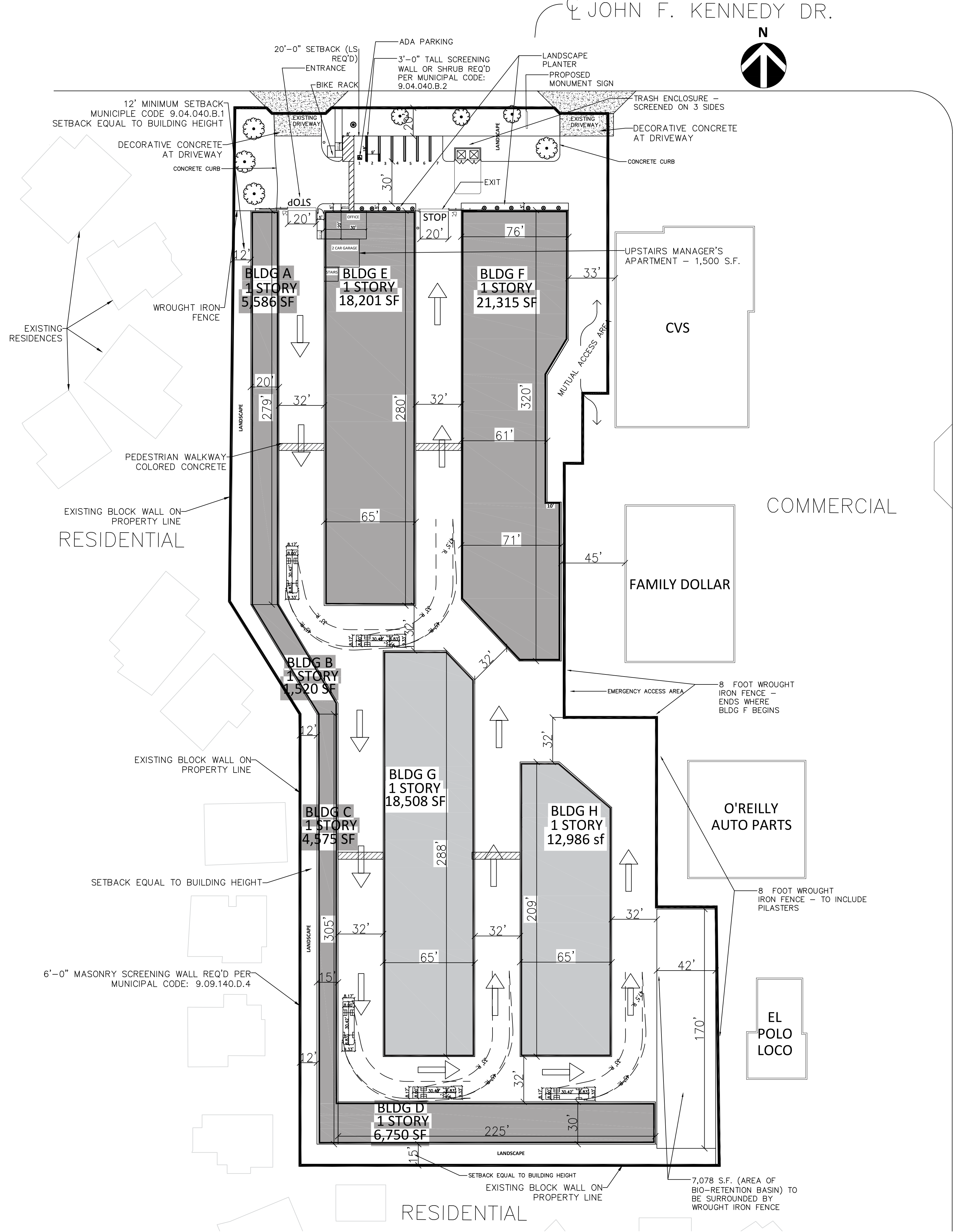
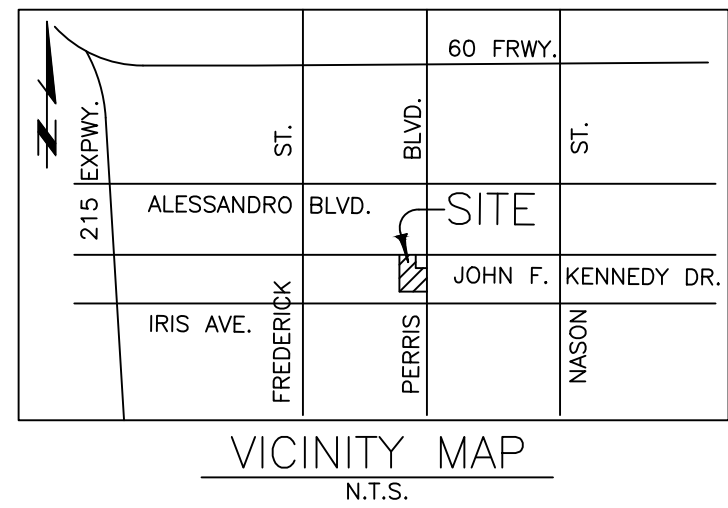
SETBACKS

PER CODE 9.04.040.B.1, SETBACK EQUAL TO BUILDING HEIGHT APPLIED ON BOTH THE WESTERN AND SOUTHERN BOUNDARIES.

PARKING

PARKING REQ'D:
 RATIO FOR STORAGE:
 (1 PER 100 STORAGE SPACES)
 538 STORAGE SPACES 6 STALLS
 TOTAL REQ'D: 6 STALLS

PROVIDED:
 STANDARD 6 STALLS
 ADA 1 STALLS
 2 CAR GARAGE (FOR
 ONSITE MANAGER'S RESIDENCE) 2 STALLS
 9 STALLS



OWNER/APPLICANT

OWNER:
 PROFESSORS FUND IV, LLC
 990 HIHGLAND DR. SUITE 204
 SOLANA BEACH, CA 92075
 PHONE: (604) 984-6400
 CONTACT: BOB EMRI

APPLICANT:
 GOSSETT DEVELOPMENT, INC.
 207 MONARCH BAY
 DANA POINT, CA 92629
 CONTACT: GARRETT GOSSETT
 PHONE: (949) 735-6041
 EMAIL: GARRETTMGOSSETT@GMAIL.COM

CIVIL ENGINEER

WINCHESTER ASSOCIATES, INC.
 DAVID J. SLAWSON
 23640 TOWER STREET, SUITE 3
 PO BOX 280
 MORENO VALLEY, CA 92556-0280
 PHONE: (951) 924-5425

ASSESSORS PARCEL NO.

485-081-037 & 043

TYPES OF CONSTRUCTION

ALL BUILDINGS: II-B

SPRINKLERED

BUILDINGS SHALL BE FULLY SPRINKLERED

OCCUPANCY CLASSIFICATIONS

STORAGE: S-1 OFFICE: B
 APARTMENT: R-3 GARAGE: U

FLOOD HAZARD

THE SUBJECT TRACT IS IN ZONE X AND NOT WITHIN THE 100 YEAR FLOOD PLAIN. FEMA FLOOD INSURANCE PANEL 06065C0765G

THOMAS BROTHERS GUIDE

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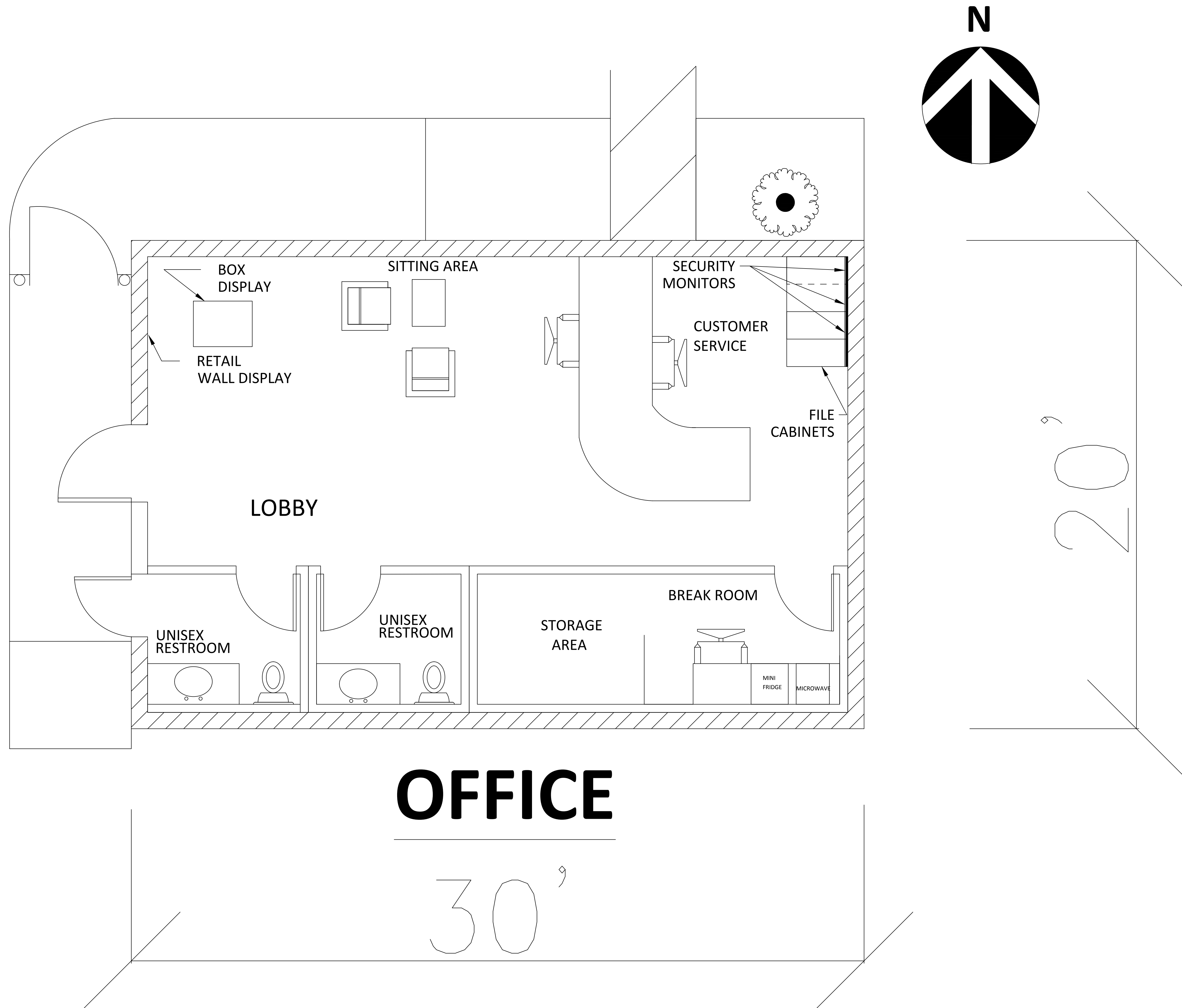
MARK	BY	DATE	REVISIONS

MORENO VALLEY SELF STORAGE

JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY SITE PLAN

SCALE: 1" = 40'-0"
 DATE: 6/18/18
 PROJECT NUMBER: PEN17-0135



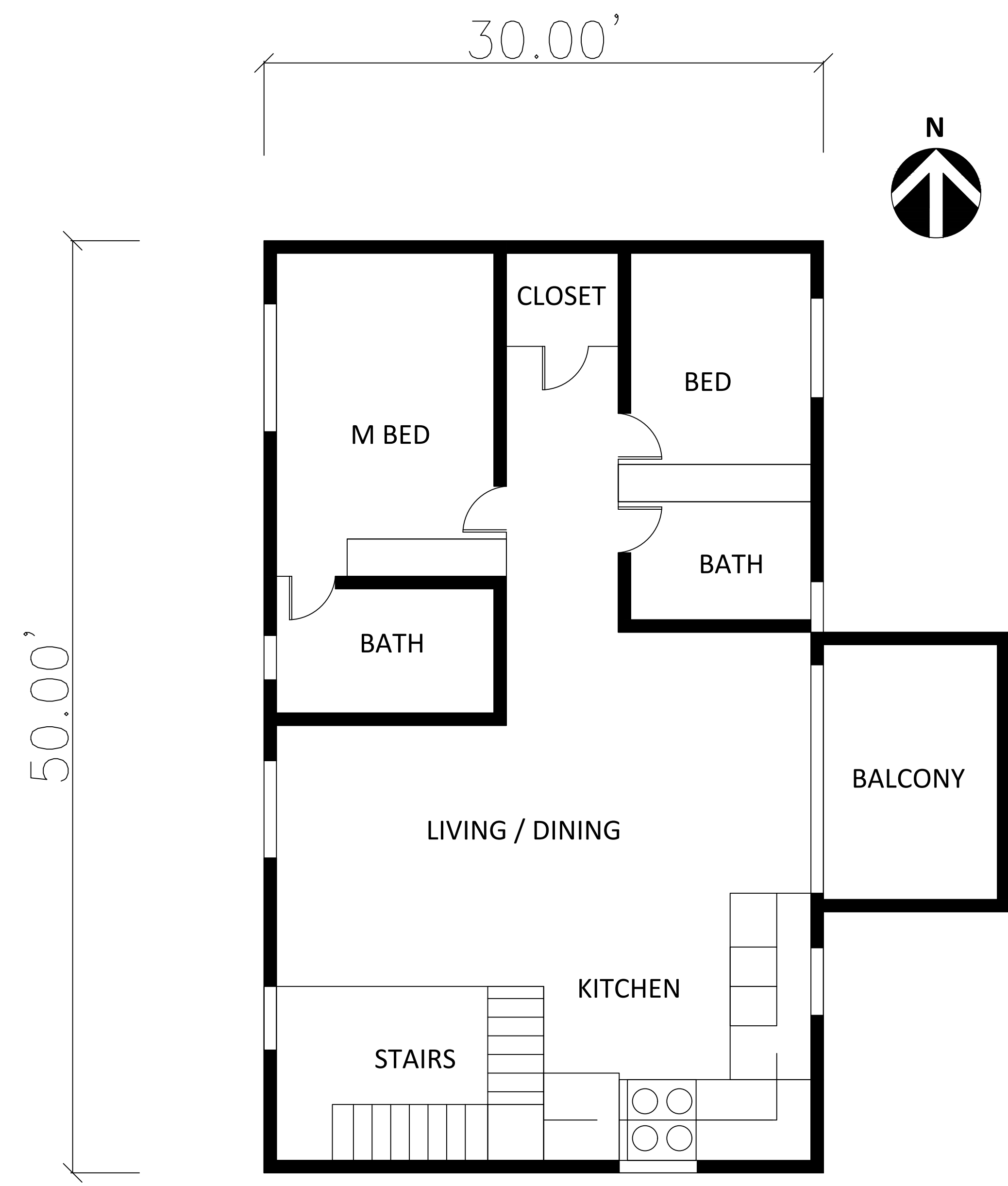
MORENO VALLEY SELF STORAGE

JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY OFFICE FLOOR PLAN

SCALE: 1" = 2'-0"
DATE: 5/8/18
PROJECT NUMBER: PEN17-0135

Attachment: Project Exhibits (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

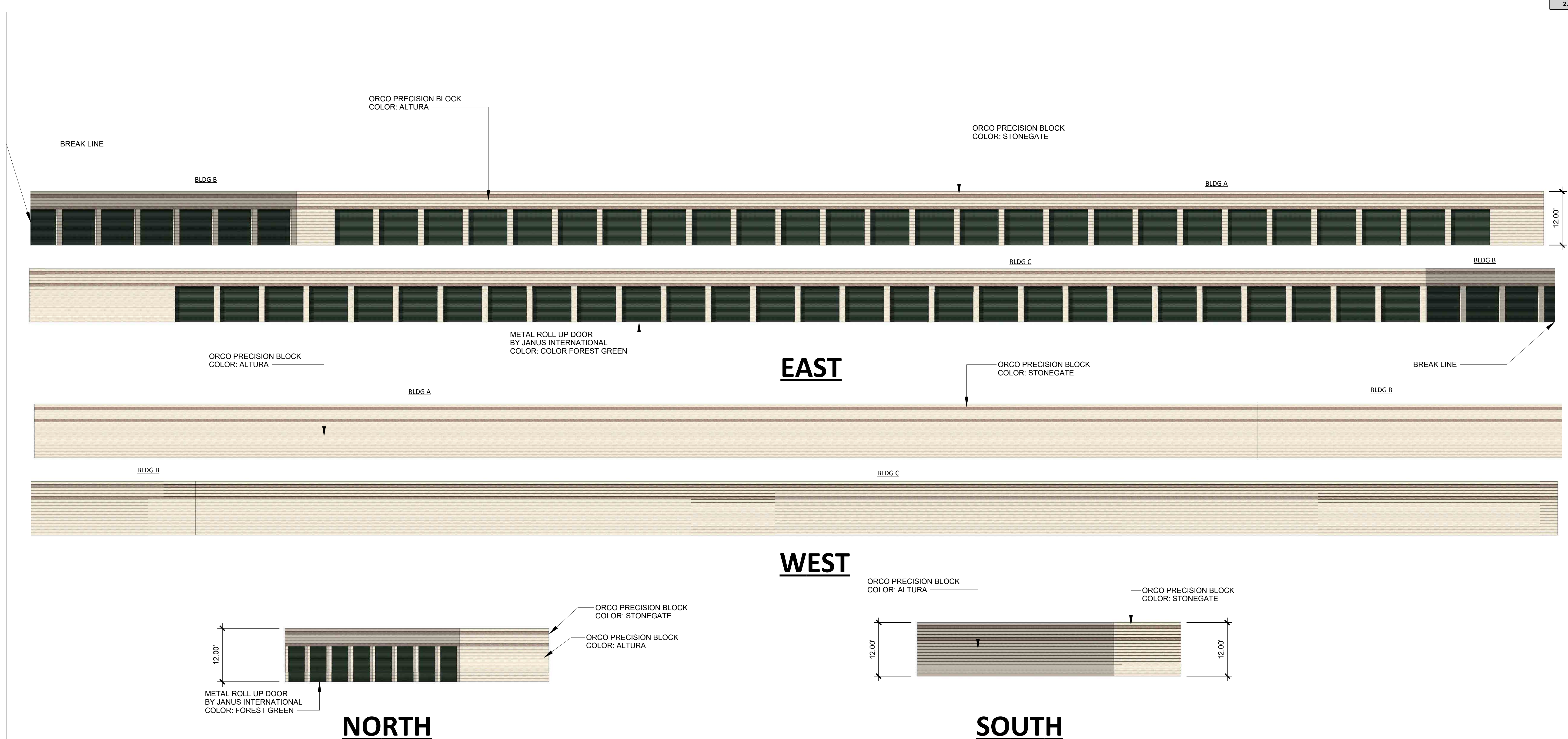


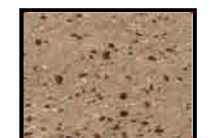



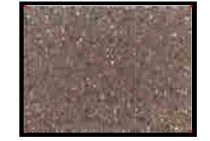

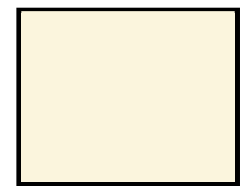


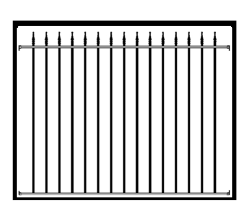

MORENO VALLEY SELF STORAGE

JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY APARTMENT FLOOR PLAN

SCALE: 1" = 5'-0"
DATE: 6/25/18
PROJECT NUMBER: PEN17-0135



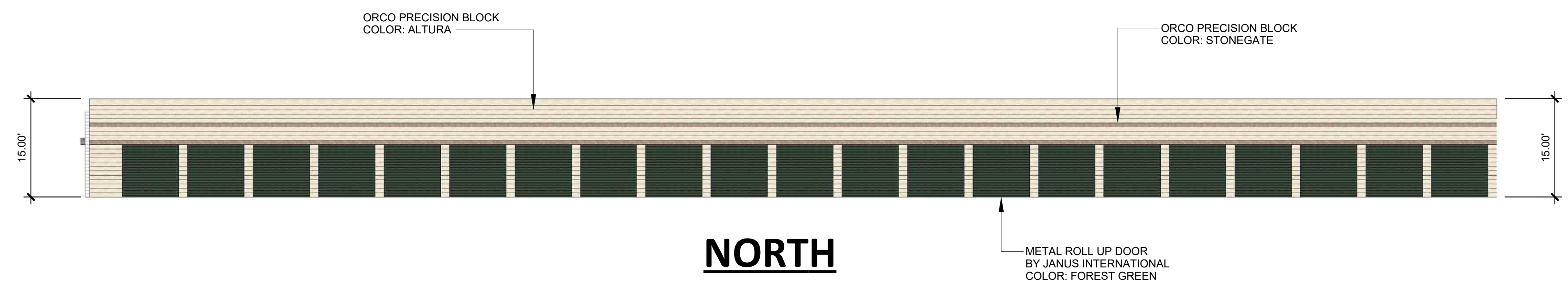
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 <p>ORCO BLOCK 8X8X16 SPLIT FACE COLOR: "OTAY BROWN" WEIGHT: MEDIUM OR SIMILAR</p>				 <p>SPANDREL GLAZING EXACT BRAND/SPECIFICS TBD</p>	 <p>LA HABRA: ROUGH STUCCO FINISH "ASPEN" COLOR BEIGE OR SIMILAR</p>		
 <p>ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "ALTURA" WEIGHT: MEDIUM OR SIMILAR</p>						 <p>METAL CANOPY EXACT BRAND/SPECIFICS TBD COLOR: GREY</p>	 <p>WROUGHT IRON FENCE COLOR: BLACK</p>
 <p>ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "STONEGATE" WEIGHT: MEDIUM OR SIMILAR</p>							

MORENO VALLEY SELF STORAGE

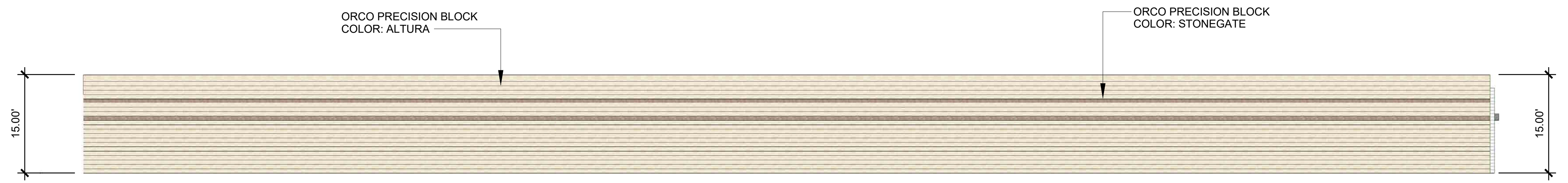
JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY ELEV BLDG. 'A, B & C'

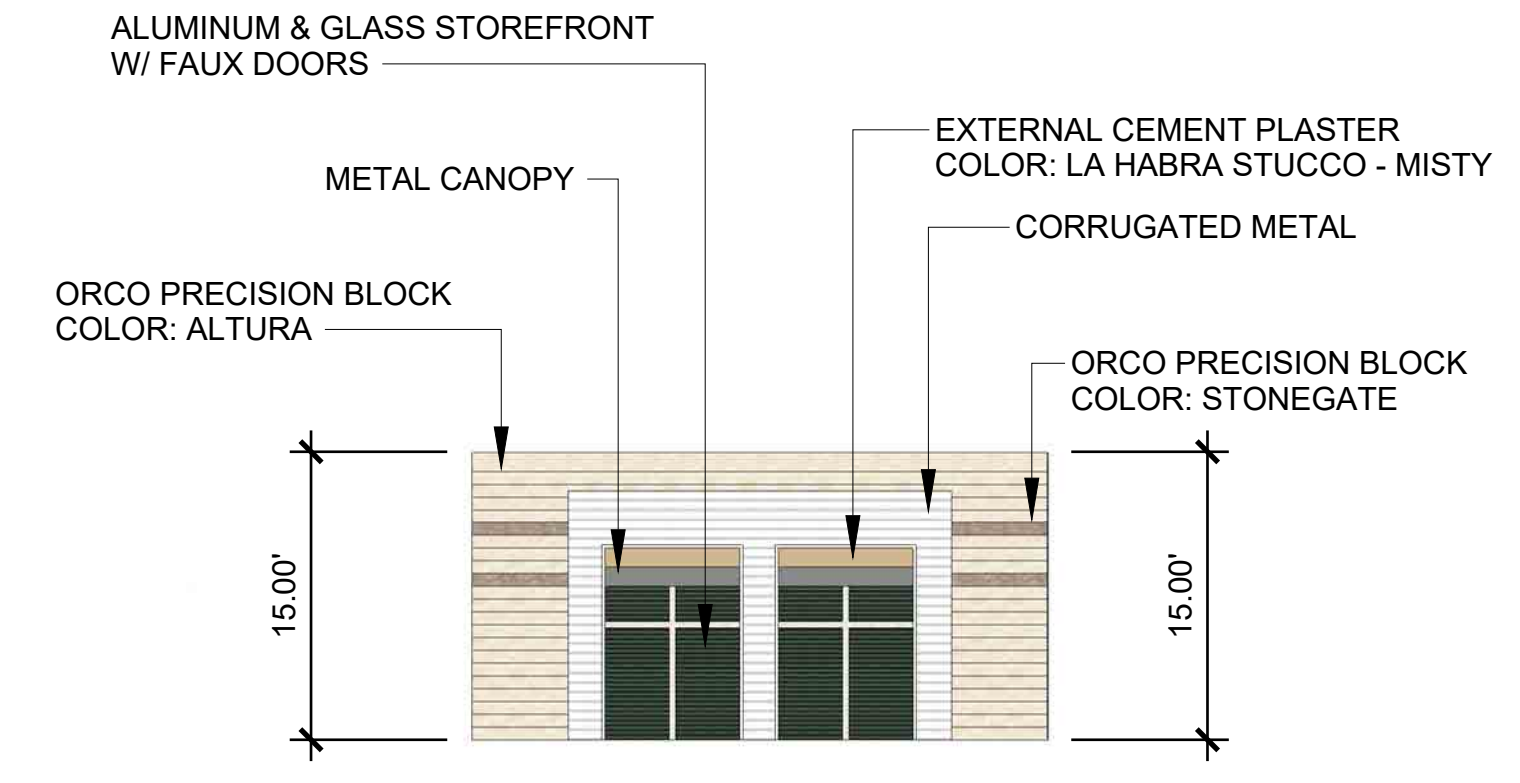
PROJECT: PEN17-0135
SCALE: 1" = 10'-0"
DATE: 7/2/18



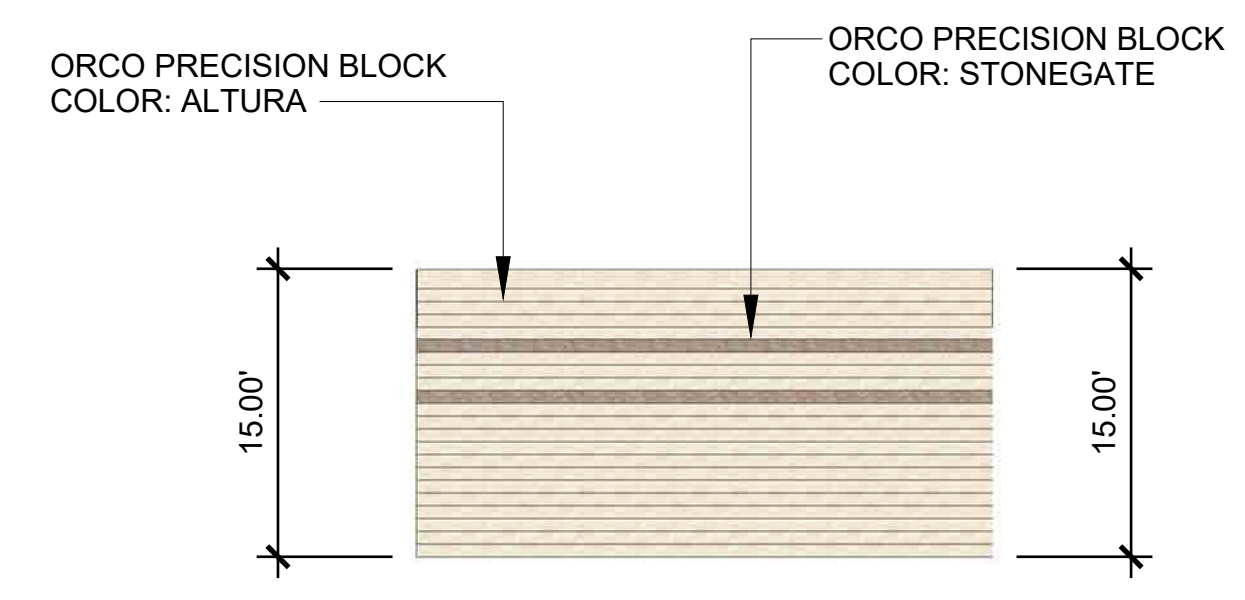
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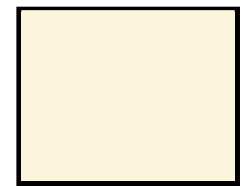


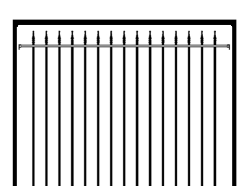

SOUTH



EAST



WEST

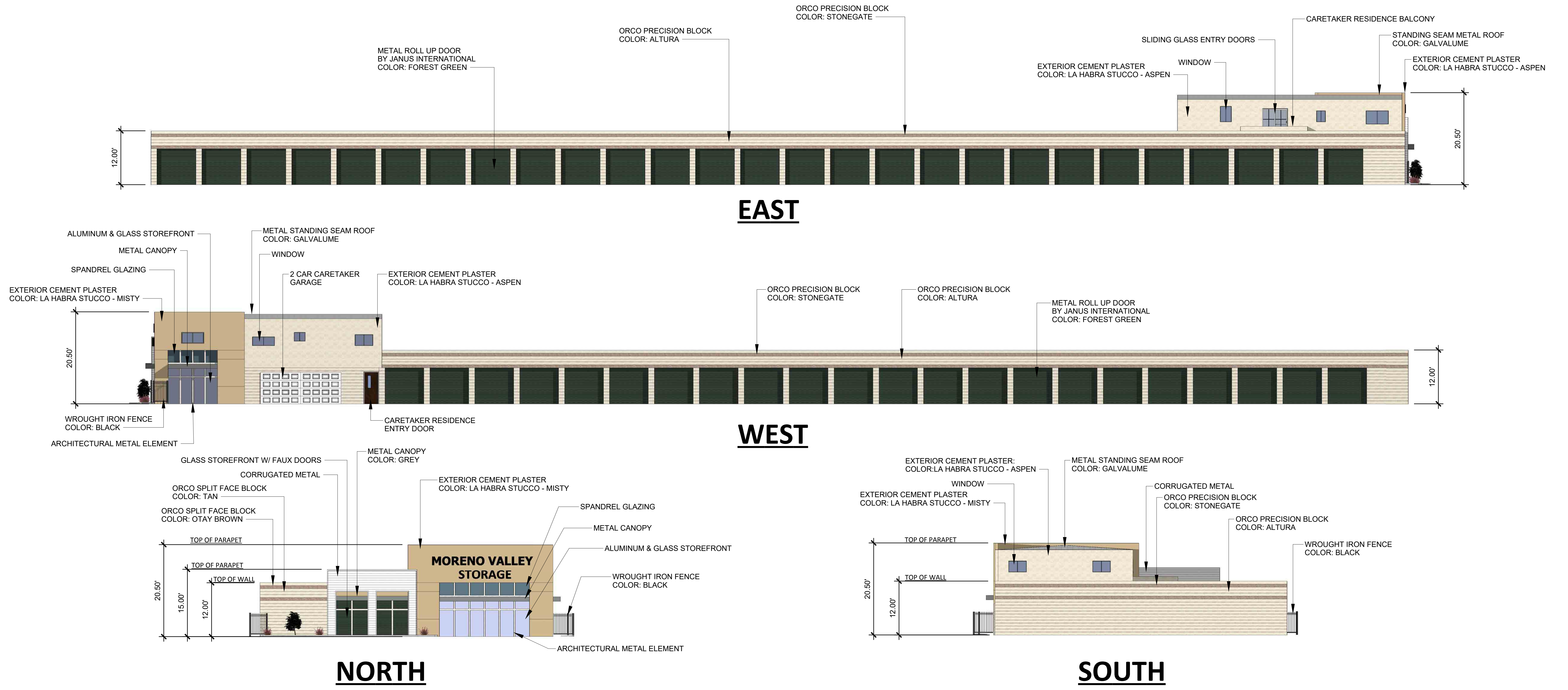
CMU	ARCHITECTURAL ELEMENT	ARCHITECTURAL ELEMENT	OTHER ITEMS
 <p>ORCO BLOCK 8X8X16 SPLIT FACE COLOR: "TAN" WEIGHT: MEDIUM OR SIMILAR</p>	 <p>JANUS INTERNATIONAL ROLL UP DOOR STANDARD PAINT COLOR: LG (FOREST) GREEN</p>	 <p>CORRUGATED METAL</p>	 <p>LA HABRA: ROUGH STUCCO FINISH "MISTY" COLOR BEIGE OR SIMILAR</p>
 <p>ORCO BLOCK 8X8X16 SPLIT FACE COLOR: "OTAY BROWN" WEIGHT: MEDIUM OR SIMILAR</p>		 <p>SPANDREL GLAZING EXACT BRAND/SPECIFICS TBD</p>	 <p>LA HABRA: ROUGH STUCCO FINISH "ASPEN" COLOR BEIGE OR SIMILAR</p>
 <p>ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "ALTURA" WEIGHT: MEDIUM OR SIMILAR</p>		 <p>METAL CANOPY EXACT BRAND/SPECIFICS TBD COLOR: GREY</p>	 <p>WROUGHT IRON FENCE COLOR: BLACK</p>
 <p>ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "STONEGATE" WEIGHT: MEDIUM OR SIMILAR</p>			

MORENO VALLEY SELF STORAGE

JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY ELEV BLDG. 'D'

PROJECT: PEN17-0135
SCALE: 1" = 10'-0"
DATE: 7/2/18



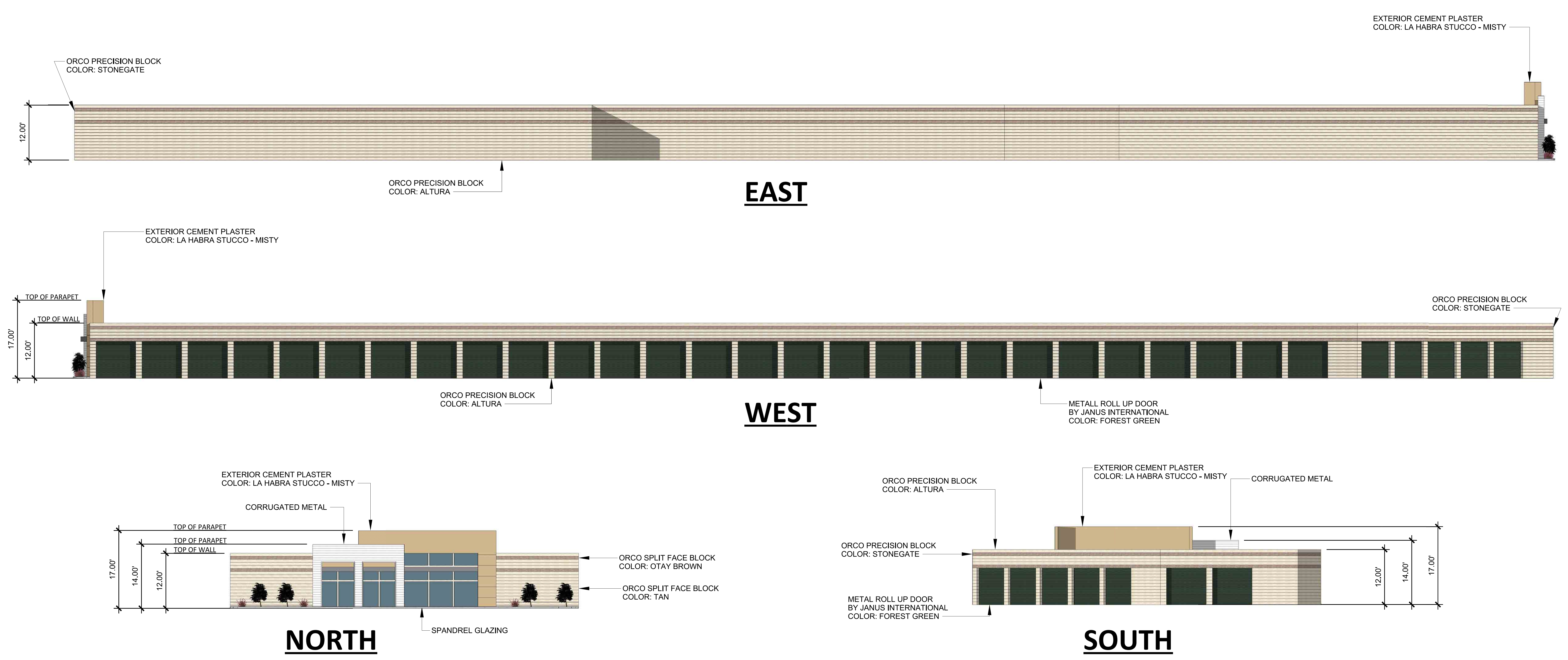
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	ORCO BLOCK 8X8X16 SPLIT FACE COLOR: "OTAY BROWN" WEIGHT: MEDIUM OR SIMILAR		CORRUGATED METAL
	ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "ALTURA" WEIGHT: MEDIUM OR SIMILAR		SPANDREL GLAZING EXACT BRAND/SPECIFICS TBD
	ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "STONEGATE" WEIGHT: MEDIUM OR SIMILAR		METAL CANOPY EXACT BRAND/SPECIFICS TBD COLOR: GREY
			LA HABRA: ROUGH STUCCO FINISH "MISTY" COLOR BEIGE OR SIMILAR
			LA HABRA: ROUGH STUCCO FINISH "ASPEN" COLOR BEIGE OR SIMILAR
			WROUGHT IRON FENCE COLOR: BLACK

MORENO VALLEY SELF STORAGE

JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY ELEV BLDG. 'E'

PROJECT: PEN17-0135
 SCALE: 1" = 10'-0"
 DATE: 7/2/18

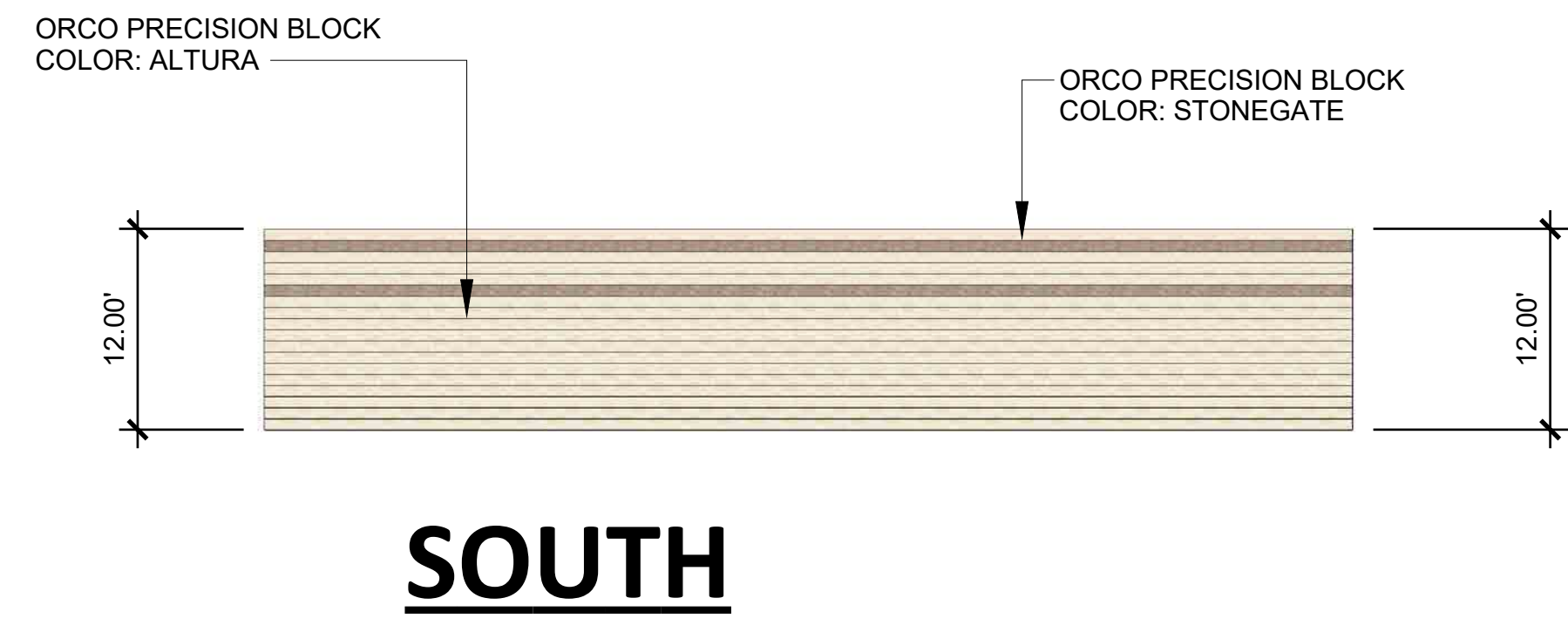
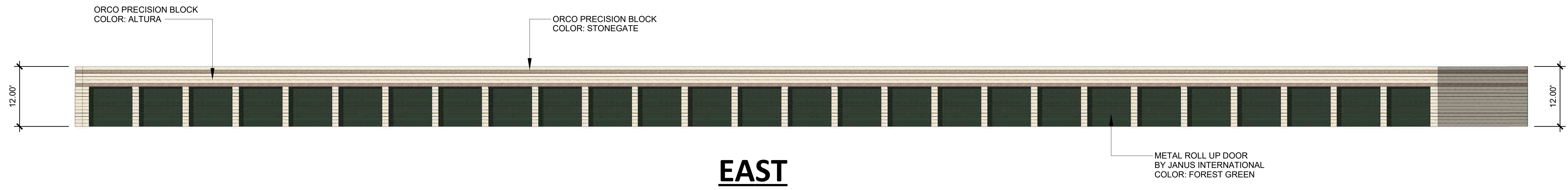


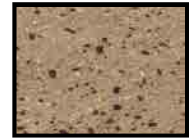





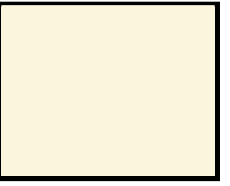


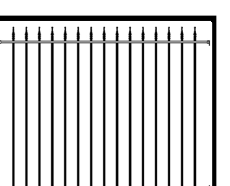

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	ORCO BLOCK 8X8X16 SPLIT FACE COLOR: "TAN" WEIGHT: MEDIUM OR SIMILAR		JANUS INTERNATIONAL ROLL UP DOOR STANDARD PAINT COLOR: LG (FOREST) GREEN
	ORCO BLOCK 8X8X16 SPLIT FACE COLOR: "OTAY BROWN" WEIGHT: MEDIUM OR SIMILAR		CORRUGATED METAL
	ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "ALTURA" WEIGHT: MEDIUM OR SIMILAR		SPANDREL GLAZING EXACT BRAND/SPECIFICS TBD
	ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "STONEGATE" WEIGHT: MEDIUM OR SIMILAR		METAL CANOPY EXACT BRAND/SPECIFICS TBD COLOR: GREY
			LA HABRA: ROUGH STUCCO FINISH "MISTY" COLOR BEIGE OR SIMILAR
			LA HABRA: ROUGH STUCCO FINISH "ASPEN" COLOR BEIGE OR SIMILAR
			WROUGHT IRON FENCE COLOR: BLACK

MORENO VALLEY SELF STORAGE
JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY ELEV BLDG. 'F'

PROJECT: PEN17-0135
 SCALE: 1" = 10'-0"
 DATE: 7/2/18

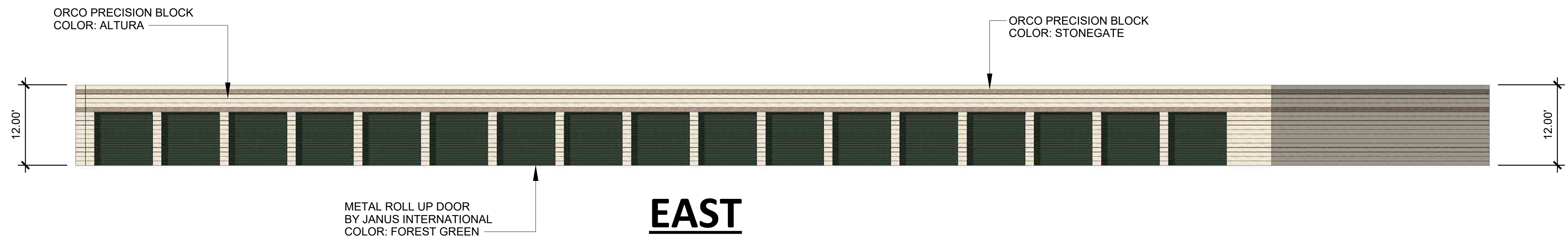


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 <p>ORCO BLOCK 8X8X16 SPLIT FACE COLOR: "OTAY BROWN" WEIGHT: MEDIUM OR SIMILAR</p>				 <p>SPANDREL GLAZING EXACT BRAND/SPECIFICS TBD</p>	 <p>LA HABRA: ROUGH STUCCO FINISH "ASPEN" COLOR BEIGE OR SIMILAR</p>		
 <p>ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "ALTURA" WEIGHT: MEDIUM OR SIMILAR</p>						 <p>METAL CANOPY EXACT BRAND/SPECIFICS TBD COLOR: GREY</p>	 <p>WROUGHT IRON FENCE COLOR: BLACK</p>
 <p>ORCO BLOCK 8X8X16 PRECISION BLOCK COLOR: "STONEGATE" WEIGHT: MEDIUM OR SIMILAR</p>							

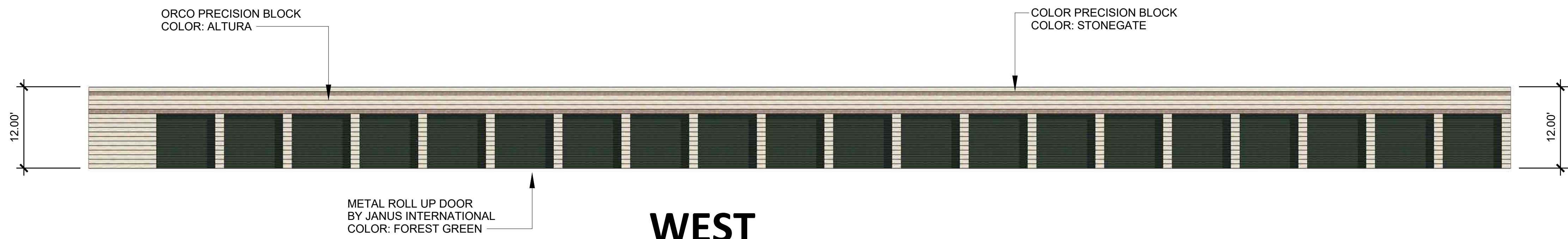
MORENO VALLEY SELF STORAGE
JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY ELEV BLDG. 'G'

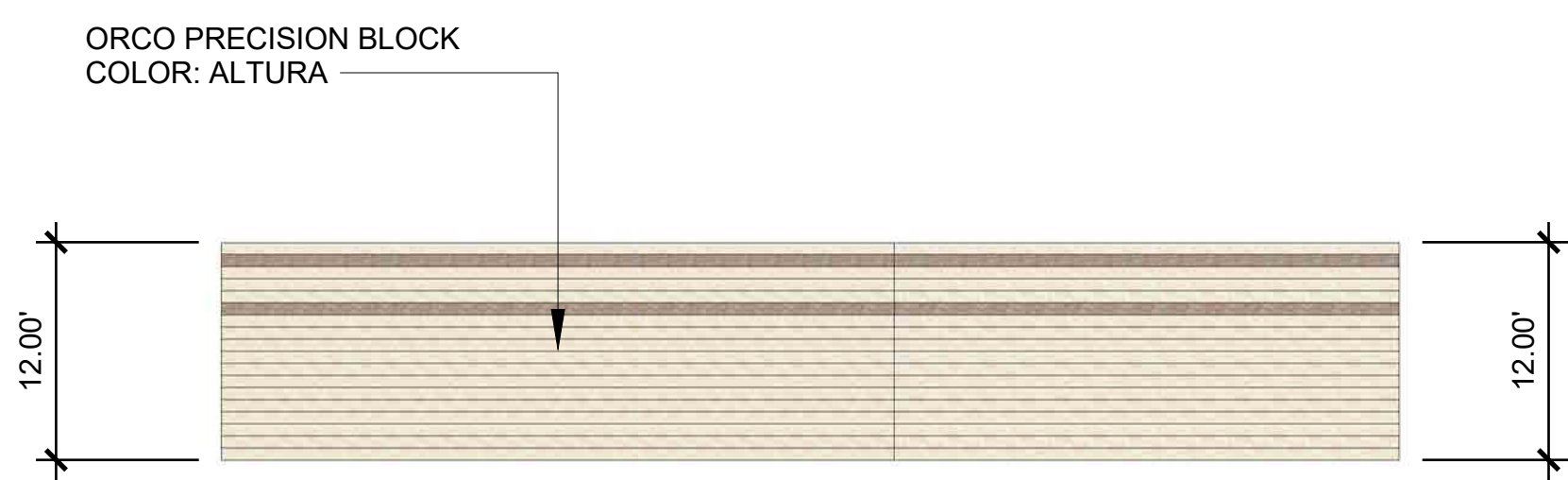
PROJECT: PEN17-0135
SCALE: 1" = 10'-0"
DATE: 7/2/18



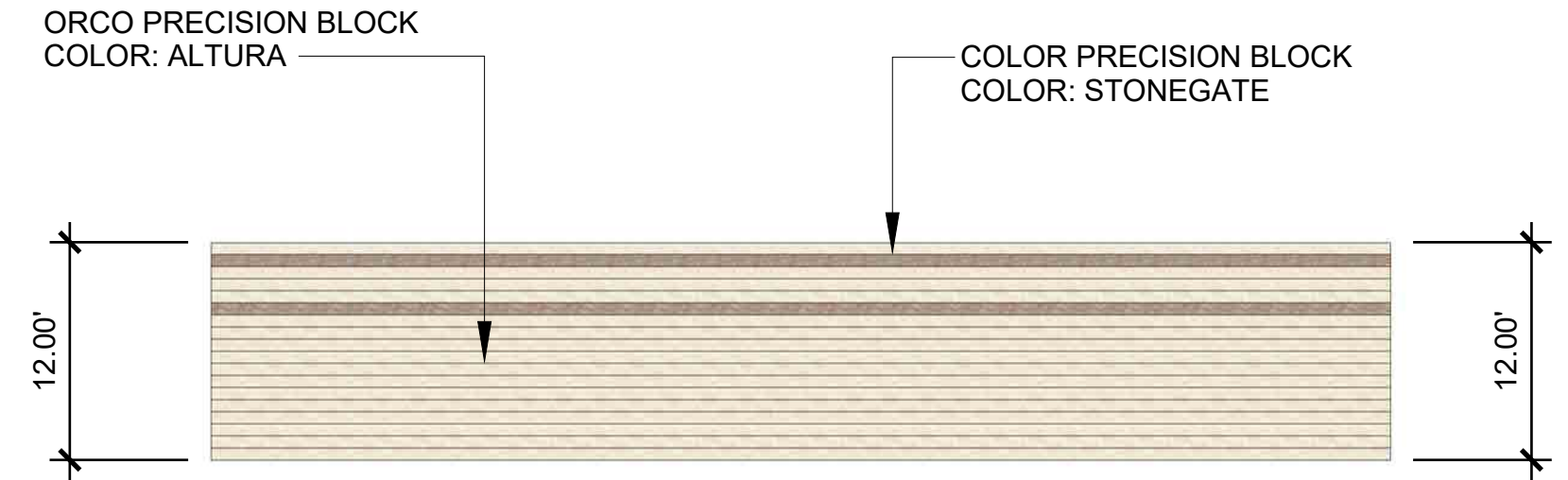
EAST












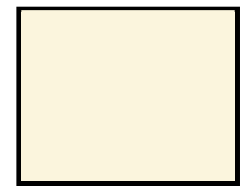
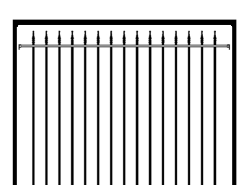
WEST



NORTH



SOUTH

CMU	ARCHITECTURAL ELEMENT	ARCHITECTURAL ELEMENT	OTHER ITEMS
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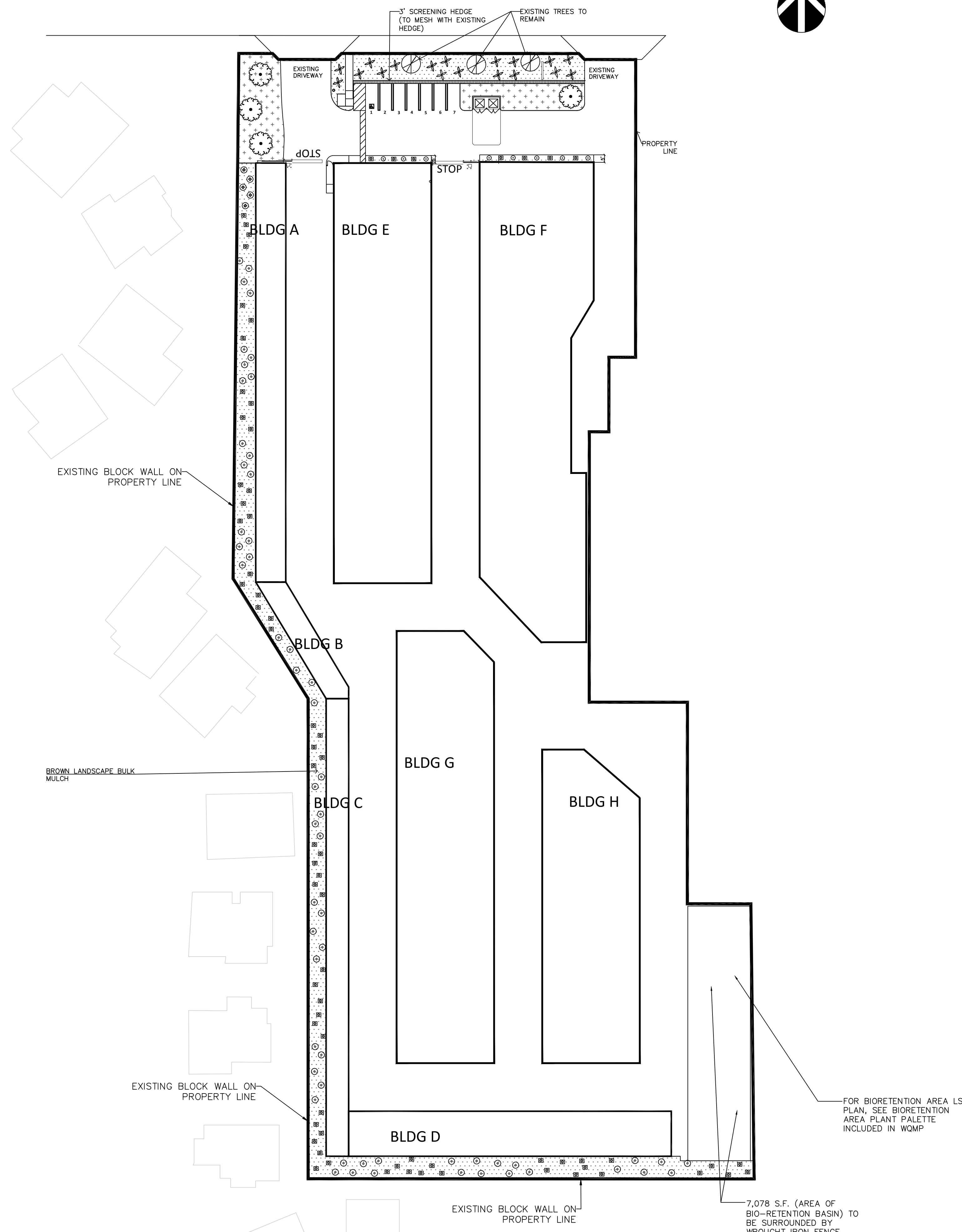
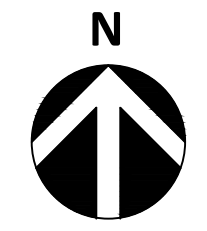
MORENO VALLEY SELF STORAGE

JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

PRELIMINARY ELEV BLDG. 'H'

PROJECT: PEN17-0135
SCALE: 1" = 10'-0"
DATE: 7/2/18

JOHN F. KENNEDY DR.



PLANT LEGEND			
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
	LAGERSTROEMIA	CREPE MYRTLE	24' BOX STANDARD
			EXISTING
	PHORMIUM 'SUNDOWNER'	NEW ZEALAND FLAX	5 GAL
	PHORMIUM 'SUNDOWNER'	NEW ZEALAND FLAX	1 GAL
	PITTOSPORUM TOBIRA	NANUM (MOCK ORANGE)	1 GAL
	LIGUSTRUM OVALIFOLIUM	PRIVET	1 OR 5 GAL
	ROSMARINUS OFFICINALIS	PROSTRATUS	FLATS 12" O.C.
	BROWN LANDSCAPE BULK MULCH		

MORENO VALLEY SELF STORAGE

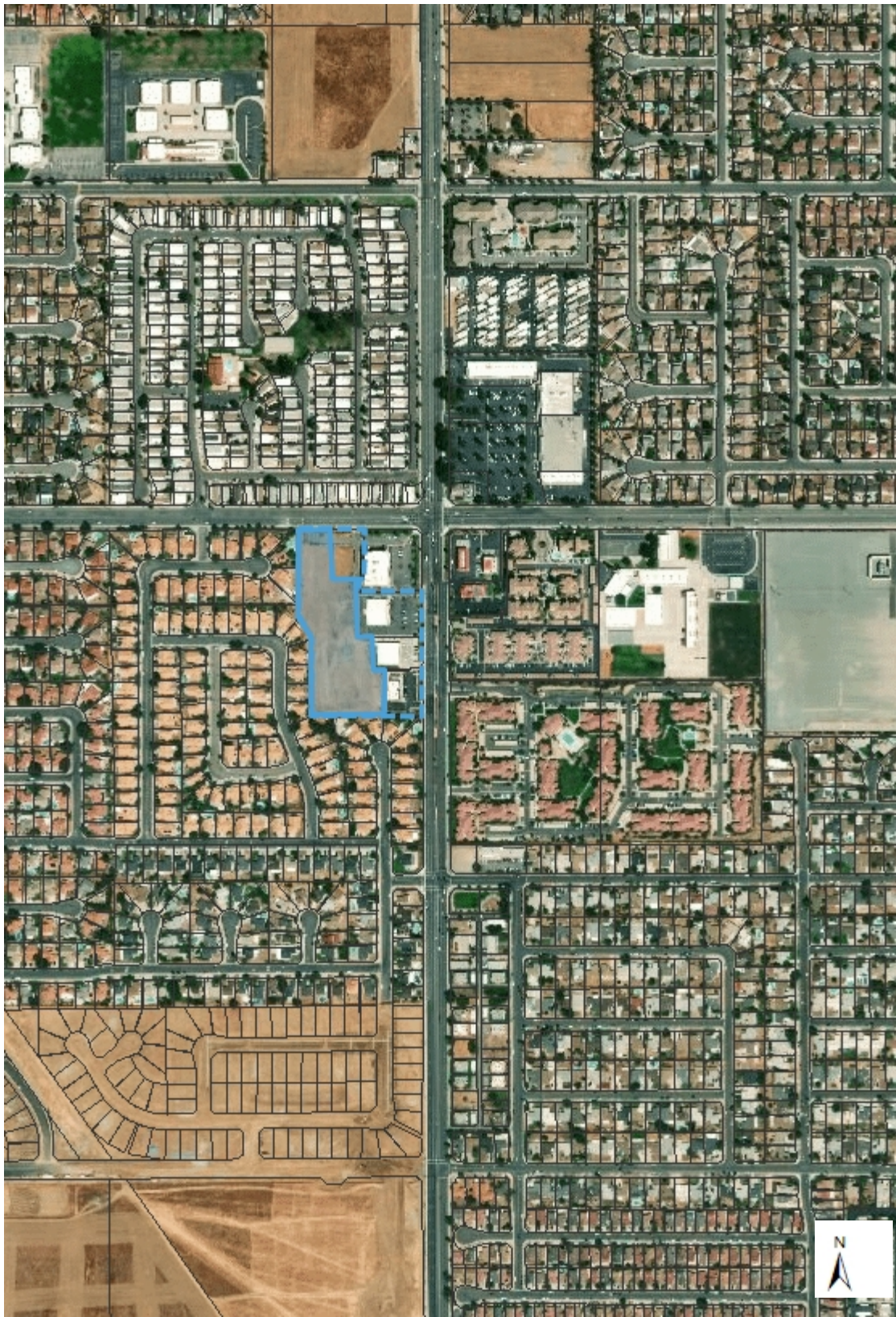
JOHN F. KENNEDY DRIVE, MORENO VALLEY, CA

CONCEPTUAL LANDSCAPE PLAN

SCALE: 1" = 40'-0"
DATE: 5/8/18
PROJECT NUMBER: PEN17-0135



Location Map



Legend

- Public Facilities
 - Public Facilities
 - ★ Fire Stations
- Parcels
- ⊞ City Boundary
- ⊞ Sphere of Influence

Notes

1,261.9 0 630.96 1,261.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 7/12/2018

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: Project Location Map (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)



KUNZMAN ASSOCIATES, INC.

MORENO VALLEY SELF-STORAGE FACILITY

AIR QUALITY AND GLOBAL CLIMATE CHANGE
IMPACT ANALYSIS

February 1, 2018



MORENO VALLEY SELF-STORAGE FACILITY

AIR QUALITY AND GLOBAL CLIMATE CHANGE
IMPACT ANALYSIS

February 1, 2018

Prepared by:

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I. INTRODUCTION AND SETTING

A. Purpose and Objectives

This study was performed for the proposed Moreno Valley Self-Storage Facility project to address the possibility of regional and local air quality impacts, global climate change impacts, and cancer risk from mobile source diesel emissions. The objectives of the study include:

- documentation of the atmospheric setting
- discussion of criteria pollutants and greenhouse gases
- discussion of the air quality and global climate change regulatory framework
- discussion of the air quality, greenhouse gases, and cancer risk thresholds of significance
- analysis of the construction related air quality and greenhouse gas emissions
- analysis of the operations related air quality and greenhouse gas emissions
- analysis of the conformity of the proposed project with the SCAQMD AQMP
- recommendations for mitigation measures

The City of Moreno Valley is the lead agency responsible for preparation of this air quality analysis, in accordance with the California Environmental Quality Act authorizing legislation. Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with terms unique to air quality and global climate change, a definition of terms has been provided in Appendix A.

B. Project Location

The proposed project is located near the southwest corner of the John F. Kennedy Drive and Perris Boulevard intersection in the City of Moreno Valley. The City of Moreno Valley General Plan Land Use Map designates the site as General Commercial. The project is proposing a Conditional Use Permit to rezone the site to Community Commercial. The project site APNs are 485-081-037 and 485-081-043. A vicinity map showing the project location is provided on Figure 1.

C. Project Description

The project proposes to develop an approximately 4.47 acre (194,713 square foot) project site with a 90,565 square foot self-storage facility. The self-storage facility is proposed to consist of eight one-story storage buildings including a 600 square foot office sales center. The project site is proposed to provide a parking lot with 7 parking spaces. Figure 2 illustrates the project site plan.

D. Phasing and Timing

The phasing for the proposed project is unknown at this time; therefore, in order to show a worst-case scenario and be consistent with the Traffic Impact analysis prepared for the proposed project it has been modeled as one phase. Project construction is expected to

start no sooner than September 2018 with the project being completed in less than 12 months. The project is anticipated to be operational in 2019.

E. Sensitive Receptors in Project Vicinity

For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be a receptor such as a residence, hospital, or convalescent facility where it is possible that an individual could remain at the location for 24 hours. SCAQMD also considers land uses such as schools, child care centers, athletic facilities, and playgrounds to be sensitive receptors. Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain on-site for a full 24 hours, but are present for shorter periods of time, such as eight hours.

The nearest sensitive receptors to the project site are the single-family detached residential dwelling units located adjacent to the west and south of the proposed project site. A mobile home park is also located approximately 85 feet north (across John F. Kennedy Drive) and multi-family attached residential dwelling units are located approximately 250 feet east (across Perris Boulevard) of the project site. In addition, Armada Elementary School is located approximately 865 feet east of the project site.

F. Executive Summary of Findings

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 trips 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.

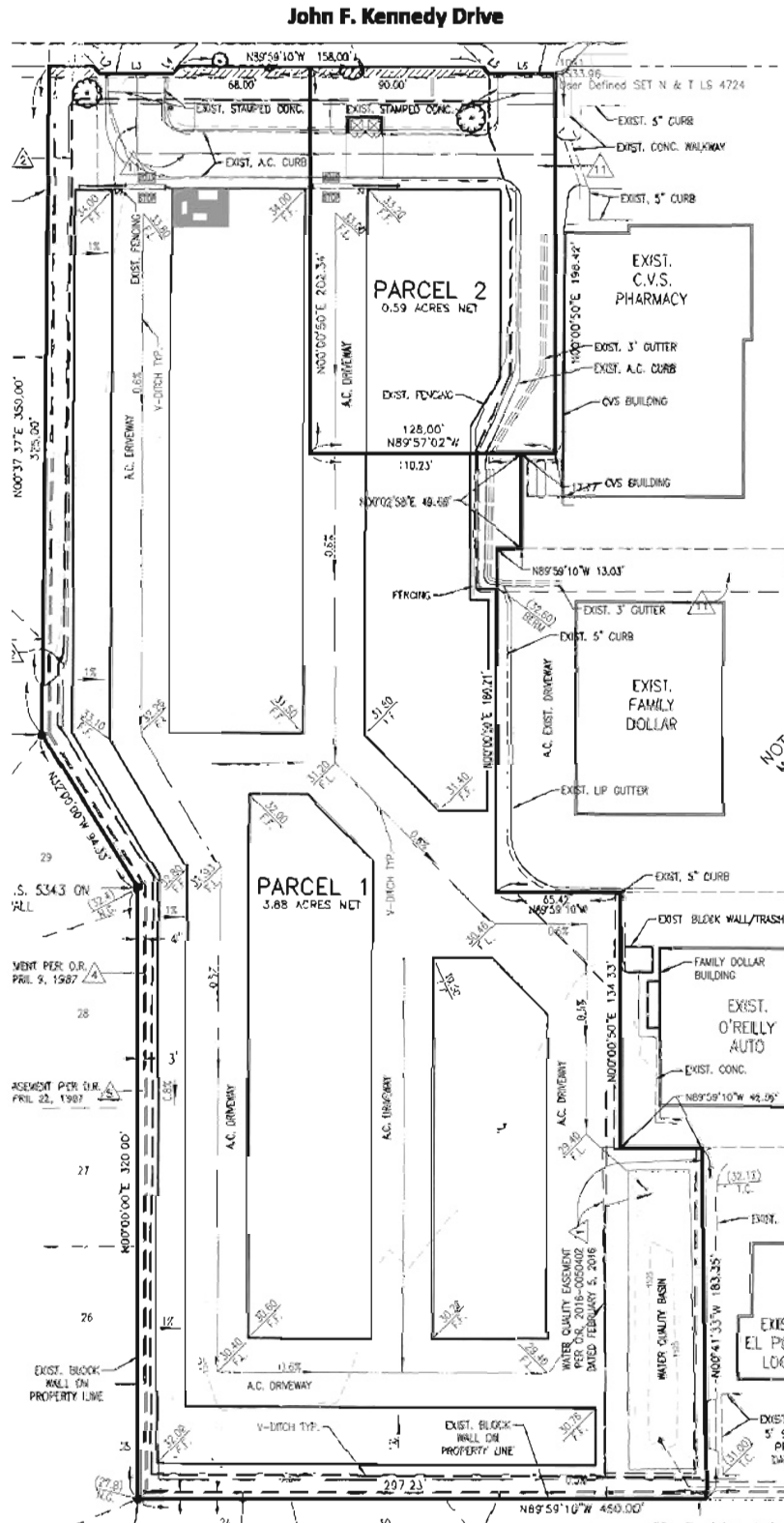
Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

Project-related GHG emissions are also considered to be less than significant and will not conflict with the goals of AB-32, SB-32, the City of Moreno Valley Greenhouse Gas Analysis or the City of Moreno Valley Energy Efficiency and Climate Action Strategy.

Figure 1
Project Location Map



Figure 2 Site Plan



Perris Boulevard



Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

II. ATMOSPHERIC SETTING

The project site is located within the western portion of Riverside County, which is part of the South Coast Air Basin (Basin) 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. The project site is located toward the northeast portion of the South Coast Air Basin near the foot of the San Bernardino Mountains, which define the eastern boundary of the South Coast Air Basin.

The climate of western Riverside County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western Riverside County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the populated areas of the Los Angeles Basin. This airflow brings polluted air into western Riverside County late in the afternoon. This transport pattern creates unhealthy air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western Riverside County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the South Coast Air Basin into the interior valleys which become trapped by the mountains that border the eastern edge of the South Coast Air Basin.

In the summer, 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 cloud.

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 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.

The temperature and precipitation levels for the Riverside area (in proximity to the site) are shown below in Table 1. Table 1 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 1
Riverside Monthly Climate Data¹

Descriptor	Month of Year											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Max. Temperature	69.1	69.8	73.1	77.6	82.4	88.4	94.6	95.7	91.5	83.5	72.6	68.8
Avg. Min. Temperature	42.3	44.3	46.4	49.8	54.9	58.9	63.3	64.1	60.7	54.1	44.9	41.6
Avg. Total Precipitation (in.)	1.81	2.39	1.79	0.70	0.19	0.08	0.04	0.12	0.15	0.46	0.78	1.39

¹ Source: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7470>

Data taken from the Riverside Fire Sta 3, CA (047470) Monitoring Station

III. POLLUTANTS

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

A. Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants “criteria” air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

1. Nitrogen Dioxide (NO₂)

Nitrogen Oxides (NO_x) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NO_x are colorless and odorless, concentrations of nitrogen dioxide (NO₂) can often be seen as a reddish-brown layer over many urban areas. NO_x form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NO_x reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO₂, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NO_x is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

2. Ozone

Ozone is not usually emitted directly into the air but at ground-level is created by a chemical reaction between NO_x and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NO_x and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NO_x and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NO_x and VOC emissions.

3. Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

4. Sulfur Dioxide (SO₂)

Sulfur Oxide (SO_x) gases (including sulfur dioxide [SO₂]) are formed when fuel containing sulfur, such as coal and oil is burned, and from the refining of gasoline. SO_x dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

5. Lead (Pb)

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system,

leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

6. Particulate Matter (PM)

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Particulate matter is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

7. Volatile Organic Compounds (VOC)

Although not a criteria pollutant, reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably. Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM10 and lower visibility.

B. Other Pollutants of Concern

1. Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as from accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of

toxic air contaminants with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to the 2013 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of PM_{2.5} because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in diesel particulate matter by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

2. Asbestos

Asbestos is listed as a TAC by the ARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. Naturally occurring asbestos is not present in Riverside County. The nearest likely locations of naturally occurring asbestos, as identified in the General Location Guide for Ultramafic Rocks in California prepared by the California Division of Mines and Geology, is located in Santa Barbara County. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

C. 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 (NO_x) 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. The following provides a description of each of the greenhouse gases and their global warming potential.

1. Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

2. Carbon Dioxide

The natural production and absorption of CO₂ is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s. Each of these activities has increased in scale and distribution. CO₂ was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC Fifth Assessment Report, 2014) Emissions of CO₂ from fossil fuel combustion and industrial processes contributed about 78% of the total GHG emissions increase from 1970 to 2010, with a similar percentage contribution for the increase during the period 2000 to 2010. Globally, economic and population growth continued to be the most important

drivers of increases in CO₂ emissions from fossil fuel combustion. The contribution of population growth between 2000 and 2010 remained roughly identical to the previous three decades, while the contribution of economic growth has risen sharply.

3. Methane

CH₄ is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO₂. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO₂, N₂O, and Chlorofluorocarbons (CFCs)). CH₄ has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

4. Nitrous Oxide

Concentrations of N₂O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N₂O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is also commonly used as an aerosol spray propellant, (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and in race cars).

5. Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C₂H₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

6. Hydrofluorocarbons

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF₃), HFC-134a (CF₃CH₂F), and HFC-152a (CH₃CHF₂). Prior to 1990, the only

significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

7. Perfluorocarbons

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF₄) and hexafluoroethane (C₂F₆). Concentrations of CF₄ in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

8. Sulfur Hexafluoride

SF₆ is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF₆ has the highest global warming potential of any gas evaluated; 23,900 times that of CO₂. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

9. Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

10. Global Warming Potential

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO₂). The larger the GWP, the more that a given gas warms the Earth compared to CO₂ over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases (e.g., to compile a national GHG inventory), and allows policymakers to compare emissions reduction opportunities across sectors and gases. A summary of the atmospheric lifetime and

the global warming potential of selected gases are summarized in Table 2. As shown in Table 2, the global warming potential of GHGs ranges from 1 to 22,800.

Table 2
Global Warming Potentials and Atmospheric Lifetimes¹

Gas	Atmospheric Lifetime	Global Warming Potential ² (100 Year Horizon)
Carbon Dioxide (CO ₂)	— ³	1
Methane (CH ₄)	12	28-36
Nitrous Oxide (NO)	114	298
Hydrofluorocarbons (HFCs)	1-270	12-14,800
Perfluorocarbons (PFCs)	2,600-50,000	7,390-12,200
Nitrogen trifluoride (NF ₃)	740	17,200
Sulfur Hexafluoride (SF ₆)	3,200	22,800

¹ Source: <http://www3.epa.gov/climatechange/ghgemissions/gases.html>

² Compared to the same quantity of CO₂ emissions.

³ Carbon dioxide's lifetime is poorly defined because the gas is not destroyed over time, but instead moves among different parts of the ocean-atmosphere-land system. Some of the excess carbon dioxide will be absorbed quickly (for example, by the ocean surface), but some will remain in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments.

IV. AIR QUALITY MANAGEMENT

A. Regulatory Setting

The proposed project is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

1. International

Montreal Protocol

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

The Paris Agreement

The Paris Agreement entered into force on 4 November 2016, thirty days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55% of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depository.

The Paris Agreement builds upon the Convention and – for the first time – brings all nations into a common cause to undertake take ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable

countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework.

2. Federal - United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The National Ambient Air Quality Standards (NAAQS) pollutants were identified using medical evidence and are shown below in Table 3.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The State Implementation Plan (SIP) must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the State Implementation Plan (SIP).

The EPA and the California Air Resource 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. 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. Attainment status is shown in Table 4.

As indicated below in Table 4, the Basin has been designated by the EPA as a non-attainment area for ozone (O₃) and suspended particulates (PM₁₀ and PM_{2.5}). Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO₂), and nitrogen dioxide (NO₂).

In 2011, the Basin exceeded federal standards for either ozone or PM_{2.5} at one or more locations on a total of 124 days, based on the current federal standards for 8-hour ozone and 24-hour PM_{2.5}. Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Basin still exceed the NAAQS for ozone more frequently than any other stations in the U.S. In 2011, three of the top five stations that exceeded the 8-hour ozone NAAQS were located in the Basin (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County).

PM2.5 in the Basin has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the Basin (Metropolitan Riverside County at Mira Loma) exceeded the annual PM2.5 NAAQS and the 98th percentile form of the 24-hour PM2.5 NAAQS, as well as the 3-year design values for these standards. Basin-wide, the federal PM2.5 24-hour standard level was exceeded in 2011 on 17 sampling days.

The Basin is currently in attainment for the federal standards for carbon monoxide (CO), lead, sulfur dioxide (SO₂), and nitrogen dioxide (NO₂). While the concentration level of the new 1-hour NO₂ federal standard (100 ppb) was exceeded in the Basin at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS NO₂ design value has not been exceeded. Therefore, the Basin remains in attainment of the NO₂ NAAQS.

The EPA designated the Los Angeles County portion of the Basin as nonattainment for the recently revised (2008) federal lead standard (0.15 µg/m³, rolling 3-month average), due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard in the 2007-2009 period of data used.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO₂ and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions will not themselves impose any requirements on industry or other entities. However, it is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the EPA and Department of Transportation on September 15, 2009.

On March 19, 2015, the Whitehouse announced that President Obama will issue an Executive Order that will cut the Federal Government’s greenhouse gas (GHG) emissions 40 percent over the next decade from 2008 levels -- saving taxpayers up to \$18 billion in avoided energy costs -- and increase the share of electricity the Federal Government consumes from renewable sources to 30 percent. Complementing this effort, several major Federal suppliers are announcing commitments to cut their own GHG emissions. Today, the Administration is hosting a roundtable that will bring some of these large Federal suppliers together to discuss the benefits of their GHG reduction targets or to make their first-ever corporate commitments to disclose emissions and set new reduction goals.

Together, the combined results of the Federal Government actions and new supplier commitments will reduce GHG emissions by 26 million metric tons by 2025 from 2008 levels, the equivalent of taking nearly 5.5 million cars off the road for a year. To encourage continued progress across the Federal supply chain, the Administration is releasing a new scorecard to publicly track self-reported emissions disclosure and progress for all major Federal suppliers, who together represent more than \$187 billion in Federal spending and account for more than 40 percent of all Federal contract dollars.

Since the Federal Government is the single largest consumer of energy in the Nation, Federal emissions reductions and progress across the supply chain will have broad impacts. The new commitments announced today support the United States’ international commitment to cut net GHG emissions 26-28 percent below 2005 levels by 2025, which President Obama first announced in November 2014 as part of an historic agreement with China. Additionally, the goals build on the strong progress made by Federal agencies during the first six years of the Administration under President Obama’s 2009 Executive Order on Federal Leadership on Environmental, Energy and Economic Performance, including reducing Federal GHG emissions by 17 percent — which helped Federal agencies avoid \$1.8 billion in cumulative energy costs — and increasing the share of renewable energy consumption to 9 percent.¹

3. State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan (SIP). The California Ambient Air Quality Standards (CAAQS) for criteria pollutants are shown in Table 3. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g., hairspray,

¹ Source: <https://www.whitehouse.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro>.

aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The South Coast Air Basin has been designated by the CARB as a nonattainment area for ozone, PM10 and PM2.5. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, lead, SO₂, NO₂, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

On June 20, 2002, the CARB revised the PM10 annual average standard to 20 µg/m³ and established an annual average standard for PM2.5 of 12 µg/m³. These standards were approved by the Office of Administrative Law in June 2003 and are now effective. On September 27, 2007 CARB approved the South Coast Air Basin and the Coachella Valley 2007 Air Quality Management Plan for Attaining the Federal 8-hour Ozone and PM2.5 Standards. The plan projects attainment for the 8-hour Ozone standard by 2024 and the PM2.5 standard by 2015.

The CARB is also responsible for regulations pertaining to toxic air contaminants. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into the South Coast Air Basin. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the “Pavley I” regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. This regulation will reduce GHG emissions by 30 percent from 2002 levels by 2016. The second set of regulations “Pavley II” is currently in development and will be phased in between model years 2017 through 2025 and will reduce emissions by 45 percent by the year 2020. The Pavley II standards are being developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the “LEV III” (third stage of the Low Emission Vehicle standards) into a single regulatory framework.

In 2005, the CARB submitted a “waiver” request to the EPA in order to implement the GHG standards and in March of 2008, the U.S. EPA denied the request. However, in June 2009, the decision was reversed and the U.S. EPA granted California the authority to implement the GHG standards for passenger

cars, pickup trucks and sport utility vehicles. In September 2009, the Pavley I regulations were adopted by CARB.

Executive Order S-3-05

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.

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.

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.

On December 6, 2007 CARB released the calculated Year 1990 GHG emissions of 427 million metric tons of CO₂e (MMTCO₂e). The 2020 target of 427 MMTCO₂e requires the reduction of 169 MMTCO₂e, or approximately 30 percent from the State's projected 2020 business as usual emissions of 596 MMTCO₂e and the reduction of 42 MMTCO₂e, or almost 10 percent from the 2002-2004 average GHG emissions. Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO₂ in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources that became enforceable on or before January 1, 2010.

On December 11, 2008 the CARB Board approved a Scoping Plan, with final adoption May 11, 2009 that proposed a variety of measures including direct regulations, alternative compliance mechanisms, monetary and non-monetary

incentives, voluntary actions, a market-based cap-and-trade system, and a fee regulation to fund the program. In current pending litigation, *Association of Irrigated Residents v. California Air Resources Board*, a California State trial court found that the analysis of the alternatives identified in the AB 32 Scoping Plan Functional Equivalent Document (FED) was not sufficient for informed decision-making and public review under CEQA. In response, CARB has appealed the decision. In addition, CARB prepared the *Supplement to the AB 32 Scoping Plan Functional Equivalent Document*, June 13, 2011. On August 24, 2011 CARB recertified the complete AB 32 Scoping Plan Functional Equivalent Environmental Document revised by the Final Supplement. In December, 2011 the Final Supplement was accepted as sufficient to fulfill the trial court's March order.

While local government operations were not accounted for in achieving the 2020 emissions reduction, local land use changes are estimated to result in a reduction of 5 metric tons of CO₂e, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments will play in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2010 levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 metric tons of CO₂e (or approximately 1.2 percent of the GHG reduction target).

In May 2014, CARB released its *First Update to the Climate Change Scoping Plan* (CARB 2014). This *Update* identifies the next steps for California's leadership on climate change. While California continues on its path to meet the near-term 2020 greenhouse gas limit, it must also set a clear path toward long-term, deep GHG emission reductions. This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.

On January 20, 2017, CARB announced its release of a proposed plan to reduce greenhouse gas emissions by 40 percent below 1990 levels by 2030 – the most ambitious target in North America.

In November 2017, CARB release the 2017 Scoping Plan. This Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals, and includes a description of a suite of specific actions to meet the State's 2030 GHG limit.

Guided by legislative direction, the actions identified in the 2017 Scoping Plan reduce overall GHG emissions in California and deliver policy signals that will continue to drive investment and certainty in a low carbon economy. The 2017

Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Plan includes policies to require direct GHG reductions at some of the State's largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and Trade Program, which constrains and reduces emissions at covered sources.

SB 32. SB 32, Pavley. California Global Warming Solutions Act of 2006.

- (1) The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and to adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective greenhouse gas emissions reductions. This bill would require the state board to ensure that statewide greenhouse gas emissions are reduced to 40% below the 1990 level by 2030.
- (2) This bill would become operative only if AB 197 of the 2015–16 Regular Session is enacted and becomes effective on or before January 1, 2017. AB 197 requires that the California Air Resources Board, which directs implementation of emission-reduction programs, should target direct reductions at both stationary and mobile sources.

Senate Bill 1368

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

Executive Order S-1-07

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 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.

Senate Bill 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 Natural Resources 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 Natural 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 were provided and no specific mitigation measures were 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.

Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State’s Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 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) jurisdiction, 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 was required by the State to be completed within 18 months after RTP/SCS adoption or by October 2013.

On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy (2016 RTP/SCS or Plan). The Plan is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The Plan charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It outlines more than \$556.5 billion in transportation system investments through 2040. The Plan was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 FTIP Consistency Amendment through Amendment 15-12 have been met.

Senate Bill X7-7

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

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.

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 Standards have been approved and were effective July 1, 2014. 2016 Standards were adopted January 1, 2017.

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. The 2016 standards are estimated to be approximately 28 percent more efficient than the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

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.

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. EO B-29-15 signed into law on April 1, 2015.

Executive Order B-37-16

Executive Order B-29-15, continuing the State's adopted water reductions, was signed into law on May 9, 2016. The water reductions build off the mandatory 25% percent reduction called for in EO B-29-15.

4. Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. On June 30, 2016, the SCAQMD released its Draft 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 (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. On March 23, 2017 CARB approved the 2016

AQMP. 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.

A revised draft of the 2012 AQMP was released on September, 2012, and was adopted by the SCAQMD Board on December 7, 2012. The 2012 AQMP is now awaiting approval from CARB and the U.S. EPA. The 2012 AQMP is being prepared in order to meet the federal Clean Air Act requirement that all 24-hour PM_{2.5} non-attainment areas prepare a SIP, which was required to be submitted to the U.S. EPA by December 14, 2012 and demonstrate attainment with the 24-hour PM_{2.5} standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-hour PM_{2.5} standard by 2014 in the Basin through adoption of all feasible measures, and therefore, no extension of the attainment date is needed.

The 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These “black box” emissions reductions represent 65 percent of the remaining NO_x emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NO_x control measures have been provided in this AQMP even though the primary purpose of this AQMP is to show compliance with 24-hour PM_{2.5} emissions standards.

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 utilizes 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.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, 2702, and 3002 which are described below.

During construction and operation, the project must comply with applicable rules and regulations. The following are rules the project may be required to comply with, either directly, or indirectly:

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, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM₁₀ component). Compliance with these rules would reduce impacts on nearby sensitive receptors. Rule 403 measures may 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 inactive for 10 days or more).
- Water active sites at least three times daily. (Locations where grading is to occur will be thoroughly watered prior to earthmoving).
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (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. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

SCAQMD Rule 445 prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning

heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

SCAQMD Rule 481 applies to all spray painting and spray coating operations and equipment. The rule states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

- (1) The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
- (2) Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
- (3) An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

SCAQMD Rule 1108 governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule would regulate the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

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 the project must comply with SCAQMD Rule 1113.

SCAQMD Rule 1143 governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

SCAQMD Rule 1186 limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

SCAQMD Rule 1303 governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM₁₀ among other pollutants.

SCAQMD Rule 1401, New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units, which emit toxic air contaminants.

SCAQMD Rule 2202, On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, 2702, and 3002 which are described below.

Rules 2700 and 2701

The SCAQMD adopted Rules 2700 and 2701 on December 5, 2008, which establishes the administrative structure for a voluntary program designed to quantify GHG emission reductions. Rule 2700 establishes definitions for the various terms used in Regulation XXVII – Global Climate Change. Rule 2701 provides specific protocols for private parties to follow to generate certified GHG emission reductions for projects within the district. Approved protocols include forest projects, urban tree planting, and manure management. The SCAQMD is currently developing additional protocols for other reduction measures. For a GHG emission reduction project to qualify, it must be verified and certified by the SCAQMD Executive Officer, who has 60 days to approve or deny the Plan to reduce GHG emissions. Upon approval of the Plan, the Executive Officer issues required to issue a certified receipt of the GHG emission reductions within 90 days.

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.

Rule 3002

The SCAQMD amended Rule 3002 on November 5, 2010 to include facilities that emit greater than 100,000 tons per year of CO₂e are required to apply for a Title V permit by July 1, 2011. A Title V permit is for facilities that are considered major sources of emissions.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the South Coast Air Basin. Instead, this is controlled through local jurisdictions in accordance with the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the CEQA Air Quality Handbook (SCAQMD CEQA Handbook), prepared by the SCAQMD, 1993, with the most current updates found at <http://www.aqmd.gov/ceqa/hdbk.html>, was developed in accordance with the projections and programs of the AQMP. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that the SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the South Coast Air Basin, and adverse impacts will be minimized.

SCAQMD Stakeholder Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual thresholds of 10,000 MTCO₂e for industrial uses.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the Federally designated MPO for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Transportation Plan and Regional Transportation Improvement Plan (RTIP), which addresses regional development and growth forecasts. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Regional Transportation Plan, Regional Transportation Improvement Plan, and AQMP are based on projections originating within the City and County General Plans.

5. Local – City of Moreno Valley

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 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.

Policies

- 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.

B. Monitored Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates of the existing emissions in the Basin provided in the Final 2016 Air Quality

Management Plan, prepared by SCAQMD, March 2017, indicate that collectively, mobile sources account for 60 percent of the VOC, 90 percent of the NO_x emissions, 95 percent of the CO emissions and 34 percent of directly emitted PM_{2.5}, with another 13 percent of PM_{2.5} from road dust.

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 Perris Valley Air Monitoring Area (Area 24), which is located in the western portion of Riverside County and covers the Perris and Moreno Valley areas to the San Bernardino County Line. Data was taken from the Perris and Riverside-Rubidoux Monitoring Stations, the two nearest monitoring station to the project site. The Perris Station is located approximately 7.78 miles south of the project site at 237 N. D Street, Perris. The Riverside-Rubidoux Station is located approximately 12.67 miles northwest of the project site at 5888 Mission Boulevard, Rubidoux. Table 5 presents the monitored pollutant levels from these Monitoring Stations. Ozone and PM₁₀ were measured at the Perris Station and CO, NO₂, and PM_{2.5} were measured at the Riverside-Rubidoux Station.

Table 5 summarizes 2014 through 2016 published monitoring data from the air monitoring stations, which is the most recent 3-year period available. The data shows that during the past few years, the project area has exceeded the ozone and particulate matter (PM₁₀ and PM_{2.5}) standards. 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.

Ozone

During the 2014 to 2016 monitoring period, the State 1-hour concentration standard for ozone has been exceeded between 16 and 25 days each year at the Perris Station. The State 8-hour ozone standard has been exceeded between 50 and 63 days each year over the past three years at the Perris Station. The Federal 8-hour ozone standard was exceeded between 49 and 59 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. There was insufficient data from the Riverside-Rubidoux Station for the state or federal 8-hour CO standards for the last three years.

Nitrogen Dioxide

The Riverside-Rubidoux Station did not record an exceedance of the State or Federal NO₂ standards for the last three years.

Particulate Matter

The State 24-hour concentration standards for PM10 have been estimated to have been exceeded between 4 and 6 days each year over the past three years at the Perris Station. Over the past three years the Federal 24-hour standards for PM10 has only been exceeded for one day in 2015 at the Perris Station.

The Federal 24 hour standard for PM2.5 has been estimated to have been exceeded between 5 and 9 days each year over the past three years at the Riverside-Rubidoux Station. There does not appear to be a noticeable trend for PM10 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

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.

Table 3
State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O ₃)	0.09 ppm/1-hour 0.07 ppm/8-hour	0.070 ppm/8-hour	(a) Decline in pulmonary function and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm/1-hour 9.0 ppm/8-hour	35.0 ppm/1-hour 9.0 ppm/8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO ₂)	0.18 ppm/1-hour 0.03 ppm/annual	100 ppb/1-hour 0.053 ppm/annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO ₂)	0.25 ppm/1-hour 0.04 ppm/24-hour	75 ppb/1-hour 0.14 ppm/24-hour	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM ₁₀)	50 µg/m ³ /24-hour 20 µg/m ³ /annual	150 µg/m ³ /24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; (c) Increased risk of premature death from heart or lung diseases in elderly.
Suspended Particulate Matter (PM _{2.5})	12 µg/m ³ / annual	35 µg/m ³ /24-hour 15 µg/m ³ /annual	
Sulfates	25 µg/m ³ /24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) property damage.
Lead	1.5 µg/m ³ /30-day	0.15 µg/m ³ /3-month rolling	(a) Learning disabilities; (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more due to particles when humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

¹ Source: <http://www.arb.ca.gov/research/aags/aags2.pdf>.

Table 4
South Coast Air Basin Attainment Status

Pollutant	State Status ¹	National Status ²
Ozone	Nonattainment	Nonattainment (Extreme)
Carbon monoxide	Attainment	Attainment/Unclassified
Nitrogen dioxide	Attainment	Attainment/Unclassified
Sulfur dioxide	Attainment	Attainment/Unclassified
PM10	Nonattainment	Attainment (Maintenance)
PM2.5	Nonattainment	Nonattainment (Moderate)

¹ Source of State status: California Air Resources Board 2015.

² Source of National status: <http://www3.epa.gov/airquality/greenbk/index.html> and CARB 2015

Table 5

Local Area Air Quality Levels from the Perris Air Monitoring Station ¹

Pollutant (Standard) ^{2,3}	Year		
	2014	2015	2016
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.117	0.124	0.131
Days > CAAQS (0.09 ppm)	16	25	23
Maximum 8-Hour Concentration (ppm)	0.094	0.103	0.099
Days > NAAQS (0.08 ppm)	59	49	55
Days > CAAQS (0.070 ppm)	63	50	56
Carbon Monoxide:³			
Maximum 8-Hour Concentration (ppm)	*	*	*
Days > NAAQS (9 ppm)	0	0	0
Nitrogen Dioxide:³			
Maximum 1-Hour Concentration (ppb)	59.9	57.4	73.1
Days > NAAQS (0.25 ppm)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour Concentration (ug/m ³)	87.0	188.0	76.0
Days > NAAQS (150 ug/m ³)	0	1	0
Days > CAAQS (50 ug/m ³)	6	4	*
Annual Average (ug/m ³)	35.1	33.1	32.2
Annual > NAAQS (50 ug/m ³)	no	no	no
Annual > CAAQS (20 ug/m ³)	no	no	*
Ultra-Fine Particulates (PM2.5):³			
Maximum 24-Hour Concentration (pg/m ³)	50.6	61.1	60.8
Days > NAAQS (35 ug/m ³)	5	9	5

¹ Source: <http://www.arb.ca.gov/adam/>

Data obtained from the Perris Monitoring Station unless otherwise noted.

² CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million

³ Data obtained from the Riverside-Rubidoux Monitoring Station

* means there was insufficient data available to determine the value.

V. AIR QUALITY STANDARDS

A. Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, the SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the South Coast Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table 6.

B. Local Air Quality

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 PM2.5.

The significance thresholds for the local emissions of NO₂ and CO are determined by subtracting the highest background concentration from the last three years of these pollutants from Table 5 above, from the most restrictive ambient air quality standards for these pollutants that are outlined in the Localized Significant Thresholds. Table 6 shows the Localized Significant Thresholds for NO₂, CO, and PM10 and PM2.5.

C. Toxic Air Contaminants

Construction

The construction equipment would emit DPM, which is a carcinogen. However, the DPM emissions are short-term in nature. Determination of risk from DPM is considered over a 30-year exposure period because carcinogenic risk is directly related to sustain exposure. In contrast, construction activities for the project are only expected to last approximately twelve months. Thus, the duration of construction activities would represent only a small fraction of the 30-year exposure period used as the basis for assessing the significance of carcinogenic risk exposure and, therefore, would not represent a source of sustained DPM

emissions. Therefore, considering the short time frame, exposure to DPM is anticipated to be less than significant.

Operation

The project consists of a 90,565 square foot self-storage facility and will not be a source of toxic air contaminants. Sensitive receptors would not be exposed to toxic sources of air pollution.

D. Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

“A person shall not discharge 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 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.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.”

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

E. Greenhouse Gases

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

- i. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
- ii. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
- iii. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions².

1. Regional - 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).

² The Governor’s Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project’s incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

SCAQMD Regulation XXVII, Climate Change. 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.

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 MTCO_{2e} per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The SCAQMD is in the process of developing thresholds, as discussed below.

SCAQMD Threshold Development. On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold). The SCAQMD permit threshold consists of five tiers. However, the SCAQMD is not the lead agency for this project. Therefore, the five permit threshold tiers do not apply to the proposed project.

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration (“SCAQMD draft local agency threshold”); however, the SCAQMD Board has not approved the thresholds as of the date of the Notice of Preparation. 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 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 with all projects within its jurisdiction. 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 type: residential: 3,500 MTCO₂e per year; commercial: 1,400 MTCO₂e per year; or mixed use: 3,000 MTCO₂e per year.
- Based on land type: Industrial (where SCAQMD is the lead agency), 10,000 MTCO₂e per year.
- Tier 4 has the following options:
 - Option 1: Reduce emissions from business as usual (BAU) by a certain percentage; this percentage is currently undefined.
 - Option 2: Early implementation of applicable AB 32 Scoping Plan measures.
 - Option 3, 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.

The SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate. Specifically, 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 a CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact report, which includes analyzing feasible alternatives and imposing feasible mitigation measures. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 MMTCO₂eq/yr). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to BACT for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility.

2. Local- City of Moreno Valley

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.

To determine whether the project's GHG emissions are significant, this analysis uses the SCAQMD draft local agency tier 3 threshold of 3,000 MTCO₂e per year for all land use types.

The project will be subject to the requirements of the California Green Building Code and 2016 Title 24 Building Energy Efficiency Standards which would reduce project-related greenhouse gas emissions.

Table 6
SCAQMD Air Quality Significance Thresholds¹

Mass Daily Thresholds		
Pollutant	Construction (lbs/day)	Operation (lbs/day)
NOx	100	55
VOC	75	55
PM10	150	150
PM2.5	55	55
SOx	150	150
CO	550	550
Lead	3	3
Toxic Air Contaminants, Odor and GHG Thresholds		
TACs	Maximum Incremental Cancer Risk \geq 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas \geq 1 in 1 million) Chronic & Acute Hazard Index > 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO ₂ e for industrial projects	
Ambient Air Quality Standards		
Pollutant	SCAQMD Standards	
NO ₂ -1-hour average	0.18 ppm (338 $\mu\text{g}/\text{m}^3$)	
PM10 -24-hour average		
Construction	10.4 $\mu\text{g}/\text{m}^3$	
Operations	2.5 $\mu\text{g}/\text{m}^3$	
PM2.5 -24-hour average		
Construction	10.4 $\mu\text{g}/\text{m}^3$	
Operations	2.5 $\mu\text{g}/\text{m}^3$	
SO ₂		
1-hour average	0.25 ppm	
24-hour average	0.04 ppm	
CO		
1-hour average	20 ppm (23,000 $\mu\text{g}/\text{m}^3$)	
8-hour average	9 ppm (10,000 $\mu\text{g}/\text{m}^3$)	
Lead		
30-day average	1.5 $\mu\text{g}/\text{m}^3$	
Rolling 3-month average	0.15 $\mu\text{g}/\text{m}^3$	
Quarterly average	1.5 $\mu\text{g}/\text{m}^3$	

¹ Source: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>

VI. SHORT-TERM CONSTRUCTION IMPACTS

Construction activities associated with the proposed project would have the potential to generate air emissions, toxic air contaminant emissions, and odor impacts. Assumptions for the phasing, duration, and required equipment for the construction of the proposed project were obtained from the project applicant. The construction activities for the proposed project are anticipated to include: grading of approximately 4.47 acres, building construction of a 90,565 square foot self-storage facility, paving of approximately 72,912 square feet (includes a parking lot with 7 parking spaces), landscaping of approximately 31,236 square feet, and application of architectural coatings.

The proposed project is anticipated to start construction September 2018 and take less than 12 months to complete.

A. Construction-Related Regional Impacts

The construction-related regional air quality impacts have been analyzed for both criteria pollutants and GHGs.

1. Construction-Related Criteria Pollutants Analysis

The following provides a discussion of the methodology used to calculate regional construction air emissions and an analysis of the proposed project's short-term construction emissions for the criteria pollutants.

Methodology

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 Riverside County for construction-related employee vehicle trips and the OFFROAD2014 computer program to calculate emission rates for heavy truck operations. EMFAC2014 and OFFROAD2014 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 during each phase was 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 construction emissions printouts from CalEEMod are provided in Appendix B.

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 4.47 acres) 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.

The phases of the construction activities which have been analyzed below are: (1) grading, (2) building construction, (3) paving, and (4) application of architectural coatings.

The application of architectural coatings would occur after the completion of the paving phase. Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings applied after January 1, 2014 are limited to an average of 50 grams per liter or less.

Details pertaining to the project's construction timing and the type of equipment modeled for each construction phase are available in the CalEEMod output in Appendix B.

Project Impacts

The construction-related criteria pollutant emissions for each phase are shown below in Table 7. Table 7 shows that none of the project's emissions will exceed regional thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

B. Construction-Related Local Impacts

Construction-related 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. The proposed project has been analyzed for the potential local air quality impacts created from: construction-related fugitive dust and diesel emissions; from toxic air contaminants; and from construction-related odor impacts.

1. Local Air Quality Impacts from Construction

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 CalEEMod output in Appendix B show the equipment used for this analysis.

As shown in Table 8, the maximum number of acres disturbed in a day would be 3 acres during grading.

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 calculated based on the Perris Valley source receptor area (SRA) 24 and a disturbance value of two acres per day (as the 2-acre thresholds are more stringent than the 5-acre thresholds). According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25 meter thresholds. The nearest sensitive receptors are the existing residential uses located adjacent to the west and south of the project site; therefore, the SCAQMD Look-up Tables for 25 meters were used. Table 9 shows the on-site emissions from the CalEEMod model for the different construction phases and the calculated emissions thresholds.

The data provided in Table 9 shows that none of the analyzed criteria pollutants would exceed the calculated 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.

2. Construction-Related Toxic Air Contaminant Impacts

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. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk." "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 30-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term

construction schedule, the proposed project would not result in a long-term (i.e., 30 years) substantial source of toxic air contaminant 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.

3. Construction-Related Odor Impacts

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.

Table 7
Construction-Related Regional Pollutant Emissions¹

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Grading						
On-Site ²	2.77	30.67	16.58	0.03	4.13	2.74
Off-Site ³	0.09	0.06	0.74	0.00	0.17	0.05
Subtotal	2.86	30.73	17.32	0.03	4.30	2.79
Building Construction						
On-Site ²	2.68	23.39	17.58	0.03	1.50	1.41
Off-Site ³	0.61	4.21	4.81	0.02	1.16	0.34
Subtotal	3.29	27.60	22.39	0.05	2.66	1.75
Paving						
On-Site ²	1.56	12.76	12.31	0.02	0.72	0.66
Off-Site ³	0.11	0.07	0.89	0.00	0.22	0.06
Subtotal	1.67	12.83	13.20	0.02	0.94	0.72
Architectural Coating						
On-Site ²	54.55	1.84	1.84	0.00	0.13	0.13
Off-Site ³	0.09	0.06	0.71	0.00	0.18	0.05
Subtotal	54.64	1.89	2.55	0.00	0.31	0.18
Total of Overlapping Phases⁴	59.60	42.32	38.14	0.07	3.91	2.65
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds	No	No	No	No	No	No

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, painting and paving phases may overlap.

Table 8

Maximum Number of Acres Disturbed Per Day

Activity	Equipment	Number	Acres/8hr-day	Total Acres
Grading	Graders	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
	Excavators	1	0.5	0.5
	Tractors/Loaders/Backhoes	3	0.5	1.5
Total per phase		-	-	3

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

Table 9
Local Construction Emissions at the Nearest Receptors¹

Phase	On-Site Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Grading	30.67	16.58	4.13	2.74
Building Construction	23.39	17.58	1.50	1.41
Paving	12.76	12.31	0.72	0.66
Architectural Coating	1.84	1.84	0.13	0.13
SCAQMD Thresholds²	170	883	7	4
Exceeds Threshold?	No	No	No	No

¹ Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for 2 acres in SRA 24.

² The nearest single-family detached residential dwelling units are located adjacent to the west and south of the proposed project site; therefore, the 25 meter threshold was used.

Note: The project will disturb up to a maximum of 3 acres a day during grading (see Table 8).

VII. LONG-TERM AIR QUALITY OPERATIONAL IMPACTS

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts with the on-going operations of the proposed project.

A. Operations-Related Regional Air Quality Impacts

The potential operations-related air emissions have been analyzed below for the criteria pollutants and cumulative impacts.

1. Operations-Related Criteria Pollutant Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model. The operating emissions for the project were based on the year 2019, which is the anticipated opening year for the proposed project. The operations daily emissions printouts from the CalEEMod model are provided in Appendix B. The CalEEMod analyzes operational emissions from area sources, energy usage, and mobile sources, which are discussed below.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed by inputting the project-generated vehicular trips from Moreno Valley Self-Storage Facility Traffic Impact Analysis (Traffic Impact Analysis), prepared by Kunzman Associates, Inc. (February 2018), into the CalEEMod Model. The Traffic Impact Analysis found that the proposed project will generate approximately 137 total trips. The Traffic Impact Analysis included a trip generation rate of 1.51 trips per thousand square foot per day. As the land use "mini warehouse" is not available in CalEEMod, the project was modeled as an unrefrigerated warehouse - no rail. The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions.

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.

Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site. As CalEEMod does not have Moreno Valley Electric Utility available as

an option for the electric utility service company, the Statewide Average was used. No other changes were made to the CalEEMod default energy use parameters.

Project Impacts

The worst-case summer or winter VOC, NO_x, CO, SO₂, PM₁₀, and PM_{2.5} emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table 10. Table 10 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

2. 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 volumes 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. With respect to long-term emissions, this project would create a less than significant cumulative impact.

B. Operations-Related Local Air Quality Impacts

Project-related 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. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analysis analyzes the vehicular CO emissions, local impacts from on-site operations, and odor impacts.

1. Local CO Emission Impacts from Project-Generated Vehicular Trips

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 V.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section V, 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” typically occur at high traffic volume intersections with a Level of Service E or worse.

The analysis prepared for CO attainment in the South Coast Air Basin by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the South Coast Air Basin. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP) and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan). As discussed in the 1992 CO Plan, peak carbon monoxide concentrations in the South Coast Air Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region’s unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and air quality management plans. In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Boulevard and Imperial Highway (Lynwood); Wilshire Boulevard and Veteran Avenue (Westwood); Sunset Boulevard and Highland Avenue (Hollywood); and La Cienega Boulevard and Century Boulevard (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the LOS in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be Level of Service E during the morning peak hour and Level of Service F during the afternoon peak hour.

The Traffic Impact Analysis showed that the project would generate a maximum of 137 daily vehicle trips and a maximum Average Daily Trip (ADT) volume of 43,100 vehicles for the Buildout scenario along Perris Boulevard. As stated above, the 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. Therefore, as the intersection volumes fall far short of 100,000 vehicles per day, no CO “hot spot” modeling was performed and no significant long-term air quality impact is anticipated to local air quality due to the on-going use of the proposed project.

2. Local Air Quality Impacts from On-Site Operations

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site 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. The nearest sensitive receptor that may be impacted by the proposed project are the residential uses west and south of the project site.

According to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources (such as heavy-duty trucks) that may spend long periods queuing and idling at the site; such as industrial warehouse/transfer facilities. The proposed project consists of a Mini Storage facility, and does not include such uses. Therefore, due the lack of stationary source emissions, no long-term localized significance threshold analysis is warranted.

3. Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from diesel truck emissions and trash storage areas. Through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project. Truck emissions are also addressed in the following section.

Table 10
Regional Operational Pollutant Emissions¹

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO2	PM10	PM2.5
Area Sources ²	2.07	0.00	0.02	0.00	0.00	0.00
Energy Usage ³	0.01	0.05	0.04	0.00	0.00	0.00
Mobile Sources ⁴	0.36	2.64	4.80	0.02	1.27	0.35
Total Emissions	2.43	2.69	4.86	0.02	1.27	0.36
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

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 generation of electricity and on-site natural gas usage.

⁴ Mobile sources consist of emissions from vehicles and road dust.

VIII. GLOBAL CLIMATE CHANGE ANALYSIS

The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste, water, and construction equipment. The following provides the methodology used to calculate the project-related GHG emissions, the project impacts and a consistency analysis of the proposed project with any applicable GHG reduction plans, policies or regulations.

A. Methodology

The CalEEMod Version 2016.3.2 was used to calculate the GHG emissions from the proposed project. The project's emissions were compared to the tier 3 SCAQMD draft screening threshold of 3,000 metric tons CO₂e per year for all land uses.

If the project's emissions exceeds the SCAQMD draft threshold, then the project's baseline (year 2010 as year 2007 is not available in CalEEMod) emissions would be compared to the project's year 2020 mitigated emissions (as the City of Moreno Valley has adopted the City of Moreno Valley Greenhouse Gas Analysis that requires a 15 percent reduction in GHG emissions between years 2007 and 2020). Each source of GHG emissions is described in greater detail below.

1. Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. The area source usage was based on the CalEEMod defaults.

2. Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site. As CalEEMod does not have Moreno Valley Electric Utility available as an option for the electric utility service company, the Statewide Average was used. No other changes were made to the CalEEMod defaults for energy usage.

3. Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed based on the project trip generation calculated in the Traffic Impact Analysis of 1.51 trips per thousand square foot per day. 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.

4. Waste

Waste includes the GHG emissions generated from the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. No changes were made to CalEEMod default values.

5. Water

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. No changes were made to the CalEEMod default values.

6. Construction

The construction-related GHG emissions were also included in the analysis and were based on a 30 year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The construction-related GHG emissions were calculated by CalEEMod and detailed above in Section VI.

B. Project Greenhouse Gas Emissions

The GHG emissions have been calculated based on the parameters described above. A summary of the results are shown below in Table 11 and the CalEEMod Model run for the proposed project is provided in Appendix C. Table 11 shows that the proposed project would generate approximately 592.77 MTCO₂e per year. According to the thresholds of significance established above in Section V, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed the tier 3 SCAQMD screening threshold of 3,000 metric tons per year of CO₂e. As the project's GHG emissions meet the SCAQMD screening threshold, the impacts from GHGs are considered to be less than significant. Therefore, operation of the proposed project would not create a significant cumulative impact to global climate change.

The project is also subject to the requirements of the California Green Building Standards Code. 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.

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 California Green Building Standards Code (code section in parentheses) requires:

- Water Efficiency and Conservation [Indoor Water Use (4.303.1)]. Fixtures and fixture fittings reducing the overall use of potable water within the building by at least 20 percent shall be provided. The 20 percent reduction shall be demonstrated by one of the following methods:
 - Prescriptive Method: Showerheads (≤ 2.0 gpm @ 80 psi); Residential Lavatory Faucets (≤ 1.5 gpm @ 60 psi); Nonresidential Lavatory Faucets ($\leq .4$ gpm @ 60 psi); Kitchen Faucets (≤ 1.8 gpm @ 60 psi); Toilets (≤ 1.28 gal/flush); and urinals (≤ 0.5 gal/flush).
 - Performance Method: Provide a calculation demonstrating a 20% reduction of indoor potable water using the baseline values set forth in Table 4.303.1. The calculation will be limited to the total water usage of showerheads, lavatory faucets, water closets and urinals within the dwelling.
- Water Efficiency and Conservation [Outdoor Water Use (4.304.1)]. Irrigation Controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:
 - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' watering needs as weather or soil conditions change.
 - Weather-based controllers without integral rain sensors or communication systems that account for rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s).
- Construction Waste Reduction of at least 50 percent (4.408.1). Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4; OR meet a more stringent local construction and demolition waste management ordinance. Documentation is required per Section 4.408.5. Exceptions:
 - Excavated soil and land-clearing debris.
 - Alternate waste reduction methods developed by working with local enforcing agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the job-site.
 - The enforcing agency may make exceptions to the requirements of this section when job-sites are located in areas beyond the haul boundaries of the diversion facility.
- Materials pollution control (4.504.1 – 4.504.6). Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard.
- Installer and Special Inspector Qualifications (702.1-702.2). Mandatory special installer inspector qualifications for installation and inspection of energy systems (e.g., heat furnace, air conditioner, mechanical equipment).

C. 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 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 will be phased in starting in 2012.

Therefore, as the project's emissions meet the threshold for compliance with Executive Order S-3-05, the project's emissions also comply with the goals of AB 32. Additionally, as the 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 592.77 MTCO₂e per year, the project's GHG emissions fall well below the tier 3 SCAQMD draft screening threshold of 3,000 metric tons CO₂e per year for all land uses and is in compliance with the reduction goals of AB-32 and SB-32. Furthermore, the project will comply with applicable Green Building Standards and City of Moreno Valley's policies regarding sustainability (as dictated by the City of Moreno Valley General Plan, City of Moreno Valley Energy Efficiency and Climate Action Strategy, and City of Moreno Valley Greenhouse Gas Analysis). No mitigation is required. Impacts are considered to be less than significant and the project will not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Table 11
Project-Related Greenhouse Gas Emissions¹

Category	Greenhouse Gas Emissions (Metric Tons/Year)					
	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	0.01
Energy Usage ³	0.00	106.91	106.91	0.00	0.00	107.21
Mobile Sources ⁴	0.00	279.73	279.73	0.01	0.00	280.08
Solid Waste ⁵	17.28	0.00	17.28	1.02	0.00	42.81
Water and Wastewater ⁶	6.64	123.88	130.53	0.69	0.02	152.70
Construction ⁷	0.00	9.92	9.92	0.00	0.00	9.96
Total Emissions	23.92	520.45	544.37	1.73	0.02	592.77
SCAQMD Screening Threshold						3,000
Exceeds Threshold?						No

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 CO₂ and CH₄ 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.

IX. 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, the short-term construction impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance. This Air Analysis also found that long-term operations impacts will not result in significant impacts based on the SCAQMD local, regional, and toxic air contaminant 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 Fontana General Plan defines the assumptions that are represented in the AQMP.

The project site is currently designated as General Commercial on the City of Moreno Valley General Plan Land Use Map. The proposed project includes a Conditional Use Permit (CUP) rezoning the site to Community Commercial, which allows self-storage facilities. Therefore, as the proposed 90,565 square foot self-storage facility is a commercial use, it would be consistent with the General Plan designation. Therefore, the proposed project is not anticipated to 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.

X. MITIGATION MEASURES

A. Construction Measures

The project is required to comply with SCAQMD Rule 403 for Fugitive Dust.

No construction mitigation is required.

B. Operational Measures

No operational mitigation is required.

XI. REFERENCES

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 Almanac of Emissions and Air Quality. Source:
<https://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm>
- 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.
- 2017 California's 2017 Climate Change Scoping Plan. November.
- 2017 Historical Air Quality, Top 4 Summary

City of Moreno Valley

- 2006 City of Moreno Valley General Plan
- 2012 City of Moreno Valley Energy Efficiency and Climate Action Strategy
- 2012 City of Moreno Valley Greenhouse Gas Analysis

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

Intergovernmental Panel on Climate Change (IPCC).

- 2014 IPCC Fifth Assessment Report, Climate Change 2014: Synthesis Report

Kunzman Associates, Inc.

- 2018 Moreno Valley Self-Storage Facility Traffic Impact Analysis. February.

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
- 2012 Final 2012 Air Quality Management Plan
- 2016 2016 Air Quality Management Plan

Southern California Association of Governments

- 2012 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy

U.S. Environmental Protection Agency (EPA)

- 2017 Understanding Global Warming Potentials (Source:
<https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>)

U.S. Geological Survey

- 2011 Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California

APPENDICES

Appendix A – Glossary of Terms

Appendix B – CalEEMod Model Daily Emissions Printouts

Appendix C – CalEEMod Model Annual Emissions Printouts

APPENDIX A

Glossary of Terms

AQMP	Air Quality Management Plan
BACT	Best Available Control Technologies
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
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
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HIDPM	Hazard Index Diesel Particulate Matter
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
MTCO ₂ e	Metric tons of carbon dioxide equivalent
MMTCO ₂ e	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
NO ₂	Nitrogen dioxide
N ₂ O	Nitrous oxide
O ₃	Ozone
OPR	Governor's Office of Planning and Research
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
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District

SF	Square Feet
SF ₆	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
T6	Heavy Duty Trucks from EMFAC 2007 classifications
T7	Heavy-Heavy Duty Trucks from EMFAC 2007 classifications
TAC	Toxic air contaminants
VOC	Volatile organic compounds

APPENDIX B

CalEEMod Model Daily Emissions Printouts

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

7280b Moreno Valley Self-Storage Facility
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	90.56	1000sqft	2.08	90,565.00	0
Other Asphalt Surfaces	72.91	1000sqft	1.67	72,912.00	0
Other Non-Asphalt Surfaces	31.24	1000sqft	0.72	31,236.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2019
Utility Company	Statewide Average				
CO2 Intensity (lb/MW hr)	1001.57	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

Project Characteristics - The project site is in the Moreno Valley Electric Utility service area; however, this is not an option in CalEEMod. The statewide average was used for the electric utility company.

Land Use - Site is 4.47 acres w/ a 90,565 sf self-storage facility, 72,912 sf of paving (includes a 7 space parking lot & driveways), & 31,236 sf of landscaping.

Construction Phase - Construction anticipated to begin September 2018 and take less than one year to complete. Site is vacant, no demolition needed.

Grading - Site is ~4.47 acres and is anticipated to balance.

Vehicle Trips - Per TIA, 1.51 trips/TSF/day.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~0.08 miles southwest of RTA Route 18,19 stop Perris FS JFK and ~2.6 miles south of downtown portion of Moreno Valley.

Waste Mitigation - AB 939 requires each jurisdiction in CA to divert at least 50% of its waste away from landfills.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	16.00
tblConstructionPhase	NumDays	230.00	221.00
tblConstructionPhase	NumDays	18.00	15.00
tblGrading	AcresOfGrading	4.00	4.47
tblLandUse	LandUseSquareFeet	90,560.00	90,565.00
tblLandUse	LandUseSquareFeet	72,910.00	72,912.00
tblLandUse	LandUseSquareFeet	31,240.00	31,236.00
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	1.68	1.51

2.0 Emissions Summary

7280b Moreno Valley Self-Storage Facility - 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					
2018	3.2911	30.7300	22.3881	0.0451	6.7823	1.5524	8.3347	3.4187	1.4464	4.8469	0.0000	4,476.2391	4,476.2391	0.9356	0.0000	4,494.8688
2019	54.6362	24.9986	21.4893	0.0447	1.1215	1.3232	2.4447	0.3021	1.2444	1.5465	0.0000	4,411.7168	4,411.7168	0.7284	0.0000	4,429.9280
Maximum	54.6362	30.7300	22.3881	0.0451	6.7823	1.5524	8.3347	3.4187	1.4464	4.8469	0.0000	4,476.2391	4,476.2391	0.9356	0.0000	4,494.8688

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					
2018	3.2911	30.7300	22.3881	0.0451	2.7474	1.5524	4.2997	1.3604	1.4464	2.7886	0.0000	4,476.2391	4,476.2391	0.9356	0.0000	4,494.8688
2019	54.6362	24.9986	21.4893	0.0447	1.1215	1.3232	2.4447	0.3021	1.2444	1.5465	0.0000	4,411.7168	4,411.7168	0.7284	0.0000	4,429.9280
Maximum	54.6362	30.7300	22.3881	0.0451	2.7474	1.5524	4.2997	1.3604	1.4464	2.7886	0.0000	4,476.2391	4,476.2391	0.9356	0.0000	4,494.8688

	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	51.05	0.00	37.43	55.32	0.00	32.19	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - 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	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Energy	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Mobile	0.3563	2.6084	4.8015	0.0177	1.2501	0.0185	1.2686	0.3345	0.0175	0.3520		1,796.2020	1,796.2020	0.0858		1,798.3477
Total	2.4317	2.6580	4.8630	0.0180	1.2501	0.0223	1.2724	0.3345	0.0213	0.3558		1,855.5023	1,855.5023	0.0871	1.0900e-003	1,858.0031

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	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Energy	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Mobile	0.3085	2.1116	3.3806	0.0122	0.8233	0.0126	0.8358	0.2203	0.0119	0.2322		1,238.3310	1,238.3310	0.0690		1,240.0559
Total	2.3839	2.1611	3.4421	0.0125	0.8233	0.0164	0.8397	0.2203	0.0157	0.2360		1,297.6313	1,297.6313	0.0703	1.0900e-003	1,299.7112

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - 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	1.97	18.69	29.22	30.62	34.14	26.50	34.01	34.14	26.26	33.67	0.00	30.07	30.07	19.32	0.00	30.05

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/1/2018	9/12/2018	5	8	
2	Building Construction	Building Construction	9/13/2018	7/18/2019	5	221	
3	Paving	Paving	7/19/2019	8/8/2019	5	15	
4	Architectural Coating	Architectural Coating	8/9/2019	8/31/2019	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4.47

Acres of Paving: 2.39

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 135,848; Non-Residential Outdoor: 45,283; Striped Parking Area: 6,249 (Architectural Coating – sqft)

OffRoad Equipment

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	82.00	32.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2018

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					6.6146	0.0000	6.6146	3.3742	0.0000	3.3742			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	2.7733	30.6725	16.5770	0.0297	6.6146	1.5513	8.1660	3.3742	1.4272	4.8014		2,988.0216	2,988.0216	0.9302		3,011.2769

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.2 Grading - 2018

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	0.0903	0.0574	0.7419	1.7700e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		175.9907	175.9907	5.3600e-003		176.1247
Total	0.0903	0.0574	0.7419	1.7700e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		175.9907	175.9907	5.3600e-003		176.1247

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					2.5797	0.0000	2.5797	1.3159	0.0000	1.3159			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	2.7733	30.6725	16.5770	0.0297	2.5797	1.5513	4.1310	1.3159	1.4272	2.7432	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.2 Grading - 2018

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	0.0903	0.0574	0.7419	1.7700e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		175.9907	175.9907	5.3600e-003		176.1247
Total	0.0903	0.0574	0.7419	1.7700e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		175.9907	175.9907	5.3600e-003		176.1247

3.3 Building Construction - 2018

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.3 Building Construction - 2018

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	0.1180	3.8880	0.7522	8.4800e-003	0.2049	0.0326	0.2375	0.0590	0.0312	0.0902		893.2214	893.2214	0.0738		895.0657
Worker	0.4936	0.3140	4.0555	9.6700e-003	0.9166	5.7300e-003	0.9223	0.2431	5.2800e-003	0.2484		962.0826	962.0826	0.0293		962.8148
Total	0.6116	4.2019	4.8077	0.0182	1.1215	0.0383	1.1598	0.3021	0.0365	0.3386		1,855.3040	1,855.3040	0.1031		1,857.8805

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.3 Building Construction - 2018

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	0.1180	3.8880	0.7522	8.4800e-003	0.2049	0.0326	0.2375	0.0590	0.0312	0.0902		893.2214	893.2214	0.0738		895.0657
Worker	0.4936	0.3140	4.0555	9.6700e-003	0.9166	5.7300e-003	0.9223	0.2431	5.2800e-003	0.2484		962.0826	962.0826	0.0293		962.8148
Total	0.6116	4.2019	4.8077	0.0182	1.1215	0.0383	1.1598	0.3021	0.0365	0.3386		1,855.3040	1,855.3040	0.1031		1,857.8805

3.3 Building Construction - 2019

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.3 Building Construction - 2019

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	0.1066	3.6427	0.6826	8.4200e-003	0.2049	0.0277	0.2326	0.0590	0.0265	0.0855		887.3684	887.3684	0.0710		889.1434
Worker	0.4515	0.2771	3.6429	9.3700e-003	0.9166	5.6600e-003	0.9222	0.2431	5.2100e-003	0.2483		932.7683	932.7683	0.0261		933.4211
Total	0.5581	3.9198	4.3255	0.0178	1.1215	0.0333	1.1548	0.3021	0.0317	0.3338		1,820.1367	1,820.1367	0.0971		1,822.5645

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.3 Building Construction - 2019

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	0.1066	3.6427	0.6826	8.4200e-003	0.2049	0.0277	0.2326	0.0590	0.0265	0.0855		887.3684	887.3684	0.0710		889.1434
Worker	0.4515	0.2771	3.6429	9.3700e-003	0.9166	5.6600e-003	0.9222	0.2431	5.2100e-003	0.2483		932.7683	932.7683	0.0261		933.4211
Total	0.5581	3.9198	4.3255	0.0178	1.1215	0.0333	1.1548	0.3021	0.0317	0.3338		1,820.1367	1,820.1367	0.0971		1,822.5645

3.4 Paving - 2019

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	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.5596	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.4 Paving - 2019

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	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637

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	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.5596	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.4 Paving - 2019

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	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637

3.5 Architectural Coating - 2019

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	54.2816					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	54.5481	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.5 Architectural Coating - 2019

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	0.0881	0.0541	0.7108	1.8300e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		182.0036	182.0036	5.1000e-003		182.1310
Total	0.0881	0.0541	0.7108	1.8300e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		182.0036	182.0036	5.1000e-003		182.1310

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	54.2816					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	54.5481	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

3.5 Architectural Coating - 2019

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	0.0881	0.0541	0.7108	1.8300e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		182.0036	182.0036	5.1000e-003		182.1310
Total	0.0881	0.0541	0.7108	1.8300e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		182.0036	182.0036	5.1000e-003		182.1310

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

7280b Moreno Valley Self-Storage Facility - 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	0.3085	2.1116	3.3806	0.0122	0.8233	0.0126	0.8358	0.2203	0.0119	0.2322		1,238.3310	1,238.3310	0.0690		1,240.0559
Unmitigated	0.3563	2.6084	4.8015	0.0177	1.2501	0.0185	1.2686	0.3345	0.0175	0.3520		1,796.2020	1,796.2020	0.0858		1,798.3477

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	136.75	136.75	136.75	586,053	385,955
Total	136.75	136.75	136.75	586,053	385,955

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Other Non-Asphalt Surfaces	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Unrefrigerated Warehouse-No Rail	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

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	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
NaturalGas Unmitigated	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

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					
Other 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
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
Unrefrigerated Warehouse-No Rail	503.69	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Total		5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098

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					
Other 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
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
Unrefrigerated Warehouse-No Rail	0.50369	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Total		5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

6.0 Area Detail

6.1 Mitigation Measures Area

	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	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004			0.0455
Unmitigated	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004			0.0455

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

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	0.2380					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-003	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Total	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455

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	0.2380					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-003	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Total	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455

7.0 Water Detail

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Summer

7.1 Mitigation Measures Water

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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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

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

7280b Moreno Valley Self-Storage Facility
Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	90.56	1000sqft	2.08	90,565.00	0
Other Asphalt Surfaces	72.91	1000sqft	1.67	72,912.00	0
Other Non-Asphalt Surfaces	31.24	1000sqft	0.72	31,236.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2019
Utility Company	Statewide Average				
CO2 Intensity (lb/MW hr)	1001.57	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

Project Characteristics - The project site is in the Moreno Valley Electric Utility service area; however, this is not an option in CalEEMod. The statewide average was used for the electric utility company.

Land Use - Site is 4.47 acres w/ a 90,565 sf self-storage facility, 72,912 sf of paving (includes a 7 space parking lot & driveways), & 31,236 sf of landscaping.

Construction Phase - Construction anticipated to begin September 2018 and take less than one year to complete. Site is vacant, no demolition needed.

Grading - Site is ~4.47 acres and is anticipated to balance.

Vehicle Trips - Per TIA, 1.51 trips/TSF/day.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~0.08 miles southwest of RTA Route 18,19 stop Perris FS JFK and ~2.6 miles south of downtown portion of Moreno Valley.

Waste Mitigation - AB 939 requires each jurisdiction in CA to divert at least 50% of its waste away from landfills.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	16.00
tblConstructionPhase	NumDays	230.00	221.00
tblConstructionPhase	NumDays	18.00	15.00
tblGrading	AcresOfGrading	4.00	4.47
tblLandUse	LandUseSquareFeet	90,560.00	90,565.00
tblLandUse	LandUseSquareFeet	72,910.00	72,912.00
tblLandUse	LandUseSquareFeet	31,240.00	31,236.00
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	1.68	1.51

2.0 Emissions Summary

7280b Moreno Valley Self-Storage Facility - 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					
2018	3.2847	30.7320	21.7444	0.0438	6.7823	1.5524	8.3347	3.4187	1.4468	4.8469	0.0000	4,344.1134	4,344.1134	0.9349	0.0000	4,362.8502
2019	54.6342	25.0000	20.9099	0.0434	1.1215	1.3235	2.4450	0.3021	1.2447	1.5468	0.0000	4,282.6079	4,282.6079	0.7329	0.0000	4,300.9308
Maximum	54.6342	30.7320	21.7444	0.0438	6.7823	1.5524	8.3347	3.4187	1.4468	4.8469	0.0000	4,344.1134	4,344.1134	0.9349	0.0000	4,362.8502

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					
2018	3.2847	30.7320	21.7444	0.0438	2.7474	1.5524	4.2997	1.3604	1.4468	2.7886	0.0000	4,344.1134	4,344.1134	0.9349	0.0000	4,362.8502
2019	54.6342	25.0000	20.9099	0.0434	1.1215	1.3235	2.4450	0.3021	1.2447	1.5468	0.0000	4,282.6079	4,282.6079	0.7329	0.0000	4,300.9308
Maximum	54.6342	30.7320	21.7444	0.0438	2.7474	1.5524	4.2997	1.3604	1.4468	2.7886	0.0000	4,344.1134	4,344.1134	0.9349	0.0000	4,362.8502

	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	51.05	0.00	37.43	55.32	0.00	32.19	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - 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	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Energy	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Mobile	0.3062	2.6371	4.1013	0.0163	1.2501	0.0187	1.2687	0.3345	0.0176	0.3522		1,658.9122	1,658.9122	0.0868		1,661.0827
Total	2.3816	2.6867	4.1629	0.0166	1.2501	0.0225	1.2726	0.3345	0.0215	0.3560		1,718.2125	1,718.2125	0.0881	1.0900e-003	1,720.7380

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	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Energy	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Mobile	0.2617	2.1156	2.9639	0.0112	0.8233	0.0127	0.8360	0.2203	0.0120	0.2324		1,141.5704	1,141.5704	0.0713		1,143.3535
Total	2.3370	2.1652	3.0255	0.0115	0.8233	0.0166	0.8398	0.2203	0.0159	0.2362		1,200.8707	1,200.8707	0.0726	1.0900e-003	1,203.0088

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - 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	1.87	19.41	27.32	30.64	34.14	26.30	34.00	34.14	26.06	33.66	0.00	30.11	30.11	17.60	0.00	30.09

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/1/2018	9/12/2018	5	8	
2	Building Construction	Building Construction	9/13/2018	7/18/2019	5	221	
3	Paving	Paving	7/19/2019	8/8/2019	5	15	
4	Architectural Coating	Architectural Coating	8/9/2019	8/31/2019	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4.47

Acres of Paving: 2.39

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 135,848; Non-Residential Outdoor: 45,283; Striped Parking Area: 6,249 (Architectural Coating – sqft)

OffRoad Equipment

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	82.00	32.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2018

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					6.6146	0.0000	6.6146	3.3742	0.0000	3.3742			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	2.7733	30.6725	16.5770	0.0297	6.6146	1.5513	8.1660	3.3742	1.4272	4.8014		2,988.0216	2,988.0216	0.9302		3,011.2769

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.2 Grading - 2018

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	0.0881	0.0595	0.6030	1.5900e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		157.9077	157.9077	4.6700e-003		158.0245
Total	0.0881	0.0595	0.6030	1.5900e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		157.9077	157.9077	4.6700e-003		158.0245

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					2.5797	0.0000	2.5797	1.3159	0.0000	1.3159			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	2.7733	30.6725	16.5770	0.0297	2.5797	1.5513	4.1310	1.3159	1.4272	2.7432	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.2 Grading - 2018

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	0.0881	0.0595	0.6030	1.5900e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		157.9077	157.9077	4.6700e-003		158.0245
Total	0.0881	0.0595	0.6030	1.5900e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		157.9077	157.9077	4.6700e-003		158.0245

3.3 Building Construction - 2018

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.3 Building Construction - 2018

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	0.1235	3.8848	0.8675	8.1700e-003	0.2049	0.0330	0.2379	0.0590	0.0316	0.0906		859.9494	859.9494	0.0818		861.9946
Worker	0.4817	0.3253	3.2965	8.6700e-003	0.9166	5.7300e-003	0.9223	0.2431	5.2800e-003	0.2484		863.2289	863.2289	0.0255		863.8674
Total	0.6052	4.2101	4.1640	0.0168	1.1215	0.0387	1.1602	0.3021	0.0368	0.3389		1,723.1783	1,723.1783	0.1074		1,725.8619

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.3 Building Construction - 2018

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	0.1235	3.8848	0.8675	8.1700e-003	0.2049	0.0330	0.2379	0.0590	0.0316	0.0906		859.9494	859.9494	0.0818		861.9946
Worker	0.4817	0.3253	3.2965	8.6700e-003	0.9166	5.7300e-003	0.9223	0.2431	5.2800e-003	0.2484		863.2289	863.2289	0.0255		863.8674
Total	0.6052	4.2101	4.1640	0.0168	1.1215	0.0387	1.1602	0.3021	0.0368	0.3389		1,723.1783	1,723.1783	0.1074		1,725.8619

3.3 Building Construction - 2019

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.3 Building Construction - 2019

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	0.1119	3.6344	0.7937	8.1100e-003	0.2049	0.0280	0.2329	0.0590	0.0268	0.0858		854.2036	854.2036	0.0789		856.1756
Worker	0.4411	0.2868	2.9525	8.4000e-003	0.9166	5.6600e-003	0.9222	0.2431	5.2100e-003	0.2483		836.8241	836.8241	0.0227		837.3917
Total	0.5530	3.9212	3.7461	0.0165	1.1215	0.0337	1.1552	0.3021	0.0320	0.3341		1,691.0277	1,691.0277	0.1016		1,693.5673

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.3 Building Construction - 2019

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	0.1119	3.6344	0.7937	8.1100e-003	0.2049	0.0280	0.2329	0.0590	0.0268	0.0858		854.2036	854.2036	0.0789		856.1756
Worker	0.4411	0.2868	2.9525	8.4000e-003	0.9166	5.6600e-003	0.9222	0.2431	5.2100e-003	0.2483		836.8241	836.8241	0.0227		837.3917
Total	0.5530	3.9212	3.7461	0.0165	1.1215	0.0337	1.1552	0.3021	0.0320	0.3341		1,691.0277	1,691.0277	0.1016		1,693.5673

3.4 Paving - 2019

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	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.5596	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.4 Paving - 2019

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	0.1076	0.0700	0.7201	2.0500e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		204.1034	204.1034	5.5400e-003		204.2419
Total	0.1076	0.0700	0.7201	2.0500e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		204.1034	204.1034	5.5400e-003		204.2419

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	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.2917					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.5596	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.4 Paving - 2019

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	0.1076	0.0700	0.7201	2.0500e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		204.1034	204.1034	5.5400e-003		204.2419
Total	0.1076	0.0700	0.7201	2.0500e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		204.1034	204.1034	5.5400e-003		204.2419

3.5 Architectural Coating - 2019

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	54.2816					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	54.5481	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.5 Architectural Coating - 2019

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	0.0861	0.0560	0.5761	1.6400e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		163.2827	163.2827	4.4300e-003		163.3935
Total	0.0861	0.0560	0.5761	1.6400e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		163.2827	163.2827	4.4300e-003		163.3935

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	54.2816					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	54.5481	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

3.5 Architectural Coating - 2019

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	0.0861	0.0560	0.5761	1.6400e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		163.2827	163.2827	4.4300e-003		163.3935
Total	0.0861	0.0560	0.5761	1.6400e-003	0.1788	1.1000e-003	0.1800	0.0474	1.0200e-003	0.0485		163.2827	163.2827	4.4300e-003		163.3935

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

7280b Moreno Valley Self-Storage Facility - 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	0.2617	2.1156	2.9639	0.0112	0.8233	0.0127	0.8360	0.2203	0.0120	0.2324		1,141.5704	1,141.5704	0.0713		1,143.3535
Unmitigated	0.3062	2.6371	4.1013	0.0163	1.2501	0.0187	1.2687	0.3345	0.0176	0.3522		1,658.9122	1,658.9122	0.0868		1,661.0827

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	136.75	136.75	136.75	586,053	385,955
Total	136.75	136.75	136.75	586,053	385,955

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Other Non-Asphalt Surfaces	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Unrefrigerated Warehouse-No Rail	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

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	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
NaturalGas Unmitigated	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

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					
Other 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
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
Unrefrigerated Warehouse-No Rail	503.69	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Total		5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098

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					
Other 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
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
Unrefrigerated Warehouse-No Rail	0.50369	5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098
Total		5.4300e-003	0.0494	0.0415	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.2577	59.2577	1.1400e-003	1.0900e-003	59.6098

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6.0 Area Detail

6.1 Mitigation Measures Area

	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	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Unmitigated	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

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	0.2380					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-003	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Total	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455

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	0.2380					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.8301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-003	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455
Total	2.0699	1.9000e-004	0.0201	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0426	0.0426	1.2000e-004		0.0455

7.0 Water Detail

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Winter

7.1 Mitigation Measures Water

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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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 C

CalEEMod Model Annual Emissions Printouts

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Annual

7280b Moreno Valley Self-Storage Facility
Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	90.56	1000sqft	2.08	90,565.00	0
Other Asphalt Surfaces	72.91	1000sqft	1.67	72,912.00	0
Other Non-Asphalt Surfaces	31.24	1000sqft	0.72	31,236.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2019
Utility Company	Statewide Average				
CO2 Intensity (lb/MW hr)	1001.57	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

7280b Moreno Valley Self-Storage Facility - Riverside-South Coast County, Annual

Project Characteristics - The project site is in the Moreno Valley Electric Utility service area; however, this is not an option in CalEEMod. The statewide average was used for the electric utility company.

Land Use - Site is 4.47 acres w/ a 90,565 sf self-storage facility, 72,912 sf of paving (includes a 7 space parking lot & driveways), & 31,236 sf of landscaping.

Construction Phase - Construction anticipated to begin September 2018 and take less than one year to complete. Site is vacant, no demolition needed.

Grading - Site is ~4.47 acres and is anticipated to balance.

Vehicle Trips - Per TIA, 1.51 trips/TSF/day.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~0.08 miles southwest of RTA Route 18,19 stop Perris FS JFK and ~2.6 miles south of downtown portion of Moreno Valley.

Waste Mitigation - AB 939 requires each jurisdiction in CA to divert at least 50% of its waste away from landfills.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	16.00
tblConstructionPhase	NumDays	230.00	221.00
tblConstructionPhase	NumDays	18.00	15.00
tblGrading	AcresOfGrading	4.00	4.47
tblLandUse	LandUseSquareFeet	90,560.00	90,565.00
tblLandUse	LandUseSquareFeet	72,910.00	72,912.00
tblLandUse	LandUseSquareFeet	31,240.00	31,236.00
tblVehicleTrips	ST_TR	1.68	1.51
tblVehicleTrips	SU_TR	1.68	1.51
tblVehicleTrips	WD_TR	1.68	1.51

2.0 Emissions Summary

7280b Moreno Valley Self-Storage Facility - 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					
2018	0.1380	1.2022	0.9214	1.8500e-003	0.0702	0.0662	0.1364	0.0253	0.0621	0.0874	0.0000	166.5932	166.5932	0.0298	0.0000	167.3377
2019	0.6552	1.9038	1.6199	3.3300e-003	0.0820	0.1011	0.1830	0.0221	0.0950	0.1171	0.0000	297.6538	297.6538	0.0514	0.0000	298.9389
Maximum	0.6552	1.9038	1.6199	3.3300e-003	0.0820	0.1011	0.1830	0.0253	0.0950	0.1171	0.0000	297.6538	297.6538	0.0514	0.0000	298.9389

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					
2018	0.1380	1.2022	0.9214	1.8500e-003	0.0540	0.0662	0.1202	0.0171	0.0621	0.0792	0.0000	166.5931	166.5931	0.0298	0.0000	167.3376
2019	0.6552	1.9038	1.6199	3.3300e-003	0.0820	0.1011	0.1830	0.0221	0.0950	0.1171	0.0000	297.6536	297.6536	0.0514	0.0000	298.9387
Maximum	0.6552	1.9038	1.6199	3.3300e-003	0.0820	0.1011	0.1830	0.0221	0.0950	0.1171	0.0000	297.6536	297.6536	0.0514	0.0000	298.9387

	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	10.61	0.00	5.05	17.37	0.00	4.02	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	9-1-2018	11-30-2018	1.0154	1.0154
2	12-1-2018	2-28-2019	0.9301	0.9301
3	3-1-2019	5-31-2019	0.9173	0.9173
4	6-1-2019	8-31-2019	1.0516	1.0516
		Highest	1.0516	1.0516

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	0.3777	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003
Energy	9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	106.9108	106.9108	3.0000e-003	7.6000e-004	107.2128
Mobile	0.0558	0.4879	0.7726	3.0300e-003	0.2238	3.3700e-003	0.2272	0.0600	3.1900e-003	0.0632	0.0000	279.7286	279.7286	0.0140	0.0000	280.0795
Waste						0.0000	0.0000		0.0000	0.0000	17.2806	0.0000	17.2806	1.0213	0.0000	42.8120
Water						0.0000	0.0000		0.0000	0.0000	6.6439	123.8824	130.5263	0.6860	0.0169	152.6987
Total	0.4345	0.4970	0.7826	3.0800e-003	0.2238	4.0600e-003	0.2279	0.0600	3.8800e-003	0.0639	23.9246	510.5266	534.4512	1.7243	0.0176	582.8080

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

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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	0.3777	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003
Energy	9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	106.9108	106.9108	3.0000e-003	7.6000e-004	107.2128
Mobile	0.0476	0.3919	0.5541	2.0900e-003	0.1474	2.3000e-003	0.1497	0.0395	2.1700e-003	0.0417	0.0000	192.9185	192.9185	0.0114	0.0000	193.2042
Waste						0.0000	0.0000		0.0000	0.0000	8.6403	0.0000	8.6403	0.5106	0.0000	21.4060
Water						0.0000	0.0000		0.0000	0.0000	6.6439	123.8824	130.5263	0.6860	0.0169	152.6987
Total	0.4262	0.4009	0.5641	2.1400e-003	0.1474	2.9900e-003	0.1504	0.0395	2.8600e-003	0.0424	15.2842	423.7165	439.0007	1.2111	0.0176	474.5268

	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	1.90	19.33	27.92	30.52	34.14	26.35	34.00	34.14	26.29	33.66	36.11	17.00	17.86	29.77	0.00	18.58

3.0 Construction Detail

Construction Phase

Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/1/2018	9/12/2018	5	8	
2	Building Construction	Building Construction	9/13/2018	7/18/2019	5	221	
3	Paving	Paving	7/19/2019	8/8/2019	5	15	
4	Architectural Coating	Architectural Coating	8/9/2019	8/31/2019	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4.47

Acres of Paving: 2.39

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 135,848; Non-Residential Outdoor: 45,283; Striped Parking Area: 6,249 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	82.00	32.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2018

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					0.0265	0.0000	0.0265	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1227	0.0663	1.2000e-004		6.2100e-003	6.2100e-003		5.7100e-003	5.7100e-003	0.0000	10.8428	10.8428	3.3800e-003	0.0000	10.9271
Total	0.0111	0.1227	0.0663	1.2000e-004	0.0265	6.2100e-003	0.0327	0.0135	5.7100e-003	0.0192	0.0000	10.8428	10.8428	3.3800e-003	0.0000	10.9271

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3.2 Grading - 2018

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	3.3000e-004	2.5000e-004	2.5400e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5877	0.5877	2.0000e-005	0.0000	0.5882
Total	3.3000e-004	2.5000e-004	2.5400e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5877	0.5877	2.0000e-005	0.0000	0.5882

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					0.0103	0.0000	0.0103	5.2600e-003	0.0000	5.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1227	0.0663	1.2000e-004		6.2100e-003	6.2100e-003		5.7100e-003	5.7100e-003	0.0000	10.8427	10.8427	3.3800e-003	0.0000	10.9271
Total	0.0111	0.1227	0.0663	1.2000e-004	0.0103	6.2100e-003	0.0165	5.2600e-003	5.7100e-003	0.0110	0.0000	10.8427	10.8427	3.3800e-003	0.0000	10.9271

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3.2 Grading - 2018

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	3.3000e-004	2.5000e-004	2.5400e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5877	0.5877	2.0000e-005	0.0000	0.5882
Total	3.3000e-004	2.5000e-004	2.5400e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5877	0.5877	2.0000e-005	0.0000	0.5882

3.3 Building Construction - 2018

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	0.1045	0.9122	0.6856	1.0500e-003		0.0585	0.0585		0.0550	0.0550	0.0000	92.7292	92.7292	0.0227	0.0000	93.2972
Total	0.1045	0.9122	0.6856	1.0500e-003		0.0585	0.0585		0.0550	0.0550	0.0000	92.7292	92.7292	0.0227	0.0000	93.2972

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3.3 Building Construction - 2018

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	4.6700e-003	0.1540	0.0315	3.3000e-004	7.8800e-003	1.2800e-003	9.1600e-003	2.2700e-003	1.2200e-003	3.5000e-003	0.0000	31.1080	31.1080	2.7300e-003	0.0000	31.1763
Worker	0.0174	0.0131	0.1354	3.5000e-004	0.0352	2.2000e-004	0.0354	9.3300e-003	2.1000e-004	9.5400e-003	0.0000	31.3255	31.3255	9.3000e-004	0.0000	31.3489
Total	0.0220	0.1671	0.1669	6.8000e-004	0.0430	1.5000e-003	0.0445	0.0116	1.4300e-003	0.0130	0.0000	62.4335	62.4335	3.6600e-003	0.0000	62.5252

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	0.1045	0.9122	0.6856	1.0500e-003		0.0585	0.0585		0.0550	0.0550	0.0000	92.7291	92.7291	0.0227	0.0000	93.2971
Total	0.1045	0.9122	0.6856	1.0500e-003		0.0585	0.0585		0.0550	0.0550	0.0000	92.7291	92.7291	0.0227	0.0000	93.2971

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3.3 Building Construction - 2018

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	4.6700e-003	0.1540	0.0315	3.3000e-004	7.8800e-003	1.2800e-003	9.1600e-003	2.2700e-003	1.2200e-003	3.5000e-003	0.0000	31.1080	31.1080	2.7300e-003	0.0000	31.1763
Worker	0.0174	0.0131	0.1354	3.5000e-004	0.0352	2.2000e-004	0.0354	9.3300e-003	2.1000e-004	9.5400e-003	0.0000	31.3255	31.3255	9.3000e-004	0.0000	31.3489
Total	0.0220	0.1671	0.1669	6.8000e-004	0.0430	1.5000e-003	0.0445	0.0116	1.4300e-003	0.0130	0.0000	62.4335	62.4335	3.6600e-003	0.0000	62.5252

3.3 Building Construction - 2019

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	0.1688	1.5071	1.2272	1.9200e-003		0.0922	0.0922		0.0867	0.0867	0.0000	168.0995	168.0995	0.0410	0.0000	169.1233
Total	0.1688	1.5071	1.2272	1.9200e-003		0.0922	0.0922		0.0867	0.0867	0.0000	168.0995	168.0995	0.0410	0.0000	169.1233

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3.3 Building Construction - 2019

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	7.7500e-003	0.2640	0.0526	5.9000e-004	0.0145	1.9900e-003	0.0164	4.1700e-003	1.9000e-003	6.0700e-003	0.0000	56.6545	56.6545	4.8300e-003	0.0000	56.7752
Worker	0.0291	0.0212	0.2225	6.2000e-004	0.0644	4.0000e-004	0.0649	0.0171	3.7000e-004	0.0175	0.0000	55.6755	55.6755	1.5200e-003	0.0000	55.7136
Total	0.0369	0.2853	0.2750	1.2100e-003	0.0789	2.3900e-003	0.0813	0.0213	2.2700e-003	0.0236	0.0000	112.3300	112.3300	6.3500e-003	0.0000	112.4888

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	0.1688	1.5071	1.2272	1.9200e-003		0.0922	0.0922		0.0867	0.0867	0.0000	168.0993	168.0993	0.0410	0.0000	169.1231
Total	0.1688	1.5071	1.2272	1.9200e-003		0.0922	0.0922		0.0867	0.0867	0.0000	168.0993	168.0993	0.0410	0.0000	169.1231

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3.3 Building Construction - 2019

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	7.7500e-003	0.2640	0.0526	5.9000e-004	0.0145	1.9900e-003	0.0164	4.1700e-003	1.9000e-003	6.0700e-003	0.0000	56.6545	56.6545	4.8300e-003	0.0000	56.7752
Worker	0.0291	0.0212	0.2225	6.2000e-004	0.0644	4.0000e-004	0.0649	0.0171	3.7000e-004	0.0175	0.0000	55.6755	55.6755	1.5200e-003	0.0000	55.7136
Total	0.0369	0.2853	0.2750	1.2100e-003	0.0789	2.3900e-003	0.0813	0.0213	2.2700e-003	0.0236	0.0000	112.3300	112.3300	6.3500e-003	0.0000	112.4888

3.4 Paving - 2019

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	9.5100e-003	0.0957	0.0924	1.4000e-004		5.4000e-003	5.4000e-003		4.9800e-003	4.9800e-003	0.0000	12.5417	12.5417	3.8600e-003	0.0000	12.6382
Paving	2.1900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0117	0.0957	0.0924	1.4000e-004		5.4000e-003	5.4000e-003		4.9800e-003	4.9800e-003	0.0000	12.5417	12.5417	3.8600e-003	0.0000	12.6382

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3.4 Paving - 2019

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	7.5000e-004	5.4000e-004	5.6900e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4244	1.4244	4.0000e-005	0.0000	1.4254
Total	7.5000e-004	5.4000e-004	5.6900e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4244	1.4244	4.0000e-005	0.0000	1.4254

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	9.5100e-003	0.0957	0.0924	1.4000e-004		5.4000e-003	5.4000e-003		4.9800e-003	4.9800e-003	0.0000	12.5417	12.5417	3.8600e-003	0.0000	12.6382
Paving	2.1900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0117	0.0957	0.0924	1.4000e-004		5.4000e-003	5.4000e-003		4.9800e-003	4.9800e-003	0.0000	12.5417	12.5417	3.8600e-003	0.0000	12.6382

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3.4 Paving - 2019

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	7.5000e-004	5.4000e-004	5.6900e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4244	1.4244	4.0000e-005	0.0000	1.4254
Total	7.5000e-004	5.4000e-004	5.6900e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4244	1.4244	4.0000e-005	0.0000	1.4254

3.5 Architectural Coating - 2019

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	0.4343					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1300e-003	0.0147	0.0147	2.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	2.0426	2.0426	1.7000e-004	0.0000	2.0469
Total	0.4364	0.0147	0.0147	2.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	2.0426	2.0426	1.7000e-004	0.0000	2.0469

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3.5 Architectural Coating - 2019

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	6.4000e-004	4.6000e-004	4.8600e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2155	1.2155	3.0000e-005	0.0000	1.2163
Total	6.4000e-004	4.6000e-004	4.8600e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2155	1.2155	3.0000e-005	0.0000	1.2163

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	0.4343					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1300e-003	0.0147	0.0147	2.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	2.0426	2.0426	1.7000e-004	0.0000	2.0469
Total	0.4364	0.0147	0.0147	2.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	2.0426	2.0426	1.7000e-004	0.0000	2.0469

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3.5 Architectural Coating - 2019

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	6.4000e-004	4.6000e-004	4.8600e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2155	1.2155	3.0000e-005	0.0000	1.2163
Total	6.4000e-004	4.6000e-004	4.8600e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2155	1.2155	3.0000e-005	0.0000	1.2163

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit 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	0.0476	0.3919	0.5541	2.0900e-003	0.1474	2.3000e-003	0.1497	0.0395	2.1700e-003	0.0417	0.0000	192.9185	192.9185	0.0114	0.0000	193.2042
Unmitigated	0.0558	0.4879	0.7726	3.0300e-003	0.2238	3.3700e-003	0.2272	0.0600	3.1900e-003	0.0632	0.0000	279.7286	279.7286	0.0140	0.0000	280.0795

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	136.75	136.75	136.75	586,053	385,955
Total	136.75	136.75	136.75	586,053	385,955

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Other Non-Asphalt Surfaces	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211
Unrefrigerated Warehouse-No Rail	0.533383	0.039495	0.183627	0.126156	0.018688	0.005561	0.017029	0.066607	0.001345	0.001247	0.004677	0.000974	0.001211

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	97.1001	97.1001	2.8100e-003	5.8000e-004	97.3437
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	97.1001	97.1001	2.8100e-003	5.8000e-004	97.3437
NaturalGas Mitigated	9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.8108	9.8108	1.9000e-004	1.8000e-004	9.8691
NaturalGas Unmitigated	9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.8108	9.8108	1.9000e-004	1.8000e-004	9.8691

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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	tons/yr										MT/yr					
Other 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
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
Unrefrigerated Warehouse-No Rail	183847	9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.8108	9.8108	1.9000e-004	1.8000e-004	9.8691
Total		9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.8108	9.8108	1.9000e-004	1.8000e-004	9.8691

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	tons/yr										MT/yr					
Other 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
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
Unrefrigerated Warehouse-No Rail	183847	9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.8108	9.8108	1.9000e-004	1.8000e-004	9.8691
Total		9.9000e-004	9.0100e-003	7.5700e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.8108	9.8108	1.9000e-004	1.8000e-004	9.8691

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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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213733	97.1001	2.8100e-003	5.8000e-004	97.3437
Total		97.1001	2.8100e-003	5.8000e-004	97.3437

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213733	97.1001	2.8100e-003	5.8000e-004	97.3437
Total		97.1001	2.8100e-003	5.8000e-004	97.3437

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6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.3777	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003
Unmitigated	0.3777	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003

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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	0.0434					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3340					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003
Total	0.3777	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003

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	0.0434					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3340					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003
Total	0.3777	2.0000e-005	2.5100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.8300e-003	4.8300e-003	1.0000e-005	0.0000	5.1600e-003

7.0 Water Detail

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7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	130.5263	0.6860	0.0169	152.6987
Unmitigated	130.5263	0.6860	0.0169	152.6987

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	20.942 / 0	130.5263	0.6860	0.0169	152.6987
Total		130.5263	0.6860	0.0169	152.6987

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	20.942 / 0	130.5263	0.6860	0.0169	152.6987
Total		130.5263	0.6860	0.0169	152.6987

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	8.6403	0.5106	0.0000	21.4060
Unmitigated	17.2806	1.0213	0.0000	42.8120

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	85.13	17.2806	1.0213	0.0000	42.8120
Total		17.2806	1.0213	0.0000	42.8120

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	42.565	8.6403	0.5106	0.0000	21.4060
Total		8.6403	0.5106	0.0000	21.4060

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

Equipment Type	Number
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Attachment: Air Quality and Green House Gas Analysis (3175 : Moreno Valley Storage - Conditional Use

11.0 Vegetation



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February 5, 2018

Garrett Gossett
Gossett Development
207 Monarch Bay Drive,
Dana Point, CA 92629

RE: WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS
MORENO VALLEY STORAGE
ASSESSOR'S PARCEL NUMBERS 485-081-037 & 485-081-043

Dear Mr. Gossett:

Jericho Systems, Inc. (Jericho) is pleased to provide this Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis prepared for Assessor's Parcel Numbers (APNs) 485-081-037 and 485-081-043. The subject parcels are located on the southwest corner of John F Kennedy Drive and Perris Boulevard in Moreno Valley, California. The Proposed project consists of the rezoning of the subject parcels from Neighborhood Commercial to Community Commercial and the construction of a self-storage facility.

SUMMARY INFORMATION

Date report prepared: January 24, 2018

Project site location: USGS Sunnymead 7.5 Minute Series Quadrangle, northeast corner of Section 19 of Township 3 South, Range 3 West

APN: 485-081-037 and 485-081-043

Owner/Applicant: Garrett Gossett

Principal Investigator: Shay Lawrey

Name of person preparing report: Shay Lawrey

Address: 47 N 1st Street, Suite 1, Redlands CA 92373

Phone: (909) 915-5900

Report Summary: The Project is consistent with the MSHCP and policies found Section 6 which include Riparian/Riverine Areas/ Vernal Pools; Narrow Endemic Plant Species; Urban/Wildlands Interface; and Surveys for Special Status Species (burrowing owls). The site is not located within an area mapped for Narrow Endemic or Criteria Area Plant Species nor does it provide wildlife connectivity between blocks of habitat. Habitat assessments for burrowing owl and riverine/riparian/vernal pool habitat were conducted by Jericho Systems, Inc, in January 2018. The result of the habitat assessment was that no suitable habitat for burrowing owl occurs onsite and no riverine/riparian/vernal pool habitat occurs onsite.

INTRODUCTION

The proposed Project encompasses approximately 4 acres located on the southwest corner of John F Kennedy Drive and Perris Boulevard, between a small shopping center and a residential neighborhood in Moreno Valley, California. The site occurs within the Western Riverside County MSHCP area on APNs

485-081-037 & 485-081-043. The parcels are not located within any cell designated as a “criteria” area for potential or existing conservation.

The MSHCP is a criteria-based plan and identification of planning units on which to base the Criteria is necessary for such a criteria-based plan. The MSHCP Conservation Area is comprised of a variety of existing and proposed Cores, Extensions of Existing Cores, Linkages, Constrained Linkages and Non-contiguous Habitat Blocks. The MSHCP coverage area is divided into Area Plans (AP) based on the Riverside County’s General Plan Area Plan boundaries. Each of the AP’s has: established conservation criteria, species specific surveys that may be required based on on-site Habitat Assessment, and resources and areas identified for conservation. In each Area Plan text, applicable Cores and Linkages are identified.

There are 146 species covered by the MSHCP. Surveys are not required for 106 of these covered species. The remaining 40 covered species may require focused surveys for proposed development projects and include 4 birds, 3 mammals, 3 amphibians, 3 crustaceans, 14 Narrow Endemic Plants, and 13 other sensitive plants within the Criteria Area. The need to conduct focused surveys for all but six of these 40 species is determined by the presence of suitable habitat within designated ‘survey areas’ mapped for each of the species. The remaining six species that require focused surveys throughout the entire MSHCP area are associated with riparian/riverine areas and vernal pools and include least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Riverside fairy shrimp, Santa Rosa Plateau fairy shrimp, and vernal pool fairy shrimp. Surveys for these species are required if riparian/riverine or vernal pool habitat is identified on site and impacts to these areas will occur as a result of project implementation.

Based on the site location, habitat assessments required by the MSHCP are described as follows:

Amphibian Species	No
Burrowing Owl	YES
Criteria Area Species	No
Mammalian Species	No
Narrow Endemic Plant Species	No
Special Linkage Areas	No

SITE LOCATION

The site is specifically located within the city of Moreno Valley, approximately 250 feet west of the intersection of John F Kennedy Drive and Perris Boulevard on the south side of John F Kennedy Drive. It is 2.7 miles east of Interstate 215 and 2.65 miles south of Hwy 60. The site is identified on the *Sunnymead* US Geological Survey (USGS) 7.5-minute topographic map in the southwest corner of Section 19, Township 3 South, Range 3 West (Figures 1&2). The project site is bordered by residential development to the north, south and west and by a small commercial shopping center to the east.

The City of Moreno Valley is subject to both seasonal and annual variations in temperature and precipitation. The local climatic conditions in the project area are characterized by hot dry summers, mild wet winters. The average annual temperature is 71°F, ranging between 52-90°F. The rainy season begins in January and continues through March, with the quantity and frequency of rain varying from year to year. The average annual rainfall is approximately 13.06 inches. Hydrologically, the site is located within the Moreno Valley Hydrologic Sub-Area (HSA 802.11) which comprises a 106,456-acre drainage area within the larger Lower San Jacinto River watershed (HUC 1807020203). Soils on the site consist of

Hanford coarse sandy loam, which is somewhat excessively well drained and Hanford fine sandy loam, which is well drained.

SUMMARY OF BIOLOGICAL SURVEYS CONDUCTED ON THE SITE

On January 24, 2018, Jericho biologist Shannon Dye conducted a field survey for a habitat assessment of the Project site. This consisted of a pedestrian survey along transects spaced 30 meters (100 feet) apart to allow for 100 percent visual coverage of the site. The field survey encompassed the entirety of the project site. Due to the site being surrounded by residential property, no buffer was surveyed by foot. However, a visual inspection of the surrounding area was conducted out to 150 feet. Plant and wildlife species observed were recorded. The property was evaluated for the presence of riverine/riparian/vernal pool habitat and jurisdictional waters, as regulated by the US Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB), and/or jurisdictional streambed and associated riparian habitat as regulated by CDFW. Riverine/Riparian areas jurisdictional under the MSHCP are similar to CDFW jurisdiction. A follow-up site visit occurred on February 1 to dig soil pits for the purpose of determining the potential for vernal pools onsite. Soils pits were dug to a depth of 18 inches and recorded using USACE Arid West Region guidelines.

The results are summarized as follows:

- Burrowing owl – No suitable habitat for BUOW was observed (i.e. rodent burrows for shelter or cover)
- Riverine/riparian areas – No riverine/riparian areas are present on the subject parcel
- Vernal Pools – There are no vernal pools or soils consistent with vernal pools on the subject parcel.

MSHCP CONSISTENCY RESULTS AND SUBSTANTIATION

MSHCP Conservation Goals Reche Canyon/Badlands Area Plan and Policies

The project site is located within the MSHCP's Reche Canyon/Badlands Area Plan. The target conservation acreage range for the Reche Canyon/Badlands Area Plan is 30,815 to 35,905 acres; it is composed of approximately 20,295 acres of existing Public/Quasi-Public Lands and 10,520 to 15,610 acres of Additional Reserve Lands.

The MSHCP's Conservation Areas are comprised of a variety of existing and proposed Cores, Linkages, Constrained Linkages and Noncontiguous Habitat Blocks (referred to herein generally as "Cores and Linkages"). The Cores and Linkages within the Reche Canyon/Badlands Area Plan include a large portion of Proposed Core 3; a large portion of Proposed Linkage 4; a small portion of Existing Core H and all of Proposed Linkage 8. A summary of the MSHCP Conservation Goals and Policies as they relate to this Project is provided below in Table 1.

Table 1: Conservation Goals

Conservation Goals	Within/Adjacent	Not Within / Adjacent
Proposed Constrained Linkages: 8		X
Core Areas: Proposed Core 3		X
Linkages: Proposed Linkage 4		X
Constrained Linkage: None		X

Conservation Goals	Within/Adjacent	Not Within / Adjacent
Habitat Block: None		X
Core: Existing Core H		X
Criteria Cell: Not a Part		X
Pre-existing conservation Area		X
Riparian/Riverine or Vernal Pool Habitat	X	
Narrow Endemic Plant Survey Area		X
Urban/Wildlife Interface		X
Mammal Survey Area		X
Amphibian Survey Area		X
Burrowing Owl Survey Area	X	

Result: The project site does not fall within any of the above listed existing and proposed Cores, Linkages, Constrained Linkages or Noncontiguous Habitat Block.

Subunit Area/Cell Criteria

Pursuant to Section 3.3.12, Subunits are areas within an area plan that contain target conservation acreages along with a description of the planning species, biological issues, and considerations.

Result: The Project site is not located within a subunit area or cell criteria. No further analysis is required.

Narrow Endemic Plant Species

Pursuant to Section 6.1.3, focused surveys for Narrow Endemic Plant Species are required for properties within the mapped areas if the appropriate habitat is present.

Result: The Project site is not located within a Narrow Endemic Plant Species Survey Area based on Figure 6-1 of the MSHCP. No further analysis is required.

Additional Surveys

Section 6.3.2 identifies the need for additional surveys as follows: Criteria Area Species Survey Areas (Figures 6-2) and Amphibian Species Survey Areas (Figure 6-3) and Burrowing Owl (Figure 6-4).

Result – Criteria Area Species: The Project site is not located within areas that need additional surveys for Criteria Area Species. No further analysis is required.

Result – Amphibian Species: The Project site is not located within areas that need additional surveys for Criteria Area Species. No further analysis is required.

Result – Burrowing Owl: The Project site is mapped as within the Burrowing Owl Survey Area for Criteria Species or Amphibian Species. **Additional analysis is required for Burrowing Owl.**

Survey Results: Based on a January 2018 field survey, the site did not contain suitable habitat for this species. There was evidence of recent disturbance such as disking. No burrowing owls were observed during the site visit. No burrows of any kind were located

*within the property site. No portion of the project site showed any evidence of past or present BUOW activity. No feathers, white wash or castings were found. **No suitable habitat exists on site; therefore, no surveys are required.***

Riparian/Riverine Areas and Vernal Pools

Section 6.1.2 describes the protection of Riparian/Riverine Areas and Vernal Pools within the MSHCP Plan Area as important to the conservation of certain amphibian, avian, fish, invertebrate and plant species. The MSHCP describes guidelines to ensure that the biological functions and values for species inside the MSHCP Conservation Area are maintained, as outlined in Volume 1, Section 6.1.2.

The MSHCP describes these resources as follows:

- **Riparian/Riverine Areas** are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.
- **Vernal pools** are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands 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, while upland species (annuals) may be dominant during the drier portion of the growing season.

The MSHCP identifies that the assessment for these resources shall consider species composition, topography/ hydrology, and soil analysis, where appropriate. 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 typically found within these areas. Factors to be considered include hydrologic regime, flood storage and flood flow modification, nutrient retention and transformation, sediment trapping and transport, toxicant trapping, public use, wildlife habitat, and aquatic habitat. The functions and values assessment will focus on those areas that should be considered for priority acquisition for the MSHCP Conservation Area, as well as those functions that may affect downstream values related to Conservation of Covered Species within the MSHCP Conservation Area.

Riverine/Riparian/Vernal Pool Area Species

As per the MSHCP, if suitable habitat for any of the six species associated with riparian/riverine areas and vernal pools—that is, least Bell’s vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Riverside fairy shrimp, Santa Rosa Plateau fairy shrimp, and/or vernal pool fairy shrimp — and the proposed project design does not incorporate avoidance of the identified habitat, focused surveys for these six species will be conducted, and avoidance and minimization measures will be implemented in accordance with the species-specific objectives for these species.

Results - Riparian/Riverine Resources: Based on a January 2018 field survey, the site does not contain riparian/riverine resources.

There are no mapped flow lines in the area, and historical aeriels do not indicate past flow occurred onsite. In the southwest corner of the site, there is a detention basin that, based on historical aeriels, appears to have been created in the past year with the addition of a third and

fourth building in the adjacent commercial strip. The basin is approximately 150 feet long, with a top edge-to-edge width of 30 feet and sloped sides leading to a bottom width of 8 feet. Erosion rills exist on the northern edge of the ditch, suggesting that runoff enters from the northern edge, which is closest to the paved areas of the commercial strip. During the site visit, the sprinkler system was observed to be a drip line with heavy flow. This also contributes to the erosion rills noted. There is an overflow drain in the southern portion of the basin approximately one and a half feet tall. This basin is not a riverine/riparian area, as it is constructed for the purpose of retaining water and allowing it to percolate into the ground.

Vegetation, mostly non-native, is thicker around and in the basin, although no riparian or wetland species were observed. Younger and greener Russian thistle was observed, as was shortpod mustard. The MSHCP Vegetation mapping was reviewed to ensure that past vegetation was consistent with current observations. The 1994 vegetation mapping has the site listed as Agricultural Land, and subsequent mapping from CNPS in 2005 and the MSHCP Review in 2012 have the area listed entirely as Disturbed/Developed vegetation. There is no historic record of riparian or wetland vegetation on the project site.

Therefore, no riparian/riverine areas exist on site and no impacts to these resources will occur as a result of the implementation of this project.

As there are no riverine/riparian habitat areas on the project site, focused surveys for least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo are not necessary to comply with the measures of the MSHCP.

Results – Vernal Pool Resources: *Based on a January 2018 field survey, the site does not contain vernal pool soils or other vernal pool indicators. The project site lacks wetland vegetation but does have the potential for wetland hydrology in the detention basins, as runoff from the paved parking areas and irrigation from the ornamentals planted by the adjacent buildings supply water to the basin. The soil was observed to be damp during the survey, likely from these factors and recent rainfall in the area. Therefore, soil pits were dug within the basin to determine if clay soils, which are needed to support vernal pools, were present. A follow up site visit was conducted on February 1 to test the soils.*

The result of these test pits were that the soils onsite ranged from a coarse sandy loam to a fine sandy loam. No clay soils were detected, and no hydric soil indicators, including redox features, histosols, or gleying, were present. No restrictive layers were noted.

There are no soils on site that could result in the development of vernal pools or support vernal pool species. Further, there is no historical, biological, or hydrological evidence that would indicate the historic presence of vernal pools on this site. No further analysis is required.

Because no vernal pools occur on site, no habitat exists for any of the fairy shrimp species. No further analysis is required.

Urban/Wildlands Interface

Section 6.1.4 of the MSHCP presents guidelines to minimize indirect effects of projects in proximity to the MSHCP Conservation areas. This section provides mitigation measures for impacts associated with Drainage, Toxics, Lighting, Noise, Invasives, Barriers, and Grading/Land Development.

Results – Urban Wildlands Interface: *The site is surrounded by residential and commercial development. Additionally, the site is not within or adjacent to any MSHCP conservation areas. No further discussion on this subject is made in this analysis.*

CONCLUSIONS

The site is not mapped within a criteria cell or subunit. The Project is also consistent with the MSHCP policies found Section 6 which include Riparian/Riverine Areas/ Vernal Pools; Narrow Endemic Plant Species; Urban/Wildlands Interface; and Surveys for Special Status Species (burrowing owls), identified as follows:

- 1) The site is not located within an area mapped for Narrow Endemic or Criteria Area Plant Species and is therefore consistent with MSCHP policies and conditions for Narrow Endemic and Criteria Area plant species.
- 2) The Project site does not provide wildlife connectivity between blocks of habitat and is therefore consistent with MSCHP policies and conditions for Urban/Wildlands Interface.
- 3) Habitat Assessment for riverine, riparian and vernal pool areas was conducted with the project area in January 2018 by Shannon Dye. No vernal pools or soils to support vernal pools are on site. No riverine/riparian habitat exists on the project site. Implementation of the project will not result in direct or indirect impacts to riverine/riparian/vernal pool areas.
- 4) No suitable habitat for burrowing owl, nor burrowing owl individuals were observed on site. Implementation of the project will not result in direct or indirect impacts to burrowing owls.

CERTIFICATION

I hereby certify that the statements furnished herein, and in the attached exhibits present data and information required for this analysis to the best of my ability, and the facts, statements, and information presented are true and correct to the best of my knowledge and belief. This report was prepared in accordance with professional requirements and standards. Fieldwork conducted for this assessment was performed by me. I certify that I have not signed a nondisclosure or consultant confidentiality agreement with the project proponent and that I have no financial interest in the project.

Sincerely,



Shay Lawrey, President

Attachments:

- Attachment A: Figures 1 and 2
- Attachment B: Habitat Assessment and Survey Report

Owner/Applicant: Garrett Gossett
MSHCP Consistency – Appendix A - Figures
MSHCP Consistency - APNs 485-081-037 & 485-081-043
February 5, 2018

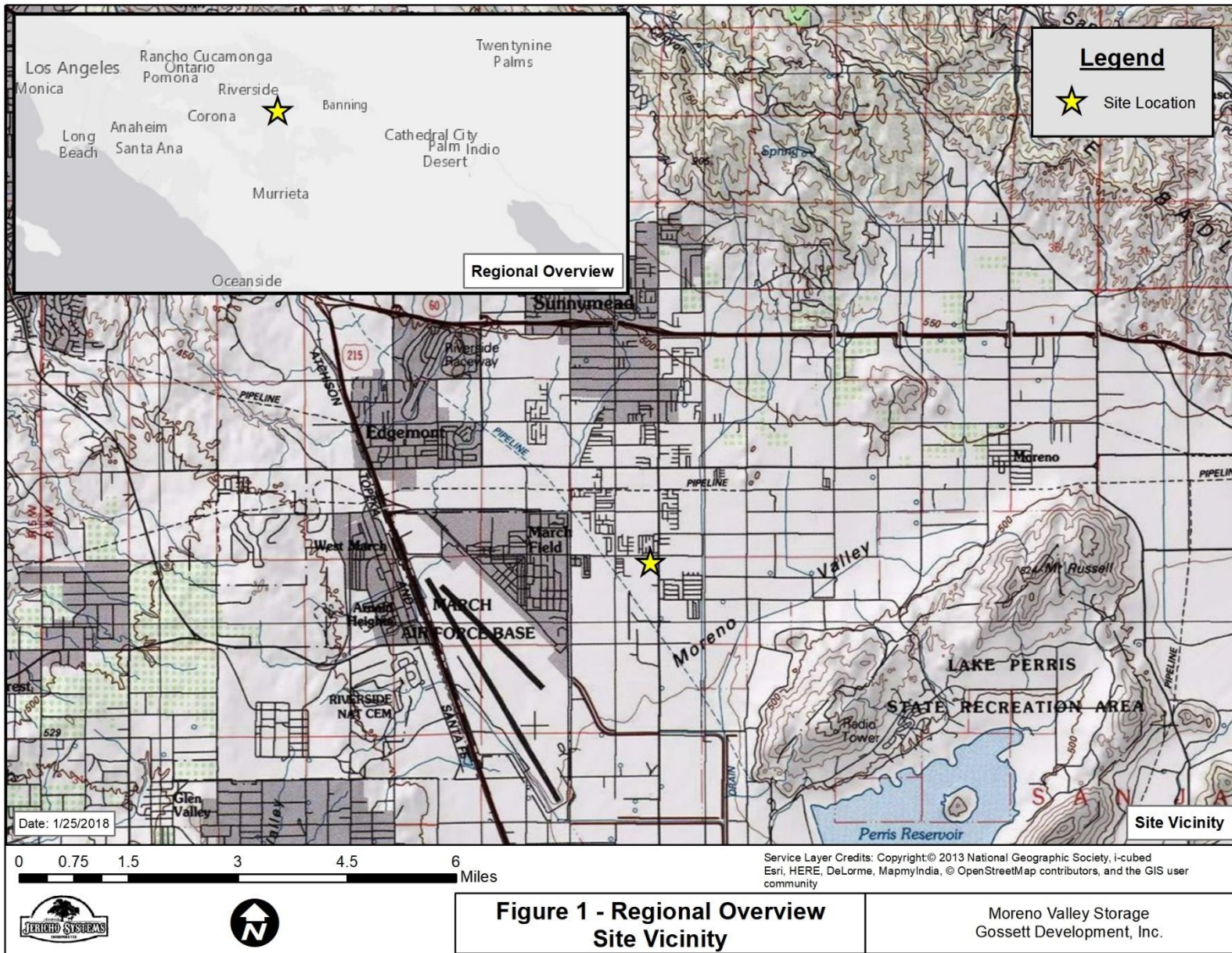
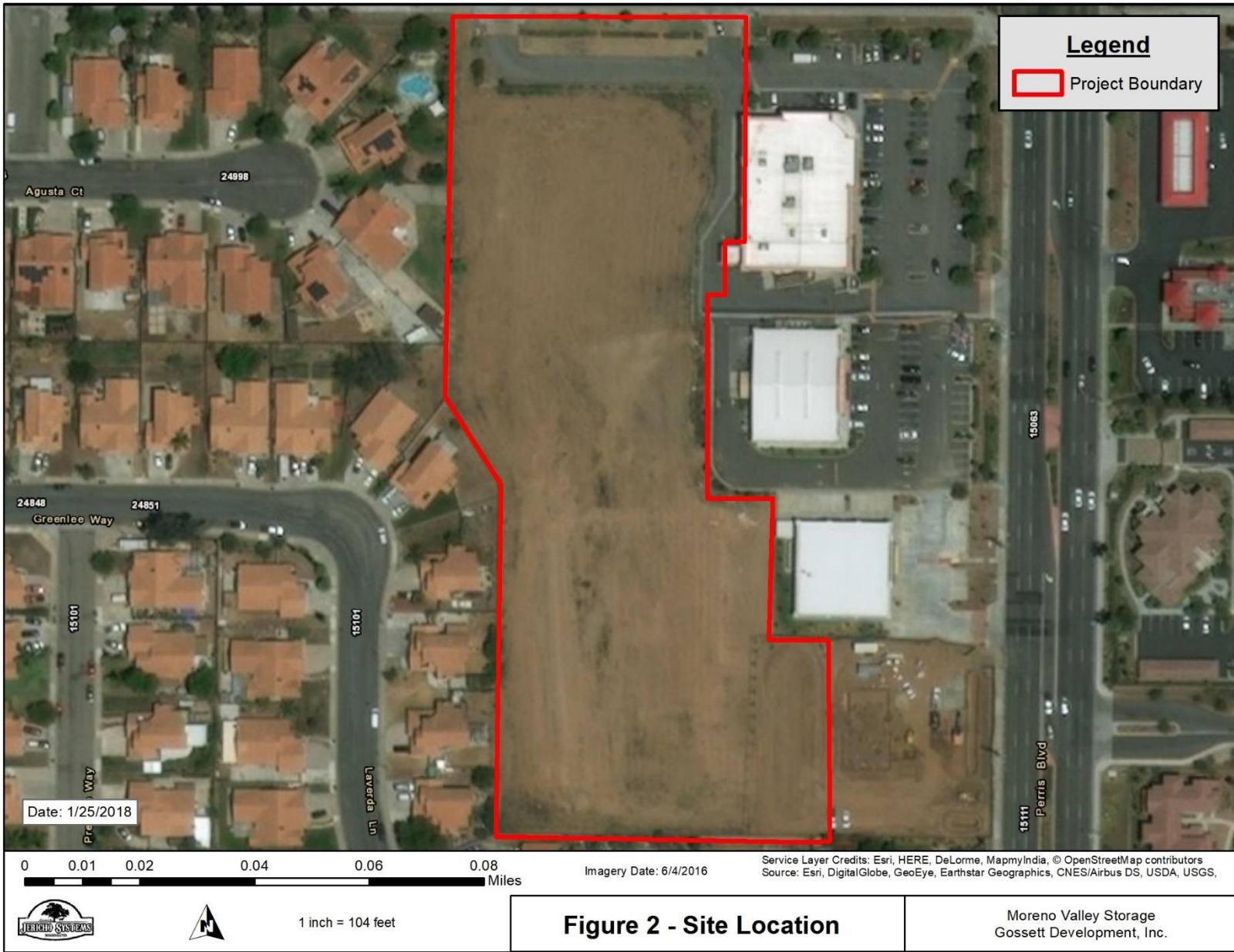


Figure 1 - Regional Overview Site Vicinity

Moreno Valley Storage
Gossett Development, Inc.

Attachment: Bio Assessment & MSHCP Consistency (3175 : Moreno Valley Storage - Conditional Use

Owner/Applicant: Garrett Gossett
MSHCP Consistency – Appendix A - Figures
MSHCP Consistency - APNs 485-081-037 & 485-081-043
February 5, 2018



Attachment: Bio Assessment & MSHCP Consistency (3175 : Moreno Valley Storage - Conditional Use

APPENDIX B

BIOLOGICAL RESOURCES ASSESSMENT

COUNTY OF RIVERSIDE
PLANNING DEPARTMENT

ASSESSOR'S PARCEL NUMBERS:
485-081-037 & 485-081-043



47 N 1st Street, Suite 1
Redlands CA 92373-4601
(909) 915-5900

February 5, 2018

Garrett Gossett
Gossett Development
207 Monarch Bay Drive,
Dana Point, CA 92629

RE: BIOLOGICAL RESOURCES ASSESSMENT
MORENO VALLEY STORAGE
ASSESSOR'S PARCEL NUMBERS 485-081-037 & 485-081-043

Dear Mr. Gossett,

Jericho Systems, Inc. (Jericho) is pleased to provide the results of the assessment for biological resources, Riverine/Riparian/Vernal Pools, and burrowing owl habitat conducted for the Moreno Valley Storage project (Project) on Assessor's Parcel Numbers 485-081-037 and 485-081-043 per requirements set forth in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The proposed Project consists of the rezoning of the parcels from Neighborhood Commercial to Community Commercial and the construction of a self-storage facility.

SUMMARY INFORMATION

Date report prepared: January 24, 2018

Project site location: USGS Sunnymead 7.5 Minute Series Quadrangle, northeast corner of Section 19 of Township 3 South, Range 3 West

APN: 485-081-037 and 485-081-043

Owner/Applicant: Garrett Gossett

Principal Investigator: Shay Lawrey

Name of person preparing report: Shay Lawrey

Address: 47 N 1st Street, Suite 1, Redlands CA 92373

Phone: (909) 915-5900

Report Summary: Habitat assessments for burrowing owl, riverine/riparian/vernal pool habitat and general biological resources were conducted by Jericho Systems, Inc, in January 2018. The result of the habitat assessment was that no suitable habitat for MSHCP species or burrowing owl occurs onsite. Riverine/riparian/vernal pools or associated habitat also does not occur onsite.

INTRODUCTION

The proposed Project encompasses approximately 4 acres located on the southwest corner of John F Kennedy Drive and Perris Boulevard, between a small shopping center and a residential neighborhood in Moreno Valley, California. The site occurs within the Western Riverside County MSHCP area on APNs 485-081-037 & 485-081-043. The parcels are not located within any cell designated as a "criteria" area for potential or existing conservation.

The Project site is mapped as within the MSHCP Burrowing Owl Survey Area for Criteria Species. Therefore, additional analysis is required for Burrowing Owl. Section 6 of the MSHCP requires focused burrowing owl surveys if suitable habitat is present (MSHCP 6.3.2).

The MSHCP also requires a survey for Riparian/Riverine/Vernal Pool resources (MSHCP 6.1.2).

The purpose of the surveys is to provide sufficient baseline information to Riverside County and, if required, to the federal and state regulatory agencies, including the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), respectively, to determine if impacts will occur and to identify mitigation measures to offset those impacts.

PROJECT LOCATION

The site is specifically located within the city of Moreno Valley, approximately 250 feet west of the intersection of John F Kennedy Drive and Perris Boulevard on the south side of John F Kennedy Drive. It is 2.7 miles east of Interstate 215 and 2.65 miles south of Hwy 60. The site is identified on the *Sunnymead* US Geological Survey (USGS) 7.5-minute topographic map in the southwest corner of Section 19, Township 3 South, Range 3 West (Figures 1&2). The project site is bordered by residential development to the north, south and west and by a small commercial shopping center to the east.

SPECIES AND RESOURCE INFORMATION

Burrowing owl

The burrowing owl (*Athene cuniculara*; BUOW) is a small, ground-dwelling owl that is protected under the Migratory Bird Treaty Act (MBTA) and by CDFW as a Species of Special Concern. In southern California, BUOW can be found in grassland, shrub steppe, and desert habitat types consisting of short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils. They can also be found in agricultural areas, ruderal grassy fields, vacant lots and pastures, and flood control facilities. Most importantly, BUOWs require underground burrows or other cavities for nesting, roosting and shelter. Burrows used by the owls are usually dug by other species, termed host burrowers. In California, California ground squirrel (*Spermophilus beecheyi*) and round-tailed ground squirrel (*Citellus tereticaudus*) burrows are frequently used by BUOW, but they may use dens or holes dug by other fossorial species. They are active during the day and night, generally observed in the early morning hours or at twilight. The breeding season for BUOW is February 1 through August 31.

Riverine/Riparian Areas

Section 6.1.2 of the MSHCP identifies Riparian/Riverine resources as lands which contain habitat dominated by trees, shrubs, persistent emergent vegetation, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from nearby fresh water sources, or areas with freshwater flow during all or a portion of the year. Riverine habitat includes all wetlands and deep-water habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Riverine habitat is bounded on the landward side by upland, by the channel bank (including natural and man-made levees), or by wetlands dominated by trees, shrubs, persistent emergents, mosses, or lichens. In braided streams, the system is bounded by the banks forming the outer limits of the depression within which the braiding occurs. Springs discharging into a channel are considered part of the riverine habitat.

The term riparian is used to define the type of wildlife habitat found along the banks of a river, stream, lake or other body of water. Riparian habitats are ecologically diverse and can be found in many types of environments including grasslands, wetlands, and forests.

Vernal Pool Areas

Section 6.1.2 of the MSHCP defines vernal pools as seasonal wetlands that occur in depression areas that have wetland indicators of all three 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 wetland plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The MSHCP dictates that determinations as to the presence or absence of vernal pools should consider the length of time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.

METHODS

Data regarding biological resources in the Project area were obtained through database review and field investigations. The proposed Project site is situated in the *Sunnymead USGS* quad. The site's proximity to the *Riverside East* quad lead to its inclusion in the review.

Prior to performing the field surveys, aerial photographs of the site were viewed and compared with the *Sunnymead USGS* topographic quadrangle map and the adjacent *Riverside East* quadrangle map to identify drainage features within the survey area as indicated from topographic changes, blue-line features, or visible drainage patterns. The USFWS National Wetland Inventory and Environmental Protection Agency (EPA) Water Program "My Waters" data layers were also reviewed to determine whether any hydrologic features and wetland areas had been documented within the vicinity of the site. Similarly, the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) soil maps for Riverside County were used to identify the soil series in the area to determine if these soils are regionally identified as hydric soils.

The USFWS threatened and endangered species occurrence data overlay as well as the most recent versions of the California Natural Diversity Database (CNDDDB) were also reviewed.

On January 24, 2018, Jericho biologist Shannon Dye conducted a field survey for a habitat assessment of the Project site. This consisted of a pedestrian survey along transects spaced 30 meters (100 feet) apart to allow for 100 percent visual coverage of the site. The field survey encompassed the entirety of the project site. Due to the site being surrounded by residential property, no buffer was surveyed by foot. However, a visual inspection of the surrounding area was conducted out to 150 feet. Plant and wildlife species observed were recorded. A follow-up site visit occurred on February 1 to dig soil pits for the purpose of determining the potential for vernal pools onsite.

The property was also evaluated for the presence of riverine/riparian/vernal pool habitat and jurisdictional waters, as regulated by the US Army Corps of Engineers (USACE) and Regional Water Quality Control

Board (RWQCB), and/or jurisdictional streambed and associated riparian habitat as regulated by CDFW. Riverine/Riparian areas jurisdictional under the MSHCP are similar to CDFW jurisdiction.

During the field survey, Ms. Dye carefully assessed the site for depressions, inundation, the presence of hydrophytic vegetation, staining, cracked soil, ponding, and active surface flow indicators, including shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, and/or a clear, natural line impressed on the bank. Soils pits were dug to a depth of 18 inches and recorded using USACE Arid West Region guidelines. Data sheets are located in Appendix D.

RESULTS

The project site is highly disturbed and vegetation on the site consists of ruderal and exotic species. The site is surrounded by residential and commercially developed property. Evidence of soil disking is present, and trash is scattered around the site.

Vegetation onsite consists of tumbleweed (*Salsola tragus*), annual burweed (*Ambrosia acanthicarpa*), and saltgrass (*Distichlis sp.*). The site showed evidence of recent disking and as such very little vegetation had regrown on the site. A few California fan palms (*Washingtonia filifera*) were onsite, located next to the eastern wall separating the project site from the adjacent residential neighborhood. No wildlife was observed on the project site. Some species that were observed adjacent to the project site and are likely to utilize the project site include feral cat (*Felis catus*), mourning dove (*Zenaida macroura*), white-crowned sparrow (*Zonotrichia leucophrys*), house sparrow (*Passer domesticus*), and house finch (*Haemorhous mexicanus*).

Burrowing Owl

The habitat assessment determined that there is no suitable habitat on site for BUOW. The site is highly disturbed, and the presence of feral cats in the vicinity of the project site creates a potential threat of predation. No burrows of any kind were observed on the project site or the adjacent areas. No evidence of BUOW, including whitewash, cast pellets, feathers, or BUOW individuals were observed.

Riparian/Riverine

There are no mapped flow lines in the area, and historical aerials do not indicate past flow occurred onsite. In the southwest corner of the site, there is a detention basin that, based on historical aerials, appears to have been created in the past year with the addition of a third and fourth building in the adjacent commercial strip. The basin is approximately 150 feet long, with a top edge-to-edge width of 30 feet and sloped sides leading to a bottom width of 8 feet. Erosion rills exist on the northern edge of the basin, suggesting that runoff enters from the northern edge, which is closest to the paved areas of the commercial strip. During the site visit, the sprinkler system was observed to be a drip line with heavy flow. This also contributes to the erosion rills noted. There is an overflow drain in the southern portion of the basin approximately one and a half feet tall. This basin is not a riverine/riparian area, as it is constructed for the purpose of retaining water and allowing it to percolate into the ground.

Vegetation, mostly non-native, is thicker around and in the basin, although no riparian or wetland species were observed. Younger and greener Russian thistle was observed, as was shortpod mustard (*Hirschfeldia incana*). The MSHCP Vegetation mapping was reviewed to ensure that past vegetation was consistent with current observations. The 1994 vegetation mapping has the site listed as Agricultural Land, and

subsequent mapping from CNPS in 2005 and the MSHCP Review in 2012 have the area listed entirely as Disturbed/Developed vegetation. There is no historic record of riparian or wetland vegetation on the project site.

Therefore, no riparian/riverine areas exist on site and no impacts to these resources will occur as a result of the implementation of this project.

Vernal Pool Areas

As mentioned above, Section 6.1.2 of the MSHCP defines vernal pools as seasonal wetlands that occur in depression areas that have wetland indicators of all three 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. The project site lacks wetland vegetation but does have the potential for wetland hydrology in the detention basins, as runoff from the paved parking areas and irrigation from the ornamentals planted by the adjacent buildings supply water to the basin. The soil was observed to be damp during the survey, likely from these factors and recent rainfall in the area. Therefore, soil pits were dug within the basin to determine if clay soils, which are needed to support vernal pools, were present. A follow up site visit was conducted on February 1 to test the soils.

The result of these test pits were that the soils onsite ranged from a coarse sandy loam to a fine sandy loam. No clay soils were detected, and no hydric soil indicators, including redox features, histosols, or gleying, were present. No restrictive layers were noted.

Wetland soils do not occur on the project site. Therefore, vernal pool areas are not supported on the project site and no impacts to these resources will occur as a result of the implementation of this project.

Sensitive Species and Sensitive Habitat

No State and/or federally listed threatened or endangered species, or other sensitive species or other sensitive habitat were observed on the Site during surveys.

CONCLUSIONS

Based on the literature review and field surveys, the following is concluded:

- Burrowing Owl: There is no suitable habitat for BUOW on site, nor was there evidence of BUOW individuals. Therefore, no further surveys are required, and there will be no impact to BUOW.
- Riverine/Riparian resources: There are no riverine/riparian resources on site. Therefore, there will be no impact to riverine/riparian resources.
- Vernal Pools: There are no vernal pools on site and the site soils do not support vernal pool ecology. Therefore, there will be no impact to vernal pools.

Please do not hesitate to contact me at 909-915-5900 should you have any questions or require further information.

Garrett Gossett
Habitat Assessment and Biological Resources Survey
APNs: 485-081-037 & 485-081-043
February 5, 2018
Page 6

Sincerely,



Shay Lawrey, President
Ecologist/Regulatory Specialist

Appendices

- Appendix A—Figures
- Appendix B—Site Photos
- Appendix C—Potential to Occur Tables
- Appendix D—Soil Pit Data Sheets

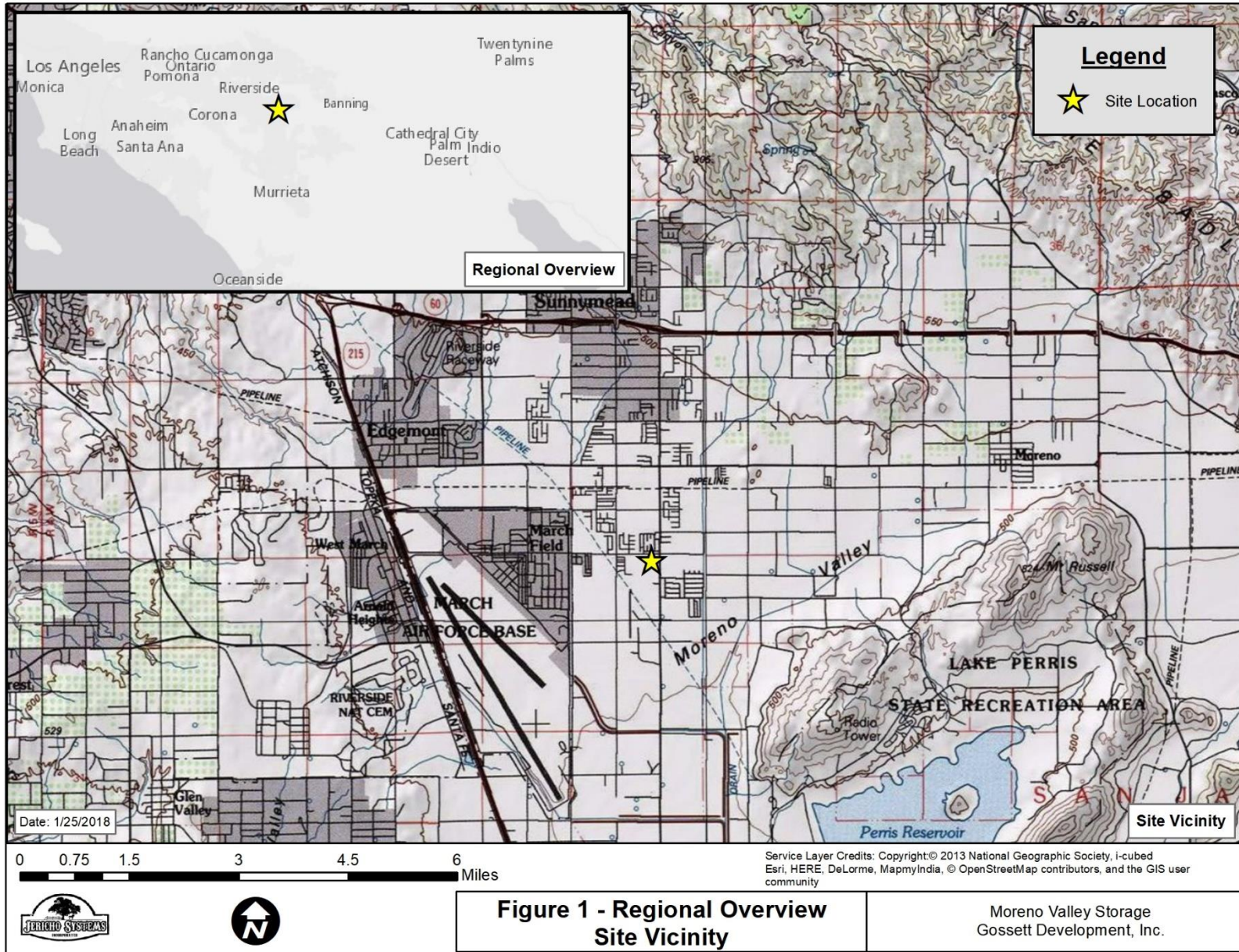
CERTIFICATION

I hereby certify that the statements furnished herein, and in the attached exhibits present data and information required for this analysis to the best of my ability, and the facts, statements, and information presented are true and correct to the best of my knowledge and belief. This report was prepared in accordance with professional requirements and standards. Fieldwork conducted for this assessment was performed by me. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project proponent and that I have no financial interest in the project.



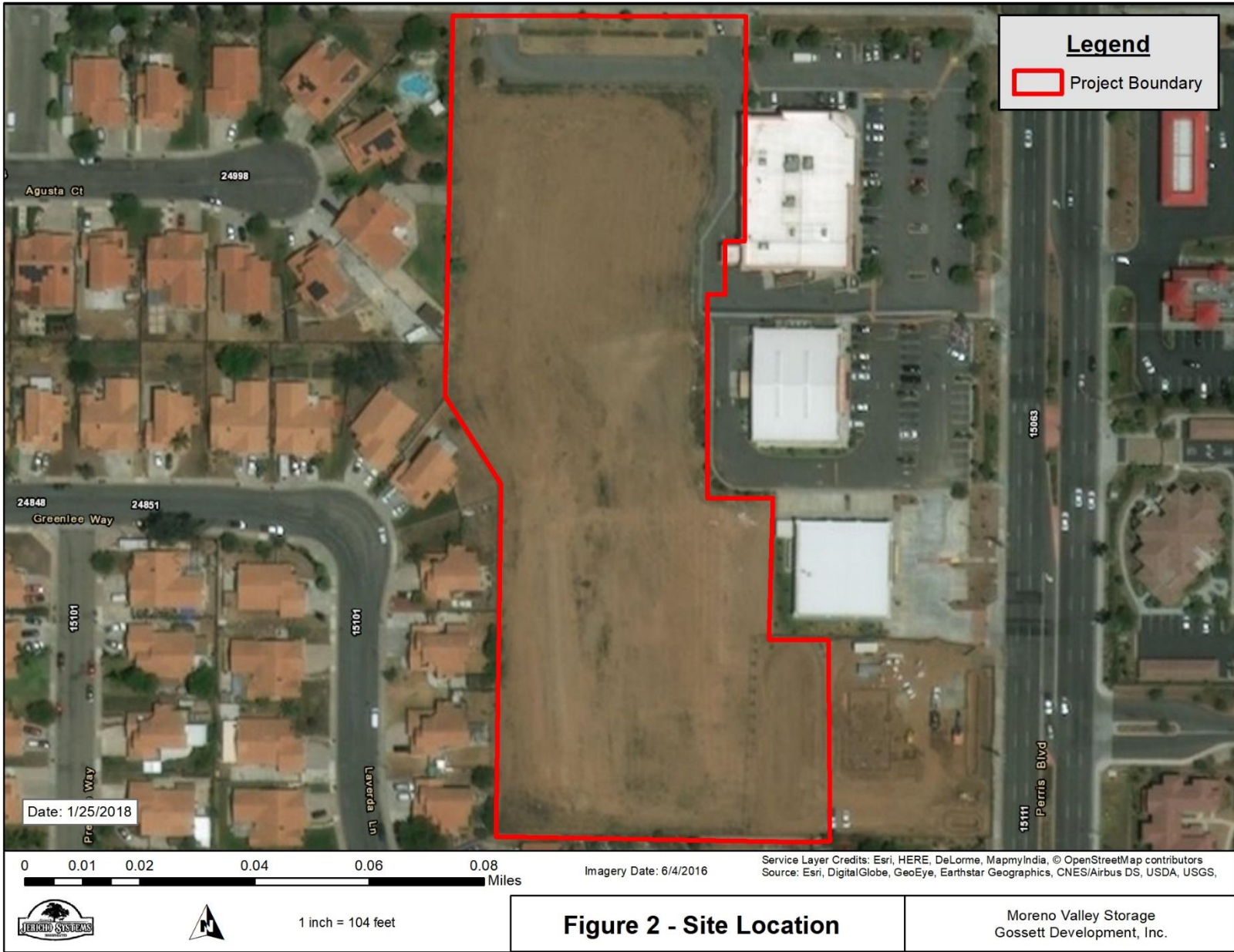
Shay Lawrey, Ecologist/Regulatory Specialist

Garrett Gossett
Habitat Assessment and Biological Resources Survey
APNs: 485-081-037 & 485-081-043
Appendix A—Figures



Attachment: Bio Assessment & MSHCP Consistency (3175 : Moreno Valley Storage - Conditional Use

Garrett Gossett
Habitat Assessment and Biological Resources Survey
APNs: 485-081-037 & 485-081-043
Appendix A—Figures

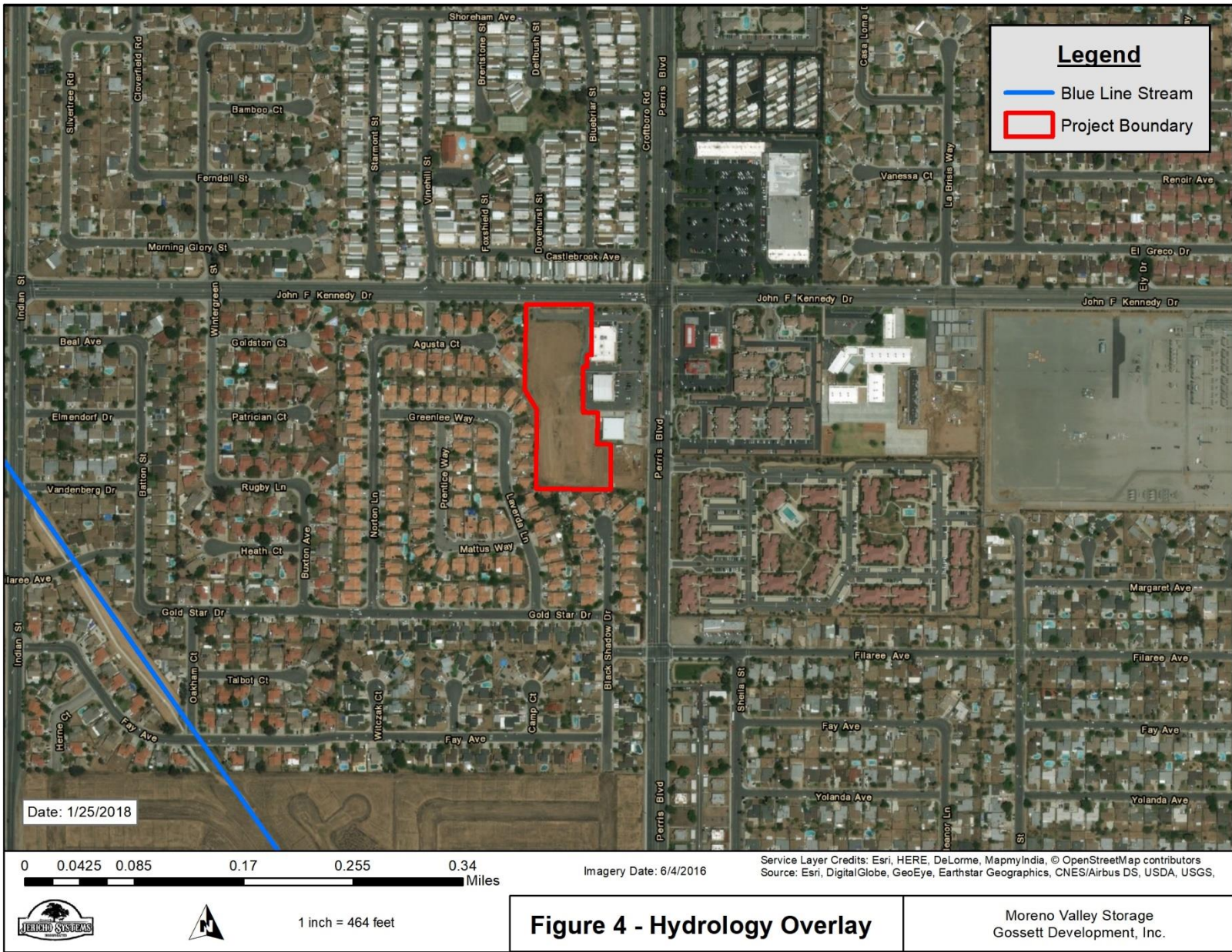


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Garrett Gossett
Habitat Assessment and Biological Resources Survey
APNs: 485-081-037 & 485-081-043
Appendix A—Figures



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Habitat Assessment and Biological Resources Survey
APNs: 485-081-037 & 485-081-043
Appendix A—Figures



Attachment: Bio Assessment & MSHCP Consistency (3175 : Moreno Valley Storage - Conditional Use



Photo 1. Northwest corner of the project site, facing east. Scattered trash evident on site.



Photo 2. Top center of the project site, facing south. Saltgrass growth evident along disking lines.



Photo 3. Middle of project site, facing south.



Photo 4. Disking evident. East side of site, facing south.



Photo 5. Detention basin located in southwest corner of project. Plant growth evident



Photo 6. Moisture from recent rains evident in soil at bottom of detention basin. No riparian vegetation associated with moisture. Permeable sandy soils. No clay soils, no vernal pool.

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
<i>Accipiter cooperii</i>	Cooper's hawk	None/None	G5, S4	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Suitable nesting habitat to support this species does not occur onsite. Marginally suitable foraging habitat exists on site. Potential for this species to occur is low .
<i>Agelaius tricolor</i>	tricolored blackbird	None/ Candidate Endangered	G2G3, S1S2, SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Aimophila ruficeps canescens</i>	southern California rufous-crowned sparrow	None/None	G5T3, S3	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Arenaria paludicola</i>	marsh sandwort	Endangered/ Endangered	G1, S1, CNPS 1B.1	Marshes and swamps. Growing up through dense mats of <i>Typha</i> , <i>Juncus</i> , <i>Scirpus</i> , etc. in freshwater marsh. Sandy soil. 3-170 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Arizona elegans occidentalis</i>	California glossy snake	None/None	G5T2, S2, SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Artemisiospiza belli belli</i>	Bell's sage sparrow	None/None	G5T2T4, S3	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
<i>Aspidoscelis hyperythra</i>	orange-throated whiptail	None/None	G5, S2S3	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food: termites.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Aspidoscelis tigris stejnegeri</i>	coastal whiptail	None/None	G5T5, S3, SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Athene cunicularia</i>	burrowing owl	None/None	G4, S3, SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	No burrows were observed onsite. Potential predators, in the form of feral cats, were observed onsite. The site is subjected to mechanical disturbance. Potential for this species to occur is low .
<i>Berberis nevini</i>	Nevin's barberry	Endangered/Endangered	G1, S1, CNPS 1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, north-facing slopes or in low grade sandy washes. 290-1575 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Bombus crotchii</i>	Crotch bumble bee	None/None	G3G4, S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Buteo regalis</i>	ferruginous hawk	None/None	G4, S3S4	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and	Suitable habitat to support this species does not occur onsite.

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
				mice. Population trends may follow lagomorph population cycles.	Potential for this species to occur is low .
<i>California macrophylla</i>	round-leaved filaree	None/None	G4, S4, CNPS 1B.2	Cismontane woodland, valley and foothill grassland. Clay soils. 30-1345 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Calochortus plummerae</i>	Plummer's mariposa-lily	None/None	G4, S4, CNPS 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Centromadia pungens ssp. laevis</i>	smooth tarplant	None/None	G3G4T2, S2, CNPS 1B.1	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. 5-1170 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Ceratochrysis longimala</i>	Desert cuckoo wasp	None/None	G1, S1	A parasitic wasp of the Chrysididae family.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	None/None	G5T3T4, S3S4, SSC	Coastal scrub, chaparral, grasslands, sagebrush, etc. in western San Diego County. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Chloropyron maritimum ssp. maritimum</i>	salt marsh bird's-beak	Endangered/Endangered	G4?T1, S1, CNPS 1B.2	Marshes and swamps, coastal dunes. Limited to the higher zones of salt marsh habitat. 0-10 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
<i>Chorizanthe parryi</i> <i>var. parryi</i>	Parry's spineflower	None/None	G3T2, S2, CNPS 1B.1	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. Dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 90-1220 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Coccyzus americanus</i> <i>occidentalis</i>	western yellow-billed cuckoo	Threatened/ Endangered	G5T2T3, S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Crotalus ruber</i>	red-diamond rattlesnake	None/None	G4, S3, SSC	Chaparral, woodland, grassland, & desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Dipodomys merriami parvus</i>	San Bernardino kangaroo rat	Endangered/ None	G5T1, S1, SSC	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	Endangered/ Threatened	G2, S2	Primarily annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Emys marmorata</i>	western pond turtle	None/None	G3G4, S3, SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Eremophila alpestris actia</i>	California horned lark	None/None	G5T4Q, S4	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin	Suitable habitat to support this species does

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
				Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	not occur onsite. Potential for this species to occur is low .
<i>Eumops perotis californicus</i>	western mastiff bat	None/None	G5T4, S3S4, SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Icteria virens</i>	yellow-breasted chat	None/None	G5, S3, SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Lanius ludovicianus</i>	loggerhead shrike	None/None	G4, S4, SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Lasiurus xanthinus</i>	western yellow bat	None/None	G5, S3, SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Lasthenia glabrata ssp. coulteri</i>	Coulter's goldfields	None/None	G4T2, S2, CNPS 1B.1	Coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1375 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Laterallus jamaicensis coturniculus</i>	California black rail	None/Threatened	G3G4T1, S1, FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	None/None	G5T3, S3, CNPS 4.3	Chaparral, coastal scrub. Dry soils, shrubland. 4-1435 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	None/None	G5T3T4, S3S4, SSC	Intermediate canopy stages of shrub habitats & open shrub / herbaceous & tree / herbaceous edges. Coastal sage scrub habitats in Southern California.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Nyctinomops femorosaccus</i>	pocketed free-tailed bat	None/None	G4, S3, SSC	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Onychomys torridus ramona</i>	southern grasshopper mouse	None/None	G5T3, S3, SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	None/None	G5T1T2, S1S2, SSC	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Phrynosoma blainvillii</i>	coast horned lizard	None/None	G3G4, S3S4, SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Polioptila californica californica</i>	coastal California gnatcatcher	Threatened/None	G4G5T2Q, S2, SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes.	Suitable habitat to support this species does not occur onsite.

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
				Not all areas classified as coastal sage scrub are occupied.	Potential for this species to occur is low .
<i>Salvadora hexalepis virgultea</i>	coast patch-nosed snake	None/None	G5T4, S2S3, SSC	Brushy or shrubby vegetation in coastal Southern California. Require small mammal burrows for refuge and overwintering sites.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Senecio aphanactis</i>	chaparral ragwort	None/None	G3, S2, CNPS 2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20-855 m.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
Southern Sycamore Alder Riparian Woodland		None/None	G4, S4	Habitat type does not occur on the project site.	
<i>Spea hammondii</i>	western spadefoot	None/None	G3, S3, SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Spinus lawrencei</i>	Lawrence's goldfinch	None/None	G3G4, S3	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	Endangered/None	G1G2, S1S2	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Symphotrichum defoliatum</i>	San Bernardino aster	None/None	G2, S2, CNPS 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland.	Suitable habitat to support this species does not occur onsite.

Scientific Name	Common Name	Federal/State Ranking	Other Rankings	Habitat	Potential to Occur
				Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 2-2040 m.	Potential for this species to occur is low .
<i>Taxidea taxus</i>	American badger	None/None	G5, S3, SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .
<i>Vireo bellii pusillus</i>	least Bell's vireo	Endangered/ Endangered	G5T2, S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Suitable habitat to support this species does not occur onsite. Potential for this species to occur is low .

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gossett-Moreno Valley Storage City/County: Moreno Valley, Riverside Sampling Date: 2/1/18
 Applicant/Owner: Garrett Gossett State: CA Sampling Point: 1
 Investigator(s): Shanna Dye Section, Township, Range: S19 T35 R3W
 Landform (hillslope, terrace, etc.): Graded parcel Local relief (concave, convex, none): Concave Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Hanford coarse Sandy loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No _____		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10x10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
= Total Cover <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>5x5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = _____ FACW species <u>0</u> x 2 = _____ FAC species <u>0</u> x 3 = _____ FACU species <u>2</u> x 4 = <u>8</u> UPL species <u>0</u> x 5 = _____ Column Totals: <u>2</u> (A) <u>8</u> (B) Prevalence Index = B/A = <u>4</u>
1. <u>Marsipfolina inana</u>	<u>20</u>	<u>Codon</u>	<u>FACU</u>	
2. <u>Sotola fragus</u>	<u>40</u>	<u>Codon</u>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
= Total Cover <u>60</u>				
Herb Stratum (Plot size: <u>1x1</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Dimorphotheca sinuata</u>	<u>1</u>	<u>No</u>	<u>Disturbed</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
= Total Cover _____				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
1. _____				
2. _____				
= Total Cover <u>0</u>				
% Bare Ground in Herb Stratum <u>39</u>		% Cover of Biotic Crust <u>0</u>		
Remarks:				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0	7.5YR 3/3		—				Compacted	Did not ribbon
6	7.5YR 3/4		—				Steady	More ribbon
18	10YR 4/3		—				Finely silty loam	0.25 in ribbon

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input checked="" type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No _____ Depth (inches): 0.2 inches depth, low point

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No _____ Depth (inches): low point

Wetland Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Surface water is runoff from local irrigation of adjacent planted ornamentals. Sprinkler system was observed.

Attachment: Bio Assessment & MSHCP Consistency (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gossett-Moreno Valley Storage City/County: Moreno Valley, Riverside Sampling Date: 2/1/18
 Applicant/Owner: Garrett Gossett State: CA Sampling Point: 2
 Investigator(s): Shannon Dye Section, Township, Range: S19 T35 R3W
 Landform (hillslope, terrace, etc.): Graded parcel Denton basin Local relief (concave, convex, none): concave Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Hardford coarse sandy loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: <u>Denton basin w/ clay soils - no normal pools</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10x10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____				
2. _____				
3. _____				
Sapling/Shrub Stratum (Plot size: <u>5x5</u>) <u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>2</u> x 4 = <u>8</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>2</u> (A) <u>8</u> (B) Prevalence Index = B/A = <u>4</u>
1. <u>Hirshfeldia incana</u>	<u>20</u>	<u>Dom</u>	<u>FACU</u>	
2. <u>Salsola tragus</u>	<u>40</u>	<u>Dom</u>	<u>FACU</u>	
3. _____				
4. _____				
Herb Stratum (Plot size: <u>1x1</u>) <u>60</u> = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Dioscoreophyllum sistrata</u>	<u>3</u>			
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
Woody Vine Stratum (Plot size: _____) <u>3</u> = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
1. _____				
2. _____				
% Bare Ground in Herb Stratum <u>37</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0	7.5YR 3/4		—				Coarse sand	No ribbon
6	7.5YR 3/4		—				Sandy	0.1 in ribbon
16	6.0YR 1 3/3		—				Sandy loam	0.25 in ribbon

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: N/A
 Depth (inches):

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input checked="" type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:

Surface Water Present? Yes No Depth (inches): 0.4 inches in small hole

Water Table Present? Yes No Depth (inches):

Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Likely sourced by irrigation runoff

CULTURAL RESOURCES ASSESSMENT

Moreno Valley Storage Project

City of Moreno Valley, Riverside County, California

Prepared for:

Garrett Gossett
Gossett Development
garrettmgossett@gmail.com

Prepared by:

David Brunzell, M.A., RPA
Contributions by Joseph Orozco, M.A. ABD
BCR Consulting LLC
505 West 8th St.
Claremont, California 91711

Project No. GOS1701

Data Base Information:

Type of Study: Reconnaissance Survey

Resources Recorded: None

Keywords: Moreno Valley

USGS Quadrangle: 7.5-minute Sunnymead (1980), California



BCRCONSULTING LLC

March 7, 2018

MANAGEMENT SUMMARY

BCR Consulting LLC (BCR Consulting) is under contract to Gossett Development to complete a Cultural Resources Assessment of the Moreno Valley Storage Project (4.47 acres; the project) located in the City of Moreno Valley, Riverside County, California. A cultural resources records search, reconnaissance pedestrian field survey, Sacred Lands File search with the Native American Heritage Commission, and paleontological overview were conducted for the project in partial fulfillment of the California Environmental Quality Act (CEQA). The cultural resources records search revealed that 27 cultural resource studies have taken place resulting in six cultural resources recorded within one mile of the project site. Of these, one previously assessed a small portion of the project site resulting in one isolated prehistoric pestle fragment (non-significant) located within its boundaries. During the field survey, BCR Consulting archaeologists did not discover any cultural resources (including prehistoric or historic-period archaeological sites or historic-period buildings) or evidence for cultural resource sensitivity within the project site. As a result, BCR Consulting recommends a finding of no impacts to historical resources under CEQA for the current project. BCR Consulting also recommends that no additional cultural resources work or monitoring is necessary during proposed activities associated with the development of the project site. However, if previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary.

If human remains are encountered during any proposed project activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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Attachment: Cultural Resources Assessment (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

INTRODUCTION

BCR Consulting LLC (BCR Consulting) is under contract to Gossett Development to complete a Cultural Resources Assessment of the Moreno Valley Storage Project (4.47 acres; the project) located in the City of Moreno Valley, Riverside County, California. A cultural resources records search, reconnaissance-level pedestrian field survey, tribal scoping, and paleontological overview have been conducted for the project site in partial fulfillment of the California Environmental Quality Act (CEQA). The project site is located in the eastern half of Section 19, Township 3 South, Range 3 West, San Bernardino Baseline and Meridian. It is depicted on the United States Geological Survey (USGS) *Sunnymead* (1980), *California* 7.5-minute topographic quadrangle (Figure 1).

NATURAL SETTING

The elevation of the project site averages approximately 1534 feet above mean sea level (AMSL). The general topography is flat with the exception of a channelized drainage basin located in the southeast corner of the project site. A California Aqueduct Pipeline was installed underneath the project between 1967 and 1980 (USGS 1980). This aqueduct pipeline is not visible on the surface of the project site. Artificial disturbances consist of mechanical discing and modern trash dumping.

Biology

Although disturbances have severely impacted the native vegetation, remnants of coastal sage scrub habitat have been observed in the vicinity (see Williams et al. 2008: 117-123). For details on prehistoric use of these vegetation communities, see Lightfoot and Parrish 2009.

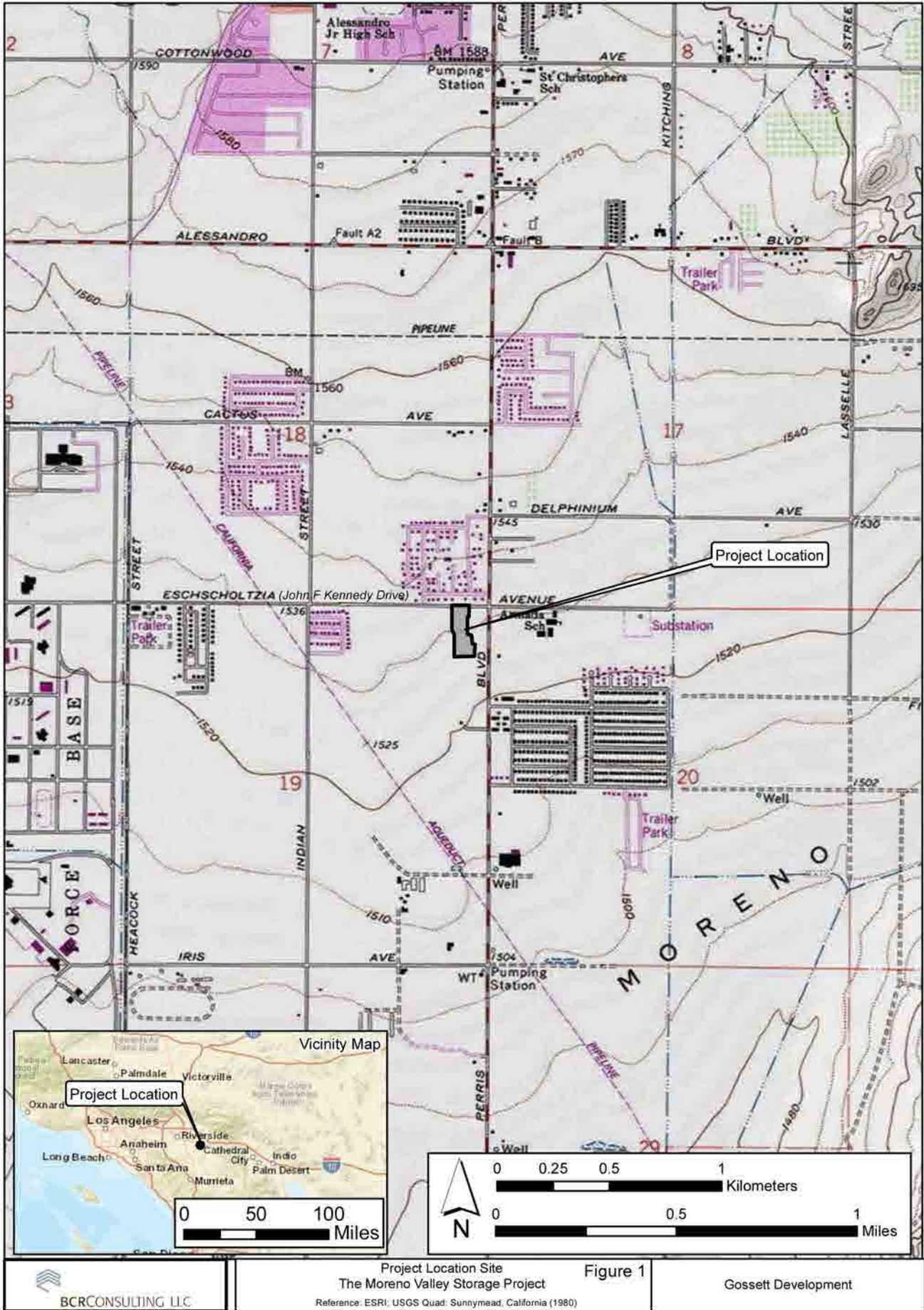
Geology

The project site is located in the Peninsular Range geologic province of California that encompasses western Riverside County. It occupies the eastern margin of the Perris Block (Kenney 1999), which is bounded on the east by the San Jacinto Fault (Reynolds 1988, Morton 1972, 1977). Crystalline rocks present in the region include late Jurassic and cretaceous granitics of the southern California batholith. These resistant rocks weather to form gray or tan colored, boulder-covered conical buttes and hills. Locally, a thin veneer of Holocene soils typically obscure late Pleistocene sediments that often erode away to reveal the base of local boulder outcrops (Rogers 1965). During prehistory in Western Riverside County the boulders that form such outcrops were widely utilized as milling slicks for seed processing. No such outcrops were observed within the project site boundaries. Granitic sandy silts dominates sediments observed within the project site.

CULTURAL SETTING

Prehistoric Context

The local prehistoric cultural setting has been organized into many chronological frameworks (see Warren and Crabtree 1986; Bettinger and Taylor 1974; Lanning 1963; Hunt 1960; Wallace 1958, 1962, 1977; Wallace and Taylor 1978; Campbell and Campbell 1935), although there is no definitive sequence for the region. The difficulties in establishing



Attachment: Cultural Resources Assessment (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

cultural chronologies for Riverside County are a function of its enormous size and the small amount of archaeological excavations conducted there. Moreover, throughout prehistory many groups have occupied the area and their territories often overlap spatially and chronologically resulting in mixed artifact deposits. Due to dry climate and capricious geological processes, these artifacts rarely become integrated in-situ. Lacking a milieu hospitable to the preservation of cultural midden, local chronologies have relied upon temporally diagnostic artifacts, such as projectile points, or upon the presence/absence of other temporal indicators, such as groundstone. Such methods are instructive, but can be limited by prehistoric occupants' concurrent use of different artifact styles, or by artifact re-use or re-sharpening, as well as researchers' mistaken diagnosis, and other factors (see Flenniken 1985; Flenniken and Raymond 1986; Flenniken and Wilke 1989). Recognizing the shortcomings of comparative temporal indicators, this study recommends review of Warren and Crabtree (1986), who have drawn upon this method to produce a commonly cited and relatively comprehensive chronology.

Ethnography

The project site is located in the traditional territories of the Cahuilla, Luiseño, and Serrano people.

Cahuilla. The Cahuilla are a member of the Cupan group of the Takic subfamily of languages (Bean 1978:550). Like other Native American groups in southern California, the Cahuilla practiced semi-nomadic hunter-gatherer subsistence strategies and commonly exploited seasonably available plant and animal resources. Spanish missionaries were the first outsiders to encounter them during the late 18th century. The Cahuilla are generally divided into three groups: Desert Cahuilla, Mountain Cahuilla, and Western (or Pass) Cahuilla (Kroeber 1925). The term Western Cahuilla is preferred over Pass Cahuilla because this group is not confined to the San Gorgonio Pass area. The distinctions are believed to be primarily geographic, although linguistic and cultural differences may have existed to varying degrees (Strong 1929). Cahuilla territory lies within the geographic center of Southern California and the Cocopa-Maricopa Trail, a major prehistoric trade route, ran through it. The first written accounts of the Cahuilla are attributed to mission fathers; later documentation was by Strong (1929), Bright (1998), and others.

Luiseño. Typically, the native culture groups in southern California are named after nearby Spanish missions, and such is the case for this Takic-speaking population. For instance, the term "Luiseño" is applied to the natives inhabiting the region within the "ecclesiastical jurisdiction of Mission San Luis Rey...[and who shared] an ancestral relationship which is evident in their cosmogony, and oral tradition, common language, and reciprocal relationship in ceremonies" (Oxendine 1983:8). The first written accounts of the Luiseño are attributed to the mission fathers. Sparkman (1908), Oxendine (1983) and others produced later documentation. Prior to Spanish occupation of California, the territory of the Luiseño extended along the coast from Agua Hedionda Creek to the south, Aliso Creek to the northwest, and the Elsinore Valley and Palomar Mountain to the east. These territorial boundaries were somewhat fluid and changed through time. They encompassed an extremely diverse environment that included coastal beaches, lagoons and marshes, inland river valleys and foothills, and mountain groves of oaks and evergreens (Bean and Shippek 1978:551).

Serrano. The Uto-Aztecan “Serrano” people occupied the western Mojave Desert periphery. Kroeber (1925) applied the generic term “Serrano” to four groups, each with distinct territories: the Kitanemuk, Tataviam, Vanyume, and Serrano. Only one group, in the San Bernardino Mountains and West-Central Mojave Desert, ethnically claims the term Serrano. Bean and Smith (1978) indicate that the Vanyume, an obscure Takic population, was found along the Mojave River at the time of Spanish contact. The Kitanemuk lived to the north and west, while the Tataviam lived to the west. The Serrano lived mainly to the south (Bean and Smith 1978). All may have used the western Mojave area seasonally. Historical records are unclear concerning precise territory and village locations.

History

Historic-era California is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish Period. The first European to pass through the vicinity is thought to be a Spaniard called Father Francisco Garces. Having become familiar with the area, Garces acted as a guide to Juan Bautista de Anza, who had been commissioned to lead a group across the desert from a Spanish outpost in Arizona to set up quarters at the Mission San Gabriel in 1771 near what today is Pasadena (Beck and Haase 1974). Garces was followed by Alta California Governor Pedro Fages, who briefly explored the region in 1772. Searching for San Diego Presidio deserters, Fages had traveled through Riverside to San Bernardino, crossed over the mountains into the Mojave Desert, and then journeyed westward to the San Joaquin Valley (Beck and Haase 1974).

Mexican Period. In 1821, Mexico overthrew Spanish rule and the missions began to decline. By 1833, the Mexican government passed the Secularization Act, and the missions, reorganized as parish churches, lost their vast land holdings, and released their neophytes (Beattie and Beattie 1974).

American Period. The American Period, 1848–Present, began with the Treaty of Guadalupe Hidalgo. In 1850, California was accepted into the Union of the United States primarily due to the population increase created by the Gold Rush of 1849. The cattle industry reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large pastoral estates in California, and demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. However, beginning about 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers lost their ranchos through foreclosure. A series of disastrous floods in 1861–1862, followed by a significant drought diminished the economic impact of local ranching. This decline combined with ubiquitous agricultural and real estate developments of the late 19th century, set the stage for diversified economic pursuits that have continued to proliferate to this day (Beattie and Beattie 1974; Cleland 1941).

PERSONNEL

David Brunzell, M.A., RPA acted as the Project Manager and Principal Investigator for the current study, and compiled the technical report. Dr. Samuel McLeod of the Los Angeles Natural History Museum completed the Paleontological Overview (Appendix C). BCR Consulting Staff Archaeologist Joseph Orozco completed the cultural resources records search, performed the field survey, contributed to the technical report, and requested the Sacred Lands File search from the Native American Heritage Commission.

METHODS

Research

Prior to fieldwork, a records search was conducted at the Eastern Information Center (EIC), the local clearinghouse for cultural resource records. This archival research reviewed the status of all recorded historic and prehistoric cultural resources, and survey and excavation reports completed within one mile of the project site. Additional resources reviewed included the National Register of Historic Places, the California Register of Historical Resources, and documents and inventories published by the California Office of Historic Preservation. These include the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and the Inventory of Historic Structures.

Field Survey

An archaeological field survey of the project site was conducted on January 5, 2018. The survey was conducted by walking parallel transects spaced approximately 15 meters apart across 100 percent of the project site. Soil exposures were carefully inspected for evidence of cultural resources.

RESULTS

Research

Research completed through the EIC revealed that 27 cultural resource studies have taken place resulting in six cultural resources recorded within one mile of the project site. Of these, one previously assessed a small portion of the project site resulting in one isolated prehistoric pestle fragment located within its boundaries. The research results are summarized in Table A.

Table A. Cultural Resources and Studies within One Mile of the Project Site

USGS 7.5 Minute Quadrangle	Cultural Resources Within One Mile of Project Site	Reports Within One Mile of Project Site
<i>Sunnymead, California</i> (1980)	P-33-7290: historic-period building (1/2 Mile East) P-33-11757: historic-period building (1/4 mile SE) P-33-15301: prehistoric isolated pestle fragment (Within Project) P-33-17969: historic-period building (1 Mile West) P-33-17970: historic-period building (1 Mile West) P-33-11896: historic-period building (1/2 Mile N)	RI-0182, 1665, 3243, 3510, 3693*, 3921, 5035, 6081, 6164, 6278, 7127, 7573, 7990, 8077, 8152, 8244, 8367, 8272, 8800, 9077, 9311, 9345, 9619, 9635, 9960, 9961, 9681

*Previously assessed a portion of the project site.

Field Survey

During the field survey, BCR Consulting archaeologists did not record any cultural resources within the project site boundaries. The previously-identified isolated prehistoric pestle fragment (P-33-15301) was not re-discovered. Isolated artifacts have limited data potential and are not considered eligible for the California Register of Historical Resources (California Register). Therefore it is not a historical resource and does not require further consideration under CEQA. The project site has been subject to mechanical discing for weed abatement. Sediments include silty sand with some gravel. Discing has removed native vegetation, although sporadic seasonal grasses and shrubs remain affording approximately 80 percent surface visibility.

RECOMMENDATIONS

The records search failed to indicate significant cultural resources in the vicinity of the project site. During the field survey, BCR Consulting archaeologists did not discover any cultural resources (including prehistoric or historic-period archaeological sites or historic-period buildings) within the project site. Furthermore, the sediments, rocks, and topography of the project site did not exhibit any potential for significant cultural utility or sensitivity. As a result, BCR Consulting recommends a finding of no impacts to historical resources under CEQA for the current project. BCR Consulting also recommends that no additional cultural resources work or monitoring is necessary during proposed activities associated with the development of the project site. However, if previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary.

If human remains are encountered during any proposed project activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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APPENDIX A
PROJECT PHOTOGRAPHS



Photo 1: Project Site Overview from NE Corner (View South)



Photo 2: Project Site Overview from SW Corner (View North)

APPENDIX B
NAHC SACRED LANDS FILE SEARCH

NATIVE AMERICAN HERITAGE COMMISSION

Cultural and Environmental Department
 1550 Harbor Blvd., Suite 100
 West Sacramento, CA 95691
 (916) 373-3710



January 9, 2018

Joseph Orozco
 BCR Consulting LLC

Sent by E-mail: josephorozco513@gmail.com

RE: Proposed Moreno Valley Storage Project, City of Moreno Valley; Sunnymead USGS
 Quadrangle, Riverside County, California

Dear Mr. Orozco:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
 Associate Governmental Program Analyst
 (916) 373-3714

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Attachment: Cultural Resources Assessment (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

**Native American Heritage Commission
Native American Contact List
Riverside County
1/9/2018**

**Agua Caliente Band of Cahuilla
Indians**

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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 Moreno Valley Storage Project, Riverside County.

Attachment: Cultural Resources Assessment (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

**Native American Heritage Commission
Native American Contact List
Riverside County
1/9/2018**

Los Coyotes Band of Mission Indians

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Pechanga Band of Mission Indians

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Pechanga Band of Mission Indians

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jgomez@ramonatribe.com

Attachment: Cultural Resources Assessment (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Moreno Valley Storage Project, Riverside County.

**Native American Heritage Commission
Native American Contact List
Riverside County
1/9/2018**

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**San Pasqual Band of Mission
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Rincon Band of Mission Indians

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**San Fernando Band of Mission
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Kitanemuk
Serrano
Tataviam

**Serrano Nation of Mission
Indians**

Goldie Walker, Chairperson
P.O. Box 343
Patton, CA, 92369
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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

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Attachment: Cultural Resources Assessment (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

Native American Heritage Commission
Native American Contact List
Riverside County
1/9/2018

**Soboba Band of Luiseno
Indians**

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Cahuilla
Luiseno

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jhagen@viejas-nsn.gov

Kumeyaay

**Sycuan Band of the Kumeyaay
Nation**

Lisa Haws, Cultural Resources
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lhaws@sycuan-nsn.gov

Kumeyaay

**Sycuan Band of the Kumeyaay
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Kumeyaay

**Torres-Martinez Desert Cahuilla
Indians**

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Cahuilla

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APPENDIX C
PALEONTOLOGICAL OVERVIEW

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org



Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

22 January 2018

BCR Consulting
505 West 8th Street
Claremont, CA 91711

Attn: Joseph Orozco, Staff Archaeologist

re: Paleontological resources for the Vertebrate Paleontology Records Search for the proposed Moreno Valley Storage Project, in Moreno Valley, Riverside County, project area

Dear Joseph:

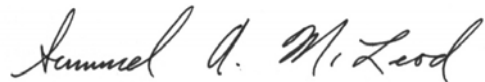
I have conducted a thorough check of our paleontology collection records for the locality and specimen data for the proposed Moreno Valley Storage Project, in Moreno Valley, Riverside County, project area as outlined on the portion of the Sunnymead USGS topographic quadrangle map that you sent to me via e-mail on 8 January 2018. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities farther afield from sedimentary deposits similar to those that may occur subsurface in the proposed project area.

Surface deposits in the entire proposed project area consist of younger Quaternary Alluvium, derived as alluvial fan deposits from the more elevated terrain to the north. These sedimentary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by finer-grained older Quaternary deposits that do contain significant vertebrate fossils. Our closest vertebrate fossil locality from somewhat similar deposits is LACM 4540, from the gravel pits just west of Jack Rabbit Trail east-southeast of the proposed project area on the eastern side of the San Jacinto Valley, that produced a specimen of fossil horse, *Equus*.

Shallow excavations in younger Quaternary Alluvium in the proposed project area are unlikely to uncover significant vertebrate fossil remains. Deeper excavations in the proposed project area that extend down into older Quaternary deposits, however, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,



Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

Winchester Associates, Inc.

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HYDROLOGY AND HYDRAULIC STUDIES

APN 485-081-036, 037, & 040
City of Moreno Valley

PEN17-0135

Prepared for:

Tom Bobowski
Professors Capital, Inc.
990 Highland Drive, Suite 204
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Phone: (858) 755-0615

Prepared by:

Mariela Anguelov, PE
Winchester Associates, Inc.
23640 Tower Street, Suite 3
Moreno Valley, CA 92553
Telephone: (951) 924-5425



Date: February 2018

Attachment: Hydrology and Hydraulic Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

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Discussion

The purpose of this study is to determine the on-site hydrology for the design of Parcel 1 of LLA No 1032 and Parcel 2 of Parcel Map 36449 (APN 485-081-036, 037, & 040), in the City of Moreno Valley, County of Riverside, State of California.

The study uses the procedures outlined in the Riverside County Flood Control and Water Conservation District (RCFC & WCD) Hydrology Manual, dated April 1978.

Rational – Hydrology Program Package of CIVILD Engineering Software was used to determine 10 year 1 hour and 100 year 1 hour storm events runoffs.

An analysis for the water quality runoff facilities using the procedures outlined in the Water Quality Management Plan - A Guidance Document for the Santa Ana Region of Riverside County, dated October 22, 2012, was used to outline the design of one Bioretention area for the project site.

Site Description

The gross acreage of the project site is 4.78 ac, 0.31 ac have been developed as perimeter streets. The net acreage of the project site is 4.47 ac. The site is located at the southwest corner of John F Kennedy Drive and Perris Boulevard in the City of Moreno Valley. Existing commercial buildings separate the site from Perris Boulevard. 0.48 ac of the site have been previously developed and are serving the existing neighboring plaza. The topography of the remaining 3.99 ac is generally planar with a gentle fall to the southeast. The project site will be developed as self-storage units. It will consist of 5 irregularly shaped self-storage buildings, parking stalls surfaced with porous asphalt, driveways surfaced with asphalt concrete, landscaped areas around the perimeter of the project site and a water quality bioretention area located at the southeast corner of the site. The project is a portion of Sections 19, T. 3 S., R. 3 W., SBM.

Pre-Developed Conditions

(See attached Pre-Developed Conditions Hydrology Map)

The project site has not been impacted by off-site storm water runoffs.

During the pre-developed conditions the storm water runoff accumulated by the existing driveway/access (0.48 ac) is draining to the CVS store parking lot and discharging onto Perris Boulevard. The storm water runoff accumulated from 3.99 ac sheets southeasterly through the site and is intercepted by an existing temporary detention basin at the southeast corner of the site. The detention basin drains to an existing 18" RCP which conveys the stormflow to the existing Sunnymead ADP Line M-4 (48" RCP) in Perris Boulevard. The 3.99 ac tributary area generates $Q_{10}=4.2$ cfs and $Q_{100}=6.5$ cfs.

(See Appendix A for hydrology calculations.)

Post - Developed Conditions

(See attached Post-Developed Conditions Hydrology Map)

During the post-developed conditions the drainage patterns of the existing driveway/access (0.48 ac) to the CVS store will remain the same.

The remaining 3.99 ac are proposed to drain to the southeast corner of the property, where the runoff will be routed through a bioretention area and accepted by the existing 18" RCP and discharged into the existing 48" RCP storm drain (Line M-4) in Perris Boulevard.

The 3.99 ac tributary area generates $Q_{10}=6.1$ cfs and $Q_{100}=9.0$ cfs.

(See Appendix A for hydrology calculations.)

Water Quality BMPs

The project consists of self-treating, self-retaining, and an area draining to a structural LID BMP, located at the southeast corner of the site. The self-treating and self-retaining areas are incorporated into the previously developed 0.48 ac to the maximum extent practicable.

The first flush and dry weather nuisance flows, generated by the proposed developed 3.99 ac, shall be routed through the proposed structural LID BMP (bioretention w/ underdrain).

(See Appendix B for LID BMP sizing.)

Conclusion

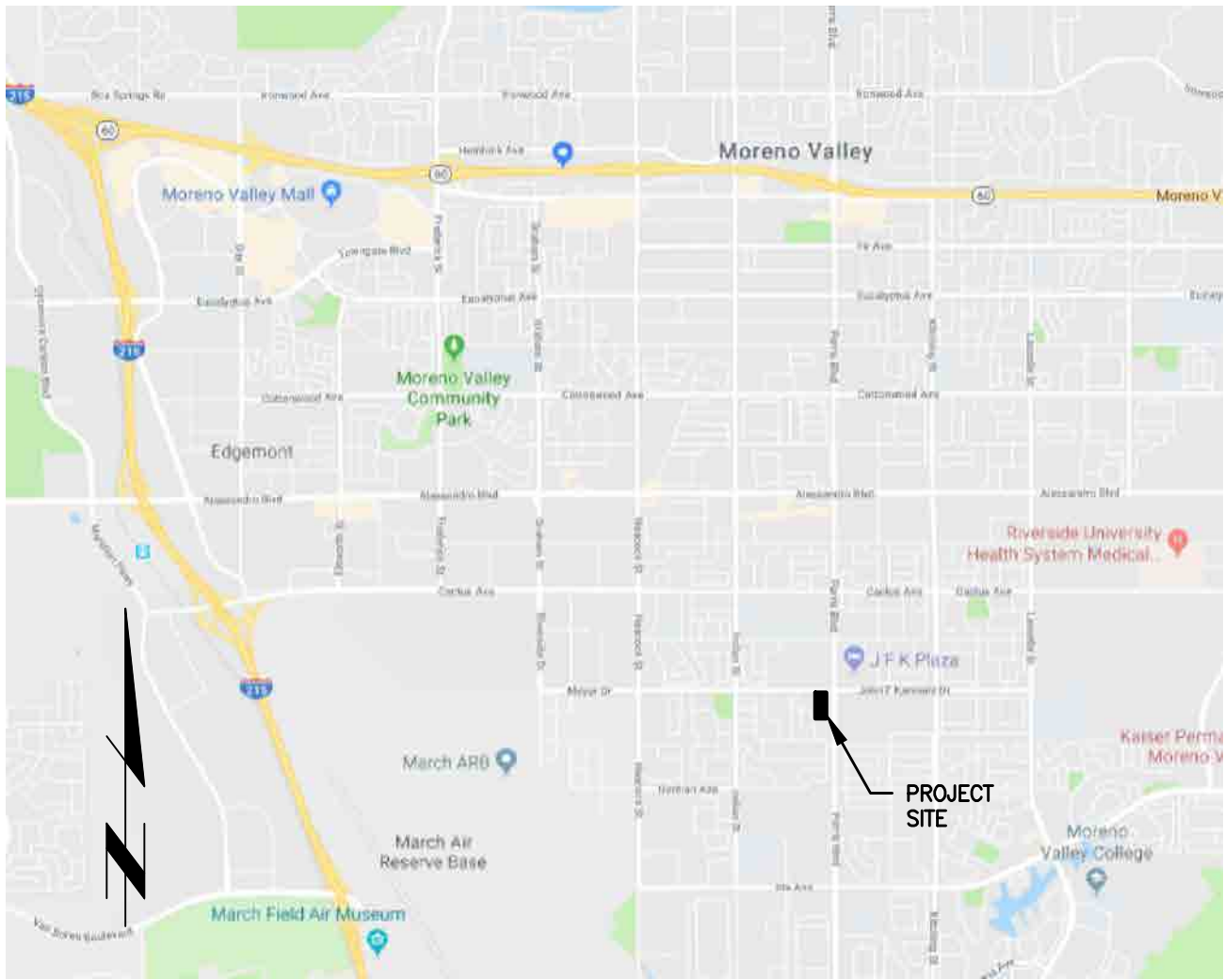
The proposed project does not create any impact to the downstream storm drain system. The existing Sunnymead ADP Line M-4 was sized to accept and convey the peak flow rates for 100-year 1-hour return frequency storm event during post-developed conditions.

(See the Pre- and Post-Development Flow Rates Comparison Table on Page 4)

PRE- AND POST-DEVELOPMENT FLOW RATES COMPARISON TABLE
ON-SITE RUNOFF FLOW

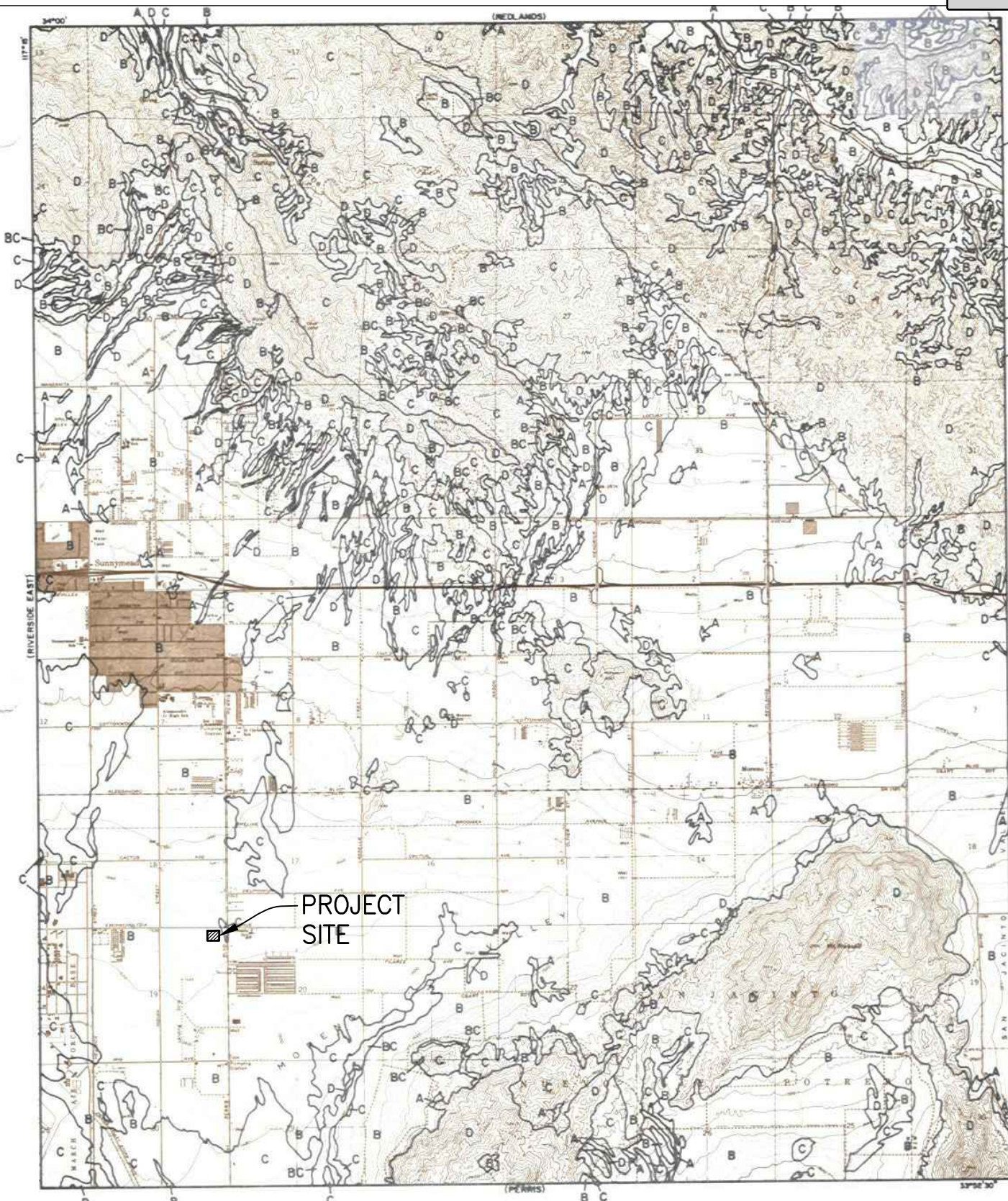
APN 485-081-036, 037, & 040, CITY OF MORENO VALLEY
 T.3S, R.3W, SEC. 19, SBM

	AREA (AC)		1 HOUR STORM EVENT				PROJECT IMPACT
	PRE-	POST-	Q10 (CFS)		Q100 (CFS)		
			PRE-	POST-	PRE-	POST-	
AREA "A"	3.99	3.99	4.2	6.1	6.5	9.0	No downstream impact. The accumulated runoff during the post-developed condition will be captured, conveyed and discharged into the existing SD Line M-4 on Perris Blvd



LOCATION MAP
NTS

Attachment: Hydrology and Hydraulic Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres



LEGEND

- SOILS GROUP BOUNDARY
- A SOILS GROUP DESIGNATION

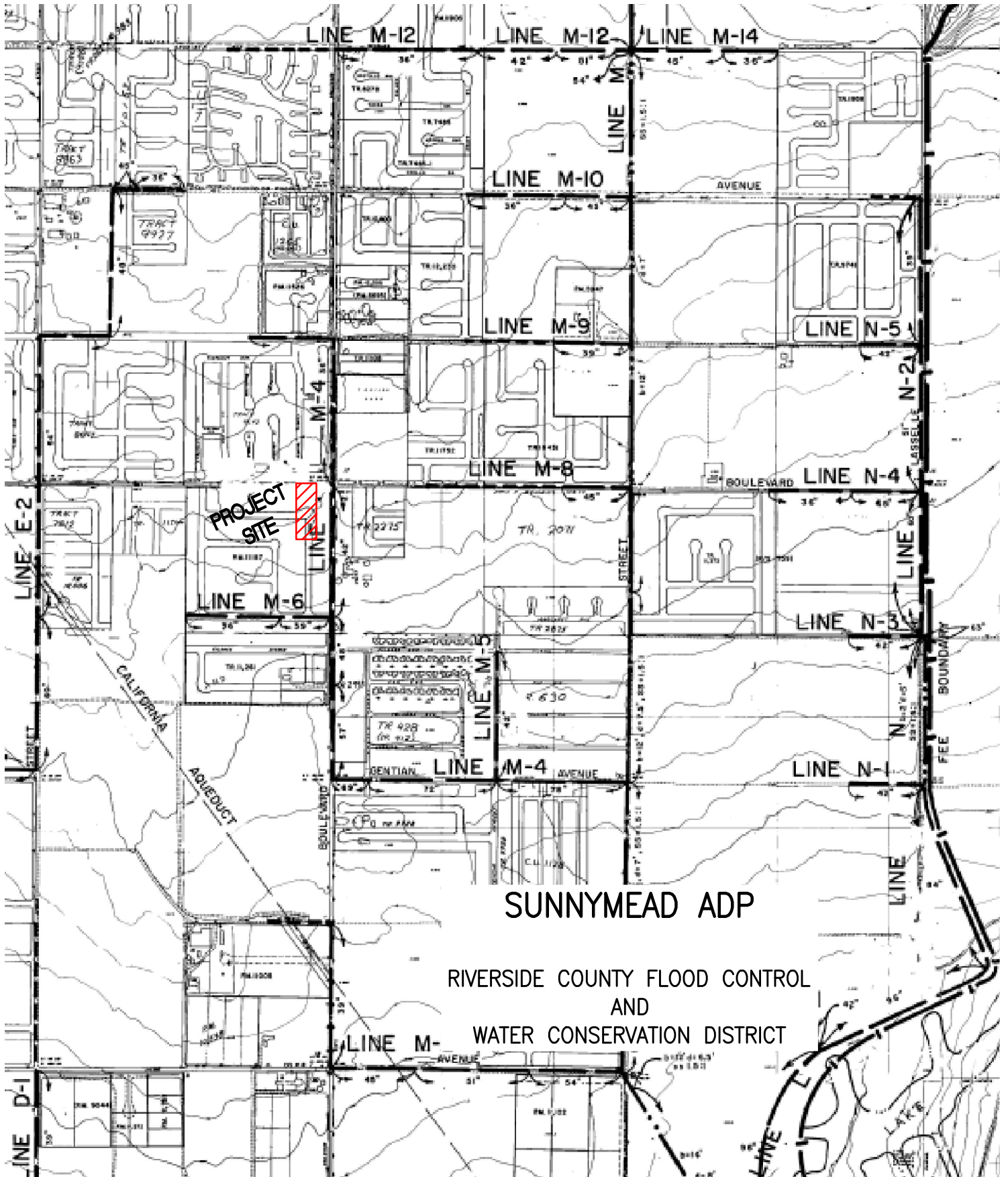
RCFC & WCD
HYDROLOGY MANUAL

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP
FOR
SUNNYMEAD

PLATE C-117

Attachment: Hydrology and Hydraulic Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres



Attachment: Hydrology and Hydraulic Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres

RAINFALL INTENSITY—INCHES PER HOUR

SUNNYMEAD - MORENO			WOODCREST		
DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY	
	10 YEAR	100 YEAR		10 YEAR	100 YEAR
5	2.84	4.16	5	3.37	5.30
6	2.59	3.79	6	3.05	4.79
7	2.40	3.51	7	2.80	4.40
8	2.25	3.29	8	2.60	4.09
9	2.12	3.10	9	2.44	3.83
10	2.01	2.94	10	2.30	3.62
11	1.92	2.80	11	2.19	3.43
12	1.83	2.68	12	2.08	3.27
13	1.76	2.58	13	1.99	3.13
14	1.70	2.48	14	1.91	3.01
15	1.64	2.40	15	1.84	2.89
16	1.59	2.32	16	1.78	2.79
17	1.54	2.25	17	1.72	2.70
18	1.50	2.19	18	1.67	2.62
19	1.46	2.13	19	1.62	2.54
20	1.42	2.08	20	1.57	2.47
22	1.35	1.98	22	1.49	2.34
24	1.30	1.90	24	1.42	2.23
26	1.25	1.82	26	1.36	2.14
28	1.20	1.76	28	1.31	2.05
30	1.16	1.70	30	1.26	1.98
32	1.12	1.64	32	1.22	1.91
34	1.09	1.59	34	1.18	1.85
36	1.06	1.55	36	1.14	1.79
38	1.03	1.51	38	1.11	1.74
40	1.00	1.47	40	1.07	1.69
45	.95	1.39	45	1.01	1.58
50	.90	1.31	50	.95	1.49
55	.86	1.25	55	.90	1.42
65	.79	1.15	65	.82	1.29
70	.76	1.11	70	.79	1.24
75	.73	1.07	75	.76	1.19
80	.71	1.04	80	.73	1.15
85	.69	1.01	85	.71	1.11

SLOPE = .500

SLOPE = .550

RCFC & WCD
 HYDROLOGY MANUAL

STANDARD
 INTENSITY - DURATION
 CURVES DATA

PLATE D-4.1 (6 of 6)

APPENDIX A

HYDROLOGY RATIONAL STUDIES

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
 Rational Hydrology Study Date: 02/16/18 File:866PRE10.out

 MINI STORAGE JFK, MV
 PRE-DEVELOPED CONDITION
 10 YEAR - 1 HOUR
 (Job 866)

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6311

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

Standard intensity-duration curves data (Plate D-4.1)

For the [Sunnymead-Moreno] area used.

10 year storm 10 minute intensity = 2.010(In/Hr)

10 year storm 60 minute intensity = 0.820(In/Hr)

100 year storm 10 minute intensity = 2.940(In/Hr)

100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 10.0

Calculated rainfall intensity data:

1 hour intensity = 0.820(In/Hr)

Slope of intensity duration curve = 0.5000

 Process from Point/Station 10.000 to Point/Station 11.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 775.000(Ft.)

Top (of initial area) elevation = 36.000(Ft.)

Bottom (of initial area) elevation = 28.000(Ft.)

Difference in elevation = 8.000(Ft.)

Slope = 0.01032 s(percent)= 1.03

TC = k(0.530)*[(length^3)/(elevation change)]^0.2

Initial area time of concentration = 18.934 min.

Rainfall intensity = 1.460(In/Hr) for a 10.0 year storm

UNDEVELOPED (poor cover) subarea

Runoff Coefficient = 0.716

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

Initial subarea runoff = 4.168(CFS)

Total initial stream area = 3.990(Ac.)

Pervious area fraction = 1.000

End of computations, total study area = 3.99 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000

Area averaged RI index number = 78.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
 Rational Hydrology Study Date: 02/16/18 File:866PRE100.out

 MINI STORAGE JFK, MV
 PRE-DEVELOPED CONDITION
 100 YEAR - 1 HOUR
 (Job 866)

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6311

Rational Method Hydrology Program based on
 Riverside County Flood Control & Water Conservation District
 1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
 For the [Sunnymead-Moreno] area used.
 10 year storm 10 minute intensity = 2.010(In/Hr)
 10 year storm 60 minute intensity = 0.820(In/Hr)
 100 year storm 10 minute intensity = 2.940(In/Hr)
 100 year storm 60 minute intensity = 1.200(In/Hr)

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 10.000 to Point/Station 11.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 775.000(Ft.)
 Top (of initial area) elevation = 36.000(Ft.)
 Bottom (of initial area) elevation = 28.000(Ft.)
 Difference in elevation = 8.000(Ft.)
 Slope = 0.01032 s(percent)= 1.03
 $TC = k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 18.934 min.
 Rainfall intensity = 2.136(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.765
 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
 Initial subarea runoff = 6.523(CFS)
 Total initial stream area = 3.990(Ac.)
 Pervious area fraction = 1.000
 End of computations, total study area = 3.99 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
 Area averaged RI index number = 78.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
 Rational Hydrology Study Date: 02/16/18 File:866post10.out

 MINI STORAGE JFK, MV
 DEVELOPED CONDITION
 10 YEAR - 1 HOUR
 (Job 866)

 ***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

 Program License Serial Number 6311

 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

Standard intensity-duration curves data (Plate D-4.1)
 For the [Sunnymead-Moreno] area used.
 10 year storm 10 minute intensity = 2.010(In/Hr)
 10 year storm 60 minute intensity = 0.820(In/Hr)
 100 year storm 10 minute intensity = 2.940(In/Hr)
 100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 10.0
 Calculated rainfall intensity data:
 1 hour intensity = 0.820(In/Hr)
 Slope of intensity duration curve = 0.5000

 +-----+
 Process from Point/Station 10.000 to Point/Station 12.000
 **** INITIAL AREA EVALUATION ****

 Initial area flow distance = 905.000(Ft.)
 Top (of initial area) elevation = 34.000(Ft.)
 Bottom (of initial area) elevation = 29.000(Ft.)
 Difference in elevation = 5.000(Ft.)
 Slope = 0.00552 s(percent)= 0.55
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 12.922 min.
 Rainfall intensity = 1.767(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.867
 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 = 3.843(CFS)
 Total initial stream area = 2.510(Ac.)
 Pervious area fraction = 0.100

Process from Point/Station 12.000 to Point/Station 12.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 2.510(Ac.)
Runoff from this stream = 3.843(CFS)
Time of concentration = 12.92 min.
Rainfall intensity = 1.767(In/Hr)

Process from Point/Station 11.000 to Point/Station 12.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 625.000(Ft.)
Top (of initial area) elevation = 33.000(Ft.)
Bottom (of initial area) elevation = 29.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.00640 s(percent)= 0.64
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.820 min.
Rainfall intensity = 1.931(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.868
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 = 2.482(CFS)
Total initial stream area = 1.480(Ac.)
Pervious area fraction = 0.100

Process from Point/Station 12.000 to Point/Station 12.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 1.480(Ac.)
Runoff from this stream = 2.482(CFS)
Time of concentration = 10.82 min.
Rainfall intensity = 1.931(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	3.843	12.92	1.767
2	2.482	10.82	1.931

Largest stream flow has longer time of concentration
 $Q_p = 3.843 + \text{sum of } Q_b \cdot \frac{I_a}{I_b}$
 $Q_p = 2.482 * 0.915 = 2.271$
 $Q_p = 6.114$

Total of 2 streams to confluence:
Flow rates before confluence point:
3.843 2.482
Area of streams before confluence:

2.510 1.480
Results of confluence:
Total flow rate = 6.114(CFS)
Time of concentration = 12.922 min.
Effective stream area after confluence = 3.990(Ac.)
End of computations, total study area = 3.99 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.100
Area averaged RI index number = 56.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version 8.0
 Rational Hydrology Study Date: 02/16/18 File:866POST100.out

 MINI STORAGE JFK, MV
 DEVELOPED CONDITION
 100 YEAR - 1 HOUR
 (Job 866)

 ***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

 Program License Serial Number 6311

 Rational Method Hydrology Program based on
 Riverside County Flood Control & Water Conservation District
 1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
 For the [Sunnymead-Moreno] area used.
 10 year storm 10 minute intensity = 2.010(In/Hr)
 10 year storm 60 minute intensity = 0.820(In/Hr)
 100 year storm 10 minute intensity = 2.940(In/Hr)
 100 year storm 60 minute intensity = 1.200(In/Hr)

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 10.000 to Point/Station 12.000
 **** INITIAL AREA EVALUATION ****

 Initial area flow distance = 905.000(Ft.)
 Top (of initial area) elevation = 34.000(Ft.)
 Bottom (of initial area) elevation = 29.000(Ft.)
 Difference in elevation = 5.000(Ft.)
 Slope = 0.00552 s(percent)= 0.55
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 12.922 min.
 Rainfall intensity = 2.586(In/Hr) for a 100.0 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 = 5.673(CFS)
 Total initial stream area = 2.510(Ac.)
 Pervious area fraction = 0.100

Process from Point/Station 12.000 to Point/Station 12.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 2.510(Ac.)
Runoff from this stream = 5.673(CFS)
Time of concentration = 12.92 min.
Rainfall intensity = 2.586(In/Hr)

Process from Point/Station 11.000 to Point/Station 12.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 625.000(Ft.)
Top (of initial area) elevation = 33.000(Ft.)
Bottom (of initial area) elevation = 29.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.00640 s(percent)= 0.64
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.820 min.
Rainfall intensity = 2.826(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.876
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 = 3.662(CFS)
Total initial stream area = 1.480(Ac.)
Pervious area fraction = 0.100

Process from Point/Station 12.000 to Point/Station 12.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 1.480(Ac.)
Runoff from this stream = 3.662(CFS)
Time of concentration = 10.82 min.
Rainfall intensity = 2.826(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	5.673	12.92	2.586
2	3.662	10.82	2.826

Largest stream flow has longer time of concentration
Qp = 5.673 + sum of Qb Ia/Ib
3.662 * 0.915 = 3.351
Qp = 9.024

Total of 2 streams to confluence:
Flow rates before confluence point:
5.673 3.662
Area of streams before confluence:

2.510 1.480
Results of confluence:
Total flow rate = 9.024(CFS)
Time of concentration = 12.922 min.
Effective stream area after confluence = 3.990(Ac.)
End of computations, total study area = 3.99 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.100
Area averaged RI index number = 56.0

APPENDIX B

LID BMP Sizing

Santa Ana Watershed - BMP Design Volume, V_{BMP}
 (Rev. 10-2011)

Legend: Required Entries
 Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name WAI Date 2/19/2018
 Designed by Mariela Anguelov Case No
 Company Project Number/Name 866

BMP Identification

BMP NAME / ID Bioretention
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, D_{85} = 0.65 inches
 from the Isohyetal Map in Handbook Appendix E

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

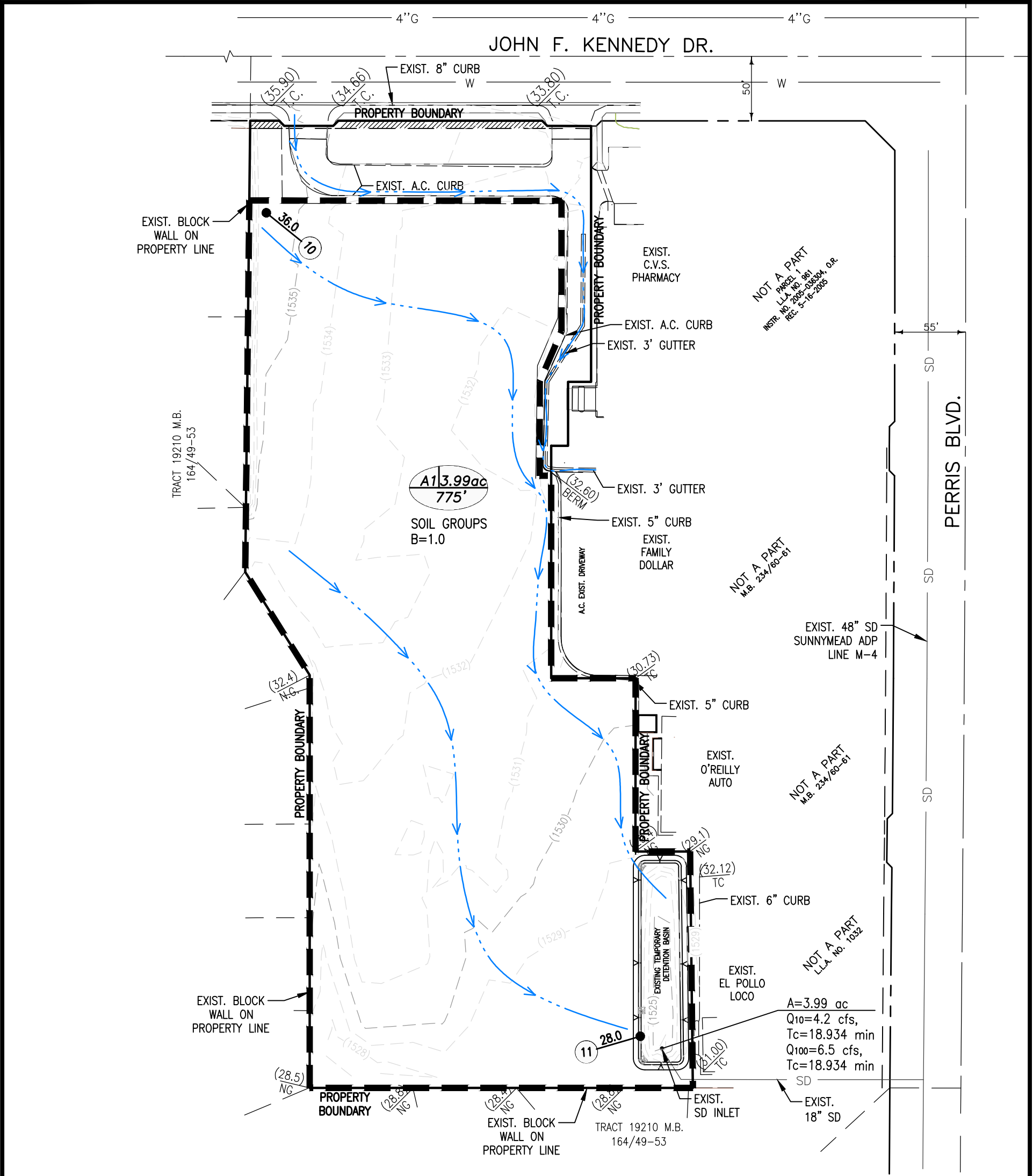
DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
<i>DMA 1</i> BIORETEN-TION	90535	Roofs	1	0.89	80757.2			
	59990	Concrete or Asphalt	1	0.89	53511.1			
	23180	Ornamental Landscaping	0.1	0.11	2560.4			
	173705				136828.7	0.65	7411.6	7950

Notes:

Attachment: Hydrology and Hydraulic Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Bioretention Facility - Design Procedure		BMP ID Bioretention	Legend:	Required Entries
Company Name: WAI		Date: 2/19/2018		Calculated Cells
Designed by: Mariela Anguelov		County/City Case No.:		
Design Volume				
Enter the area tributary to this feature			$A_T =$	3.99 acres
Enter V_{BMP} determined from Section 2.1 of this Handbook			$V_{BMP} =$	7,415 ft ³
Type of Bioretention Facility Design				
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> No side slopes required (perpendicular to parking space or Planter Boxes)				
Bioretention Facility Surface Area				
Depth of Soil Filter Media Layer			$d_S =$	2.0 ft
Top Width of Bioretention Facility, excluding curb			$w_T =$	34.0 ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$			$d_E =$	1.48 ft
Minimum Surface Area, A_m $A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$			$A_M =$	5,013 ft ²
Proposed Surface Area			$A =$	5,370 ft ²
Bioretention Facility Properties				
Side Slopes in Bioretention Facility			$z =$	4 :1
Diameter of Underdrain				6 inches
Longitudinal Slope of Site (3% maximum)				0.5 %
6" Check Dam Spacing				0 feet
Describe Vegetation:		Shrubs		
Notes: 34' x 158'				

ATTACHED EXHIBITS



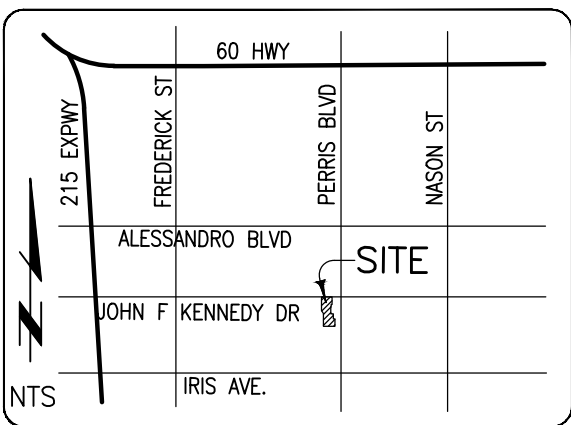
NOT A PART
 PARCEL 1
 L.L.A. NO. 861
 INSTR. NO. 2005-035304, O.R.
 REC. 5-16-2005

NOT A PART
 M.B. 234/60-61

NOT A PART
 M.B. 234/60-61

NOT A PART
 L.L.A. No. 1032

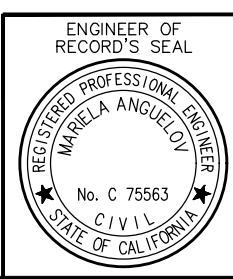
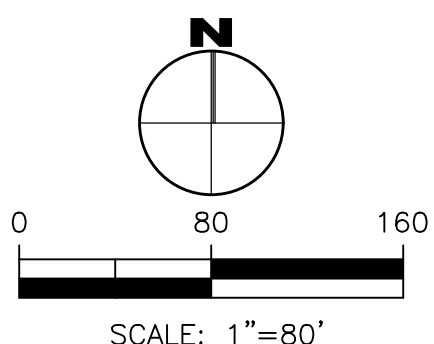
A=3.99 ac
 Q₁₀=4.2 cfs,
 T_c=18.934 min
 Q₁₀₀=6.5 cfs,
 T_c=18.934 min



VICINITY MAP

LEGEND:

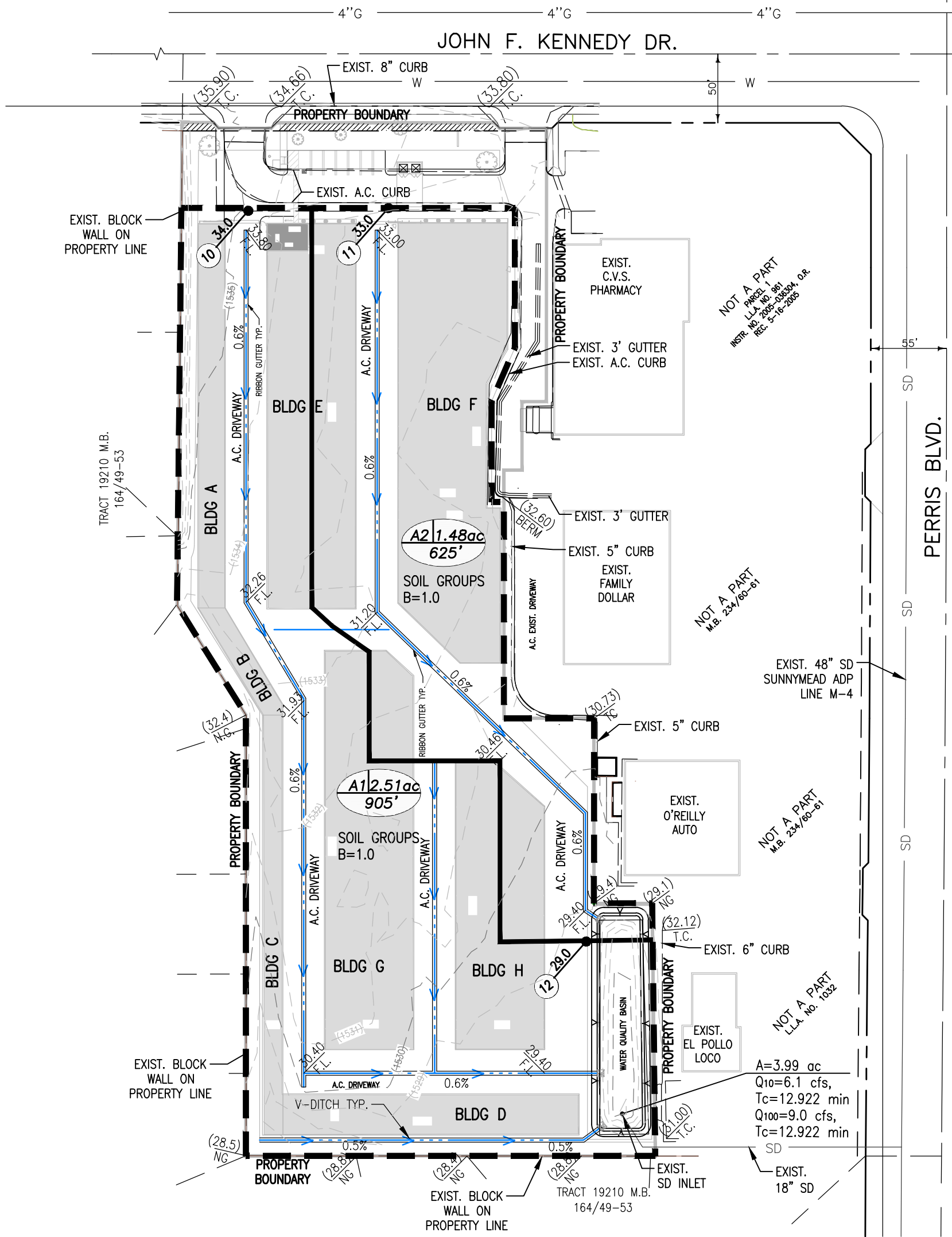
- DRAINAGE AREA BOUNDARY
- 1549.5 11 ELEVATION NODE
- A1 10ac / 1000' HYDROLOGY SUBAREA/ACREAGE WATER COURSE LENGTH



Winchester Associates, Inc.
 ENGINEERING • LAND SURVEYING
 23640 TOWER ST., SUITE 3
 MORENO VALLEY, CA. 92553 (951) 924-5425
 UNDER THE SUPERVISION OF:
 MARIELA ANGUELOV DATE
 R.C.E. #75563 (EXP. 06/30/2018)

CITY OF MORENO VALLEY	
APN 485-081-036, 037, & 040	
SELF STORAGE JFK DR & PERRIS BLVD	
HYDROLOGY MAP	
PRE-DEVELOPED CONDITIONS	
DATE OF PREPARATION: 02-15-2018	
SHEET <u>1</u> OF <u>2</u>	CITY ID No PEN17-0135

Attachment: Hydrology and Hydraulic Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)



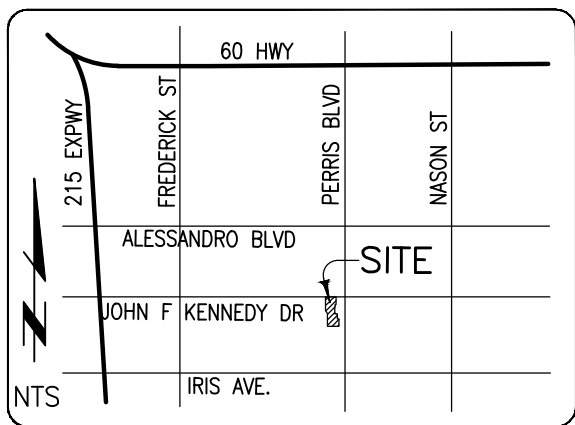
NOT A PART
 PARCEL 1
 L.L.A. NO. 861
 INSTR. NO. 2005-035304, O.R.
 REC. 5-16-2005

NOT A PART
 M.B. 234/60-61

NOT A PART
 M.B. 234/60-61

NOT A PART
 L.L.A. No. 1032

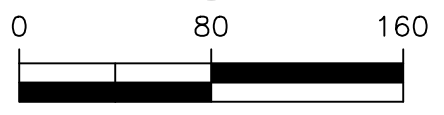
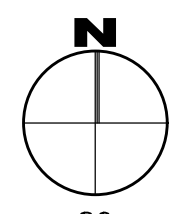
A=3.99 ac
 Q₁₀=6.1 cfs,
 T_c=12.922 min
 Q₁₀₀=9.0 cfs,
 T_c=12.922 min



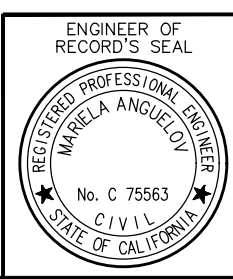
VICINITY MAP

LEGEND:

- SUB. AREA BOUNDARY
- DRAINAGE AREA BOUNDARY
- 1549.5 (11) ELEVATION NODE
- (A1 10ac / 1000')



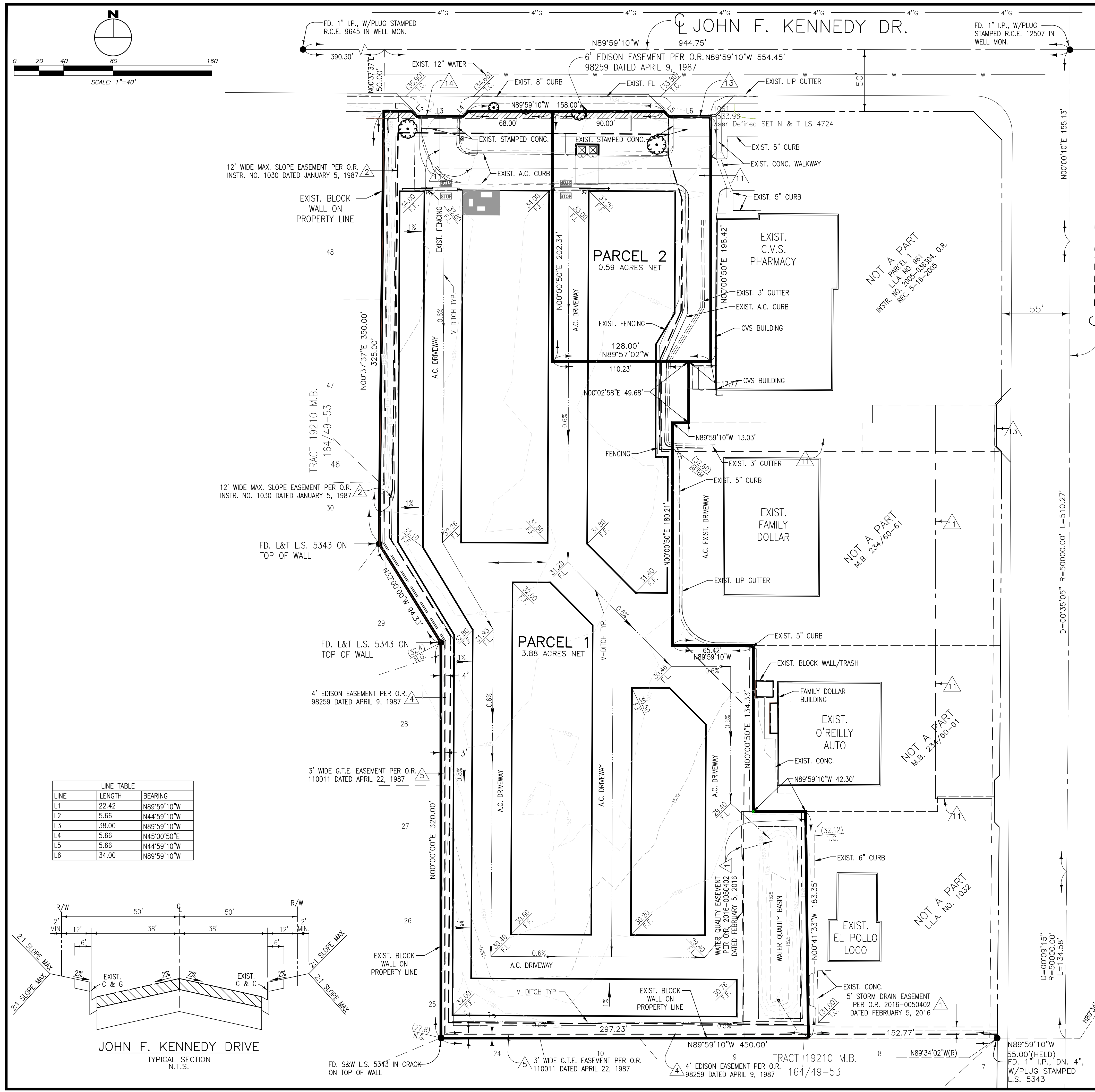
SCALE: 1"=80'



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 R.C.E. #75563 (EXP. 06/30/2018)

CITY OF MORENO VALLEY	
APN 485-081-036, 037, & 040	
SELF STORAGE JFK DR & PERRIS BLVD	
HYDROLOGY MAP	
POST-DEVELOPED CONDITIONS	
DATE OF PREPARATION: 02-15-2018	SHEET <u>2</u> OF <u>2</u>
	CITY ID No PEN17-0135

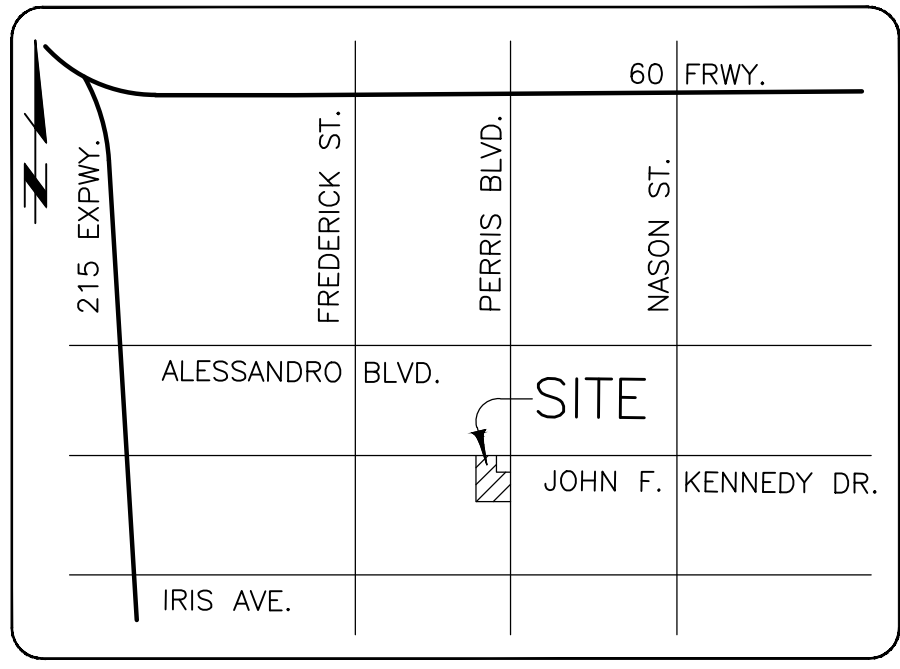
Attachment: Hydrology and Hydraulic Study (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)



IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
CONCEPTUAL GRADING PLAN
 PARCEL 1 OF L.L.A. NO. 1032, AND PARCEL 2 OF PARCEL MAP 36449
 RECORDED IN BOOK 234, PAGES 60-61, RECORDS OF RIVERSIDE CALIFORNIA,
 LYING IN SECTION 19, T. 3 S., R. 3 W., S.B.M.
WINCHESTER ASSOCIATES, INC. AUGUST 2017

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF MORENO VALLEY, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
 THAT PORTION OF PARCELS 1 AND 5 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS SHOWN ON EXHIBIT "B" OF THAT CERTAIN LOT LINE ADJUSTMENT NO. 1032 FILED ON FEBRUARY 05, 2016 AS INSTRUMENT NO. 2016-0049874 IN THE OFFICE OF THE RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
 THAT PORTION OF PARCELS 1 AND 5 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS RECORDED IN PARCEL MAP BOOK 234, PAGES 60 AND 61, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA DESCRIBED AS FOLLOWS:
 BEGINNING AT A POINT ALONG THE SOUTH LINE OF PARCEL 5 OF SAID PARCEL MAP, SAID POINT LYING 152.77 FEET FROM THE SOUTHEAST CORNER OF SAID PARCEL 5;
 THENCE NORTH 0°41'33" WEST A DISTANCE OF 183.35 FEET TO A POINT ALONG THE SOUTH LINE OF PARCEL 4 OF SAID PARCEL MAP;
 THENCE ALONG SAID SOUTH LINE OF SAID PARCEL 4 NORTH 89°59'10" WEST A DISTANCE OF 42.30 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 4;
 THENCE NORTH 0°00'50" EAST ALONG THE WEST LINE OF SAID PARCEL 4, A DISTANCE OF 134.33 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 4;
 THENCE NORTH 89°59'10" WEST ALONG THE WEST LINE OF 65.42 FEET TO THE SOUTHWEST CORNER OF PARCEL 3 OF SAID PARCEL MAP;
 THENCE NORTH 0°00'50" EAST ALONG THE WEST LINE OF SAID PARCEL 3, A DISTANCE OF 180.21 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 3;
 THENCE SOUTH 89°59'10" EAST ALONG THE NORTH LINE OF SAID PARCEL 3, A DISTANCE OF 13.03 FEET;
 THENCE NORTH 0°02'58" EAST A DISTANCE OF 49.68 FEET TO A POINT ON THE SOUTH LINE OF PARCEL 2 OF SAID PARCEL MAP;
 THENCE NORTH 89°57'02" WEST ALONG THE SOUTH LINE OF SAID PARCEL 2, A DISTANCE OF 110.23 FEET TO THE SOUTHWEST CORNER THEREOF;
 THENCE NORTH 0°07'50" EAST ALONG THE WEST LINE OF SAID PARCEL 2 A DISTANCE OF 202.34 FEET TO THE NORTHEAST CORNER OF SAID PARCEL 2; THENCE NORTH 89°59'10" WEST ALONG THE NORTH LINE OF SAID PARCEL 1, A DISTANCE OF 68.00 FEET; THENCE SOUTH 45°09'00" WEST A DISTANCE OF 5.66 FEET; THENCE NORTH 89°59'10" WEST A DISTANCE OF 38.00 FEET; THENCE NORTH 44°59'10" WEST A DISTANCE OF 5.66 FEET;
 THENCE NORTH 89°59'10" WEST A DISTANCE OF 22.42 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 1;
 THENCE SOUTH 0°37'37" WEST ALONG THE WEST LINE OF SAID PARCEL 1 A DISTANCE OF 350.00 FEET TO AN ANGLE POINT THEREIN;
 THENCE CONTINUING ALONG SAID WEST LINE SOUTH 32°00'00" EAST A DISTANCE OF 94.33 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 1;
 THENCE ALONG THE WEST LINE OF SAID PARCEL 5 SOUTH 0°00'00" WEST A DISTANCE OF 320.00 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 5;
 THENCE ALONG THE SOUTH LINE OF SAID PARCEL 5 SOUTH 89°59'10" EAST A DISTANCE OF 297.23 FEET, MORE OR LESS, TO THE POINT OF BEGINNING AND THE END OF THIS DESCRIPTION.
 APN: 485-081-036-7 AND A PORTION OF 485-081-040-0
PARCEL B:
 PARCEL 2 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS RECORDED IN PARCEL MAP BOOK 234, PAGES 60 AND 61, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
 APN: 485-081-037-8



GENERAL NOTES

OWNER/APPLICANT
 PROFESSORS FUND IV, LLC
 990 HIGHLAND DR. SUITE 204
 SOLANA BEACH, CA 92075
 PHONE: (604) 984-6400
 CONTACT: BOB EMRI

ENGINEER
 WINCHESTER ASSOCIATES, INC.
 DAVID J. SLAWSON
 23640 TOWER STREET, SUITE 3
 PO BOX 280
 MORENO VALLEY, CA. 92556-0280
 PHONE: (951) 924-5425

ASSESSOR'S PARCEL No.
 485-081-036, 037, & 040

LAND USE AND ZONING

CURRENT GENERAL PLAN	C
CURRENT ZONING	NC
PROPOSED ZONING	CC
EXISTING USE	VACANT
PROPOSED LAND USE	SELF STORAGE UNITS

AREA AND DENSITY

GROSS ACREAGE	4.78 ACRES
NET ACREAGE	4.47 ACRES

FLOOD HAZARD
 THE SUBJECT TRACT IS IN ZONE X AND NOT WITHIN THE 100 YEAR FLOOD PLAIN. FEMA FLOOD INSURANCE PANEL NO. 0606500765G.

THOMAS BROTHERS GUIDE
 PAGE 717 G-7.

TOPOGRAPHY
 OBTAINED FROM TOPOGRAPHICAL SURVEY CONDUCTED BY WINCHESTER ASSOCIATES, INC. ON 7-23-17.

SCHOOL
 MORENO VALLEY UNIFIED SCHOOL DISTRICT

PUBLIC UTILITIES
 SEWER & WATER EMWD
 ELECTRICITY S.C.E.
 GAS THE GAS CO.
 TELEPHONE VERIZON

PREPARED BY:

Winchester Associates, Inc.
 ENGINEERING • LAND SURVEYING

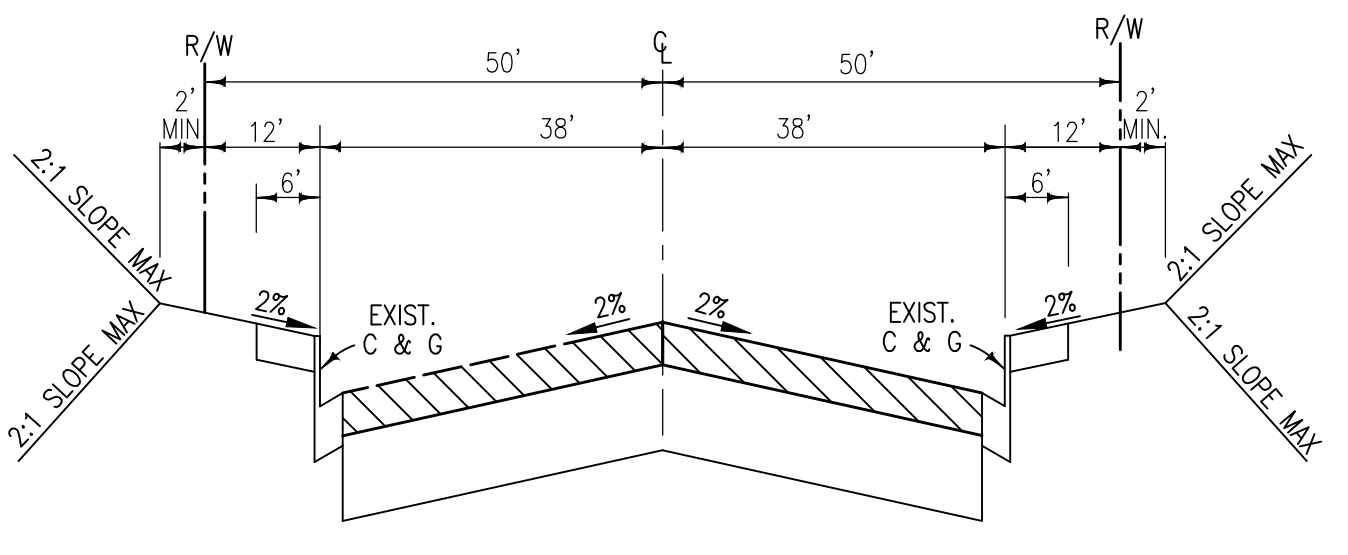
23640 TOWER ST., SUITE 3
 PO BOX 280
 MORENO VALLEY, CA 92556-0280 PH: (951) 924-5425

DAVID J. SLAWSON PLS 4724
 DATE OF PREPARATION: 9-12-17

SHEET 1 OF 1

LINE TABLE

LINE	LENGTH	BEARING
L1	22.42	N89°59'10"W
L2	5.66	N44°59'10"W
L3	38.00	N89°59'10"W
L4	5.66	N45°00'50"E
L5	5.66	N44°59'10"W
L6	34.00	N89°59'10"W



Attachment: Hydrology and Hydraulic Study (3175 - Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)



KUNZMAN ASSOCIATES, INC.

MORENO VALLEY SELF-STORAGE FACILITY

NOISE IMPACT ANALYSIS

December 28, 2017

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)



MORENO VALLEY SELF-STORAGE FACILITY

NOISE IMPACT ANALYSIS

December 28, 2017

Prepared by:

Roma Stromberg, INCE/M.S. ■ Catherine Howe, M.S.
Carl Ballard, LEED GA ■ William Kunzman, P.E.

KUNZMAN ASSOCIATES, INC.

1111 Town & Country Road, Suite 34 ■ Orange, California 92868
5005 La Mart Drive, Suite 201 ■ Riverside, California 92507
(714) 973-8383 ■ www.traffic-engineer.com
JN 7280a

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I. INTRODUCTION AND SETTING

A. Purpose and Objectives

The purpose of this report is to provide an assessment of the noise impacts that may occur with the development of the proposed Moreno Valley Self-Storage Facility project and to identify mitigation measures that may be necessary to reduce those impacts. The objectives of the study include:

- documentation of existing noise conditions
- discussion of noise modeling methodology and procedures
- analysis of noise and vibration generated by the construction of the project
- analysis of noise generated by the typical operation of the project
- analysis and discussion of potential traffic noise impacts to the proposed project
- analysis of noise affecting nearby sensitive receptors due to increased traffic produced by the project
- recommendations for mitigation measures

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to noise analysis, a list of acronyms and a glossary of terms have been provided in Appendix A and Appendix B of this report, respectively.

B. Project Location

The project site is located near the southwest corner of the John F. Kennedy Drive and Perris Boulevard intersection in the City of Moreno Valley. A vicinity map showing the project location is provided on Figure 1.

C. Project Description

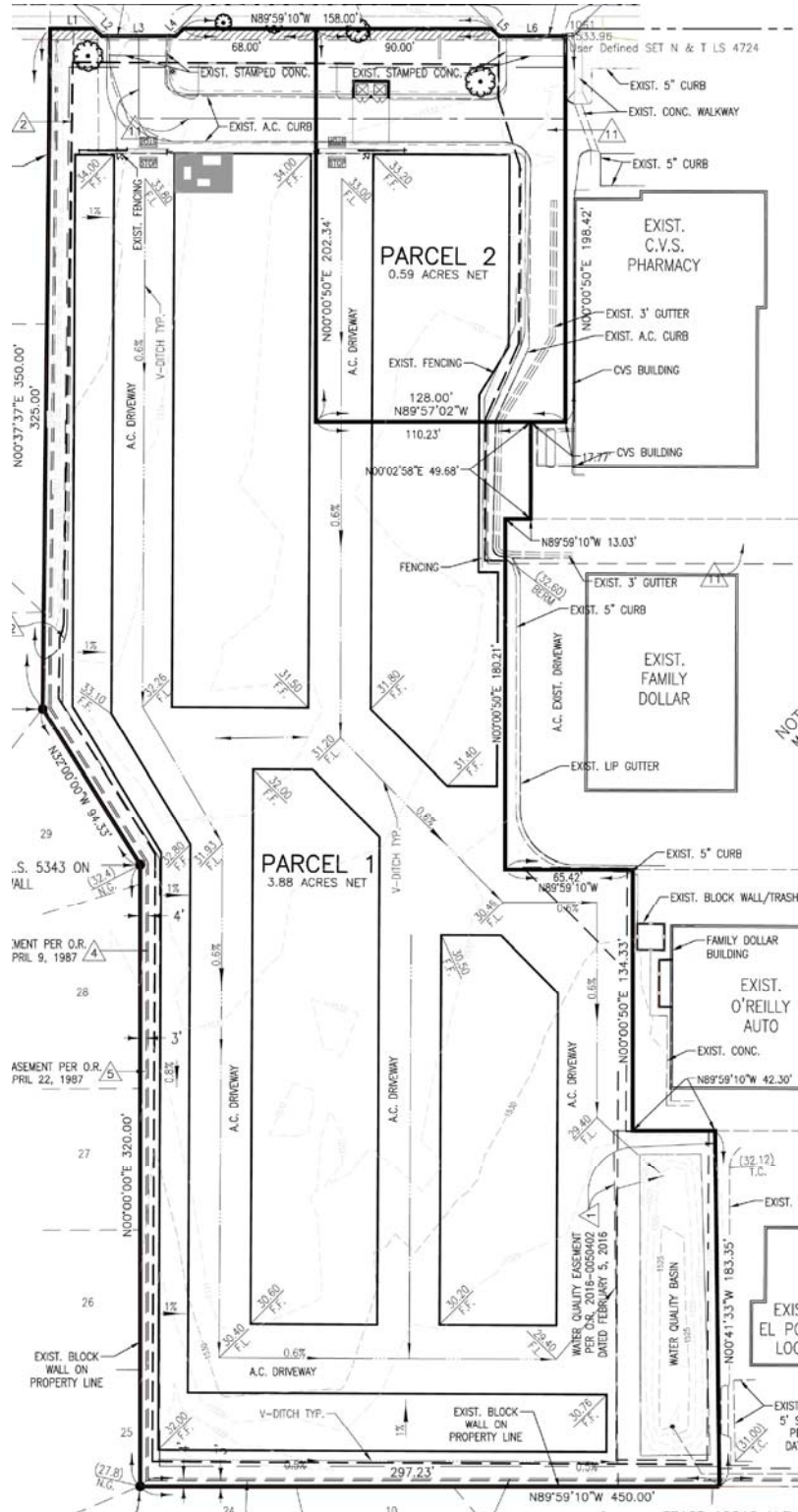
The project proposes to develop the approximately 4.47 acre (194,713 square foot) project site with a 90,511 square foot self-storage facility. The self-storage facility would include eight one-story buildings and a 600 square foot office sales center. The project site is proposed to provide a parking lot with seven parking spaces. Figure 2 illustrates the project's site plan.

Figure 1
Project Location Map



Figure 2 Site Plan

John F. Kennedy Drive



Perris Boulevard

KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE



JN 7280a

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

II. NOISE AND VIBRATION FUNDAMENTALS

A. Noise Fundamentals

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the “A-weighted” noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease.

Figure 3 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA_{Leq} , or the equivalent noise level for that period of time. For example, $L_{eq(3)}$ would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (L_{dn}). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. L_{dn} is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

B. Vibration Fundamentals

The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. 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 energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Construction operations generally include a wide range of activities that can generate groundborne vibration. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, or the differential settlement of pavement all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions.

Typically, particle velocity or acceleration (measured in gravities) is used to describe vibration. Table 1 shows the peak particle velocities (PPV) of some common construction equipment and Table 2 shows typical human reactions to various levels of PPV as well as the effect of PPV on buildings.

Table 1
Construction Equipment Vibration Source Levels¹

Equipment	Peak Partical Velocity in inches per second ²		
	at 25 feet	at 50 feet	at 100 feet
Clam Shovel Drop (slurry wall)	0.202	0.071	0.025
Vibratory Roller	0.210	0.074	0.026
Hoe Ram	0.089	0.031	0.011
Large Bulldozer	0.089	0.031	0.011
Caisson Drilling	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Jackhammer	0.035	0.012	0.004
Small Bulldozer	0.003	0.001	0.0004

¹ Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment, 2006.

² Bold values are considered annoying to people.

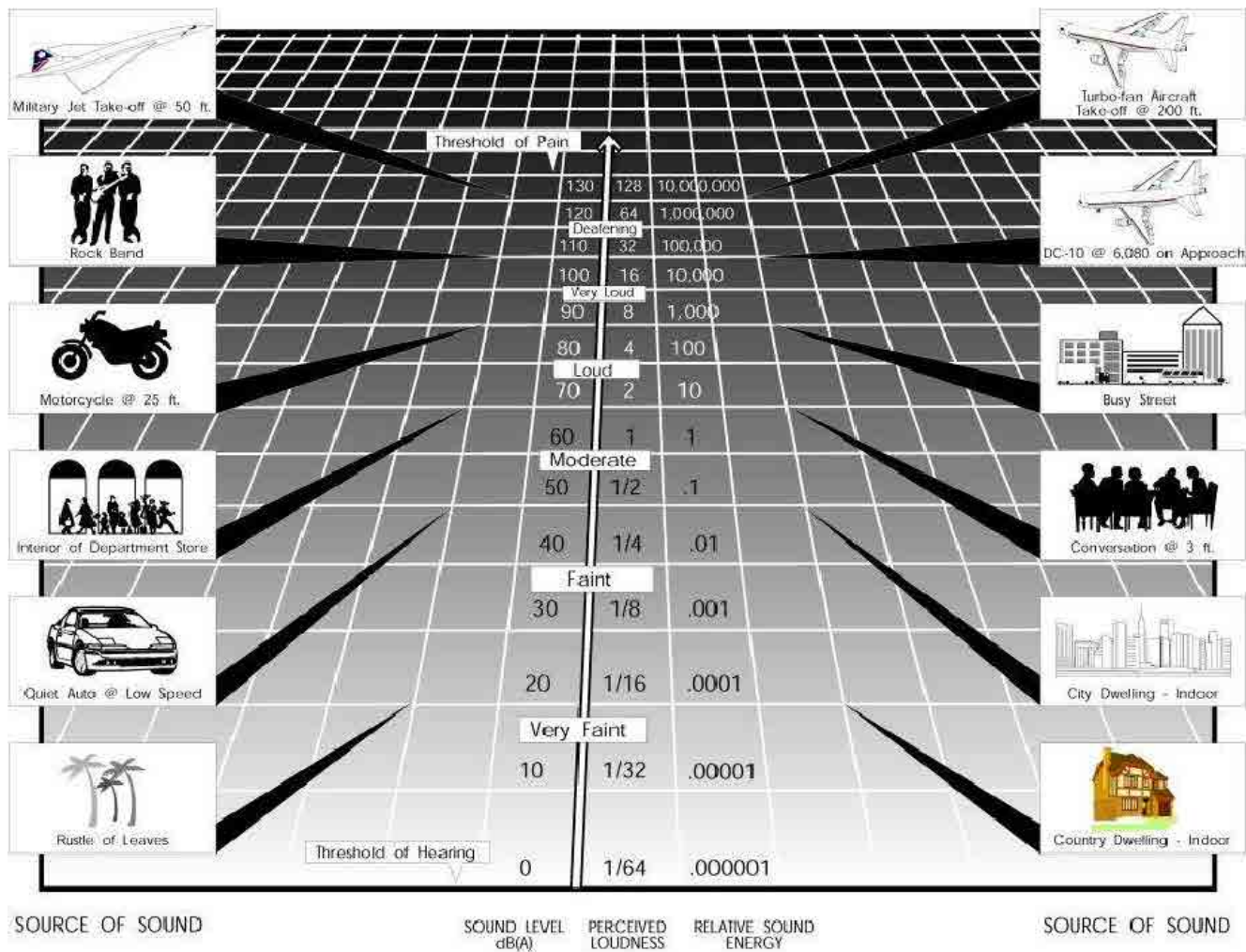
Table 2

Typical Human Reaction and Effect on Buildings Due to Groundborne Vibration¹

Vibration Level Peak Particle Velocity (PPV)	Human Reaction	Effect on Buildings
0.006–0.019 in/sec	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08 in/sec	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10 in/sec	Level at which continuous vibration begins to annoy people	Virtually no risk of “architectural” (i.e., not structural) damage to normal buildings
0.20 in/sec	Vibrations annoying to people in buildings	Threshold at which there is a risk to “architectural” damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6 in/sec	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

¹ Source: California Department of Transportation. Transportation and Construction Vibration Guidance Manual, Chapter 6, Tables 5 and 12 (September 2013).

Figure 3
Common Noise Sources and Noise Levels



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III. EXISTING NOISE ENVIRONMENT

A. Existing Land Uses and Sensitive Receptors

The project site is bounded by John F. Kennedy Drive to the north, commercial uses to the east, and single-family detached residential dwelling units to the west and south.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. The nearest sensitive receptors to the project site are the single-family detached residential dwelling units located adjacent to the west and south of the proposed project site. A mobile home park is also located approximately 85 feet north (across John F. Kennedy Drive) and multi-family attached residential dwelling units are located approximately 250 feet east (across Perris Boulevard) of the project site. In addition, Armada Elementary School is located approximately 865 feet east of the project site.

B. Ambient Noise Measurements

An American National Standards Institute (ANSI Section S14 1979, Type 1) Larson Davis model LxT sound level meter was used to measure existing ambient noise levels at the project site. Three 10-minute daytime noise measurements were taken between 2:09 PM and 3:29 PM on December 14, 2017. Field worksheets and noise measurement output data is included in Appendix C.

As shown on Figure 4, the noise measurements were taken at the northwest corner of the project site near adjacent single-family detached residential dwelling units, in the residential neighborhood to the southwest of the project site along Laverda Lane, and at the eastern property line of the proposed project adjacent to commercial uses. The ambient noise levels ranged between 52.2 and 55.4 dBA L_{eq} . The dominant noise sources included vehicle noise from Perris Boulevard, John F. Kennedy Drive, and Laverda Lane and residential noise. Table 3 provides a summary of the short-term ambient noise data.

Table 3
Short-Term Noise Measurement Summary (dBA)^{1,2}

Daytime								
Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
NM1	2:09 PM	55.4	66.7	41.2	61.5	59.6	56.8	52.9
NM2	2:40 PM	53.3	71.1	36.4	62.5	57.7	48.1	43.5
NM3	3:19 PM	52.2	61.8	43.8	57.4	55.3	53.0	51.2

¹ See Figure 4 for noise measurement locations. Each noise measurement was performed over a 10-minute duration.

² Noise measurements performed on December 14, 2017.

Figure 4
Noise Measurement Location Map



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IV. REGULATORY SETTING

A. Federal Regulations

1. Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In addition, the Levels of Environmental Noise identified five (5) dBA as an "adequate margin of safety" for a noise level increase relative to a baseline noise exposure level of 55 dBA Ldn (i.e., there would not be a noticeable increase in adverse community reaction with an increase of five dBA or less from this baseline level). The EPA did not promote these findings as universal standards or regulatory goals with mandatory applicability to all communities, but rather as advisory exposure levels below which there would be no risk to a community from any health or welfare effect of noise.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

B. State Regulations

1. State of California General Plan Guidelines 2017

Though not adopted by law, the State of California General Plan Guidelines 2017, published by the California Governor's Office of Planning and Research (OPR) (OPR Guidelines), provide guidance for the compatibility of projects within areas of specific noise exposure. The OPR Guidelines identify the suitability of various types of construction relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the Levels of Environmental Noise Document (EPA 1974) influenced the recommendations of the OPR Guidelines, most importantly in the choice of noise exposure metrics (i.e., Ldn or CNEL) and in the upper limits for the normally acceptable outdoor exposure of noise-sensitive uses. The OPR Guidelines include a Noise and Land Use Compatibility Matrix identifies acceptable and

unacceptable community noise exposure limits for various land use categories (see Table 4). These tables are the primary tools that allow the City to ensure integrated planning for compatibility between land uses and outdoor noise.

2. California Environmental Quality Act

The California Environmental Quality Act Guidelines (Appendix G) establishes thresholds for noise impact analysis. Two of these standards apply to what is referred to as a "substantial increase" in ambient noise levels. Neither the California Environmental Quality Act nor the City of Moreno Valley General Plan recognizes an official numerical increase as a "substantial increase." Industry-accepted standards for what is considered to be a "substantial increase" range from 3 dB to 12 dB. It should be noted that a change of 3 dB is considered to be "barely audible" to a trained ear and that a change of 5 dB is considered to be a readily audible change.

For purposes of this analysis, the following threshold was used to evaluate the project's potential to result in substantial increases in ambient noise levels.

Traffic Noise

Roadway noise impacts would be considered significant if the project increases noise levels at a noise sensitive land use by 3 CNEL and if: (1) the existing noise levels already exceed the State of California applicable land use compatibility standard for "normally compatible", or (2) the project increases noise levels from below the applicable CNEL standard to above the applicable dBA CNEL. In this case, project generated vehicle traffic substantial enough to analyze, may utilize roadway segments with adjacent single-family residential dwelling units (60 CNEL), multiple family residential dwelling units (65 CNEL), and commercial establishments (70 CNEL).

Stationary Noise

Project operations (including noise from loading and unloading activities) may produce an increase noise levels which disturbs the peace and quiet of nearby residential areas or cause discomfort/annoyance to area residents. The California Department of Transportation considers a 5 dBA increase to be "readily audible", which seems to correlate most closely to "substantial increase." For the purposes of this report, a substantial permanent increase in ambient noise levels due to stationary noise sources shall be considered 5 dBA L_{eq} .

C. Local Regulations

1. City of Moreno Valley General Plan

The State of California requires each city to adopt a general plan outlining the effects of development, including the effect of noise. Noise is considered in the Environmental Safety section of the City of Moreno Valley General Plan. Applicable objectives and policies from the General Plan Safety Element are provided below.

Objective 6.3: Provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes.

Policies

Objective 6.4: Review noise issues during the planning process and require noise attenuation measures to minimize acoustic impacts to existing and future surrounding land uses.

Policies

6.4.1 Site, landscape and architectural design features shall be encouraged to mitigate noise impacts for new developments, with a preference for noise barriers that avoid freeway sound barrier walls.

Objective 6.5: Minimize noise impacts from significant noise generators such as, but not limited to, motor vehicles, trains, aircraft, commercial, industrial, construction, and other activities.

Policies

6.5.1: New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses.

6.5.2: Construction activities shall be operated in a manner that limits noise impacts on surrounding uses.

2. City of Moreno Valley Municipal Ordinance

8.14.040 Miscellaneous standards and regulations

Any construction within the city shall only be as follows: Monday through Friday (except for holidays which occur on weekdays), 6:00 AM to 8:00 PM; weekends and holidays (as observed by the city and described in Chapter 2.55 of this code), 7:00 AM to 8:00 PM, unless written approval is obtained from the city building official or city engineer. (Ord. 759 § 5.5, 2007; Ord. 484 § 3.2 (part), 1995).

8.21.050 Grading permit requirements.

Grading and equipment operations shall only be completed between the hours of 7:00 AM to 6:00 PM Monday through Friday, excluding holidays and from 8:00 AM to 4:00 PM on weekends and holidays. The city engineer may, however, permit grading or equipment operations before or after the allowable hours of operation if he or she determines that such operations are not detrimental to the health, safety, or welfare of residents or the general public. Permitted hours of operations may be shortened by the city engineer's finding of a previously unforeseen effect on the health, safety, or welfare of the surrounding community.

9.10.140 Noise and Sound.

Unless otherwise specified in Chapter 9.08, General Development Standards, or Chapter 9.09, Specific Use Development Standards, all commercial and industrial uses shall be operated so that noise created by any loudspeaker, bells, gongs, buzzers, or other noise attention or attracting devices shall not exceed fifty-five (55) dBA at any one time beyond the boundaries of the property.

11.80.030 Prohibited Acts.

- A. General Prohibition. It is unlawful and a violation of this chapter to maintain, make, cause, or allow the making of any sound that causes a noise disturbance, as defined in Section 11.80.020.
- C. Non-impulsive Sound Decibel Limits. 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 Section 11.80.020) and shown in Table 5 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. The maximum sound level standards for the project are 65 dBA L_{eq} during the daytime and 60 dBA L_{eq} during the nighttime.
- D. Specific Prohibitions. In addition to the general prohibitions set out in subsection A of this section, and unless otherwise exempted by this chapter, the following specific acts, or the causing or permitting thereof, are regulated as follows:

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 8:00 PM and 7:00 AM 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.

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.





Table 4

State of California Community Noise Exposure (dBA CNEL or L_{dn})

Land use category	55	60	65	70	75	80
Residential – Low-Density Single-Family, Duplex, and Mobile Homes	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Multi-Family	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Transient Lodging – Hotels, Motels	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Auditoriums, Concert Halls, Amphitheaters	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Sports Arenas, Outdoor Spectator Sports	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Playgrounds, Neighborhood Parks	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Office Buildings, Businesses, Commercial and Professional	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable
Industrial, Manufacturing, Utilities, Agriculture	Normally Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable	Clearly Unacceptable

Source: Governor’s Office of Planning and Research. 2003. State of California General Plan Guidelines, Appendix C, Guidelines for the Preparation and Content of the Noise Element of the General Plan. October 2017

Key:

-  Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
-  Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.
-  Normally Unacceptable: New construction and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.
-  Clearly Unacceptable: New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

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Table 5
Maximum Sound Levels (in dBA) for Source Land Uses¹

Residential		Commercial	
Daytime	Nighttime	Daytime	Nighttime
60	55	65	60

¹ City of Moreno Valley Municipal Code, Table 11.80.030-2.

V. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

A. Noise Modeling and Input

1. Road Construction Model

A worst-case construction noise scenario was modeled using a version of the Federal Highway Administration's Roadway Construction Noise Model (RCNM). RCNM utilizes standard noise emission levels for many different types of equipment and includes utilization percentage, impact, and shielding parameters. Modeling input parameters and output are provided in Appendix D.

2. Federal Highway Administration (FHWA) Traffic Noise Prediction Model

Existing and Existing Plus Project and Future Buildout noise levels along John F. Kennedy Drive and Perris Boulevard were modeled utilizing the FHWA Traffic Noise Prediction Model FHWA-RD-77-108 in order to quantify the proposed project's contribution to increases in ambient noise levels.

The FHWA Traffic Noise Prediction Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the REMEL to account for: total average daily trips (ADT), roadway classification, width, speed and truck mix, roadway grade and site conditions (hard or soft ground surface). Surfaces adjacent to all modeled roadways were assumed to have a "hard site" to predict worst-case, conservative noise levels. A hard site, such as pavement, is highly reflective and does not attenuate noise as quickly as grass or other soft sites. Possible reductions in noise levels due to intervening topography and buildings were not accounted for in this analysis.

Vehicle/truck mixes and D/E/N splits for use in acoustical studies published by the Riverside County Department of Industrial Hygiene were utilized for noise modeling. Existing Plus Project vehicle mixes were calculated by adding the proposed project trips to existing conditions. FHWA Spreadsheets are included in Appendix E.

3. SoundPLAN

SoundPLAN acoustical modeling software was utilized to model project operational worst-case stationary noise impacts from the proposed project to adjacent sensitive uses (e.g., residences). SoundPLAN is capable of evaluating stationary noise sources (e.g., air conditioning units, parking lots, drive-thru menus, car wash equipment, vacuums, etc.) and much more. The SoundPLAN software utilizes algorithms (based on the inverse square law) 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.

VI. IMPACT ANALYSIS

A. Noise Impacts

This impact discussion analyzes the potential for project operational noise to cause an exposure of person to or generation of noise levels in excess of established City of Moreno Valley noise standards related to transportation and stationary related noise impacts both to the proposed project and caused by the proposed project.

1. Construction Noise

Existing single-family detached residential dwelling units located adjacent to the west and south of the project site may be affected by short-term noise impacts associated with the transport of workers, the movement of construction materials to and from the project site, ground clearing, excavation, grading, and building activities. Construction noise is considered a short-term impact and would be considered significant if construction activities are undertaken outside the allowable times as described by the City's Municipal ordinances 8.14.040 and 8.14.050.

Project generated construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. Site grading is expected to produce the highest sustained construction noise levels. Typical noise sources and noise levels associated with the site grading phase of construction are shown in Table 6. 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.

A likely worst-case construction noise scenario during grading assumes the use of a grader, a dozer, an excavator, a backhoe, and a water truck (modeled as a dump truck) operating between 25 and 200 feet from the property line. Assuming a usage factor of 40 percent for each piece of equipment, unmitigated noise levels have the potential to reach 87.3 dBA L_{eq} and 91 dBA L_{max} at the property line during grading.

The City of Moreno Valley General Plan Objective 6.5 requires the minimization of noise impacts from significant noise generators such as construction. Policy 6.5.2 states that construction activities shall be operated in a manner that limits noise impacts on surrounding uses. Mitigation measures to minimize the impact of construction on nearby sensitive receptors are provided in Section VII.

The City's Municipal Code Section 8.14.040E limits the hours of construction to 6:00 AM to 8:00 PM Monday through Friday (except for holidays), and 7:00 AM to 8:00 PM on weekends and holidays, unless written approval is obtained from the city building official or city engineer. Section 8.21.0500 further restricts the grading portion of construction to 7:00 AM to 6:00 PM Monday through Friday and 8:00 AM to 4:00 PM on weekends and holidays. In addition, Section 11.80.030D of the City's Municipal

Code does not allow construction between the hours of 8:00 PM and 7:00 AM that creates a noise disturbance, defined as being audible at a distance of 200 feet from the property line.

Construction is anticipated to occur during the permissible hours according to the City's Municipal Code. Construction noise will have a temporary or periodic increase in the ambient noise levels above existing within the project vicinity. As stated above, project construction noise may reach 87.3 dBA L_{eq} and 91 dBA L_{max} at the property line during grading. The nearest sensitive receptors to the project site are located adjacent to the project's western and southern property lines. As stated earlier, any construction activities that occur outside the allowable times of the City's Municipal Code would be considered significant. Therefore, the impact is considered less than significant; however, noise reduction measures have been provided in Section VII to further reduce construction noise.

2. Noise Impacts to Off-Site Receptors Due to Project Generated Trips

Existing and existing plus project traffic noise was modeled utilizing project trip generation information obtained from the Moreno Valley Self-Storage Facility Focused Traffic Analysis (Focused Traffic Analysis) prepared by Kunzman Associates, Inc. (February 2018) and existing traffic volume counts provided by the City of Moreno Valley (2017). A worst-case scenario that assumes that all project generated vehicle trips will pass one or both of the single-family residential neighborhoods along John F. Kennedy Drive or Perris Boulevard was modeled. The proposed project is expected to generate approximately 137 average daily vehicle trips and 15 peak hour vehicle trips. Per the City of Moreno Valley, existing average daily traffic volumes on John F. Kennedy Drive west of the project site are approximately 10,800 vehicles per day and existing average daily trips along Perris Boulevard south of the project site are approximately 30,200 vehicles per day. As shown in Table 7, project generated vehicle trips are projected to result in 0.01-0.03 dB increases in existing ambient noise levels which would not be noticeable, and would not result in substantial increases in ambient noise levels. No mitigation is necessary.

3. Transportation Noise Impacts to the Proposed Project

The City of Moreno Valley's General Plan does not identify criteria in order to assess traffic noise impacts to commercial land uses. Therefore, for the purpose of this analysis, the standards contained in the General Plan Guidelines, a publication of the California Office of Planning and Research has been used in order to assess transportation noise impacts to the proposed project. These standards specify maximum noise levels allowable for new developments potentially impacted by transportation noise sources and are used by many California cities and counties. As shown in Table 4, commercial land uses are considered to be "acceptable" in environments where the exterior noise level reach up to 70 CNEL and "conditionally acceptable" in environments where the exterior noise level reaches up to 80 CNEL. In areas where the noise level exceeds 70 CNEL, new construction or development should be undertaken only after a detailed noise analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional

construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor areas may seem noisy.

Roadways that may generate enough traffic noise under buildout conditions to effect the proposed self-storage facility use include John F. Kennedy Drive and Perris Boulevard. The City of Moreno Valley General Plan Environmental Impact Report identifies John F. Kennedy Drive as an Arterial Roadway and Perris Boulevard as a Divided Arterial Roadway. Per the County of Riverside Industrial Hygiene Guidelines for Determining and Mitigating Traffic Noise Impacts to Residential Structures and County of Riverside General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/Level of Service for Riverside County Roadways" revised March 2001, future buildout noise levels associated with these roadways were modeled using average daily traffic volume Level of Service "C" design capacities (also known as future build-out daily traffic volumes). John F. Kennedy Drive is expected to accommodate up to 28,700 vehicles per day at Level of Service C and Perris Boulevard is expected to accommodate up to 43,100 vehicles per day at the Level of Service C.

FHWA modeling was conducted to calculate noise levels associated with buildout vehicle traffic noise from each of these roadways. Buildout traffic noise levels could reach up to 73.7 CNEL at the proposed self-storage building that lies closest to John F. Kennedy Drive, approximately 120 feet south of the roadway; and up to 72.3 CNEL at the proposed self-storage building that lies closest to Perris Boulevard, approximately 250 feet west of the roadway. Modeling spreadsheets are presented in Appendix E.

As stated previously, the City of Moreno Valley does not identify criteria in order to assess those impacts related to transportation noise. Therefore, the standards contained in the General Plan Guidelines, a publication of the California Office of Planning and Research has been used in order to assess transportation noise impacts to the proposed project. The guidelines state that the proposed self-storage facility land use would be "normally acceptable" in areas with noise levels up to 70 CNEL and "conditionally acceptable" in areas with noise levels above 75 CNEL.

Therefore, the exterior noise levels at the proposed project site are anticipated to fall within the County's conditionally acceptable standards for commercial land uses. Further, most outdoor activity will occur between the proposed buildings which will be shielded from much of the traffic noise by the proposed buildings. No mitigation is required.

4. Noise Impacts to Off-site Receptors Due to On-Site Operational Noise

Sensitive receptors that may be affected by project operational noise include the single-family detached residential dwelling units located adjacent to the west and south of the proposed project.

The SoundPLAN model was utilized to model operational noise associated with loading/unloading. A worst-case analysis assuming that eight loading or unloading activities would occur on the project site during peak hour. This assumption was based on the peak hour trip generation provided in Focused Traffic Analysis. The site was

divided into eight areas and one loading or unloading activity was assumed to occur in each area during the peak hour. A total of nine (9) receptors were modeled to accurately evaluate the proposed project's operational noise impact. A receptor is denoted by a yellow dot. SoundPLAN input and output data are presented in Appendix F.

Figure 5 shows that operational noise levels associated with the proposed project, with attenuation provided by the proposed six-foot wall along the western property boundary, are expected to range between 36.6 to 44.6 dBA L_{eq} at adjacent sensitive receptors which will not be readily noticeable over the existing noise levels that range between 52.2 to 55.4 dBA L_{eq} during daytime hours. Existing nighttime noise levels are expected to be five decibels lower than daytime hours, but peak hour operations are also not expected to occur during nighttime hours. Nighttime project operational noise levels (L_{eq}) will not be readily noticeable and will not result in substantial increases in ambient noise levels.

The proposed project is not expected to exceed the City's daytime operational noise level standards of 65 dBA L_{eq} or the City's nighttime noise level standard of 60 dBA L_{eq} at adjacent sensitive receptors. Operational noise impacts to sensitive receptors would be less than significant. No mitigation is required.

B. Vibration Impacts

This impact discussion analyzes the potential for the proposed project to cause an exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Vibration levels in the project area may be influenced by construction. The City of Moreno Valley does not have standards or guidelines regarding ground-borne vibration so potential impacts were evaluated in light of California Department of Transportation's Transportation and Construction Vibration Guidance Manual (2013). As shown in Table 2, groundborne vibration is annoying to people in buildings at 0.20 PPV and may cause architectural damage and possible minor structural damage at PPV levels between 0.4 and 0.6.

1. Construction Vibration

There are several types of construction equipment that can cause vibration levels high enough to annoy persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, operation of a large bulldozer (0.089 PPV) at a distance of 25 feet, or 0.027 PPV at the nearest single-family detached residential dwelling unit located approximately 15 feet from the property line. Groundborne vibration at sensitive receptors associated with this equipment would drop off as the equipment moves away. It should be noted that vibration levels used in this report are reference levels and may vary slightly depending upon soil type and specific usage of each piece of equipment.

Annoyance to Persons

The primary effect of perceptible vibration is often a concern. However, secondary effects, such as the rattling of a china cabinet, can also occur, even when vibration levels are well below perception. Any effect (primary perceptible vibration, secondary

effects, or a combination of the two) can lead to annoyance. The degree to which a person is annoyed depends on the activity in which they are participating at the time of the disturbance. For example, someone sleeping or reading will be more sensitive than someone who is running on a treadmill. Re-occurring primary and secondary vibration effects often lead people to believe that the vibration is damaging their home, although vibration levels are well below minimum thresholds for damage potential.

As shown in Table 2 vibration can be annoying to people in buildings at a PPV of 0.20. A large bulldozer operating within 15 feet of the nearest single-family detached residential dwelling unit may reach up to 0.027 PPV and is not expected to result in annoyance to nearby receptors.

Architectural Damage

Vibration generated by construction activity has the potential to damage structures. This damage could be structural damage, such as cracking of floor slabs, foundations, columns, beams, or walls, or cosmetic architectural damage, such as cracked plaster, stucco, or tile.

Table 2 identifies PPV levels between 0.4 and 0.6 as vibration levels greater than normally expected from traffic volumes, but may cause “architectural” damage and possible minor structural damage. Use of a large bulldozer within 15 feet of adjacent single-family detached residential dwelling units would not result in architectural damage. The proposed project is unlikely to cause architectural damage to structures nearby.

Table 6
Typical Construction Equipment Noise Levels¹

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Rock Drills	83-99	96
Jack Hammers	75-85	82
Pneumatic Tools	78-88	85
Pumps	74-84	80
Dozers	77-90	85
Scrappers	83-91	87
Haul Trucks	83-94	88
Cranes	79-86	82
Portable Generators	71-87	80
Rollers	75-82	80
Tractors	77-82	80
Front-End Loaders	77-90	86
Hydraulic Excavators	81-90	86
Graders	79-89	86
Air Compressors	76-89	86
Trucks	81-87	86

¹ Source: Bolt, Beranek & Newman; Noise Control for Buildings and Manufacturing Plants, 1987.

Table 7

Change in Existing Noise Levels Along Roadways as a Result of Project (CNEL)¹

Roadway	Segment	Modeled Noise Levels (CNEL) @ 50 feet from centerline				
		Existing Without Project	Existing Plus Project	Change in Noise Level	Exceeds Standards	Potential Significant Impact
John F. Kennedy Drive	West of Project Site	73.24	73.27	0.03	YES	NO
Perris Boulevard	South of John F. Kennedy Drive	77.71	77.72	0.01	YES	NO

¹ Exterior noise levels calculated 5-feet above pad elevation, perpendicular to subject roadway.



Figure 5

Operational Noise Levels (Leq)

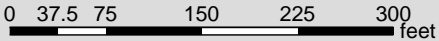
Assumes two loading/unloading events per hour one on the east side and one on the west side

Signs and symbols

- Existing 6-FT Wall
- Receiver
- Area sources

3	59.3/51.8
2	58.3/50.8
1	57.3/49.8

1 : 150



KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

VII. MEASURES TO REDUCE IMPACTS

A. Construction Mitigation Measures

In addition to adherence to the City of Moreno Valley's policies found in the General Plan Noise Element and Municipal Code limiting the construction hours of operation, the following measures are recommended to reduce construction noise and vibrations, emanating from the proposed project:

1. During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
3. Equipment shall be shut off and not left to idle when not in use.
4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
5. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.

VIII. REFERENCES

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APPENDICES

Appendix A – List of Acronyms

Appendix B – Definitions of Acoustical Terms

Appendix C – Noise Monitoring Field Worksheets

Appendix D – RCNM Noise Modeling Output

Appendix E – FHWA Traffic Noise Prediction Model – FHWA-RD-77-108 Output

Appendix F – SoundPLAN Input and Output

APPENDIX A

List of Acronyms

Term	Definition
ADT	Average Daily Traffic
ANSI	American National Standard Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D/E/N	Day / Evening / Night
dB	Decibel
dBA or dB(A)	Decibel "A-Weighted"
dBA/DD	Decibel per Double Distance
dBA L_{eq}	Average Noise Level over a Period of Time
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
$L_{02}, L_{08}, L_{50}, L_{90}$	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
L_{dn}	Day-Night Average Noise Level
$L_{eq(x)}$	Equivalent Noise Level for "x" period of time
L_{eq}	Equivalent Noise Level
L_{max}	Maximum Level of Noise (measured using a sound level meter)
L_{min}	Minimum Level of Noise (measured using a sound level meter)
LOS C	Level of Service C
OPR	California Governor's Office of Planning and Research
PPV	Peak Particle Velocities
RCNM	Road Construction Noise Model
REMEL	Reference Energy Mean Emission Level
RMS	Root Mean Square

APPENDIX B

Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
L ₀₂ , L ₀₈ , L ₅₀ , L ₉₀	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
Equivalent Continuous Noise Level, L _{eq}	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
L _{max} , L _{min}	L _{max} is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L _{min} is the minimum level.
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
Offensive/ Offending/ Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.

APPENDIX C

Noise Monitoring Field Worksheets

Noise Measurement
Field Data

Project Name: Moreno Valley Project Date: 14-Dec-17
 Project #: 7280a
 Noise Measurement #: NM1 3099 LxT_Data102.xlsx Technician: Ian Edward Gallagher

Nearest Address or Cross Street: Perris Boulevard & John F Kennedy Drive
 Site Description (Type of Existing Land Use and any other notable features) Empty site, mostly sand, weeds and trash. Surrounding: commercial immediately East of site, mostly residential in all directions.

Weather: Blue sunny skies. Slight distant haze near horizon, some high cloud. Settings: **SLOW** **FAST** (Circle one)

Temperature: 80 deg F Wind: Calm - 5 mph Humidity: 6% Flat

Start Time: 2:09 PM End Time: 2:19 PM Run Time: 10 minutes

Leq: 55.4 dB Primary Noise Source: Traffic noise from vehicles travelling along John F Kennedy Drive and Perris Boulevard

Lmax 66.7 dB

L2 61.5 dB Secondary Noise Sources: Vehicles entering or leaving CVS Pharmacy parking lot.

L8 59.6 dB Overhead commercial and military jet aircraft

L25 56.8 dB March Reserve Air Base ~ 2 miles West of site.

L50 52.9 dB Bird Song.

NOISE METER: SoundTrack LxT Class 1; CALIBRATOR: Larson Davis CAL250 Acoustic Calibrator

MAKE: Larson Davis MAKE: Larson Davis

MODEL: LxT1 MODEL: Cal250

SERIAL NUMBER: 3099 SERIAL NUMBER: 2723

FACTORY CALIBRATION DATE: 6/23/2017 FACTORY CALIBRATION DATE: 6/9/2017

FIELD CALIBRATION DATE: 12/14/2017

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Additional Notes/Sketch



JN7280a NM1 looking East along John F Kennedy Drive towards CVS Pharmacy Building.



JN7280a NM1 looking East towards residential area screened by cinder block wall.

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Summary

File Name	LxT_Data.102
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN7280a NM1
Job Description	10 minute noise sample
Start	2017-12-14 14:09:41
Stop	2017-12-14 14:19:41
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2017-12-14 14:07:25
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.3 dB

Results

LAeq	55.4 dB
LAE	83.2 dB
EA	23.234 $\mu\text{Pa}^2\text{h}$
EA8	1.115 mPa^2h
EA40	5.576 mPa^2h
LZpeak (max)	2017-12-14 14:14:29 94.9 dB
LASmax	2017-12-14 14:10:47 66.7 dB
LASmin	2017-12-14 14:17:26 41.2 dB
SEA	-99.9 dB

Statistics

LCeq	68.1 dB	LAS2.00	61.5 dB
LAeq	55.4 dB	LAS8.00	59.6 dB
LCeq - LAeq	12.6 dB	LAS25.00	56.8 dB
LAlaq	56.9 dB	LAS50.00	52.9 dB
LAeq	55.4 dB	LAS66.60	50.8 dB
LAlaq - LAeq	1.5 dB	LAS90.00	46.2 dB
# Overloads	0		

Noise Measurement
Field Data

Project Name: Moreno Valley Project

Date: 14-Dec-17

Project #: 7280a

Noise Measurement #: NM2 3099 LxT_Data103.xlsx

Technician: Ian Edward Gallagher

Nearest Address or Cross Street: Laverda Lane & Mattus Way

Site Description (Type of Existing Land Use and any other notable features) Empty site, mostly sand, weeds and trash. Surrounding: commercial immediately East of site, mostly residential in all directions.

Weather: Blue sunny skies. Slight distant haze near horizon, some high cloud. Settings: **SLOW** FAST (Circle one)

Temperature: 79 deg F Wind: Calm - 5 mph Humidity: 6% Flat

Start Time: 2:40 PM End Time: 2:50 PM Run Time: 10 minutes

Leq: 53.3 dB Primary Noise Source: Residential ambiance, noisy family living in residence closest to NM2, lots of children.

Lmax 71.1 dB Cars passing NM2 at 2:45PM, 2:47PM, 2:48PM, 2:48:30PM & 2:49PM along Laverda Lane.

L2 62.5 dB Secondary Noise Sources: Distant dogs barking at numerous locations in neighborhood,

L8 57.7 dB Overhead commercial and military jet aircraft

L25 48.1 dB March Reserve Air Base ~ 2 miles West of site.

L50 43.5 dB Bird Song.

NOISE METER: SoundTrack LxT Class 1 ;

CALIBRATOR: Larson Davis CAL250 Acoustic Calibrator

MAKE: Larson Davis

MAKE: Larson Davis

MODEL: LxT1

MODEL: Cal250

SERIAL NUMBER: 3099

SERIAL NUMBER: 2723

FACTORY CALIBRATION DATE: 6/23/2017

FACTORY CALIBRATION DATE: 6/9/2017

FIELD CALIBRATION DATE: 12/14/2017

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Additional Notes/Sketch



JN7280a NM2 looking North up Laverda Lane.



JN7280a NM2 looking South down Laverda Lane towards Mattus Way.

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Summary

File Name	LxT_Data.103
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN7280a NM2
Job Description	10 minute noise sample
Start	2017-12-14 14:40:08
Stop	2017-12-14 14:50:08
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2017-12-14 14:37:38
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.3 dB

Results

LAeq	53.3 dB
LAE	81.1 dB
EA	14.251 $\mu\text{Pa}^2\text{h}$
EA8	684.071 $\mu\text{Pa}^2\text{h}$
EA40	3.420 mPa^2h
LZpeak (max)	2017-12-14 14:45:58 96.7 dB
LASmax	2017-12-14 14:44:21 71.7 dB
LASmin	2017-12-14 14:41:33 36.4 dB
SEA	-99.9 dB

Statistics

LCeq	65.1 dB	LAS2.00	62.5 dB
LAeq	53.3 dB	LAS8.00	57.7 dB
LCeq - LAeq	11.8 dB	LAS25.00	48.1 dB
LALeq	57.1 dB	LAS50.00	43.5 dB
LAeq	53.3 dB	LAS66.60	41.3 dB
LALeq - LAeq	3.8 dB	LAS90.00	38.3 dB
# Overloads	0		

Noise Measurement
Field Data

Project Name: Moreno Valley Project

Date: 14-Dec-17

Project #: 7280a

Noise Measurement #: NM3 3099 LxT_Data104.xlsx

Technician: Ian Edward Gallagher

Nearest Address or Cross Street: Perris Boulevard & John F Kennedy Drive

Site Description (Type of Existing Land Use and any other notable features) Empty site, mostly sand, weeds and trash. Surrounding: commercial immediately East of site, mostly residential in all directions.

Weather: Blue sunny skies. Slight distant haze near horizon, some high cloud.

Settings: **SLOW** FAST (Circle one)

Temperature: 77 deg F Wind: Calm - 5 mph Humidity: 8%

Flat

Start Time: 3:19 PM

End Time: 3:29 PM

Run Time: 10 minutes

Leq: 52.2 dB

Primary Noise Source: Traffic ambiance coming from Perris Boulevard and John F Kennedy Drive

Lmax 61.8 dB

Vehicles passing by NM3 location, did not happen for this 10 minute sample.

L2 57.4 dB

Secondary Noise Sources: Work ambiance coming from the back of Family Dollar store.

L8 55.3 dB

Overhead commercial and military jet aircraft.

L25 53.0 dB

March Reserve Air Base ~ 2 miles West of site.

L50 51.2 dB

Bird Song.

NOISE METER: SoundTrack LxT Class 1 ;

CALIBRATOR: Larson Davis CAL250 Acoustic Calibrator

MAKE: Larson Davis

MAKE: Larson Davis

MODEL: LxT1

MODEL: Cal250

SERIAL NUMBER: 3099

SERIAL NUMBER: 2723

FACTORY CALIBRATION DATE: 6/23/2017

FACTORY CALIBRATION DATE: 6/9/2017

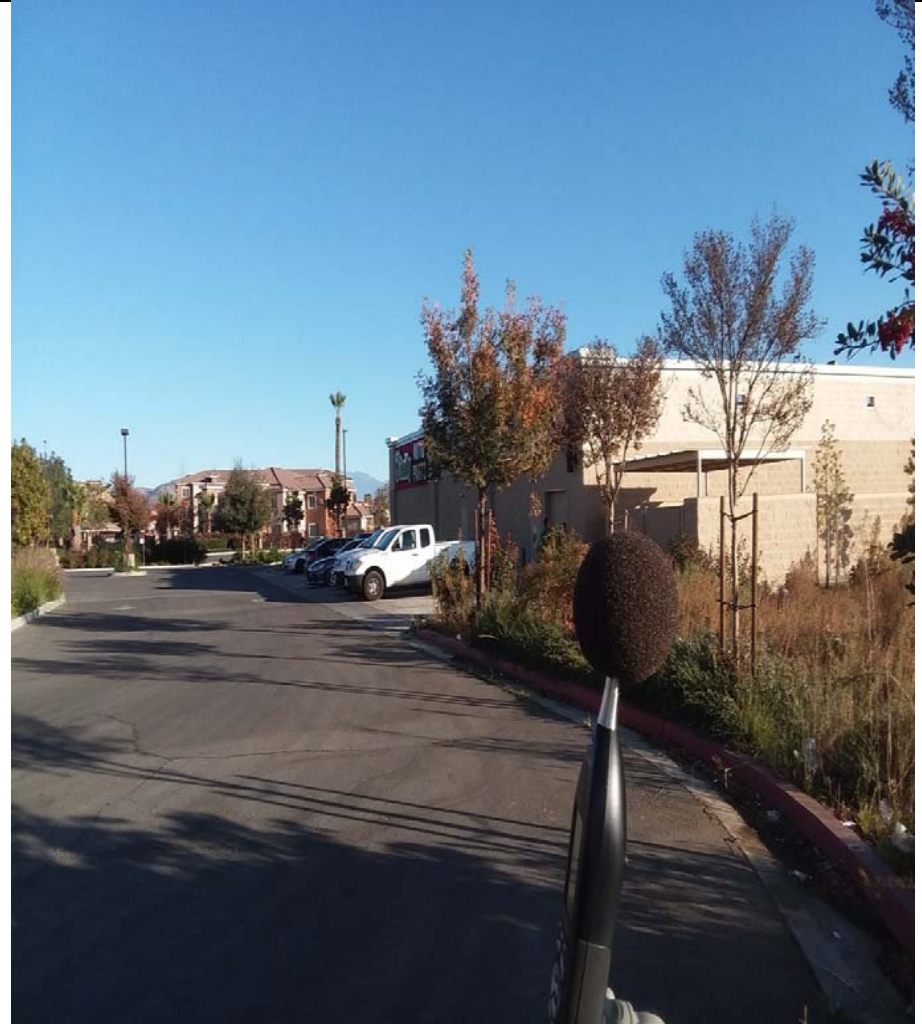
FIELD CALIBRATION DATE: 12/14/2017

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Additional Notes/Sketch



JN7280a NM3 looking North past back of Family Dollar store towards CVS Pharmacy



JN7280a NM3 looking East past the O'Reilly Auto Parts store towards Perris Blvd.

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Summary

File Name	LxT_Data.104
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN7280a NM3
Job Description	10 minute noise sample
Start	2017-12-14 15:19:57
Stop	2017-12-14 15:29:57
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2017-12-14 15:08:45
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.4 dB

Results

LAeq	52.2 dB
LAE	79.9 dB
EA	10.982 $\mu\text{Pa}^2\text{h}$
EA8	527.136 $\mu\text{Pa}^2\text{h}$
EA40	2.636 mPa^2h
LZpeak (max)	2017-12-14 15:29:35 90.8 dB
LASmax	2017-12-14 15:29:34 61.8 dB
LASmin	2017-12-14 15:20:03 43.8 dB
SEA	-99.9 dB

Statistics

LCeq	66.0 dB	LAS2.00	57.4 dB
LAeq	52.2 dB	LAS8.00	55.3 dB
LCeq - LAeq	13.8 dB	LAS25.00	53.0 dB
LAlaq	54.2 dB	LAS50.00	51.2 dB
LAeq	52.2 dB	LAS66.60	49.8 dB
LAlaq - LAeq	2.1 dB	LAS90.00	47.7 dB
# Overloads	0		

APPENDIX D

RCNM Noise Modeling Output

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/22/2017
 Case Description: 7280a Moreno Valley Self-Storage Facility

---- Receptor #1 ----
 Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	65	65	45

Equipment

Description	Impact Device	Usage(%)	Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Grader	No	40	85		25	0
Dozer	No	40		81.7	75	0
Dump Truck	No	40		76.5	125	0
Backhoe	No	40		77.6	150	0
Excavator	No	40		80.7	200	0

Results

Calculated (dBA)

Equipment	Day		
	*Lmax	Leq	Lmax
Grader	91	87	N/A
Dozer	78.1	74.2	N/A
Dump Truck	68.5	64.5	N/A
Backhoe	68	64	N/A
Excavator	68.7	64.7	N/A
Total	91	87.3	N/A

*Calculated Lmax is the Loudest value.

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near

APPENDIX E

**FHWA Traffic Noise Prediction Model
- FHWA RD-77-108 Output**

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **7280a Moreno Valley Self-Storage Facility**
 Road: **John F. Kennedy Drive**
 Segment: **West of Project Site**

	DAYTIME			EVENING			NIGHTTIME			ADT	10800.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	625.50	12.96	21.60	464.40	2.16	3.60	115.20	18.00	30.00	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	21.12	4.29	6.51	19.83	-3.49	-1.27	13.78	5.71	7.93		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	73.24
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	67.94
LEQ	65.40	56.84	63.58	64.11	49.06	55.80	58.05	58.27	65.00	Day hour	89.00
										Absorbitive?	no
	DAY LEQ	67.94		EVENING LEQ	64.82		NIGHT LEQ	66.51		Use hour?	no
										GRADE dB	0.00
		CNEL	73.24								

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **7280a Moreno Valley Self-Storage Facility**
 Road: **John F. Kennedy Drive**
 Segment: **West of Project Site**

	DAYTIME			EVENING			NIGHTTIME			ADT	10936.97	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00	
											DISTANCE	50.00
INPUT PARAMETERS												
Vehicles per hour	633.90	13.06	21.64	470.64	2.18	3.61	116.75	18.14	30.06	% A	92.07	
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00			
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00			
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.99	
NOISE CALCULATIONS												
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	4.95	
ADJUSTMENTS												
Flow	21.18	4.32	6.51	19.89	-3.46	-1.27	13.83	5.75	7.94			
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00	
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00	
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	73.27	
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	67.98	
LEQ	65.46	56.87	63.59	64.16	49.09	55.80	58.11	58.30	65.01	Day hour	89.00	
										Absorbitive?	no	
	DAY LEQ	67.98		EVENING LEQ	64.87		NIGHT LEQ	66.53		Use hour?	no	
		CNEL	73.27							GRADE dB	0.00	

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **7280a Moreno Valley Self-Storage Facility**
 Road: **Perris Boulevard**
 Segment: **South of John F. Kennedy Drive**

	DAYTIME			EVENING			NIGHTTIME			ADT	30200.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	1749.08	36.24	60.40	1298.60	6.04	10.07	322.13	50.33	83.89	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	25.59	8.75	10.97	24.30	0.97	3.19	18.24	10.18	12.40		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	77.71
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	72.41
LEQ	69.86	61.31	68.04	68.57	53.52	60.26	62.52	62.73	69.47	Day hour	89.00
	DAY LEQ	72.41		EVENING LEQ	69.29		NIGHT LEQ	70.97		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	77.71								

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **7280a Moreno Valley Self-Storage Facility**
 Road: **Perris Boulevard**
 Segment: **South of John F. Kennedy Drive**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	30336.97	

INPUT PARAMETERS											
Vehicles per hour	1757.48	36.34	60.44	1304.84	6.06	10.07	323.68	50.47	83.95	% A	92.02
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	SPEED	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	DISTANCE	50.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.99
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	4.98
ADJUSTMENTS											
Flow	25.61	8.77	10.98	24.32	0.98	3.19	18.26	10.19	12.40		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	77.72
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	72.42
LEQ	69.89	61.32	68.05	68.59	53.54	60.27	62.54	62.74	69.47	Day hour	89.00
	DAY LEQ	72.42		EVENING LEQ	69.30		NIGHT LEQ	70.98		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	77.72								

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

FHWA Sound32 Spreadsheet
 Riverside County Published Mix
 Larger than Secondary

Buildout Traffic Noise
 John F. Kennedy (at nearest proposed building)

	DAYTIME			EVENING			NIGHTTIME			ADT	28700.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS		
INPUT PARAMETERS											
Vehicles per hour	1662.13	34.44	57.40	1233.95	5.74	9.57	305.99	47.83	79.72	SPEED	45.00
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	DISTANCE	120.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	% A	92.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3.00
										% HT	5.00
										LEFT	-90.00
										RIGHT	90.00
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	CNEL	73.68
ADJUSTMENTS											
Flow	25.37	8.53	10.75	24.07	0.75	2.97	18.02	9.96	12.18	DAY LEQ	68.39
Distance	-3.87	-3.87	-3.87	-3.87	-3.87	-3.87	-3.87	-3.87	-3.87	Day hour	89.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Absorbitive?	no
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Use hour?	no
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	GRADE dB	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00		
LEQ	65.84	57.28	64.02	64.55	49.50	56.24	58.49	58.71	65.45		
	DAY LEQ	68.39		EVENING LEQ	65.26		NIGHT LEQ	66.95			
	CNEL	73.68									

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

FHWA Sound32 Spreadsheet
 Riverside County Published Mix
 Larger than Secondary

Buildout Traffic Noise
 Perris Boulevard (at nearest proposed building)

	DAYTIME			EVENING			NIGHTTIME			ADT	43100.00	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS			
INPUT PARAMETERS											SPEED	45.00
Vehicles per hour	2496.09	51.72	86.20	1853.07	8.62	14.37	459.52	71.83	119.72	DISTANCE	250.00	
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	% A	92.00	
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	% MT	3.00	
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% HT	5.00	
NOISE CALCULATIONS											LEFT	-90.00
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	RIGHT	90.00	
ADJUSTMENTS											CNEL	72.26
Flow	27.13	10.30	12.52	25.84	2.52	4.74	19.79	11.73	13.94	DAY LEQ	66.96	
Distance	-7.06	-7.06	-7.06	-7.06	-7.06	-7.06	-7.06	-7.06	-7.06	Day hour	89.00	
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Absorbitive?	no	
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Use hour?	no	
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	GRADE dB	0.00	
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00			
LEQ	64.42	55.86	62.60	63.13	48.08	54.82	57.07	57.29	64.03			
	DAY LEQ	66.96		EVENING LEQ	63.84		NIGHT LEQ	65.53				
	CNEL	72.26										

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

APPENDIX F

SoundPLAN Input and Output

Noise Emissions of Industry Sources

Source name	Reference	Level		Frequency spectrum [dB(A)]								Corrections		
		dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Kwall dB(A)	CI dB(A)	CT dB(A)	
Loading/Unloading 1	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-
Loading/Unloading 2	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-
Loading/Unloading 3	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-
Loading/Unloading 4	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-
Loading/Unloading 5	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-
Loading/Unloading 6	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-
Loading/Unloading 7	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-
Loading/Unloading 8	Unit	Leq1	80.0	47.0	57.0	64.0	70.0	73.0	74.0	74.0	72.0	-	-	-
		Leq2	-	-	-	-	-	-	-	-	-	-	-	-
		Leq3	-	-	-	-	-	-	-	-	-	-	-	-
		Lmax	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Contribution Levels of the Receivers

Source name	Leq1	Level		
		Leq2	Leq3	Lmax
	dB(A)			
1 F1	38.0	-42.0	-42.0	0.0
Loading/Unloading 1	36.2	-43.8	-43.8	0.0
Loading/Unloading 2	25.5	-54.5	-54.5	0.0
Loading/Unloading 3	22.5	-57.5	-57.5	0.0
Loading/Unloading 4	18.9	-61.1	-61.1	0.0
Loading/Unloading 5	20.7	-59.3	-59.3	0.0
Loading/Unloading 6	20.6	-59.4	-59.4	0.0
Loading/Unloading 7	23.2	-56.8	-56.8	0.0
Loading/Unloading 8	30.3	-49.7	-49.7	0.0
2 F1	41.4	-38.6	-38.6	0.0
Loading/Unloading 1	40.3	-39.7	-39.7	0.0
Loading/Unloading 2	27.6	-52.4	-52.4	0.0
Loading/Unloading 3	24.2	-55.8	-55.8	0.0
Loading/Unloading 4	20.0	-60.0	-60.0	0.0
Loading/Unloading 5	22.0	-58.0	-58.0	0.0
Loading/Unloading 6	21.7	-58.3	-58.3	0.0
Loading/Unloading 7	24.7	-55.3	-55.3	0.0
Loading/Unloading 8	32.0	-48.0	-48.0	0.0
3 F1	42.6	-37.4	-37.4	0.0
Loading/Unloading 1	41.0	-39.0	-39.0	0.0
Loading/Unloading 2	32.3	-47.7	-47.7	0.0
Loading/Unloading 3	28.0	-52.0	-52.0	0.0
Loading/Unloading 4	22.1	-57.9	-57.9	0.0
Loading/Unloading 5	24.6	-55.4	-55.4	0.0
Loading/Unloading 6	23.8	-56.2	-56.2	0.0
Loading/Unloading 7	27.5	-52.5	-52.5	0.0
Loading/Unloading 8	32.6	-47.4	-47.4	0.0
4 F1	43.1	-36.9	-36.9	0.0
Loading/Unloading 1	40.0	-40.0	-40.0	0.0
Loading/Unloading 2	37.4	-42.6	-42.6	0.0
Loading/Unloading 3	32.0	-48.0	-48.0	0.0
Loading/Unloading 4	24.0	-56.0	-56.0	0.0
Loading/Unloading 5	26.8	-53.2	-53.2	0.0
Loading/Unloading 6	25.3	-54.7	-54.7	0.0
Loading/Unloading 7	29.5	-50.5	-50.5	0.0
Loading/Unloading 8	31.6	-48.4	-48.4	0.0
5 F1	44.6	-35.4	-35.4	0.0
Loading/Unloading 1	35.4	-44.6	-44.6	0.0
Loading/Unloading 2	41.2	-38.8	-38.8	0.0
Loading/Unloading 3	38.9	-41.1	-41.1	0.0
Loading/Unloading 4	26.3	-53.7	-53.7	0.0
Loading/Unloading 5	29.8	-50.2	-50.2	0.0
Loading/Unloading 6	27.4	-52.6	-52.6	0.0
Loading/Unloading 7	32.1	-47.9	-47.9	0.0
Loading/Unloading 8	30.8	-49.2	-49.2	0.0
6 F1	44.3	-35.7	-35.7	0.0
Loading/Unloading 1	28.6	-51.4	-51.4	0.0
Loading/Unloading 2	33.5	-46.5	-46.5	0.0
Loading/Unloading 3	42.5	-37.5	-37.5	0.0
Loading/Unloading 4	29.9	-50.1	-50.1	0.0
Loading/Unloading 5	33.1	-46.9	-46.9	0.0
Loading/Unloading 6	29.0	-51.0	-51.0	0.0
Loading/Unloading 7	32.3	-47.7	-47.7	0.0
Loading/Unloading 8	27.6	-52.4	-52.4	0.0
7 F1	43.7	-36.3	-36.3	0.0
Loading/Unloading 1	23.2	-56.8	-56.8	0.0
Loading/Unloading 2	26.6	-53.4	-53.4	0.0
Loading/Unloading 3	40.3	-39.7	-39.7	0.0
Loading/Unloading 4	39.6	-40.4	-40.4	0.0
Loading/Unloading 5	32.6	-47.4	-47.4	0.0

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Contribution Levels of the Receivers

Source name	Level				
	Leq1	Leq2	Leq3	Lmax	
Loading/Unloading 6	27.9	-52.1	-52.1	0.0	
Loading/Unloading 7	27.3	-52.7	-52.7	0.0	
Loading/Unloading 8	22.9	-57.1	-57.1	0.0	
8	F1	36.9	-43.1	-43.1	0.0
Loading/Unloading 1	19.5	-60.5	-60.5	0.0	
Loading/Unloading 2	22.3	-57.7	-57.7	0.0	
Loading/Unloading 3	28.4	-51.6	-51.6	0.0	
Loading/Unloading 4	33.9	-46.1	-46.1	0.0	
Loading/Unloading 5	28.9	-51.1	-51.1	0.0	
Loading/Unloading 6	26.1	-53.9	-53.9	0.0	
Loading/Unloading 7	23.5	-56.5	-56.5	0.0	
Loading/Unloading 8	19.6	-60.4	-60.4	0.0	
9	F1	36.6	-43.4	-43.4	0.0
Loading/Unloading 1	19.2	-60.8	-60.8	0.0	
Loading/Unloading 2	22.0	-58.0	-58.0	0.0	
Loading/Unloading 3	25.7	-54.3	-54.3	0.0	
Loading/Unloading 4	33.3	-46.7	-46.7	0.0	
Loading/Unloading 5	28.7	-51.3	-51.3	0.0	
Loading/Unloading 6	28.8	-51.2	-51.2	0.0	
Loading/Unloading 7	23.8	-56.2	-56.2	0.0	
Loading/Unloading 8	19.6	-60.4	-60.4	0.0	

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Receiver List

No.	Receiver name	Building side	Floor	Limit				Level				Conflict			
				Leq1	Leq2	Leq3	Lmax	Leq1	Leq2	Leq3	Lmax	Leq1	Leq2	Leq3	Lmax
				dB(A)				dB(A)				dB(A)			
1	1		Fl	-	-	-	-	38.0	-42.0	-42.0	0.0	-	-	-	-
2	2		Fl	-	-	-	-	41.4	-38.6	-38.6	0.0	-	-	-	-
3	3		Fl	-	-	-	-	42.6	-37.4	-37.4	0.0	-	-	-	-
4	4		Fl	-	-	-	-	43.1	-36.9	-36.9	0.0	-	-	-	-
5	5		Fl	-	-	-	-	44.6	-35.4	-35.4	0.0	-	-	-	-
6	6		Fl	-	-	-	-	44.3	-35.7	-35.7	0.0	-	-	-	-
7	7		Fl	-	-	-	-	43.7	-36.3	-36.3	0.0	-	-	-	-
8	8		Fl	-	-	-	-	36.9	-43.1	-43.1	0.0	-	-	-	-
9	9		Fl	-	-	-	-	36.6	-43.4	-43.4	0.0	-	-	-	-

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Spectra of the Receivers

No.	Name	Floor	Time slice	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
8	8	Fl	Leq1	7.8	17.6	24.2	29.6	31.7	31.2	28.7	22.0
			Leq2	0.0	0.0	-55.8	-50.4	-48.3	-48.8	-51.3	-58.0
			Leq3	0.0	0.0	-55.8	-50.4	-48.3	-48.8	-51.3	-58.0
6	6	Fl	Leq1	11.9	21.9	28.9	34.8	37.8	38.6	38.2	34.7
			Leq2	0.0	-58.1	-51.1	-45.2	-42.2	-41.4	-41.8	-45.3
			Leq3	0.0	-58.1	-51.1	-45.2	-42.2	-41.4	-41.8	-45.3
7	7	Fl	Leq1	11.3	21.2	28.2	34.2	37.1	38.0	37.8	34.4
			Leq2	0.0	-58.8	-51.8	-45.8	-42.9	-42.0	-42.2	-45.6
			Leq3	0.0	-58.8	-51.8	-45.8	-42.9	-42.0	-42.2	-45.6
9	9	Fl	Leq1	7.2	17.0	23.7	29.2	31.3	31.0	28.6	21.8
			Leq2	0.0	0.0	-56.3	-50.8	-48.7	-49.0	-51.4	-58.2
			Leq3	0.0	0.0	-56.3	-50.8	-48.7	-49.0	-51.4	-58.2
3	3	Fl	Leq1	10.3	20.3	27.2	33.2	36.1	36.9	36.5	32.8
			Leq2	0.0	-59.7	-52.8	-46.8	-43.9	-43.1	-43.5	-47.2
			Leq3	0.0	-59.7	-52.8	-46.8	-43.9	-43.1	-43.5	-47.2
4	4	Fl	Leq1	10.8	20.8	27.8	33.7	36.6	37.5	37.0	33.3
			Leq2	0.0	-59.2	-52.2	-46.3	-43.4	-42.5	-43.0	-46.7
			Leq3	0.0	-59.2	-52.2	-46.3	-43.4	-42.5	-43.0	-46.7
2	2	Fl	Leq1	9.1	19.1	26.1	32.0	34.9	35.8	35.3	31.7
			Leq2	0.0	0.0	-53.9	-48.0	-45.1	-44.2	-44.7	-48.3
			Leq3	0.0	0.0	-53.9	-48.0	-45.1	-44.2	-44.7	-48.3
1	1	Fl	Leq1	5.9	15.9	22.9	28.8	31.7	32.5	31.7	27.4
			Leq2	0.0	0.0	-57.1	-51.2	-48.3	-47.5	-48.3	-52.6
			Leq3	0.0	0.0	-57.1	-51.2	-48.3	-47.5	-48.3	-52.6
5	5	Fl	Leq1	12.2	22.2	29.2	35.2	38.1	39.0	38.6	35.1
			Leq2	0.0	-57.8	-50.8	-44.8	-41.9	-41.0	-41.4	-44.9
			Leq3	0.0	-57.8	-50.8	-44.8	-41.9	-41.0	-41.4	-44.9

Attachment: Noise Impact Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)



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FOCUSED TRAFFIC ANALYSIS

February 13, 2018

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located



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February 13, 2018

Mr. Garrett Gossett
GOSSETT DEVELOPMENT, INC.
207 Monarch Bay Drive
Dana Point, CA 92629

Dear Mr. Gossett:

INTRODUCTION

The firm of Kunzman Associates, Inc. is pleased to provide this focused traffic analysis for the proposed Moreno Valley Self-Storage Facility. The purpose of this focused traffic analysis is to evaluate potential project-related traffic impacts at the study intersections. The project site is located near the southwest corner of the John F. Kennedy Drive and Perris Boulevard intersection in the City of Moreno Valley. The project location map is shown on Figure 1.

Although this is a technical letter-report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided within Appendix A.

PROPOSED DEVELOPMENT

The approximately 4.47 acre project site is proposed to be developed with a 90,565 square foot self-storage facility. The project is proposed to provide access to John F. Kennedy Drive through two existing driveways that currently serve the existing commercial development to the east. The project site plan is illustrated on Figure 2.

INTERSECTION ANALYSIS METHODOLOGY

Pursuant to scoping discussions with City of Moreno Valley staff, the study intersection analysis locations are depicted below:

Study Intersection	Jurisdiction
Indian Street (NS) at: John F. Kennedy Drive (EW) - #1	City of Moreno Valley
Project West Access (NS) at: John F. Kennedy Drive (EW) - #2	City of Moreno Valley
Project East Access (NS) at: John F. Kennedy Drive (EW) - #3	City of Moreno Valley
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	City of Moreno Valley

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 GOSSETT DEVELOPMENT, INC.
 February 13, 2018

The technique used to assess the performance of an intersection is known as the intersection delay method based on the procedures contained in the 2010 Highway Capacity Manual (Transportation Research Board, 2010). The methodology compares the volume of traffic using the intersection to the capacity of the intersection to calculate the delay associated with associated with the traffic control at the intersection. The intersection delay is then correlated to a performance measure known as Level of Service based on the following thresholds (see Appendix C).

Performance Standards

In accordance with the City of Moreno Valley General Plan, Level of Service C will be the design objective for all movements; however, Level of Service D is applicable to intersections and roadway segments that are adjacent to freeway on/off ramps, and/or adjacent to employment generating land uses, and/or boundary intersections. Appendix C contains the City of Moreno Valley Level of Service Standards as adopted in the General Plan. The entirety of the study area has a defined standard of Level of Service D.

EXISTING CONDITIONS

Regional access to the project site is provided by the I-215 Freeway to the west and the SR-60 Freeway to the north. Local access is provided by Indian Street, Perris Boulevard, and John F. Kennedy Drive.

Indian Street is a four-lane divided roadway trending in a north-south direction. It is classified as a Minor Arterial in the City of Moreno Valley General Plan Circulation Element. Sidewalks are provided in the project area on Perris Boulevard. There are Class III bike lanes in the project vicinity and parking is not permitted.

Perris Boulevard is a six-lane divided roadway trending in a north-south direction. It is classified as a Divided Arterial in the City of Moreno Valley General Plan Circulation Element. Sidewalks are provided in the project area on Perris Boulevard. There are no bike facilities in the project vicinity and parking is not permitted.

John F. Kennedy Drive is a four-lane divided roadway trending in an east-west direction. It is classified as an Arterial in the City of Moreno Valley General Plan Circulation Element. Sidewalks are provided on both sides of John F. Kennedy Drive along the project frontage. There are Class III bike lanes in the project vicinity and parking is not permitted.

Figure 3 identifies the Existing roadway conditions for study roadways. The Existing number of through lanes for roadways, intersection controls, and the intersection lane geometry are identified on Figure 3.

Existing intersection traffic conditions calculated based on peak period intersection turning movement counts obtained in January 2017 (see Figures 4 and 5). The morning peak period was counted between 7:00 AM and 9:00 AM and the evening peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, the weekday evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix B.

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The intersection delay and Levels of Service for Existing traffic conditions have been calculated and are shown in Table 1. As shown in Table 1, the study intersections currently operate within acceptable Levels of Service during the peak hours. Existing intersection delay and Level of Service worksheets are contained in Appendix C.

TRIP GENERATION

Trip generation rates were determined for daily trips, morning peak hour inbound and outbound trips, and evening peak hour inbound and outbound trips for the proposed land use. By multiplying the trip generation rates by the land use quantity, the traffic volumes are determined. Tables 2 through 4 show the trip generation based upon rates obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017.

Existing Zoning Trip Generation

The project site is proposing to change the land use zoning from Neighborhood Commercial to Community Commercial.

The existing zoning identified in the City of Moreno Valley zoning code is Neighborhood Commercial. The City of Moreno Valley does not specify a maximum floor area ratio (FAR) for this zone, but 0.40 is common, which means 40% of the site can be occupied by buildings. To estimate the trip generation potential, the specific existing land use was assumed to be a shopping center. The project site area of 4.47 acres and the floor area ratio of 0.40 result in a maximum building area of approximately 77,885 square feet.

As shown in Table 2, the existing land use zoning (shopping center) has the potential to generate approximately 5,072 daily vehicle trips, 191 of which would occur during the morning peak hour and 452 of which would occur during the evening peak hour.

Proposed Project Trip Generation

As shown in Table 3, the proposed project (self-storage) is forecast to generate approximately 137 daily trips, 9 trips of which will occur during the morning peak hour and 15 trips of which will occur during the evening peak hour.

Zone Change Trip Generation Comparison

As shown in Table 4, the proposed project (self-storage) compared to the existing land use zoning (shopping center) would result in approximately 4,935 less daily vehicle trips, 182 less trips during the morning peak hour and 437 less trips during the evening peak hour.

TRIP DISTRIBUTION

Figures 6 and 7 show the directional outbound and inbound distributions of the project generated trips, respectively. The forecast project trip distributions are based on review of existing traffic volume data,

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surrounding land uses, local and regional roadway facilities in the project vicinity, and consultation with City staff.

TRIP ASSIGNMENT

Based on the identified trip generation and distributions, Figures 8 and 9 show the morning and evening peak hour intersection turning movement volumes expected from the project.

FUTURE CONDITIONS

Existing Plus Project

The traffic volumes for Existing Plus Project conditions have been derived by adding the project generated trips to existing traffic volumes.

The intersection delay and Levels of Service for Existing Plus Project conditions have been calculated and are shown in Table 5. As shown in Table 5, the study intersections are forecast to operate within acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions. Existing Plus Project delay calculation worksheets are provided in Appendix C. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figures 10 and 11, respectively.

Opening Year (2023) Without Project

To derive Opening Year (2023) Without Project traffic volumes, existing traffic volumes were increased by an areawide growth rate of 2.0 percent per year over a five-year period. Additionally, future trips forecast to be generated by other developments were calculated and assigned to the study area, as applicable. The current Economic Development New Development Activity Map from the City of Moreno Valley website was utilized to determine the list of cumulative development in the study area. In order to provide a "conservative" analysis, the other development have been added to obtain Opening Year (2023) traffic conditions. Table 6 shows the other development daily and peak hour trip generation. Other development morning and evening peak hour intersection turning movement volumes are shown on Figures 12 and 13, respectively.

The intersection delay and Levels of Service for Opening Year (2023) Without Project conditions have been calculated and are shown in Table 7. As shown in Table 7, the study intersections are forecast to operate within acceptable Levels of Service during the peak hours for Opening Year (2023) Without Project conditions. Opening Year (2023) Without Project with project delay calculation worksheets are provided in Appendix C. Opening Year (2023) Without Project with project morning and evening peak hour intersection turning movement volumes are shown on Figures 14 and 15, respectively.

Opening Year (2023) With Project

The traffic volumes for Opening Year (2023) With Project conditions have been derived by adding the project generated trips to Opening Year (2023) Without Project traffic volumes.

Mr. Garrett Gossett
 GOSSETT DEVELOPMENT, INC.
 February 13, 2018

The intersection delay and Levels of Service for Opening Year (2023) With Project conditions have been calculated and are shown in Table 8. As shown in Table 8, the study intersections are forecast to operate within acceptable Levels of Service during the peak hours for Opening Year (2023) With Project traffic conditions. Opening Year (2023) With Project with project delay calculation worksheets are provided in Appendix C. Opening Year (2023) With Project with project morning and evening peak hour intersection turning movement volumes are shown on Figures 16 and 17, respectively.

QUEUING ANALYSIS

Pursuant to the scoping discussions with City of Moreno Valley staff, the study area includes analysis of the following queuing areas (see Appendix B):

Study Intersection	Queuing Movement
Project West Access (NS) at: John F. Kennedy Drive (EW) - #2	Eastbound Right Turn Westbound Left Turn
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	Eastbound Left Turn

The potential for vehicles to queue while entering the project gate was also evaluated.

Vehicle Queuing Storage Lengths

Table 9 summarizes the results of a queuing analysis derived from the Vistro software for the forecast 95th percentile queue lengths shown in the delay calculation worksheets (see Appendix C). The queuing at the project gate was calculated using methodology found in Transportation and Land Development, Institute of Transportation Engineers, 1988 and the output can be found in Appendix D. The existing vehicle queuing storage lengths have been measured using aerial photographs and are shown in the summary table.

Queuing Storage Mitigation

When the queueing length is forecast to exceed the existing storage length, modification to increase the storage length is recommended, so that the turning movement volume does not spill back onto the through lanes creating additional delay.

Generally, for signalized intersections, a left turn lane is recommended when the turning volume exceeds 100 vehicles per hour, and dual turn lanes are recommended when the turn volume exceeds 300 vehicles per hour¹. In general, right turning movement delays are less critical than left turning movement delays; however, right turn storage lanes can be justified based on capacity analysis and accident records.

As shown in Table 9 no queuing demands are projected to exceed existing vehicle queuing storage areas.

¹ Source: Highway Capacity Manual 2010 (HCM2010) by Transportation Research Board, 2010.

Mr. Garrett Gossett
GOSSETT DEVELOPMENT, INC.
February 13, 2018

MITIGATION MEASURES

No off-site mitigation measures were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed.

CONCLUSIONS

No off-site mitigation measures were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed.

Sufficient on-site parking shall be provided to meet City of Moreno Valley parking code requirements.

On-site traffic signing/stripping shall be implemented in conjunction with detailed construction plans for the project site.

As is the case for any roadway design, the City of Moreno Valley should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

It has been a pleasure to service your needs on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 973-8383.

Sincerely,

KUNZMAN ASSOCIATES , INC.

Chris Pylant
Associate

JN 7280



KUNZMAN ASSOCIATES, INC.

William Kunzman, P.E.
Principal

Table 1

Existing Intersection Delay and Level of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
Indian Street (NS) at: John F. Kennedy Drive (EW) - #1	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	21.4-C	20.2-C
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	21.2-C	21.2-C

¹ When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right

² LOS = Level of Service
Delay and Level of Service have been calculated using the Vistro (Version 5.0-00) software. Per the Highway Capacity Manual, Level of Service is determined by delay of the worst individual movement for intersections with cross street stop control.

³ TS = Traffic Signal

Table 2
Existing Zoning Use Trip Generation¹

Land Use	Quantity ²	Units ³	Peak Hour						Daily
			Morning			Evening			
			Inbound	Outbound	Total	Inbound	Outbound	Total	
<u>Trip Generation Rates</u>									
Shopping Center ⁴		TSF	1.52	0.94	2.46	2.79	3.02	5.81	65.12
<u>Trips Generated</u>									
Shopping Center	77.885	TSF	118	73	191	217	235	452	5,072

¹ Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code 820.

² Quantity was calculated by multiplying the site acreage (4.47 acres) by the assumed floor area ratio (0.40) for Neighborhood Commercial zoning.

³ TSF = Thousand Square Feet

⁴ A shopping center land use was chosen to represent the allowable land use with the most likely trip generation.

Table 3
Proposed Project Trip Generation¹

Land Use	Quantity	Units ²	Peak Hour						Daily
			Morning			Evening			
			Inbound	Outbound	Total	Inbound	Outbound	Total	
<u>Trip Generation Rates</u>									
Mini Warehouse		TSF	0.06	0.04	0.10	0.08	0.09	0.17	1.51
<u>Trips Generated</u>									
Mini Warehouse	90.565	TSF	5	4	9	7	8	15	137

¹ Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code 151.

² TSF = Thousand Square Feet

Table 4
Trip Generation Comparison

Land Use	Peak Hour						Daily
	Morning			Evening			
	Inbound	Outbound	Total	Inbound	Outbound	Total	
<u>Existing Zoning</u>							
Neighborhood Commercial (FAR = 0.40) ¹	118	73	191	217	235	452	5,072
<u>Proposed Project</u>							
Mini Warehouse ²	5	4	9	7	8	15	137
Difference	-113	-69	-182	-210	-227	-437	-4,935

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

¹ See Table 2.

² See Table 3.

Table 5

Existing Plus Project Intersection Delay and Level of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
Indian Street (NS) at: John F. Kennedy Drive (EW) - #1	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	21.4-C	20.3-C
Project West Access (NS) at: John F. Kennedy Drive (EW) - #2	CSS	0.5	0	0.5	0	0	0	0	1.5	0.5	1	2	0	12.6-B	14.8-B
Project East Access (NS) at: John F. Kennedy Drive (EW) - #3	CSS	0	0	1	0	0	0	0	1.5	0.5	0	2	0	9.6-A	10.4-B
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	21.8-C	21.3-C

¹ When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

² LOS = Level of Service

Delay and Level of Service have been calculated using the Vistro (Version 5.0-00) software. Per the Highway Capacity Manual, Level of Service is determined by delay of the worst individual movement for intersections with cross street stop control.

³ CSS = Cross Street Stop; TS = Traffic Signal

Table 6
Other Development Trip Generation¹

Traffic Analysis Zone	Project Name	Land Use	Quantity	Units ²	Peak Hour						Daily
					Morning			Evening			
					Inbound	Outbound	Total	Inbound	Outbound	Total	
1	Modular Logistics Center ³	High-Cube Warehouse	1,109.378		206	149	355	609	631	1,240	13,164
2	Moreno Valley Logistics Center ⁴	General Light Industrial	385.748	TSF	397	54	451	59	416	475	3,412
		High-Cube Warehouse	1,351.770	TSF	144	65	209	168	243	411	3,563
3	First Nandina Logistics Center ⁵	High-Cube Warehouse	1,450.000	TSF	163	61	224	81	163	244	3,423
4	World Logistics Center ⁶	High-Cube Warehouse	41,400.000	TSF	3,142	1,412	4,554	1,540	3,428	4,968	69,552
		Warehouse	200.000		47	13	60	16	48	64	712
		Gas Station	12		5	5	10	10	10	20	219
		Convenience Store	3.000		11	11	22	13	12	25	354
5	Moreno Valley Walmart ⁷	Discount Superstore	189.520	TSF	182	138	320	363	380	743	8,656
		Gas Station	16	FP	36	32	68	48	43	91	968
6	RSI	Single-Family Residential	140	DU	26	78	104	87	51	138	1,322
7	Mission Pacific Land Co.	Single-Family Residential	221	DU	41	123	164	138	81	219	2,086
8	Invermex, Inc.	Single-Family Residential	32	DU	6	18	24	20	12	32	302
9	Rados	Single-Family Residential	135	DU	25	75	100	84	49	133	1,274
10	Adam Wisler	Single-Family Residential	8	DU	1	4	5	5	3	8	76
11	Bob Rogers	Single-Family Residential	57	DU	11	32	43	36	21	57	538
12	SKG Pacific Enterprises Inc.	Single-Family Residential	63	DU	12	35	47	39	23	62	595
13	Nova Homes	Apartments	122	DU	13	43	56	43	25	68	893
14	Mo Ghiassi TL Group	Apartments	52	DU	6	18	24	18	11	29	381
15	Latco SC Inc.	Apartments	272	DU	29	96	125	96	56	152	1,991
Total					4,503	2,462	6,965	3,473	5,706	9,179	113,481

¹ Source (unless otherwise noted): Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Codes 210 and 220.

² TSF = Thousand Square Feet; DU = Dwelling Units; FP = Fueling Positions

³ Source: Modular Logistics Center Traffic Impact Analysis, Urban Crossroads, March 2014.

⁴ Source: Moreno Valley Logistics Center Traffic Impact Analysis, Urban Crossroads, June 2016.

⁵ Source: First Nandina Logistics Center Traffic Impact Analysis, Urban Crossroads, June 2014.

⁶ Source: The World Logistics Center Traffic Impact Analysis Report, Parsons Brinkerhoff, Inc., January 2013.

⁷ Source: Moreno Valley Walmart Traffic Impact Analysis (Revised), Urban Crossroads, March 2015.

Table 7

Opening Year (2023) Without Project Intersection Delay and Level of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
Indian Street (NS) at: John F. Kennedy Drive (EW) - #1	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	22.9-C	22.3-C
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	30.9-C	33.1-C

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

¹ When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

² LOS = Level of Service

Delay and Level of Service have been calculated using the Vistro (Version 5.0-00) software. Per the Highway Capacity Manual, Level of Service is determined by delay of the worst individual movement for intersections with cross street stop control.

³ CSS = Cross Street Stop; TS = Traffic Signal

Table 8

Opening Year (2023) With Project Intersection Delay and Level of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
Indian Street (NS) at: John F. Kennedy Drive (EW) - #1	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	22.9-C	22.3-C
Project West Access (NS) at: John F. Kennedy Drive (EW) - #2	CSS	0.5	0	0.5	0	0	0	0	1.5	0.5	1	2	0	14.2-B	17.7-C
Project East Access (NS) at: John F. Kennedy Drive (EW) - #3	CSS	0	0	1	0	0	0	0	1.5	0.5	0	2	0	10.1-B	11.0-B
Perris Boulevard (NS) at: John F. Kennedy Drive (EW) - #4	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	30.9-C	33.3-C

¹ When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

² LOS = Level of Service

Delay and Level of Service have been calculated using the Vistro (Version 5.0-00) software. Per the Highway Capacity Manual, Level of Service is determined by delay of the worst individual movement for intersections with cross street stop control.

³ CSS = Cross Street Stop; TS = Traffic Signal

Table 9
Queuing Analysis Summary

Intersection	Movement ¹	Storage Length (Feet)	95th Percentile Queue Length (Feet)				Adequate Storage Provided
			Existing Plus Project		Opening Year (2023) With Project		
			Morning	Evening	Morning	Evening	
Moreno Beach Drive (NS) at: Project West Access (EW) - #2	EB Through-Right	390	<25	<25	<25	<25	Yes
	WB Left Turn	95	<25	<25	<25	<25	Yes
John F. Kennedy Drive (EW) - #4	EB Left Turn	120	48	54	83	81	Yes
Vehicles Entering Project Gate ³	SB Through	65	<25	<25	<25	<25	Yes

¹ NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound.

² <25 = Queue length of less than 25 feet is rounded up to 25 feet to allow for one standard car length.

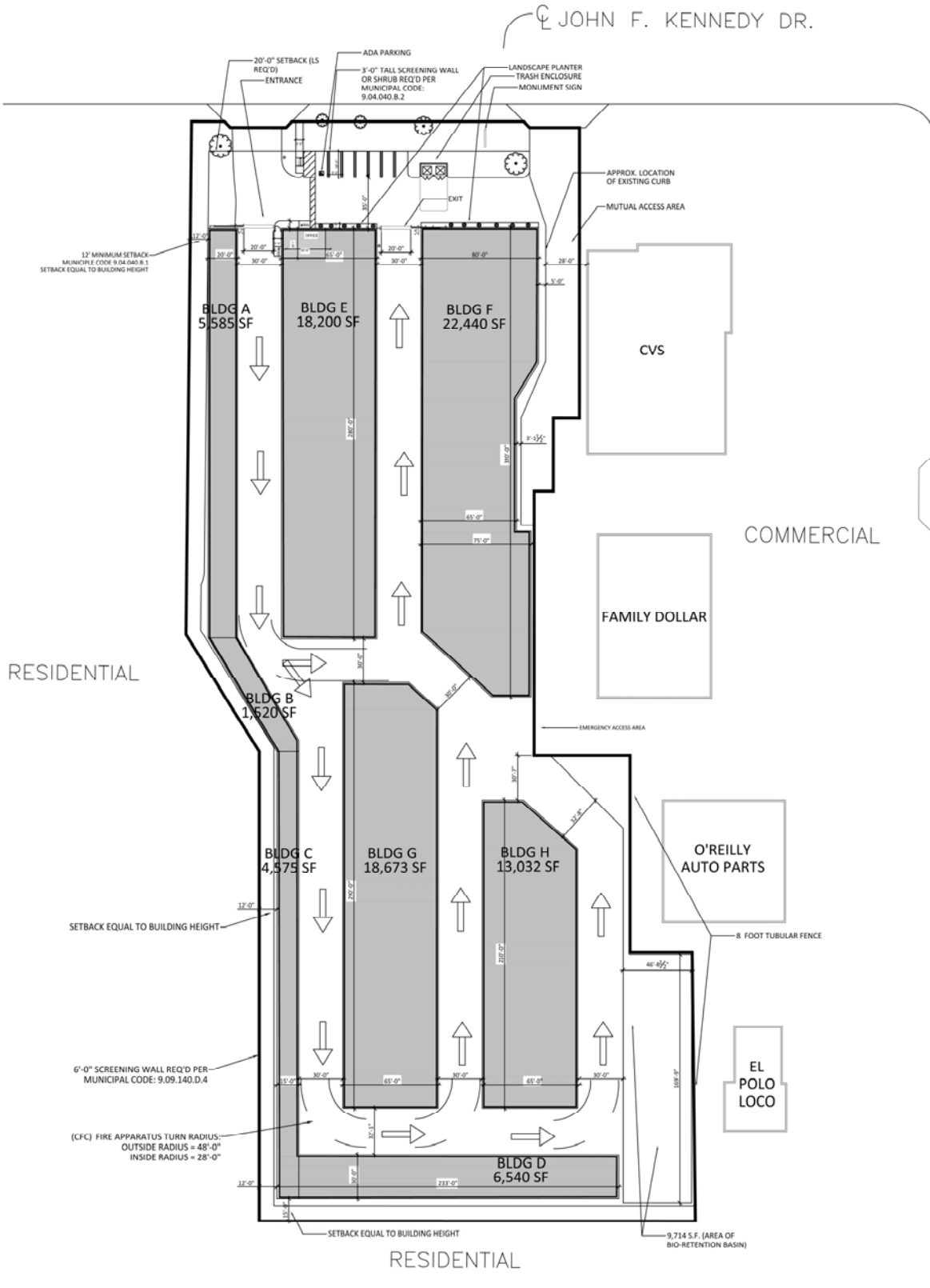
Figure 1
Project Location Map



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-



Figure 2 Site Plan



PERRIS BLVD.

COMMERCIAL

RESIDENTIAL

RESIDENTIAL

KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE



JN 7280

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Figure 3 Existing Through Travel Lanes and Intersection Controls

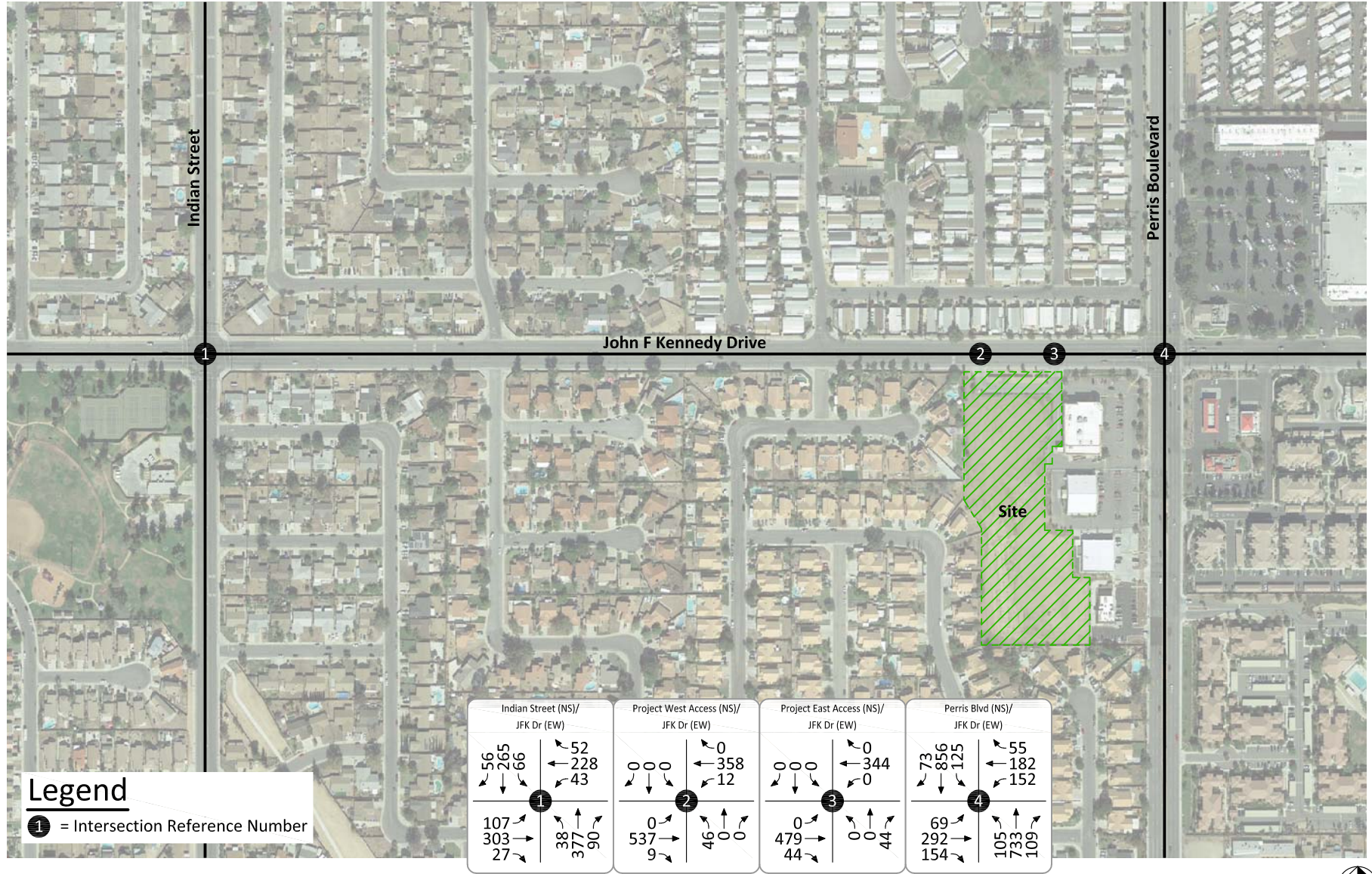


Figure 4
Existing Morning Peak Hour Intersection Turning Movement Volumes



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Figure 5
Existing Evening Peak Hour Intersection Turning Movement Volumes



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Figure 6
Project Outbound Trip Distribution



Figure 7
Project Inbound Trip Distribution

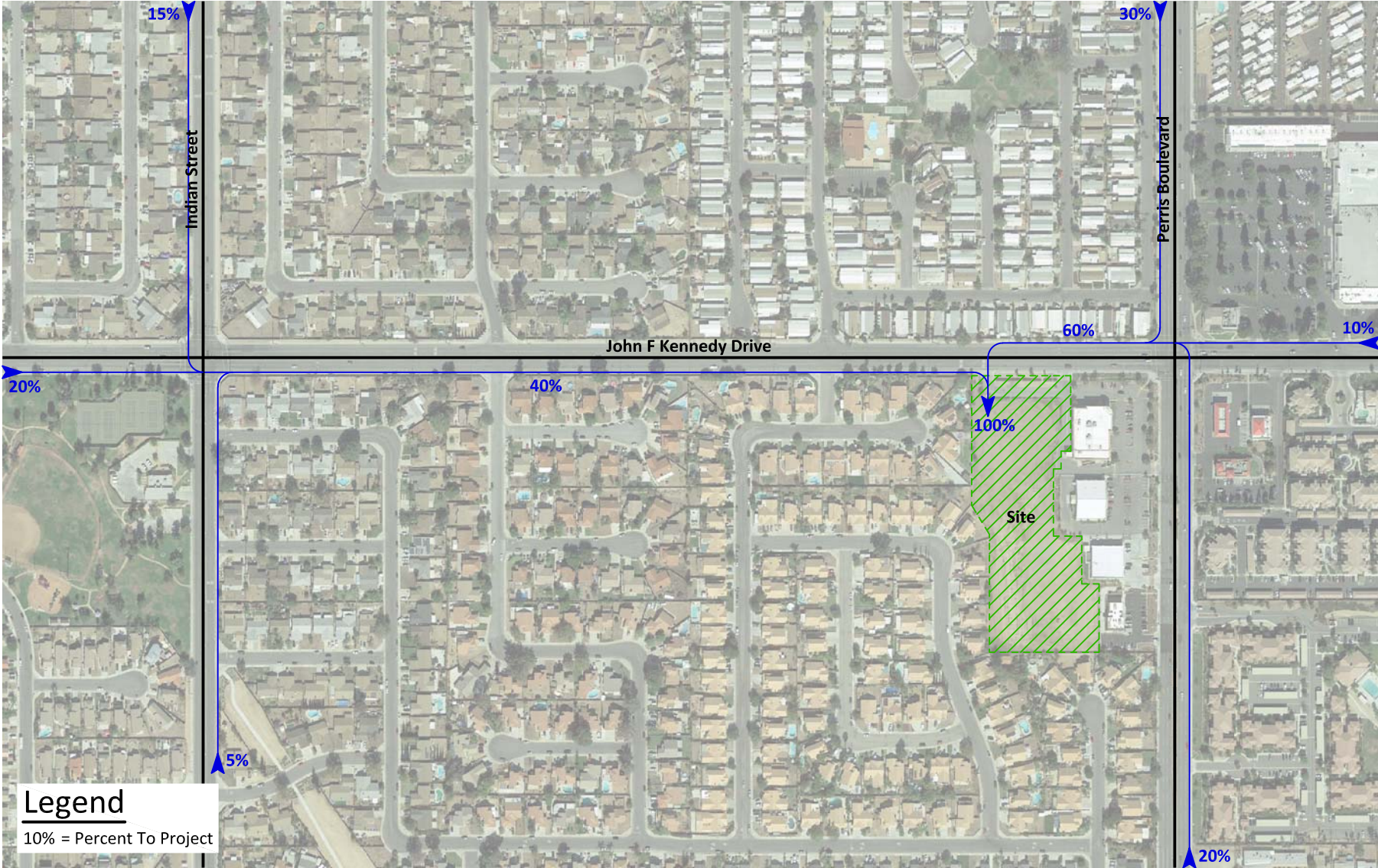


Figure 8
Project Morning Peak Hour Intersection Turning Movement Volumes



Figure 9
Project Evening Peak Hour Intersection Turning Movement Volumes



Figure 10
Existing Plus Project
Morning Peak Hour Intersection Turning Movement Volumes

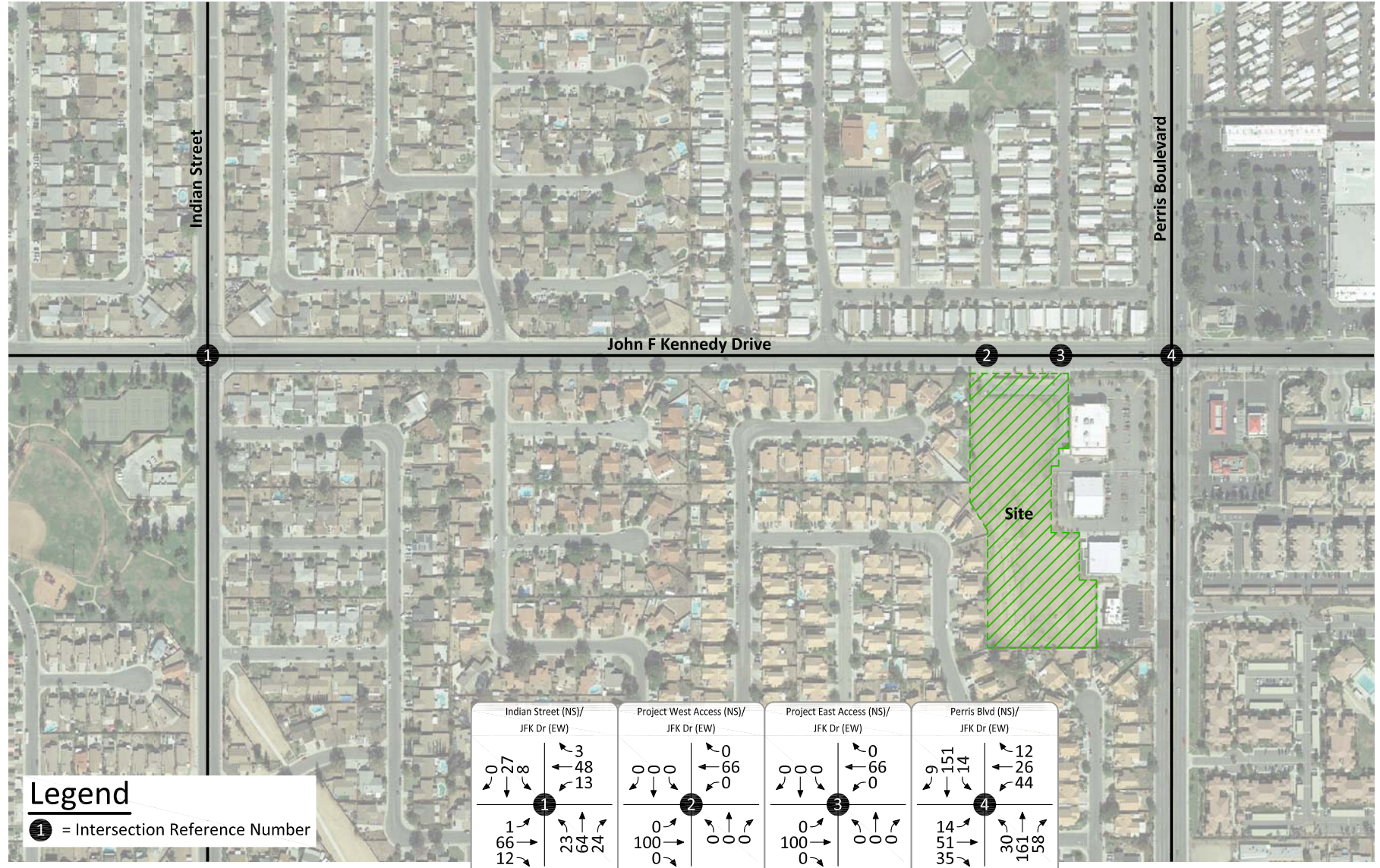


Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Figure 11
Existing Plus Project
Evening Peak Hour Intersection Turning Movement Volumes



Figure 12
Other Development
Morning Peak Hour Intersection Turning Movement Volumes

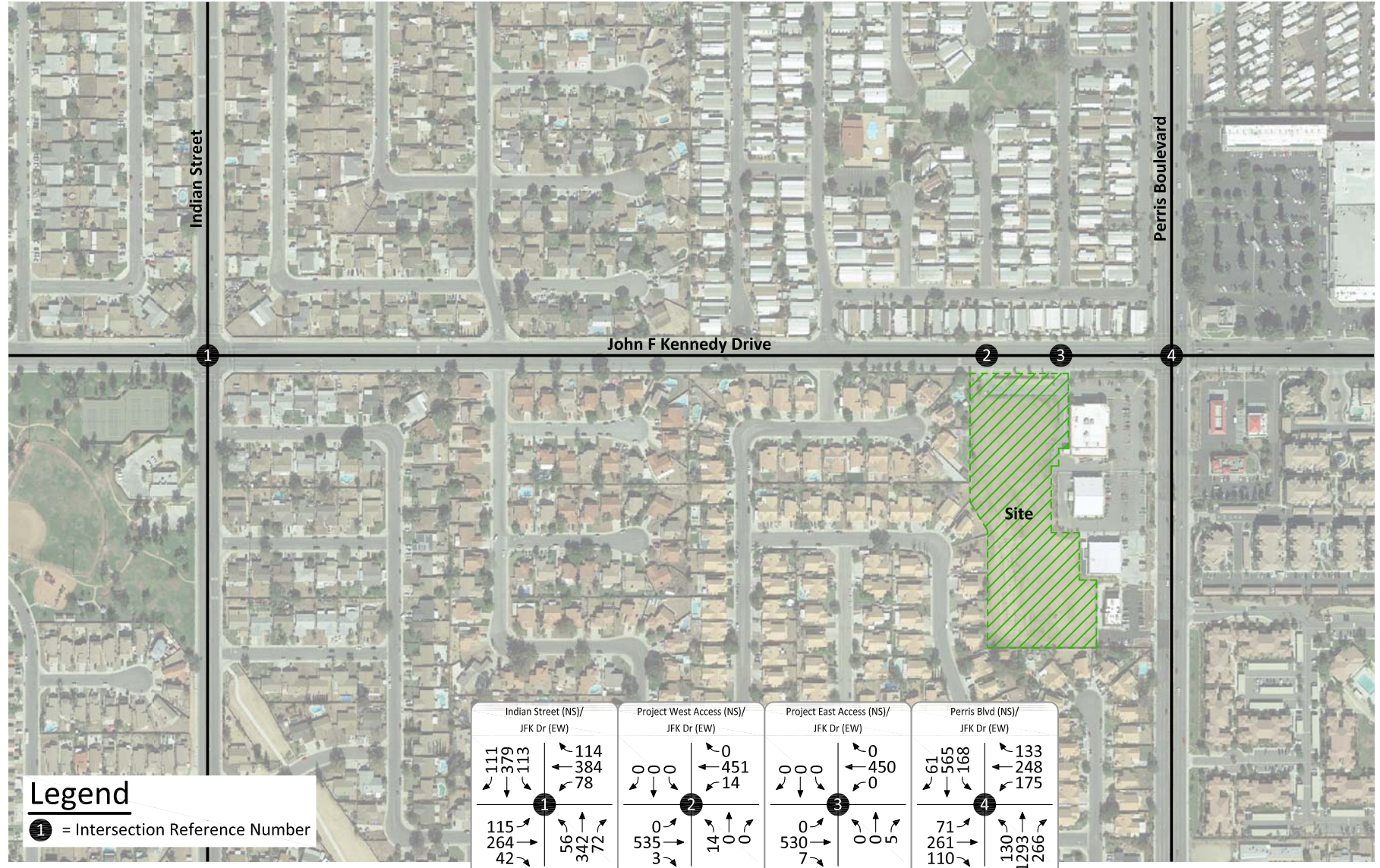


Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Figure 13
Other Development
Evening Peak Hour Intersection Turning Movement Volumes



Figure 14
 Opening Year (2023) Without Project
 Morning Peak Hour Intersection Turning Movement Volumes



Legend
 1 = Intersection Reference Number



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Figure 15
Opening Year (2023) Without Project
Evening Peak Hour Intersection Turning Movement Volumes

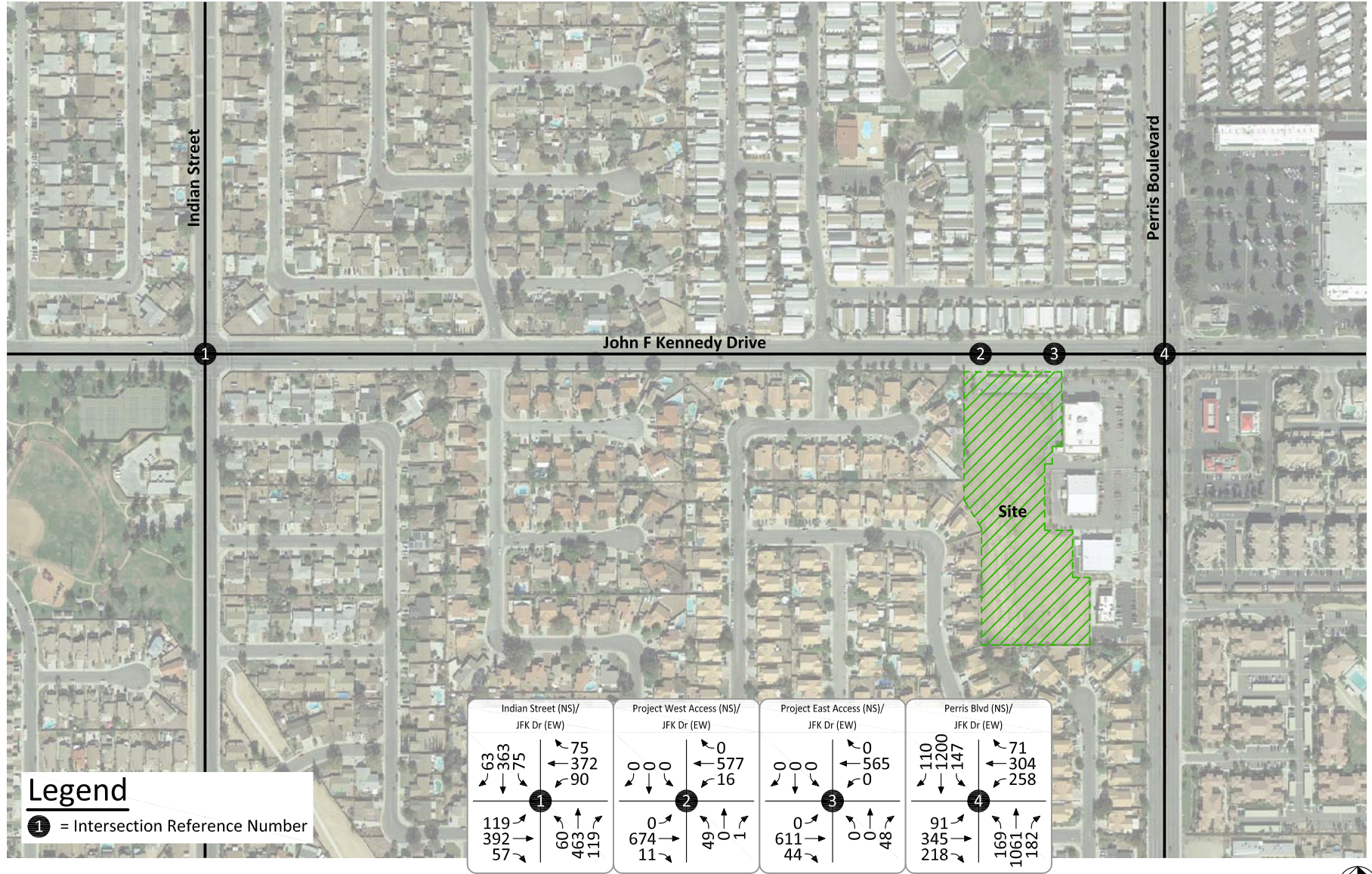


Figure 16
 Opening Year (2023) With Project
 Morning Peak Hour Intersection Turning Movement Volumes



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-

Figure 17
 Opening Year (2023) With Project
 Evening Peak Hour Intersection Turning Movement Volumes



APPENDIX A

Glossary of Transportation Terms

GLOSSARY OF TRANSPORTATION TERMS

COMMON ABBREVIATIONS

AC:	Acres
ADT:	Average Daily Traffic
Caltrans:	California Department of Transportation
DU:	Dwelling Unit
ICU:	Intersection Capacity Utilization
LOS:	Level of Service
TSF:	Thousand Square Feet
V/C:	Volume/Capacity
VMT:	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CYCLE LENGTH: The time period in seconds required for one complete signal cycle.

CUL-DE-SAC STREET: A local street open at one end only, and with special provisions for turning around.

DAILY CAPACITY: The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

ORIGIN-DESTINATION SURVEY: A survey to determine the point of origin and the point of destination for a given vehicle trip.

PASSENGER CAR EQUIVALENTS: One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another

(destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

Intersection Turning Movement Count Worksheets

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: Indian Street
 E/W: John F. Kennedy Drive
 Weather: Clear

File Name : MRVINJFKAM
 Site Code : 07518090
 Start Date : 2/1/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	Indian Street Southbound				John F. Kennedy Drive Westbound				Indian Street Northbound				John F. Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	5	72	5	82	12	49	10	71	2	33	7	42	4	30	2	36	231
07:15 AM	15	75	11	101	10	74	15	99	7	49	10	66	16	37	3	56	322
07:30 AM	24	71	13	108	10	81	41	132	7	90	14	111	29	54	4	87	438
07:45 AM	28	92	37	157	28	94	35	157	5	68	9	82	46	33	10	89	485
Total	72	310	66	448	60	298	101	459	21	240	40	301	95	154	19	268	1476
08:00 AM	28	82	40	150	11	56	10	77	11	46	11	68	13	56	10	79	374
08:15 AM	9	61	13	83	9	47	11	67	7	35	9	51	14	38	10	62	263
08:30 AM	4	49	11	64	6	47	19	72	7	49	7	63	16	39	15	70	269
08:45 AM	10	52	12	74	12	37	13	62	10	31	7	48	22	37	14	73	257
Total	51	244	76	371	38	187	53	278	35	161	34	230	65	170	49	284	1163
Grand Total	123	554	142	819	98	485	154	737	56	401	74	531	160	324	68	552	2639
Apprch %	15	67.6	17.3		13.3	65.8	20.9		10.5	75.5	13.9		29	58.7	12.3		
Total %	4.7	21	5.4	31	3.7	18.4	5.8	27.9	2.1	15.2	2.8	20.1	6.1	12.3	2.6	20.9	

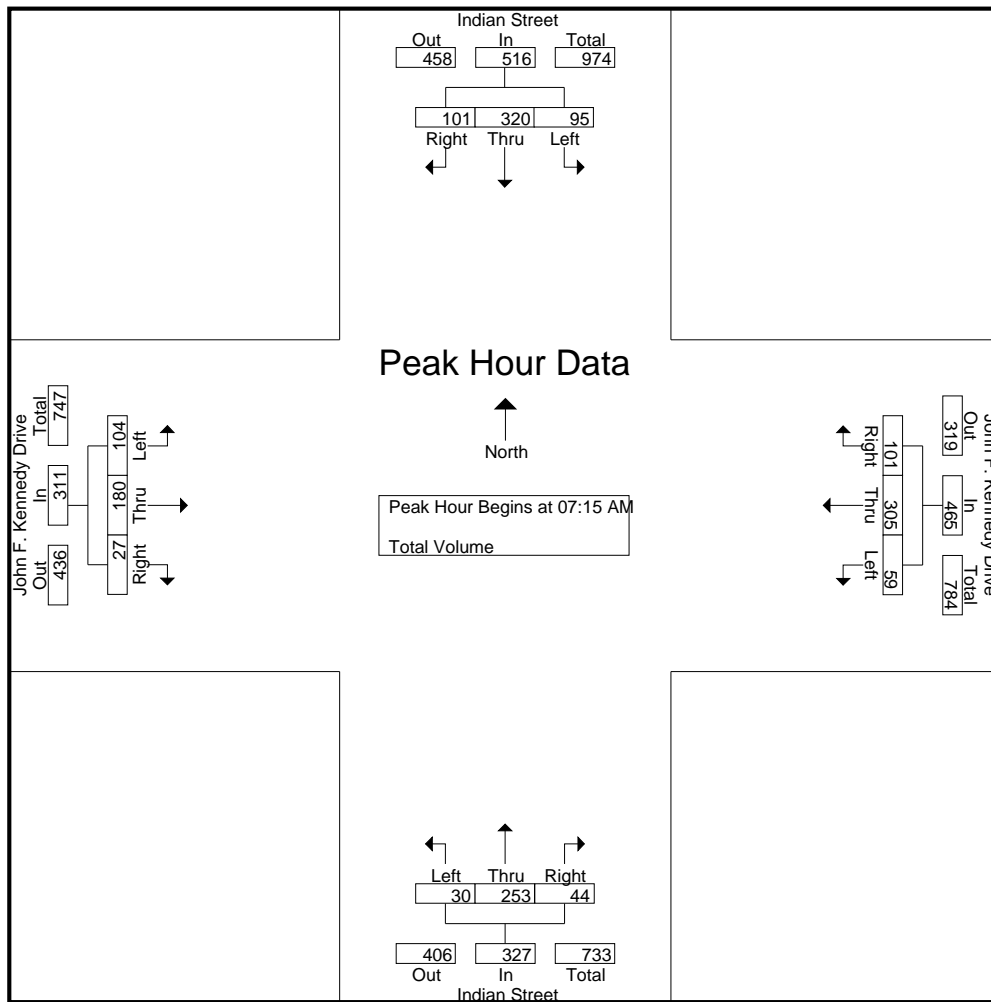
Start Time	Indian Street Southbound				John F. Kennedy Drive Westbound				Indian Street Northbound				John F. Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	15	75	11	101	10	74	15	99	7	49	10	66	16	37	3	56	322
07:30 AM	24	71	13	108	10	81	41	132	7	90	14	111	29	54	4	87	438
07:45 AM	28	92	37	157	28	94	35	157	5	68	9	82	46	33	10	89	485
08:00 AM	28	82	40	150	11	56	10	77	11	46	11	68	13	56	10	79	374
Total Volume	95	320	101	516	59	305	101	465	30	253	44	327	104	180	27	311	1619
% App. Total	18.4	62	19.6		12.7	65.6	21.7		9.2	77.4	13.5		33.4	57.9	8.7		
PHF	.848	.870	.631	.822	.527	.811	.616	.740	.682	.703	.786	.736	.565	.804	.675	.874	.835

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: Indian Street
 E/W: John F. Kennedy Drive
 Weather: Clear

File Name : MRVINJFKAM
 Site Code : 07518090
 Start Date : 2/1/2018
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:30 AM			
+0 mins.	15	75	11	101	10	74	15	99	7	49	10	66	29	54	4	87
+15 mins.	24	71	13	108	10	81	41	132	7	90	14	111	46	33	10	89
+30 mins.	28	92	37	157	28	94	35	157	5	68	9	82	13	56	10	79
+45 mins.	28	82	40	150	11	56	10	77	11	46	11	68	14	38	10	62
Total Volume	95	320	101	516	59	305	101	465	30	253	44	327	102	181	34	317
% App. Total	18.4	62	19.6		12.7	65.6	21.7		9.2	77.4	13.5		32.2	57.1	10.7	
PHF	.848	.870	.631	.822	.527	.811	.616	.740	.682	.703	.786	.736	.554	.808	.850	.890

Attachment: Focused Traffic Analysis (3175) : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: Indian Street
 E/W: John F. Kennedy Drive
 Weather: Clear

File Name : MRVINJFKPM
 Site Code : 07518090
 Start Date : 2/1/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	Indian Street Southbound				John F. Kennedy Drive Westbound				Indian Street Northbound				John F. Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	18	66	16	100	13	34	12	59	6	97	18	121	24	41	9	74	354
04:15 PM	14	68	8	90	9	58	9	76	9	90	17	116	24	83	14	121	403
04:30 PM	14	84	17	115	10	76	18	104	12	112	20	144	21	66	8	95	458
04:45 PM	16	51	11	78	12	60	15	87	7	81	19	107	25	75	8	108	380
Total	62	269	52	383	44	228	54	326	34	380	74	488	94	265	39	398	1595
05:00 PM	16	70	13	99	11	53	6	70	9	72	19	100	37	85	5	127	396
05:15 PM	20	60	15	95	10	39	13	62	10	112	32	154	24	77	6	107	418
05:30 PM	18	54	10	82	11	41	16	68	4	69	21	94	26	88	8	122	366
05:45 PM	20	59	21	100	9	49	9	67	5	106	20	131	29	83	6	118	416
Total	74	243	59	376	41	182	44	267	28	359	92	479	116	333	25	474	1596
Grand Total	136	512	111	759	85	410	98	593	62	739	166	967	210	598	64	872	3191
Apprch %	17.9	67.5	14.6		14.3	69.1	16.5		6.4	76.4	17.2		24.1	68.6	7.3		
Total %	4.3	16	3.5	23.8	2.7	12.8	3.1	18.6	1.9	23.2	5.2	30.3	6.6	18.7	2	27.3	

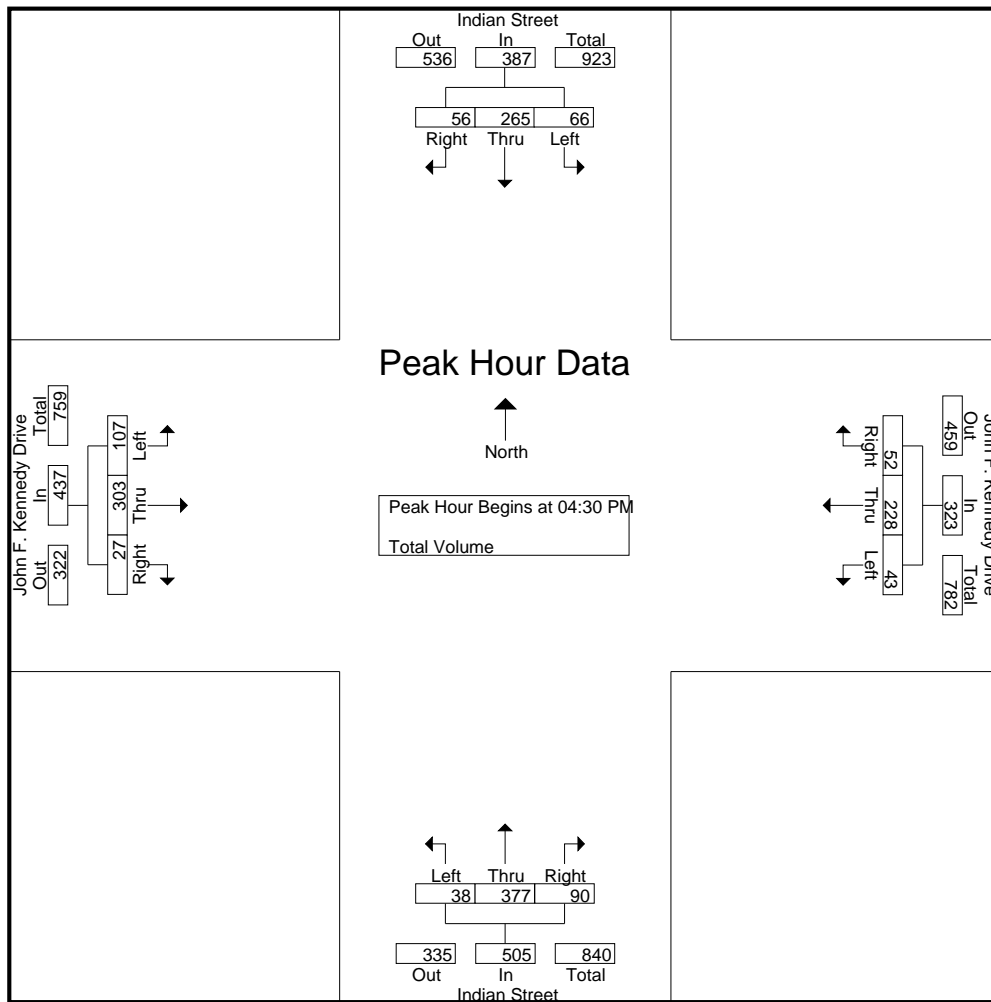
Start Time	Indian Street Southbound				John F. Kennedy Drive Westbound				Indian Street Northbound				John F. Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	14	84	17	115	10	76	18	104	12	112	20	144	21	66	8	95	458
04:45 PM	16	51	11	78	12	60	15	87	7	81	19	107	25	75	8	108	380
05:00 PM	16	70	13	99	11	53	6	70	9	72	19	100	37	85	5	127	396
05:15 PM	20	60	15	95	10	39	13	62	10	112	32	154	24	77	6	107	418
Total Volume	66	265	56	387	43	228	52	323	38	377	90	505	107	303	27	437	1652
% App. Total	17.1	68.5	14.5		13.3	70.6	16.1		7.5	74.7	17.8		24.5	69.3	6.2		
PHF	.825	.789	.824	.841	.896	.750	.722	.776	.792	.842	.703	.820	.723	.891	.844	.860	.902

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: Indian Street
 E/W: John F. Kennedy Drive
 Weather: Clear

File Name : MRVINJFKPM
 Site Code : 07518090
 Start Date : 2/1/2018
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM				04:15 PM				04:30 PM				05:00 PM			
+0 mins.	14	84	17	115	9	58	9	76	12	112	20	144	37	85	5	127
+15 mins.	16	51	11	78	10	76	18	104	7	81	19	107	24	77	6	107
+30 mins.	16	70	13	99	12	60	15	87	9	72	19	100	26	88	8	122
+45 mins.	20	60	15	95	11	53	6	70	10	112	32	154	29	83	6	118
Total Volume	66	265	56	387	42	247	48	337	38	377	90	505	116	333	25	474
% App. Total	17.1	68.5	14.5		12.5	73.3	14.2		7.5	74.7	17.8		24.5	70.3	5.3	
PHF	.825	.789	.824	.841	.875	.813	.667	.810	.792	.842	.703	.820	.784	.946	.781	.933

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Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: CVS West Driveway
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 02_MRV_CVS West DW_John F Kennedy AM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	John F Kennedy Drive Westbound			CVS West Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	0	60	60	0	0	0	41	0	41	101
07:15 AM	0	61	61	0	0	0	64	0	64	125
07:30 AM	0	86	86	0	0	0	78	1	79	165
07:45 AM	2	94	96	1	0	1	106	0	106	203
Total	2	301	303	1	0	1	289	1	290	594
08:00 AM	2	94	96	1	0	1	65	1	66	163
08:15 AM	0	75	75	4	0	4	72	0	72	151
08:30 AM	1	70	71	5	0	5	116	0	116	192
08:45 AM	2	111	113	1	0	1	142	2	144	258
Total	5	350	355	11	0	11	395	3	398	764
Grand Total	7	651	658	12	0	12	684	4	688	1358
Apprch %	1.1	98.9		100	0		99.4	0.6		
Total %	0.5	47.9	48.5	0.9	0	0.9	50.4	0.3	50.7	

Start Time	John F Kennedy Drive Westbound			CVS West Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
08:00 AM	2	94	96	1	0	1	65	1	66	163
08:15 AM	0	75	75	4	0	4	72	0	72	151
08:30 AM	1	70	71	5	0	5	116	0	116	192
08:45 AM	2	111	113	1	0	1	142	2	144	258
Total Volume	5	350	355	11	0	11	395	3	398	764
% App. Total	1.4	98.6		100	0		99.2	0.8		
PHF	.625	.788	.785	.550	.000	.550	.695	.375	.691	.740

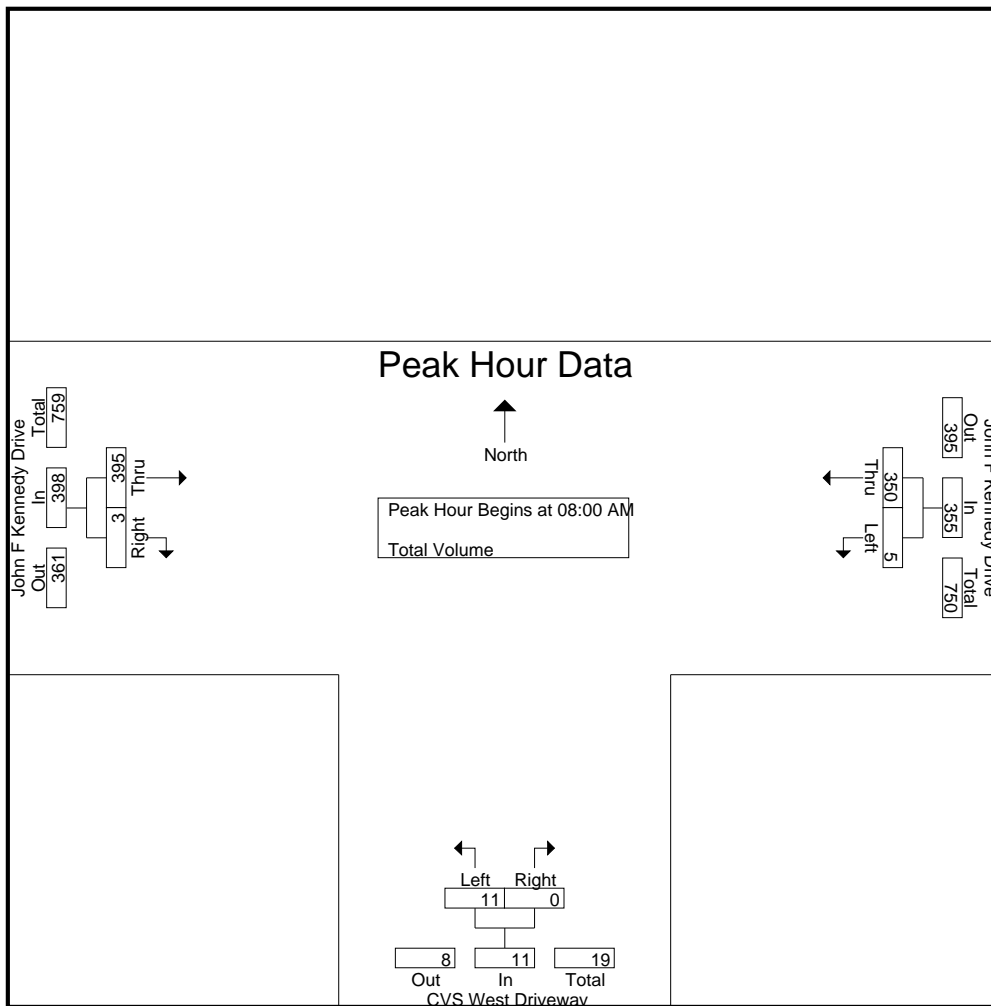
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 08:00 AM

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: CVS West Driveway
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 02_MRV_CVS West DW_John F Kennedy AM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	08:00 AM			07:45 AM			08:00 AM		
+0 mins.	2	94	96	1	0	1	65	1	66
+15 mins.	0	75	75	1	0	1	72	0	72
+30 mins.	1	70	71	4	0	4	116	0	116
+45 mins.	2	111	113	5	0	5	142	2	144
Total Volume	5	350	355	11	0	11	395	3	398
% App. Total	1.4	98.6		100	0		99.2	0.8	
PHF	.625	.788	.785	.550	.000	.550	.695	.375	.691

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: CVS West Driveway
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 02_MRV_CVS West DW_John F Kennedy PM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	John F Kennedy Drive Westbound			CVS West Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	1	81	82	5	2	7	106	0	106	195
04:15 PM	1	71	72	9	0	9	100	1	101	182
04:30 PM	1	71	72	6	0	6	130	0	130	208
04:45 PM	3	80	83	4	0	4	117	0	117	204
Total	6	303	309	24	2	26	453	1	454	789
05:00 PM	0	109	109	9	0	9	138	5	143	261
05:15 PM	0	79	79	9	0	9	136	1	137	225
05:30 PM	0	85	85	7	0	7	124	3	127	219
05:45 PM	1	85	86	10	0	10	139	0	139	235
Total	1	358	359	35	0	35	537	9	546	940
Grand Total	7	661	668	59	2	61	990	10	1000	1729
Apprch %	1	99		96.7	3.3		99	1		
Total %	0.4	38.2	38.6	3.4	0.1	3.5	57.3	0.6	57.8	

Start Time	John F Kennedy Drive Westbound			CVS West Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
05:00 PM	0	109	109	9	0	9	138	5	143	261
05:15 PM	0	79	79	9	0	9	136	1	137	225
05:30 PM	0	85	85	7	0	7	124	3	127	219
05:45 PM	1	85	86	10	0	10	139	0	139	235
Total Volume	1	358	359	35	0	35	537	9	546	940
% App. Total	0.3	99.7		100	0		98.4	1.6		
PHF	.250	.821	.823	.875	.000	.875	.966	.450	.955	.900

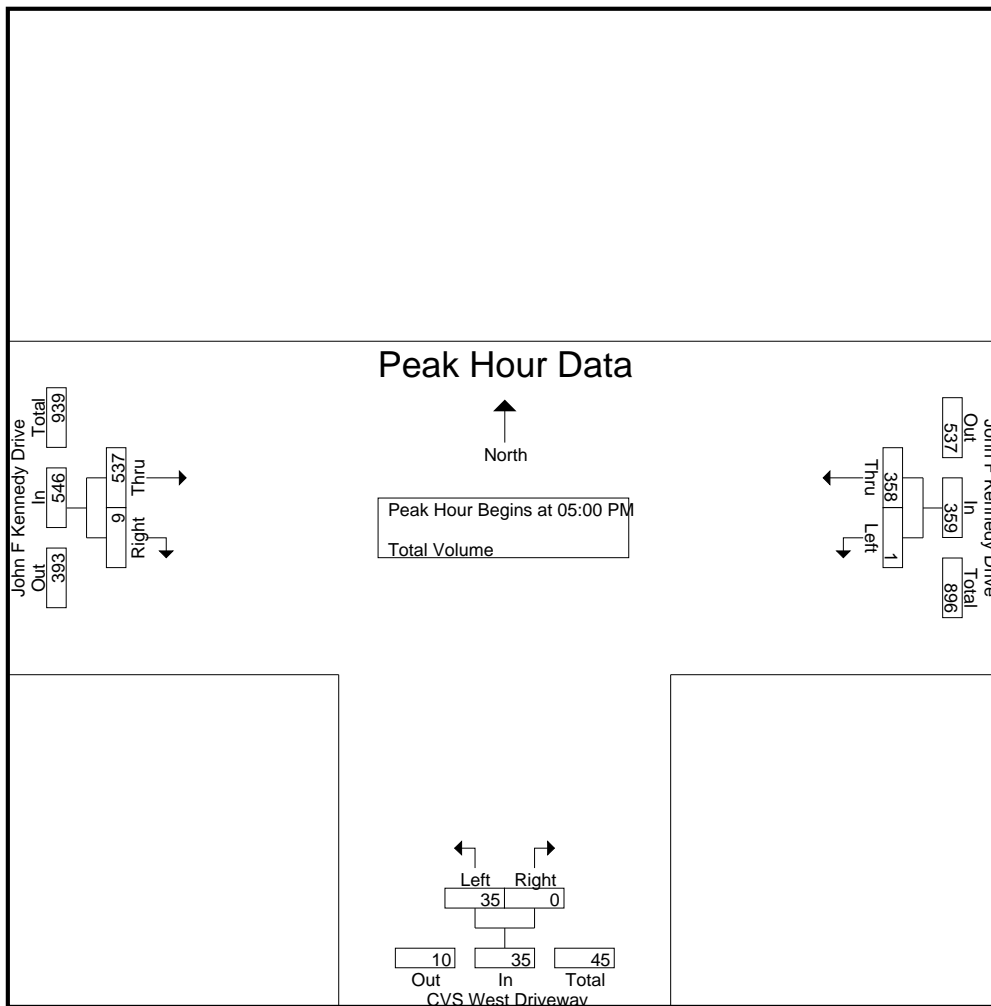
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: CVS West Driveway
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 02_MRV_CVS West DW_John F Kennedy PM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	109	109	9	0	9	138	5	143
+15 mins.	0	79	79	9	0	9	136	1	137
+30 mins.	0	85	85	7	0	7	124	3	127
+45 mins.	1	85	86	10	0	10	139	0	139
Total Volume	1	358	359	35	0	35	537	9	546
% App. Total	0.3	99.7		100	0		98.4	1.6	
PHF	.250	.821	.823	.875	.000	.875	.966	.450	.955

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 PO Box 1178
 Corona, CA 92878
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City of Moreno Valley
 N/S: CVS East Driveway
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 03_MR_V_CVS East DW_John F Kennedy AM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	John F Kennedy Drive Westbound			CVS East Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	1	57	58	0	0	0	41	1	42	100
07:15 AM	0	67	67	0	0	0	63	0	63	130
07:30 AM	0	81	81	0	0	0	78	1	79	160
07:45 AM	3	97	100	0	3	3	103	2	105	208
Total	4	302	306	0	3	3	285	4	289	598
08:00 AM	2	97	99	1	1	2	64	2	66	167
08:15 AM	2	74	76	1	0	1	66	2	68	145
08:30 AM	3	70	73	0	1	1	118	0	118	192
08:45 AM	2	108	110	1	3	4	143	3	146	260
Total	9	349	358	3	5	8	391	7	398	764
Grand Total	13	651	664	3	8	11	676	11	687	1362
Apprch %	2	98		27.3	72.7		98.4	1.6		
Total %	1	47.8	48.8	0.2	0.6	0.8	49.6	0.8	50.4	

Start Time	John F Kennedy Drive Westbound			CVS East Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
08:00 AM	2	97	99	1	1	2	64	2	66	167
08:15 AM	2	74	76	1	0	1	66	2	68	145
08:30 AM	3	70	73	0	1	1	118	0	118	192
08:45 AM	2	108	110	1	3	4	143	3	146	260
Total Volume	9	349	358	3	5	8	391	7	398	764
% App. Total	2.5	97.5		37.5	62.5		98.2	1.8		
PHF	.750	.808	.814	.750	.417	.500	.684	.583	.682	.735

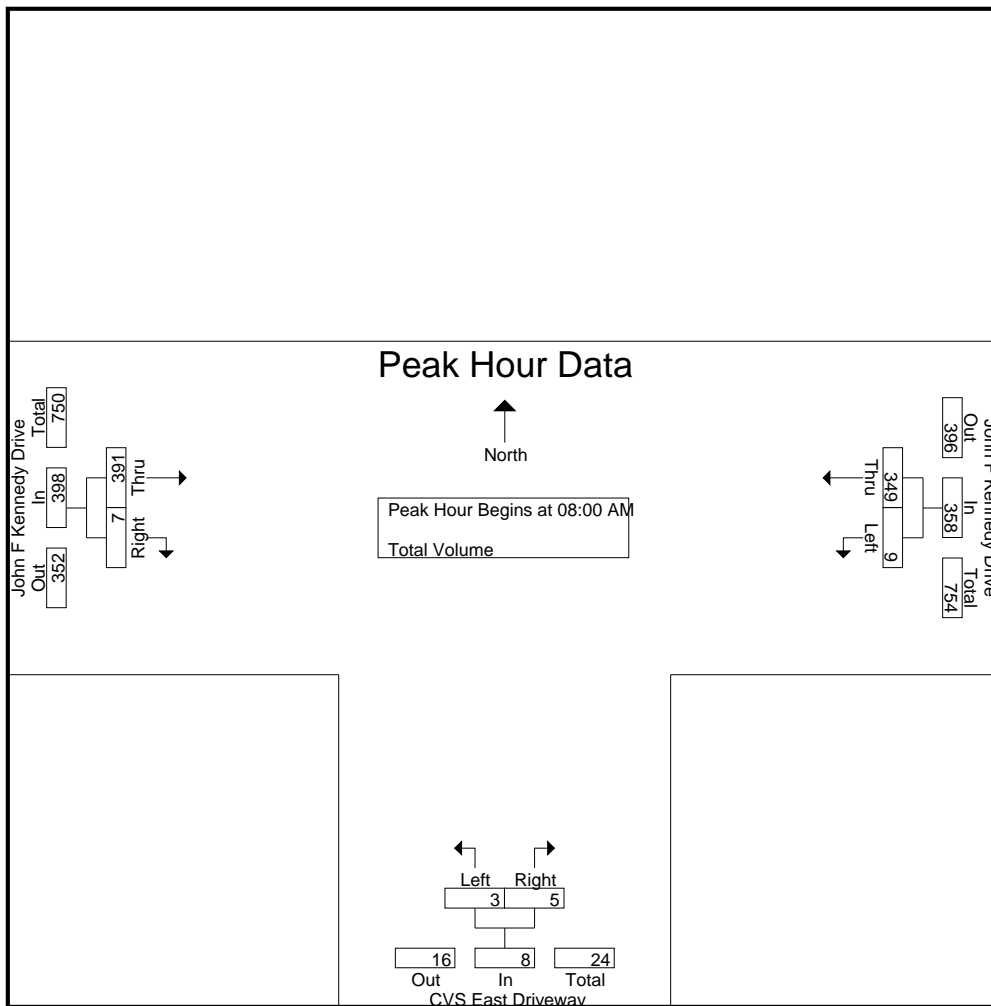
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 08:00 AM

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: CVS East Driveway
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 03_MR_V_CVS East DW_John F Kennedy AM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			08:00 AM		
+0 mins.	2	97	99	1	1	2	64	2	66
+15 mins.	2	74	76	1	0	1	66	2	68
+30 mins.	3	70	73	0	1	1	118	0	118
+45 mins.	2	108	110	1	3	4	143	3	146
Total Volume	9	349	358	3	5	8	391	7	398
% App. Total	2.5	97.5		37.5	62.5		98.2	1.8	
PHF	.750	.808	.814	.750	.417	.500	.684	.583	.682

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City of Moreno Valley
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 Weather: Clear

File Name : 03_MR_V_CVS East DW_John F Kennedy PM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	John F Kennedy Drive Westbound			CVS East Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	3	79	82	1	9	10	99	11	110	202
04:15 PM	2	68	70	1	11	12	82	16	98	180
04:30 PM	4	74	78	1	11	12	120	7	127	217
04:45 PM	5	78	83	1	11	12	114	5	119	214
Total	14	299	313	4	42	46	415	39	454	813
05:00 PM	2	104	106	2	9	11	118	14	132	249
05:15 PM	6	80	86	1	12	13	125	13	138	237
05:30 PM	2	80	82	4	12	16	113	7	120	218
05:45 PM	1	80	81	4	11	15	123	10	133	229
Total	11	344	355	11	44	55	479	44	523	933
Grand Total	25	643	668	15	86	101	894	83	977	1746
Apprch %	3.7	96.3		14.9	85.1		91.5	8.5		
Total %	1.4	36.8	38.3	0.9	4.9	5.8	51.2	4.8	56	

Start Time	John F Kennedy Drive Westbound			CVS East Driveway Northbound			John F Kennedy Drive Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
05:00 PM	2	104	106	2	9	11	118	14	132	249
05:15 PM	6	80	86	1	12	13	125	13	138	237
05:30 PM	2	80	82	4	12	16	113	7	120	218
05:45 PM	1	80	81	4	11	15	123	10	133	229
Total Volume	11	344	355	11	44	55	479	44	523	933
% App. Total	3.1	96.9		20	80		91.6	8.4		
PHF	.458	.827	.837	.688	.917	.859	.958	.786	.947	.937

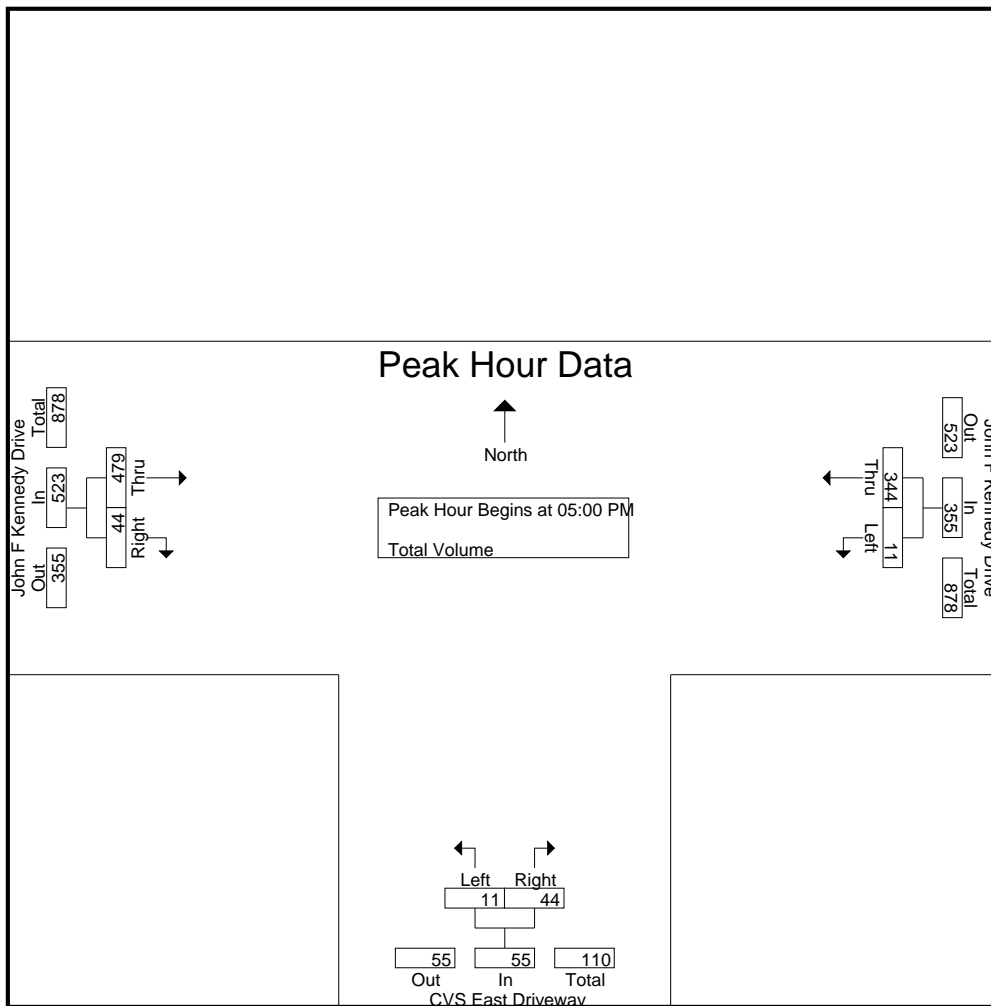
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: CVS East Driveway
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 03_MRV_CVS East DW_John F Kennedy PM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM			05:00 PM			05:00 PM		
+0 mins.	5	78	83	2	9	11	118	14	132
+15 mins.	2	104	106	1	12	13	125	13	138
+30 mins.	6	80	86	4	12	16	113	7	120
+45 mins.	2	80	82	4	11	15	123	10	133
Total Volume	15	342	357	11	44	55	479	44	523
% App. Total	4.2	95.8		20	80		91.6	8.4	
PHF	.625	.822	.842	.688	.917	.859	.958	.786	.947

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 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: Perris Boulevard
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 01_MRV_Perris_John F Kennedy AM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	Perris Boulevard Southbound				John F Kennedy Drive Westbound				Perris Boulevard Northbound				John F Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	14	77	4	95	16	30	16	62	23	208	16	247	6	25	8	39	443
07:15 AM	28	78	6	112	13	41	19	73	16	251	28	295	6	36	20	62	542
07:30 AM	40	94	20	154	23	37	26	86	22	278	52	352	12	52	9	73	665
07:45 AM	45	96	8	149	38	68	35	141	28	238	80	346	22	70	16	108	744
Total	127	345	38	510	90	176	96	362	89	975	176	1240	46	183	53	282	2394
08:00 AM	27	108	13	148	45	56	30	131	25	262	29	316	12	33	23	68	663
08:15 AM	21	100	8	129	28	44	14	86	28	215	17	260	10	28	20	58	533
08:30 AM	45	97	11	153	16	39	26	81	25	184	45	254	8	90	17	115	603
08:45 AM	51	94	8	153	27	82	27	136	18	170	30	218	8	123	20	151	658
Total	144	399	40	583	116	221	97	434	96	831	121	1048	38	274	80	392	2457
Grand Total	271	744	78	1093	206	397	193	796	185	1806	297	2288	84	457	133	674	4851
Apprch %	24.8	68.1	7.1		25.9	49.9	24.2		8.1	78.9	13		12.5	67.8	19.7		
Total %	5.6	15.3	1.6	22.5	4.2	8.2	4	16.4	3.8	37.2	6.1	47.2	1.7	9.4	2.7	13.9	

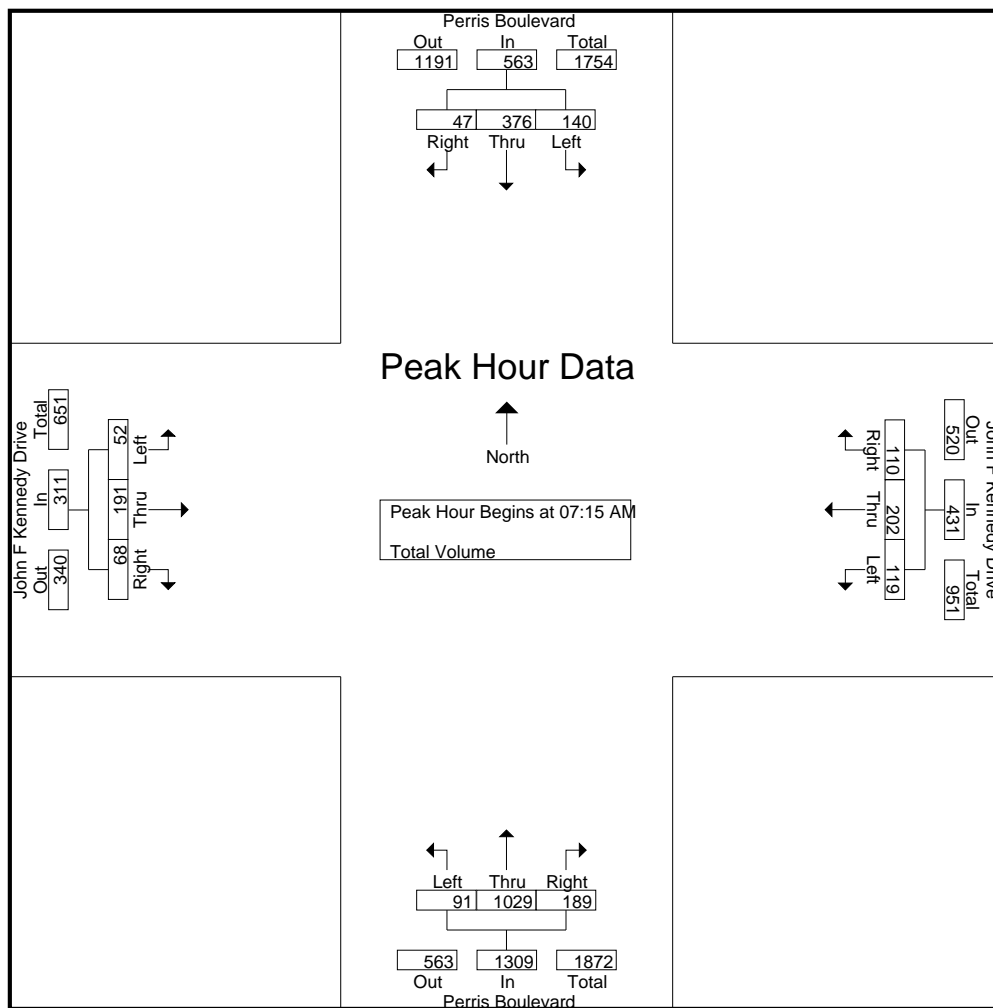
Start Time	Perris Boulevard Southbound				John F Kennedy Drive Westbound				Perris Boulevard Northbound				John F Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	28	78	6	112	13	41	19	73	16	251	28	295	6	36	20	62	542
07:30 AM	40	94	20	154	23	37	26	86	22	278	52	352	12	52	9	73	665
07:45 AM	45	96	8	149	38	68	35	141	28	238	80	346	22	70	16	108	744
08:00 AM	27	108	13	148	45	56	30	131	25	262	29	316	12	33	23	68	663
Total Volume	140	376	47	563	119	202	110	431	91	1029	189	1309	52	191	68	311	2614
% App. Total	24.9	66.8	8.3		27.6	46.9	25.5		7	78.6	14.4		16.7	61.4	21.9		
PHF	.778	.870	.588	.914	.661	.743	.786	.764	.813	.925	.591	.930	.591	.682	.739	.720	.878

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Moreno Valley
 N/S: Perris Boulevard
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 01_MRV_Perris_John F Kennedy AM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	08:00 AM				07:30 AM				07:15 AM				08:00 AM			
+0 mins.	27	108	13	148	23	37	26	86	16	251	28	295	12	33	23	68
+15 mins.	21	100	8	129	38	68	35	141	22	278	52	352	10	28	20	58
+30 mins.	45	97	11	153	45	56	30	131	28	238	80	346	8	90	17	115
+45 mins.	51	94	8	153	28	44	14	86	25	262	29	316	8	123	20	151
Total Volume	144	399	40	583	134	205	105	444	91	1029	189	1309	38	274	80	392
% App. Total	24.7	68.4	6.9		30.2	46.2	23.6		7	78.6	14.4		9.7	69.9	20.4	
PHF	.706	.924	.769	.953	.744	.754	.750	.787	.813	.925	.591	.930	.792	.557	.870	.649

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City of Moreno Valley
 N/S: Perris Boulevard
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 01_MRV_Perris_John F Kennedy PM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 1

Groups Printed- Total Volume

Start Time	Perris Boulevard Southbound				John F Kennedy Drive Westbound				Perris Boulevard Northbound				John F Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	34	188	14	236	40	55	16	111	21	154	17	192	15	57	31	103	642
04:15 PM	34	166	15	215	38	30	10	78	26	170	21	217	14	52	31	97	607
04:30 PM	28	199	14	241	29	44	17	90	21	172	28	221	14	68	46	128	680
04:45 PM	33	218	16	267	24	44	10	78	25	221	39	285	17	72	35	124	754
Total	129	771	59	959	131	173	53	357	93	717	105	915	60	249	143	452	2683
05:00 PM	33	170	22	225	40	47	16	103	34	179	26	239	16	75	33	124	691
05:15 PM	29	223	22	274	41	43	11	95	24	162	24	210	19	70	47	136	715
05:30 PM	30	245	13	288	47	48	18	113	22	171	20	213	17	75	39	131	745
05:45 PM	23	182	21	226	47	51	15	113	15	175	19	209	21	71	43	135	683
Total	115	820	78	1013	175	189	60	424	95	687	89	871	73	291	162	526	2834
Grand Total	244	1591	137	1972	306	362	113	781	188	1404	194	1786	133	540	305	978	5517
Apprch %	12.4	80.7	6.9		39.2	46.4	14.5		10.5	78.6	10.9		13.6	55.2	31.2		
Total %	4.4	28.8	2.5	35.7	5.5	6.6	2	14.2	3.4	25.4	3.5	32.4	2.4	9.8	5.5	17.7	

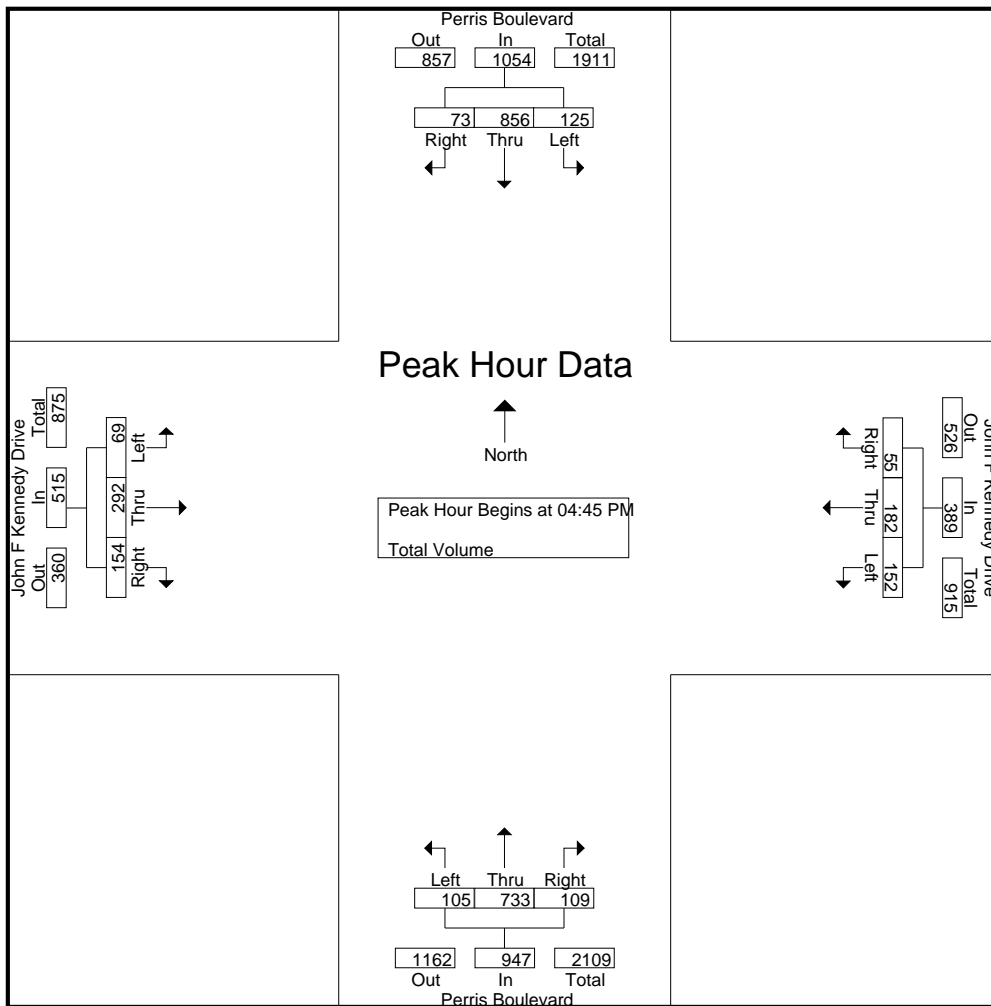
Start Time	Perris Boulevard Southbound				John F Kennedy Drive Westbound				Perris Boulevard Northbound				John F Kennedy Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	33	218	16	267	24	44	10	78	25	221	39	285	17	72	35	124	754
05:00 PM	33	170	22	225	40	47	16	103	34	179	26	239	16	75	33	124	691
05:15 PM	29	223	22	274	41	43	11	95	24	162	24	210	19	70	47	136	715
05:30 PM	30	245	13	288	47	48	18	113	22	171	20	213	17	75	39	131	745
Total Volume	125	856	73	1054	152	182	55	389	105	733	109	947	69	292	154	515	2905
% App. Total	11.9	81.2	6.9		39.1	46.8	14.1		11.1	77.4	11.5		13.4	56.7	29.9		
PHF	.947	.873	.830	.915	.809	.948	.764	.861	.772	.829	.699	.831	.908	.973	.819	.947	.963

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City of Moreno Valley
 N/S: Perris Boulevard
 E/W: John F Kennedy Drive
 Weather: Clear

File Name : 01_MRV_Perris_John F Kennedy PM
 Site Code : 0751802
 Start Date : 1/10/2018
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM				05:00 PM				04:15 PM				05:00 PM			
+0 mins.	33	218	16	267	40	47	16	103	26	170	21	217	16	75	33	124
+15 mins.	33	170	22	225	41	43	11	95	21	172	28	221	19	70	47	136
+30 mins.	29	223	22	274	47	48	18	113	25	221	39	285	17	75	39	131
+45 mins.	30	245	13	288	47	51	15	113	34	179	26	239	21	71	43	135
Total Volume	125	856	73	1054	175	189	60	424	106	742	114	962	73	291	162	526
% App. Total	11.9	81.2	6.9		41.3	44.6	14.2		11	77.1	11.9		13.9	55.3	30.8	
PHF	.947	.873	.830	.915	.931	.926	.833	.938	.779	.839	.731	.844	.869	.970	.862	.967

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APPENDIX C

Explanation and Calculation of Intersection Delay

EXPLANATION AND CALCULATION OF INTERSECTION LEVEL OF SERVICE USING DELAY METHODOLOGY

The levels of service at the unsignalized and signalized intersections are calculated using the delay methodology in the Highway Capacity Manual. This methodology views an intersection as consisting of several lane groups. A lane group is a set of lanes serving a movement. If there are two northbound left turn lanes, then the lane group serving the northbound left turn movement has two lanes. Similarly, there may be three lanes in the lane group serving the northbound through movement, one lane in the lane group serving the northbound right turn movement, and so forth. It is also possible for one lane to serve two lane groups. A shared lane might result in there being 1.5 lanes in the northbound left turn lane group and 2.5 lanes in the northbound through lane group.

For each lane group, there is a capacity. That capacity is calculated by multiplying the number of lanes in the lane group times a theoretical maximum lane capacity per lane time's 12 adjustment factors.

Each of the 12 adjustment factors has a value of approximately 1.00. A value less than 1.00 is generally assigned when a less than desirable condition occurs.

The 12 adjustment factors are as follows:

1. Peak hour factor (to account for peaking within the peak hour)
2. Lane utilization factor (to account for not all lanes loading equally)
3. Lane width
4. Percent of heavy trucks
5. Approach grade
6. Parking
7. Bus stops at intersections
8. Area type (CBD or other)
9. Right turns
10. Left turns
11. Pedestrian activity
12. Signal progression

The maximum theoretical lane capacity and the 12 adjustment factors for it are all unknowns for which approximate estimates have been recommended in the Highway Capacity Manual. For the most part, the recommended values are not based on statistical analysis but rather on educated estimates. However, it is possible to use the delay method and get reasonable results as will be discussed below.

Once the lane group volume is known and the lane group capacity is known, a volume to capacity ratio can be calculated for the lane group.

With a volume to capacity ratio calculated, average delay per vehicle in a lane group can be estimated. The average delay per vehicle in a lane group is calculated using a complex formula provided by the Highway Capacity Manual, which can be simplified and described as follows:

Delay per vehicle in a lane group is a function of the following:

1. Cycle length
2. Amount of red time faced by a lane group
3. Amount of yellow time for that lane group
4. The volume to capacity ratio of the lane group

The average delay per vehicle for each lane group is calculated, and eventually an overall average delay for all vehicles entering the intersection is calculated. This average delay per vehicle is then used to judge Level of Service. The Level of Services are defined in the table that follows this discussion.

Experience has shown that when a maximum lane capacity of 1,900 vehicles per hour is used (as recommended in the Highway Capacity Manual), little or no yellow time penalty is used, and none of the 12 penalty factors are applied, calculated delay is realistic. The delay calculation for instance assumes that yellow time is totally unused. Yet experience shows that most of the yellow time is used.

An idiosyncrasy of the delay methodology is that it is possible to add traffic to an intersection and reduce the average total delay per vehicle. If the average total delay is 30 seconds per vehicle for all vehicles traveling through an intersection, and traffic is added to a movement that has an average total delay of 15 seconds per vehicle, then the overall average total delay is reduced.

The delay calculation for a lane group is based on a concept that the delay is a function of the amount of unused capacity available. As the volume approaches capacity and there is no more unused capacity available, then the delay rapidly increases. Delay is not proportional to volume, but rather increases rapidly as the unused capacity approaches zero.

Because delay is not linearly related to volumes, the delay does not reflect how close an intersection is to overloading. If an intersection is operating at Level of Service C and has an average total delay of 18 seconds per vehicle, you know very little as to what percent the traffic can increase before Level of Service E is reached.

LEVEL OF SERVICE DESCRIPTION¹

Level of Service	Description	Average Total Delay per Vehicle (Seconds)	
		Signalized	Unsignalized
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 to 55.00	25.01 to 35.00
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

¹ Source: [Highway Capacity Manual](#) Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2010.

Existing

Self Storage Facility

Vistro File: J:\...\lamE.vistro
Report File: J:\...\lamE.pdfScenario 1 Existing
2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	WB Left	0.503	21.4	C
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	NB Left	0.698	21.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	21.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.503

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	30	253	44	95	320	101	104	180	27	59	305	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	253	44	95	320	101	104	180	27	59	305	101
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	76	13	28	96	30	31	54	8	18	91	30
Total Analysis Volume [veh/h]	36	303	53	114	383	121	125	216	32	71	365	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	19	0	10	20	0	12	19	0	12	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	23	23	5	26	26	6	13	13	4	11	11
g / C, Green / Cycle	0.04	0.38	0.38	0.08	0.43	0.43	0.09	0.21	0.21	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.02	0.10	0.10	0.06	0.14	0.14	0.07	0.07	0.07	0.04	0.13	0.14
s, saturation flow rate [veh/h]	1781	1870	1775	1781	1870	1719	1781	1870	1787	1781	1870	1714
c, Capacity [veh/h]	71	708	672	151	792	728	166	394	377	107	333	305
d1, Uniform Delay [s]	28.35	12.88	12.91	26.98	11.65	11.67	26.67	20.13	20.15	27.73	23.54	23.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.40	0.87	0.94	7.44	1.12	1.23	6.80	0.46	0.49	6.79	3.51	4.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.26	0.26	0.76	0.33	0.33	0.75	0.32	0.32	0.66	0.76	0.77
d, Delay for Lane Group [s/veh]	33.75	13.75	13.85	34.42	12.76	12.90	33.48	20.59	20.65	34.52	27.04	27.65
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.59	1.66	1.62	1.83	2.28	2.15	1.97	1.44	1.41	1.15	3.48	3.29
50th-Percentile Queue Length [ft]	14.78	41.61	40.55	45.65	57.06	53.64	49.14	36.02	35.13	28.79	87.05	82.24
95th-Percentile Queue Length [veh]	1.06	3.00	2.92	3.29	4.11	3.86	3.54	2.59	2.53	2.07	6.27	5.92
95th-Percentile Queue Length [ft]	26.60	74.91	72.99	82.17	102.72	96.55	88.46	64.84	63.23	51.82	156.70	148.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.75	13.79	13.85	34.42	12.81	12.90	33.48	20.62	20.65	34.52	27.23	27.65
Movement LOS	C	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	15.63			16.81			24.93			28.25		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.42											
Intersection LOS	C											
Intersection V/C	0.503											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68		
l_p,int, Pedestrian LOS Score for Intersection	2.452			2.508			2.455			2.464		
Crosswalk LOS	B			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	500			533			500			500		
d_b, Bicycle Delay [s]	16.88			16.13			16.88			16.88		
l_b,int, Bicycle LOS Score for Intersection	1.883			2.069			1.867			2.019		
Bicycle LOS	A			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

**Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)**

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵|↑|↑			↵|↑|↑			↵|↑			↵|↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	91	1029	189	140	376	47	52	191	68	119	202	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	1029	189	140	376	47	52	191	68	119	202	110
Peak Hour Factor	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	293	54	40	107	13	15	54	19	34	58	31
Total Analysis Volume [veh/h]	104	1172	215	159	428	54	59	218	77	136	230	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	20	0	11	19	0	9	19	0	10	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	24	24	7	26	26	3	7	7	6	10	10
g / C, Green / Cycle	0.08	0.40	0.40	0.11	0.44	0.44	0.05	0.12	0.12	0.10	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.26	0.09	0.09	0.09	0.03	0.08	0.08	0.08	0.10	0.10
s, saturation flow rate [veh/h]	1781	3560	1725	1781	3560	1766	1781	1870	1708	1781	1870	1654
c, Capacity [veh/h]	139	1421	688	204	1549	768	97	228	208	177	312	276
d1, Uniform Delay [s]	27.20	14.76	14.77	25.96	10.57	10.59	27.87	25.29	25.37	26.48	23.25	23.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.69	2.40	4.87	6.37	0.30	0.62	5.96	3.30	4.00	6.89	1.83	2.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.66	0.66	0.78	0.21	0.21	0.61	0.66	0.69	0.77	0.60	0.61
d, Delay for Lane Group [s/veh]	34.89	17.16	19.64	32.33	10.87	11.21	33.83	28.59	29.37	33.38	25.07	25.54
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.68	4.98	5.30	2.44	1.21	1.29	0.95	2.15	2.08	2.13	2.44	2.25
50th-Percentile Queue Length [ft]	42.06	124.57	132.56	61.09	30.28	32.30	23.75	53.86	51.98	53.31	60.94	56.29
95th-Percentile Queue Length [veh]	3.03	8.64	9.08	4.40	2.18	2.33	1.71	3.88	3.74	3.84	4.39	4.05
95th-Percentile Queue Length [ft]	75.72	216.09	226.97	109.96	54.50	58.15	42.76	96.94	93.56	95.95	109.70	101.33

Movement, Approach, & Intersection Results

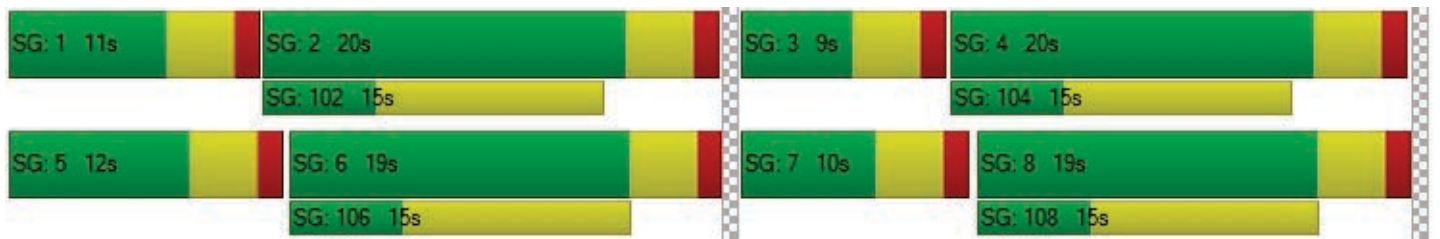
d_M, Delay for Movement [s/veh]	34.89	17.66	19.64	32.33	10.96	11.21	33.83	28.83	29.37	33.38	25.16	25.54
Movement LOS	C	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	19.15			16.28			29.78			27.53		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.18											
Intersection LOS	C											
Intersection V/C	0.698											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68		
l_p,int, Pedestrian LOS Score for Intersection	2.872			2.853			2.425			2.492		
Crosswalk LOS	C			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	533			500			500			533		
d_b, Bicycle Delay [s]	16.13			16.88			16.88			16.13		
l_b,int, Bicycle LOS Score for Intersection	2.380			1.912			1.852			1.965		
Bicycle LOS	B			A			A			A		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Self Storage Facility

Vistro File: J:\...\pmE.vistro
Report File: J:\...\pmE.pdfScenario 1 Existing
2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	SB Left	0.462	20.2	C
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	EB Left	0.631	21.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	20.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.462

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	38	377	90	66	265	56	107	303	27	43	228	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	377	90	66	265	56	107	303	27	43	228	52
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	104	25	18	73	16	30	84	7	12	63	14
Total Analysis Volume [veh/h]	42	418	100	73	294	62	119	336	30	48	253	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	19	0	12	22	0	10	20	0	9	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	28	28	4	29	29	5	10	10	3	8	8
g / C, Green / Cycle	0.04	0.46	0.46	0.06	0.48	0.48	0.09	0.16	0.16	0.05	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.14	0.04	0.10	0.10	0.07	0.10	0.10	0.03	0.08	0.09
s, saturation flow rate [veh/h]	1781	1870	1747	1781	1870	1759	1781	1870	1817	1781	1870	1752
c, Capacity [veh/h]	79	860	803	109	891	838	157	309	301	86	235	220
d1, Uniform Delay [s]	28.19	10.26	10.28	27.71	9.16	9.17	26.86	23.31	23.32	28.06	25.18	25.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.41	0.94	1.02	6.97	0.52	0.56	7.27	1.85	1.94	5.52	3.36	3.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.31	0.31	0.67	0.20	0.21	0.76	0.60	0.60	0.56	0.67	0.69
d, Delay for Lane Group [s/veh]	33.60	11.20	11.30	34.69	9.67	9.74	34.13	25.16	25.26	33.58	28.54	29.11
Lane Group LOS	C	B	B	C	A	A	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.68	2.12	2.02	1.19	1.30	1.26	1.89	2.43	2.39	0.78	2.25	2.20
50th-Percentile Queue Length [ft]	17.06	52.94	50.55	29.67	32.51	31.43	47.37	60.81	59.71	19.38	56.32	54.89
95th-Percentile Queue Length [veh]	1.23	3.81	3.64	2.14	2.34	2.26	3.41	4.38	4.30	1.40	4.05	3.95
95th-Percentile Queue Length [ft]	30.71	95.28	90.99	53.40	58.51	56.57	85.27	109.46	107.47	34.88	101.37	98.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.60	11.23	11.30	34.69	9.70	9.74	34.13	25.21	25.26	33.58	28.76	29.11
Movement LOS	C	B	B	C	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	12.92			13.96			27.40			29.46		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.23											
Intersection LOS	C											
Intersection V/C	0.462											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.462	2.480	2.445	2.450
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	600	533	500
d_b, Bicycle Delay [s]	16.88	14.70	16.13	16.88
I_b,int, Bicycle LOS Score for Intersection	2.022	1.914	1.960	1.856
Bicycle LOS	B	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.631

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	105	733	109	125	856	73	69	292	154	152	182	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	733	109	125	856	73	69	292	154	152	182	55
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	190	28	32	222	19	18	76	40	39	47	14
Total Analysis Volume [veh/h]	109	761	113	130	889	76	72	303	160	158	189	57
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	20	0	10	19	0	11	19	0	11	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	21	21	6	22	22	4	10	10	7	14	14
g / C, Green / Cycle	0.08	0.36	0.36	0.09	0.37	0.37	0.06	0.17	0.17	0.11	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.17	0.07	0.18	0.18	0.04	0.13	0.13	0.09	0.07	0.07
s, saturation flow rate [veh/h]	1781	3560	1749	1781	3560	1796	1781	1870	1657	1781	1870	1725
c, Capacity [veh/h]	145	1259	618	170	1308	660	108	321	285	203	421	388
d1, Uniform Delay [s]	27.09	15.08	15.10	26.61	14.72	14.72	27.72	23.76	23.84	25.98	19.42	19.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.52	1.23	2.53	6.97	1.32	2.61	6.88	3.62	4.46	6.37	0.40	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.46	0.47	0.76	0.49	0.49	0.67	0.76	0.77	0.78	0.30	0.31
d, Delay for Lane Group [s/veh]	34.60	16.31	17.63	33.58	16.03	17.33	34.60	27.38	28.30	32.35	19.81	19.90
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.75	2.97	3.17	2.05	3.23	3.50	1.17	3.38	3.14	2.43	1.41	1.34
50th-Percentile Queue Length [ft]	43.82	74.34	79.18	51.17	80.71	87.55	29.23	84.50	78.40	60.73	35.26	33.58
95th-Percentile Queue Length [veh]	3.16	5.35	5.70	3.68	5.81	6.30	2.10	6.08	5.64	4.37	2.54	2.42
95th-Percentile Queue Length [ft]	78.88	133.81	142.53	92.11	145.28	157.59	52.61	152.09	141.12	109.31	63.46	60.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.60	16.62	17.63	33.58	16.39	17.33	34.60	27.56	28.30	32.35	19.84	19.90
Movement LOS	C	B	B	C	B	B	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	18.73			18.50			28.73			24.74		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.22											
Intersection LOS	C											
Intersection V/C	0.631											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.880	2.851	2.458	2.466
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	500	500	500
d_b, Bicycle Delay [s]	16.13	16.88	16.88	16.88
l_b,int, Bicycle LOS Score for Intersection	2.100	2.162	2.001	1.893
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Existing Plus Project

Self Storage Facility

Vistro File: J:\...\lamE.vistro

Scenario 2 Existing Plus Project

Report File: J:\...\lamEP.pdf

2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	WB Left	0.505	21.4	C
2	Project West Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Left	0.034	12.6	B
3	Project East Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Right	0.009	9.6	A
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	EB Left	0.680	21.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	21.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.505

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	30	253	44	95	320	101	104	180	27	59	305	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	1	0	0	0	1	0	0	1	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	253	44	96	320	101	104	181	27	59	306	102
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	76	13	29	96	30	31	54	8	18	92	31
Total Analysis Volume [veh/h]	36	303	53	115	383	121	125	217	32	71	366	122
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	19	0	10	20	0	10	19	0	12	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	23	23	5	26	26	5	13	13	4	11	11
g / C, Green / Cycle	0.04	0.38	0.38	0.08	0.43	0.43	0.09	0.21	0.21	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.02	0.10	0.10	0.06	0.14	0.14	0.07	0.07	0.07	0.04	0.14	0.14
s, saturation flow rate [veh/h]	1781	1870	1775	1781	1870	1719	1781	1870	1788	1781	1870	1713
c, Capacity [veh/h]	71	707	671	152	792	728	164	394	377	107	334	306
d1, Uniform Delay [s]	28.35	12.91	12.93	26.96	11.65	11.67	26.72	20.14	20.16	27.73	23.51	23.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.40	0.87	0.94	7.40	1.12	1.23	7.08	0.46	0.50	6.79	3.49	4.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.26	0.26	0.76	0.33	0.33	0.76	0.32	0.33	0.66	0.76	0.77
d, Delay for Lane Group [s/veh]	33.75	13.78	13.88	34.36	12.76	12.90	33.80	20.60	20.66	34.52	27.00	27.60
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.59	1.67	1.62	1.84	2.28	2.15	1.98	1.45	1.41	1.15	3.49	3.30
50th-Percentile Queue Length [ft]	14.78	41.68	40.62	45.99	57.07	53.64	49.43	36.18	35.28	28.79	87.36	82.49
95th-Percentile Queue Length [veh]	1.06	3.00	2.92	3.31	4.11	3.86	3.56	2.60	2.54	2.07	6.29	5.94
95th-Percentile Queue Length [ft]	26.60	75.03	73.11	82.79	102.73	96.55	88.98	65.12	63.51	51.82	157.25	148.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.75	13.82	13.88	34.36	12.81	12.90	33.80	20.62	20.66	34.52	27.18	27.60
Movement LOS	C	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	15.66			16.83			25.03			28.21		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.44											
Intersection LOS	C											
Intersection V/C	0.505											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68		
I_p,int, Pedestrian LOS Score for Intersection	2.452			2.508			2.455			2.465		
Crosswalk LOS	B			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	500			533			500			567		
d_b, Bicycle Delay [s]	16.88			16.13			16.88			15.41		
I_b,int, Bicycle LOS Score for Intersection	1.883			2.070			1.868			2.021		
Bicycle LOS	A			B			A			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Level Of Service Report
Intersection 2: Project West Access (NS) at JFK Dr (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↔		↔		↔	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	14	0	395	3	14	350
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	2	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	0	395	5	18	350
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	104	1	5	92
Total Analysis Volume [veh/h]	17	0	416	5	19	368
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	12.56	9.79	0.00	0.00	8.23	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.11	0.11	0.00	0.00	0.05	0.00
95th-Percentile Queue Length [ft]	2.67	2.67	0.00	0.00	1.28	0.00
d_A, Approach Delay [s/veh]	12.56		0.00		0.40	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.45					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 3: Project East Access (NS) at JFK Dr (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↻		|↻		||	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	5	391	7	0	349
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	391	7	0	353
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	103	2	0	93
Total Analysis Volume [veh/h]	0	7	412	7	0	372
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	9.56	0.00	0.00	0.00	0.00
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.03	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.67	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.56		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.680

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵|↑|↑			↵|↑|↑			↵|↑			↵|↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	91	1029	189	140	376	47	52	191	68	119	202	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	2	1	0	1	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	1029	189	140	376	49	53	191	69	119	203	110
Peak Hour Factor	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	293	54	40	107	14	15	54	20	34	58	31
Total Analysis Volume [veh/h]	105	1172	215	159	428	56	60	218	79	136	231	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	19	0	16	19	0	9	19	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	28	28	7	30	30	3	8	8	6	11	11
g / C, Green / Cycle	0.08	0.42	0.42	0.11	0.46	0.46	0.05	0.12	0.12	0.10	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.26	0.09	0.09	0.09	0.03	0.08	0.08	0.08	0.10	0.10
s, saturation flow rate [veh/h]	1781	3560	1725	1781	3560	1763	1781	1870	1705	1781	1870	1655
c, Capacity [veh/h]	141	1497	726	206	1627	805	94	224	204	176	310	274
d1, Uniform Delay [s]	29.41	14.86	14.86	28.04	10.58	10.60	30.29	27.53	27.62	28.69	25.23	25.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.58	1.97	4.02	6.07	0.27	0.56	6.88	3.61	4.42	6.98	1.87	2.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.62	0.62	0.77	0.20	0.20	0.64	0.68	0.71	0.77	0.60	0.62
d, Delay for Lane Group [s/veh]	36.99	16.83	18.88	34.11	10.86	11.16	37.17	31.14	32.03	35.67	27.09	27.57
Lane Group LOS	D	B	B	C	B	B	D	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.84	5.20	5.45	2.64	1.28	1.36	1.07	2.39	2.31	2.32	2.69	2.48
50th-Percentile Queue Length [ft]	45.91	129.91	136.24	66.04	32.05	33.96	26.66	59.86	57.71	58.02	67.26	62.08
95th-Percentile Queue Length [veh]	3.31	8.93	9.28	4.75	2.31	2.45	1.92	4.31	4.16	4.18	4.84	4.47
95th-Percentile Queue Length [ft]	82.64	223.37	231.95	118.86	57.68	61.13	47.99	107.75	103.88	104.44	121.07	111.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.99	17.25	18.88	34.11	10.93	11.16	37.17	31.41	32.03	35.67	27.19	27.57
Movement LOS	D	B	B	C	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	18.87			16.68			32.51			29.63		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.81											
Intersection LOS	C											
Intersection V/C	0.680											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.12	24.12	24.12	24.12
I_p,int, Pedestrian LOS Score for Intersection	2.876	2.857	2.431	2.496
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	462	462	462	523
d_b, Bicycle Delay [s]	19.23	19.23	19.23	17.72
I_b,int, Bicycle LOS Score for Intersection	2.380	1.913	1.854	1.966
Bicycle LOS	B	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Self Storage Facility

Vistro File: J:\...\pmE.vistro

Scenario 2 Existing Plus Project

Report File: J:\...\pmEP.pdf

2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	SB Left	0.464	20.3	C
2	Project West Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Left	0.124	14.8	B
3	Project East Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Right	0.071	10.4	B
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	EB Left	0.634	21.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	20.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.464

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	38	377	90	66	265	56	107	303	27	43	228	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	1	0	0	0	1	0	0	2	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	377	90	67	265	56	107	304	27	43	230	53
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	104	25	19	73	16	30	84	7	12	64	15
Total Analysis Volume [veh/h]	42	418	100	74	294	62	119	337	30	48	255	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	19	0	12	22	0	10	20	0	9	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	28	28	4	29	29	5	10	10	3	8	8
g / C, Green / Cycle	0.04	0.46	0.46	0.06	0.48	0.48	0.09	0.17	0.17	0.05	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.14	0.04	0.10	0.10	0.07	0.10	0.10	0.03	0.09	0.09
s, saturation flow rate [veh/h]	1781	1870	1747	1781	1870	1759	1781	1870	1817	1781	1870	1751
c, Capacity [veh/h]	79	857	801	109	889	837	157	311	302	86	237	222
d1, Uniform Delay [s]	28.19	10.31	10.33	27.71	9.19	9.21	26.86	23.26	23.28	28.06	25.15	25.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.41	0.94	1.03	7.07	0.52	0.57	7.27	1.83	1.92	5.52	3.36	3.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.31	0.31	0.68	0.20	0.21	0.76	0.60	0.60	0.56	0.68	0.69
d, Delay for Lane Group [s/veh]	33.60	11.25	11.36	34.77	9.71	9.77	34.13	25.09	25.20	33.58	28.52	29.09
Lane Group LOS	C	B	B	C	A	A	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.68	2.13	2.03	1.20	1.30	1.26	1.89	2.44	2.39	0.78	2.27	2.22
50th-Percentile Queue Length [ft]	17.06	53.13	50.73	30.11	32.59	31.51	47.37	60.88	59.77	19.38	56.85	55.38
95th-Percentile Queue Length [veh]	1.23	3.83	3.65	2.17	2.35	2.27	3.41	4.38	4.30	1.40	4.09	3.99
95th-Percentile Queue Length [ft]	30.71	95.64	91.32	54.20	58.66	56.71	85.27	109.58	107.59	34.88	102.32	99.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.60	11.29	11.36	34.77	9.73	9.77	34.13	25.14	25.20	33.58	28.73	29.09
Movement LOS	C	B	B	C	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	12.97			14.05			27.34			29.43		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.27											
Intersection LOS	C											
Intersection V/C	0.464											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.462	2.481	2.445	2.451
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	600	533	500
d_b, Bicycle Delay [s]	16.88	14.70	16.13	16.88
I_b,int, Bicycle LOS Score for Intersection	2.022	1.914	1.961	1.858
Bicycle LOS	B	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Level Of Service Report
Intersection 2: Project West Access (NS) at JFK Dr (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.124

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↔		↔		↔	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	46	0	537	9	12	358
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	1	0	2	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	1	537	11	16	358
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	0	141	3	4	94
Total Analysis Volume [veh/h]	52	1	565	12	17	377
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.00	0.01	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	14.81	11.30	0.00	0.00	8.69	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.43	0.43	0.00	0.00	0.05	0.00
95th-Percentile Queue Length [ft]	10.66	10.66	0.00	0.00	1.31	0.00
d_A, Approach Delay [s/veh]	14.74		0.00		0.37	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.91					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 3: Project East Access (NS) at JFK Dr (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.071

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↻		↻		||	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	44	479	44	0	344
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	1	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	48	480	44	0	348
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	126	12	0	92
Total Analysis Volume [veh/h]	0	51	505	46	0	366
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.37	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.23	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	5.69	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.37		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.55					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵|↑|↑			↵|↑|↑			↵|↑			↵|↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	105	733	109	125	856	73	69	292	154	152	182	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	2	2	1	2	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	733	109	125	856	75	71	293	156	152	183	55
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	190	28	32	222	19	18	76	40	39	48	14
Total Analysis Volume [veh/h]	110	761	113	130	889	78	74	304	162	158	190	57
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	19	0	10	19	0	12	20	0	11	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	21	21	6	22	22	4	10	10	7	14	14
g / C, Green / Cycle	0.08	0.35	0.35	0.09	0.37	0.37	0.06	0.17	0.17	0.11	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.17	0.07	0.18	0.18	0.04	0.13	0.13	0.09	0.07	0.07
s, saturation flow rate [veh/h]	1781	3560	1749	1781	3560	1794	1781	1870	1656	1781	1870	1726
c, Capacity [veh/h]	146	1251	615	170	1299	654	109	325	288	203	423	391
d1, Uniform Delay [s]	27.08	15.18	15.20	26.61	14.84	14.85	27.71	23.66	23.75	25.98	19.36	19.40
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.60	1.26	2.58	6.97	1.35	2.67	7.07	3.50	4.31	6.37	0.39	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.47	0.47	0.76	0.49	0.50	0.68	0.75	0.77	0.78	0.30	0.31
d, Delay for Lane Group [s/veh]	34.68	16.43	17.77	33.58	16.19	17.52	34.77	27.17	28.06	32.35	19.75	19.84
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.77	2.99	3.18	2.05	3.26	3.53	1.20	3.39	3.14	2.43	1.41	1.35
50th-Percentile Queue Length [ft]	44.28	74.69	79.59	51.17	81.43	88.31	30.11	84.72	78.47	60.73	35.33	33.66
95th-Percentile Queue Length [veh]	3.19	5.38	5.73	3.68	5.86	6.36	2.17	6.10	5.65	4.37	2.54	2.42
95th-Percentile Queue Length [ft]	79.71	134.45	143.27	92.11	146.58	158.97	54.20	152.50	141.25	109.31	63.60	60.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.68	16.74	17.77	33.58	16.56	17.52	34.77	27.34	28.06	32.35	19.78	19.84
Movement LOS	C	B	B	C	B	B	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	18.87			18.64			28.57			24.69		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.30											
Intersection LOS	C											
Intersection V/C	0.634											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.880	2.852	2.460	2.466
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	533	500
d_b, Bicycle Delay [s]	16.88	16.88	16.13	16.88
l_b,int, Bicycle LOS Score for Intersection	2.101	2.163	2.005	1.894
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Opening Year (2023) Without Project

Self Storage Facility

Vistro File: J:\...\lamOY.vistro

Scenario 1 Opening Year (2023) Without Project

Report File: J:\...\lamOY.pdf

2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	WB Left	0.623	22.9	C
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	EB Left	0.847	30.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	22.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.623

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	30	253	44	95	320	101	104	180	27	59	305	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	9	8	0	0	0	35	0	3	14	3
Site-Generated Trips [veh/h]	23	64	15	0	27	0	1	31	12	10	34	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	342	72	113	379	111	115	264	42	78	384	114
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	102	22	34	113	33	34	79	13	23	115	34
Total Analysis Volume [veh/h]	67	410	86	135	454	133	138	316	50	93	460	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	19	0	10	20	0	10	19	0	12	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	20	20	6	22	22	6	14	14	4	12	12
g / C, Green / Cycle	0.06	0.33	0.33	0.10	0.37	0.37	0.10	0.24	0.24	0.07	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.14	0.14	0.08	0.16	0.16	0.08	0.10	0.10	0.05	0.17	0.17
s, saturation flow rate [veh/h]	1781	1870	1760	1781	1870	1727	1781	1870	1782	1781	1870	1725
c, Capacity [veh/h]	104	615	578	176	690	637	179	443	423	125	387	357
d1, Uniform Delay [s]	27.77	15.73	15.75	26.50	14.35	14.36	26.45	19.49	19.51	27.50	22.72	22.75
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.47	2.05	2.22	6.90	2.05	2.23	6.92	0.63	0.68	8.39	3.84	4.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.41	0.42	0.77	0.44	0.44	0.77	0.42	0.42	0.74	0.80	0.80
d, Delay for Lane Group [s/veh]	34.24	17.78	17.97	33.40	16.39	16.60	33.37	20.12	20.19	35.89	26.56	27.03
Lane Group LOS	C	B	B	C	B	B	C	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.08	2.79	2.68	2.12	3.17	2.97	2.16	2.12	2.05	1.54	4.26	4.00
50th-Percentile Queue Length [ft]	27.07	69.84	67.10	52.95	79.20	74.36	54.07	52.98	51.22	38.38	106.50	100.03
95th-Percentile Queue Length [veh]	1.95	5.03	4.83	3.81	5.70	5.35	3.89	3.81	3.69	2.76	7.65	7.20
95th-Percentile Queue Length [ft]	48.73	125.72	120.77	95.30	142.57	133.84	97.32	95.36	92.20	69.09	191.13	180.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.24	17.85	17.97	33.40	16.46	16.60	33.37	20.15	20.19	35.89	26.72	27.03
Movement LOS	C	B	B	C	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	19.82			19.65			23.77			28.02		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	22.86											
Intersection LOS	C											
Intersection V/C	0.623											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.507	2.555	2.507	2.520
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	533	500	567
d_b, Bicycle Delay [s]	16.88	16.13	16.88	15.41
I_b,int, Bicycle LOS Score for Intersection	2.024	2.155	1.975	2.129
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

**Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)**

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			↔↔↔			↔↔			↔↔		
Lane Configuration	↔↔↔			↔↔↔			↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	91	1029	189	140	376	47	52	191	68	119	202	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	6	42	16	11	13	5	8	33	11	10	9	11
Site-Generated Trips [veh/h]	24	119	42	3	138	4	6	18	24	34	17	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	1293	266	168	565	61	71	261	110	175	248	133
Peak Hour Factor	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	368	76	48	161	17	20	74	31	50	71	38
Total Analysis Volume [veh/h]	148	1473	303	191	644	69	81	297	125	199	282	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	19	0	14	19	0	28	33	0	14	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	32	32	10	33	33	5	12	12	10	17	17
g / C, Green / Cycle	0.10	0.40	0.40	0.13	0.42	0.42	0.06	0.15	0.15	0.13	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.08	0.34	0.34	0.11	0.13	0.13	0.05	0.12	0.12	0.11	0.12	0.12
s, saturation flow rate [veh/h]	1781	3560	1712	1781	3560	1779	1781	1870	1686	1781	1870	1655
c, Capacity [veh/h]	186	1408	677	224	1483	741	109	288	259	224	408	361
d1, Uniform Delay [s]	35.07	22.07	22.17	34.35	15.75	15.77	37.02	32.54	32.64	34.52	27.93	27.99
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.47	6.57	13.19	8.93	0.57	1.15	9.45	4.19	5.08	11.38	1.20	1.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.85	0.86	0.85	0.32	0.32	0.74	0.76	0.78	0.89	0.56	0.57
d, Delay for Lane Group [s/veh]	42.54	28.64	35.36	43.28	16.32	16.92	46.47	36.73	37.73	45.90	29.13	29.39
Lane Group LOS	D	C	D	D	B	B	D	D	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	3.14	10.78	11.73	4.10	2.87	3.01	1.82	4.30	4.04	4.42	3.91	3.53
50th-Percentile Queue Length [ft]	78.50	269.47	293.27	102.55	71.78	75.28	45.40	107.59	101.01	110.54	97.75	88.37
95th-Percentile Queue Length [veh]	5.65	16.16	17.35	7.38	5.17	5.42	3.27	7.71	7.27	7.87	7.04	6.36
95th-Percentile Queue Length [ft]	141.31	404.08	433.70	184.59	129.20	135.51	81.72	192.64	181.83	196.75	175.95	159.06

Movement, Approach, & Intersection Results

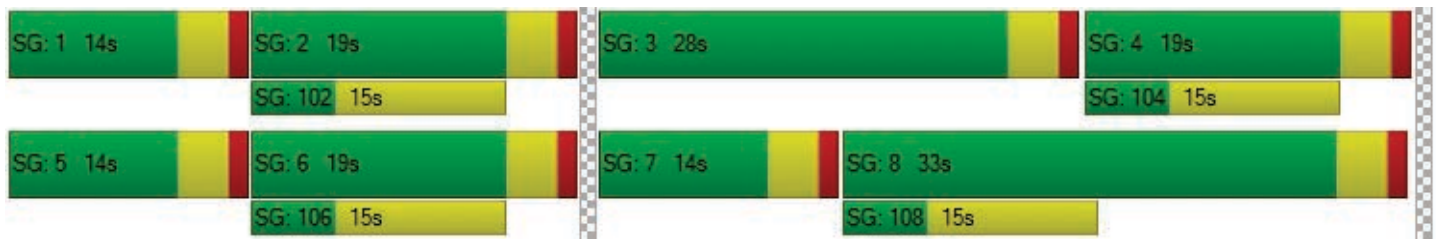
d_M, Delay for Movement [s/veh]	42.54	29.90	35.36	43.28	16.48	16.92	46.47	36.99	37.73	45.90	29.18	29.39
Movement LOS	D	C	D	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	31.74			22.18			38.70			34.50		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	30.88											
Intersection LOS	C											
Intersection V/C	0.847											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	2.992	2.953	2.491	2.573
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	375	375	725	375
d_b, Bicycle Delay [s]	26.41	26.41	16.26	26.41
I_b,int, Bicycle LOS Score for Intersection	2.618	2.057	1.975	2.081
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Self Storage Facility

Vistro File: J:\...\pmE.vistro

Scenario 1 Opening Year (2023) Without Project

Report File: J:\...\pmOY.pdf

2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	SB Left	0.593	22.3	C
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	EB Left	0.836	33.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)**

Control Type:	Signalized	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	38	377	90	66	265	56	107	303	27	43	228	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	2	1	0	0	0	13	0	23	80	17
Site-Generated Trips [veh/h]	18	48	18	0	71	1	1	45	27	20	39	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	463	119	74	363	63	119	391	57	90	370	74
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	128	33	21	101	17	33	108	16	25	103	21
Total Analysis Volume [veh/h]	67	513	132	82	402	70	132	433	63	100	410	82
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	19	0	12	19	0	10	19	0	10	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	24	24	4	24	24	6	12	12	4	11	11
g / C, Green / Cycle	0.06	0.40	0.40	0.06	0.41	0.41	0.10	0.20	0.20	0.07	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.18	0.05	0.13	0.13	0.07	0.14	0.14	0.06	0.13	0.14
s, saturation flow rate [veh/h]	1781	1870	1740	1781	1870	1775	1781	1870	1788	1781	1870	1764
c, Capacity [veh/h]	104	745	693	115	756	718	172	368	352	134	327	309
d1, Uniform Delay [s]	27.77	13.28	13.30	27.65	12.28	12.29	26.56	22.49	22.51	27.33	23.72	23.75
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.47	1.94	2.10	7.92	1.11	1.18	6.93	2.28	2.43	8.11	3.85	4.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.45	0.45	0.71	0.32	0.32	0.77	0.69	0.69	0.75	0.77	0.78
d, Delay for Lane Group [s/veh]	34.24	15.22	15.40	35.58	13.39	13.48	33.49	24.78	24.94	35.44	27.57	27.97
Lane Group LOS	C	B	B	D	B	B	C	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.08	3.30	3.11	1.35	2.18	2.10	2.07	3.31	3.20	1.64	3.53	3.39
50th-Percentile Queue Length [ft]	27.07	82.40	77.87	33.76	54.49	52.60	51.87	82.86	80.06	40.88	88.19	84.73
95th-Percentile Queue Length [veh]	1.95	5.93	5.61	2.43	3.92	3.79	3.73	5.97	5.76	2.94	6.35	6.10
95th-Percentile Queue Length [ft]	48.73	148.33	140.16	60.76	98.08	94.69	93.36	149.15	144.11	73.58	158.74	152.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.24	15.28	15.40	35.58	13.42	13.48	33.49	24.84	24.94	35.44	27.72	27.97
Movement LOS	C	B	B	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	17.09			16.71			26.67			29.06		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	22.28											
Intersection LOS	C											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68		
l_p,int, Pedestrian LOS Score for Intersection	2.530			2.530			2.510			2.522		
Crosswalk LOS	B			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	500			500			500			500		
d_b, Bicycle Delay [s]	16.88			16.88			16.88			16.88		
l_b,int, Bicycle LOS Score for Intersection	2.147			2.017			2.078			2.048		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

**Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)**

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.836

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T T T			T T T			T T			T T		
Lane Configuration	T T T			T T T			T T			T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	105	733	109	125	856	73	69	292	154	152	182	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	15	21	2	7	31	21	7	0	9	21	84	7
Site-Generated Trips [veh/h]	37	234	60	2	227	7	6	23	38	70	19	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	168	1061	182	147	1200	108	89	344	216	258	303	71
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	275	47	38	312	28	23	89	56	67	79	18
Total Analysis Volume [veh/h]	174	1102	189	153	1246	112	92	357	224	268	315	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	20	0	13	19	0	28	30	0	17	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	26	26	9	25	25	5	16	16	13	24	24
g / C, Green / Cycle	0.12	0.33	0.33	0.11	0.32	0.32	0.07	0.20	0.20	0.16	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.10	0.24	0.24	0.09	0.25	0.25	0.05	0.16	0.17	0.15	0.11	0.11
s, saturation flow rate [veh/h]	1781	3560	1733	1781	3560	1792	1781	1870	1633	1781	1870	1749
c, Capacity [veh/h]	213	1171	570	191	1126	567	123	377	329	290	552	516
d1, Uniform Delay [s]	34.44	23.90	23.90	34.98	25.13	25.13	36.63	30.61	30.68	33.09	22.31	22.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.42	4.26	8.45	7.60	6.07	11.42	8.57	4.39	5.31	12.04	0.40	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.74	0.74	0.80	0.80	0.80	0.75	0.82	0.83	0.92	0.36	0.37
d, Delay for Lane Group [s/veh]	41.87	28.15	32.35	42.58	31.20	36.55	45.20	35.00	35.99	45.12	22.71	22.76
Lane Group LOS	D	C	C	D	C	D	D	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	3.66	7.59	8.06	3.25	8.39	9.29	2.03	5.96	5.36	5.94	2.93	2.77
50th-Percentile Queue Length [ft]	91.60	189.87	201.46	81.21	209.86	232.33	50.63	149.01	134.00	148.45	73.33	69.22
95th-Percentile Queue Length [veh]	6.60	12.11	12.71	5.85	13.15	14.29	3.65	9.96	9.16	9.93	5.28	4.98
95th-Percentile Queue Length [ft]	164.88	302.86	317.85	146.17	328.65	357.31	91.13	249.11	228.92	248.36	132.00	124.59

Movement, Approach, & Intersection Results

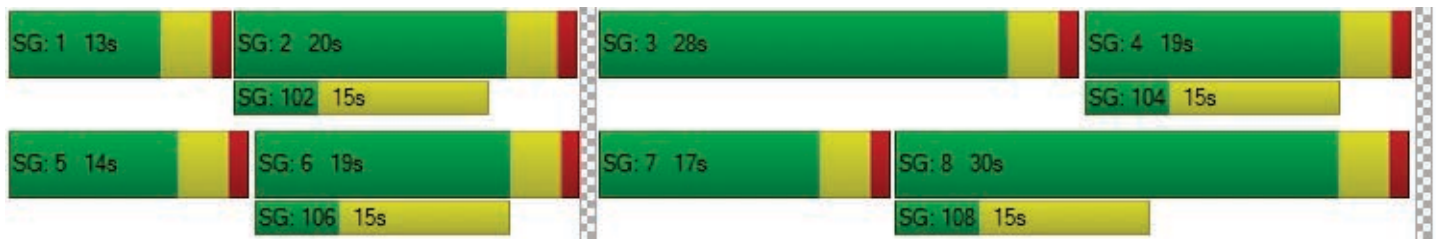
d_M, Delay for Movement [s/veh]	41.87	29.04	32.35	42.58	32.67	36.55	45.20	35.14	35.99	45.12	22.73	22.76
Movement LOS	D	C	C	D	C	D	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	30.99			33.96			36.80			31.87		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	33.07											
Intersection LOS	C											
Intersection V/C	0.836											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	3.036	2.977	2.544	2.560
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	375	650	375
d_b, Bicycle Delay [s]	25.60	26.41	18.23	26.41
I_b,int, Bicycle LOS Score for Intersection	2.365	2.391	2.115	2.102
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Opening Year (2023) With Project

Self Storage Facility

Vistro File: J:\...\lamOY.vistro

Scenario 2 Opening Year (2023) With Project

Report File: J:\...\lamOYP.pdf

2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	WB Left	0.625	22.9	C
2	Project West Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Left	0.042	14.2	B
3	Project East Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Right	0.010	10.1	B
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	EB Left	0.847	30.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	22.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	30	253	44	95	320	101	104	180	27	59	305	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	9	8	0	0	0	35	0	3	14	3
Site-Generated Trips [veh/h]	23	64	15	1	27	0	1	32	12	10	35	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	342	72	114	379	111	115	265	42	78	385	115
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	102	22	34	113	33	34	79	13	23	115	34
Total Analysis Volume [veh/h]	67	410	86	137	454	133	138	317	50	93	461	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	19	0	10	20	0	10	19	0	12	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	20	20	6	22	22	6	14	14	4	12	12
g / C, Green / Cycle	0.06	0.33	0.33	0.10	0.37	0.37	0.10	0.24	0.24	0.07	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.14	0.14	0.08	0.16	0.16	0.08	0.10	0.10	0.05	0.17	0.17
s, saturation flow rate [veh/h]	1781	1870	1760	1781	1870	1727	1781	1870	1783	1781	1870	1724
c, Capacity [veh/h]	104	611	575	178	689	636	179	444	424	125	388	358
d1, Uniform Delay [s]	27.77	15.81	15.83	26.47	14.37	14.39	26.45	19.47	19.49	27.50	22.70	22.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.47	2.08	2.25	6.90	2.05	2.24	6.92	0.63	0.68	8.39	3.85	4.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.42	0.42	0.77	0.44	0.44	0.77	0.42	0.43	0.74	0.80	0.81
d, Delay for Lane Group [s/veh]	34.24	17.89	18.08	33.36	16.43	16.63	33.37	20.10	20.17	35.89	26.55	27.02
Lane Group LOS	C	B	B	C	B	B	C	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.08	2.81	2.70	2.15	3.17	2.98	2.16	2.12	2.05	1.54	4.27	4.01
50th-Percentile Queue Length [ft]	27.07	70.15	67.39	53.68	79.32	74.46	54.07	53.08	51.33	38.38	106.87	100.34
95th-Percentile Queue Length [veh]	1.95	5.05	4.85	3.86	5.71	5.36	3.89	3.82	3.70	2.76	7.67	7.22
95th-Percentile Queue Length [ft]	48.73	126.26	121.30	96.62	142.77	134.02	97.32	95.55	92.39	69.09	191.64	180.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.24	17.96	18.08	33.36	16.49	16.63	33.37	20.13	20.17	35.89	26.71	27.02
Movement LOS	C	B	B	C	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	19.92			19.71			23.75			28.00		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	22.89											
Intersection LOS	C											
Intersection V/C	0.625											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.507	2.555	2.508	2.521
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	533	500	567
d_b, Bicycle Delay [s]	16.88	16.13	16.88	15.41
I_b,int, Bicycle LOS Score for Intersection	2.024	2.157	1.976	2.131
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

**Intersection Level Of Service Report
Intersection 2: Project West Access (NS) at JFK Dr (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↔		|↔		↔|	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	14	0	395	3	14	350
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.10	1.00	1.00	1.10
In-Process Volume [veh/h]	0	0	52	0	0	20
Site-Generated Trips [veh/h]	2	0	48	2	4	46
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	0	535	5	18	451
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	141	1	5	119
Total Analysis Volume [veh/h]	17	0	563	5	19	475
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.01	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	14.24	10.44	0.00	0.00	8.67	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.13	0.13	0.00	0.00	0.06	0.00
95th-Percentile Queue Length [ft]	3.26	3.26	0.00	0.00	1.45	0.00
d_A, Approach Delay [s/veh]	14.24		0.00		0.33	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	B					

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

**Intersection Level Of Service Report
Intersection 3: Project East Access (NS) at JFK Dr (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↻		↻		||	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	5	391	7	0	349
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.10	1.00	1.00	1.10
In-Process Volume [veh/h]	0	0	52	0	0	20
Site-Generated Trips [veh/h]	0	2	48	0	0	50
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	530	7	0	454
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	139	2	0	119
Total Analysis Volume [veh/h]	0	7	558	7	0	478
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.09	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.03	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.74	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.09		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.07					
Intersection LOS	B					

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

**Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)**

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵|↑|↑			↵|↑|↑			↵|↑			↵|↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	91	1029	189	140	376	47	52	191	68	119	202	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	6	42	16	11	13	5	8	33	11	10	9	11
Site-Generated Trips [veh/h]	25	119	42	3	138	6	7	18	25	34	18	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	1293	266	168	565	63	72	261	111	175	249	133
Peak Hour Factor	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780	0.8780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	368	76	48	161	18	21	74	32	50	71	38
Total Analysis Volume [veh/h]	149	1473	303	191	644	72	82	297	126	199	284	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	19	0	14	19	0	28	33	0	14	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	32	32	10	33	33	5	12	12	10	17	17
g / C, Green / Cycle	0.10	0.40	0.40	0.13	0.42	0.42	0.06	0.15	0.15	0.13	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.08	0.34	0.34	0.11	0.13	0.13	0.05	0.12	0.12	0.11	0.12	0.12
s, saturation flow rate [veh/h]	1781	3560	1712	1781	3560	1776	1781	1870	1685	1781	1870	1656
c, Capacity [veh/h]	187	1407	677	224	1480	738	111	288	260	224	407	360
d1, Uniform Delay [s]	35.05	22.10	22.19	34.35	15.82	15.83	36.99	32.53	32.63	34.52	27.98	28.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.46	6.61	13.26	8.93	0.58	1.17	9.35	4.19	5.09	11.38	1.22	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.85	0.86	0.85	0.32	0.32	0.74	0.76	0.78	0.89	0.56	0.57
d, Delay for Lane Group [s/veh]	42.51	28.70	35.45	43.28	16.39	17.00	46.34	36.72	37.71	45.90	29.20	29.46
Lane Group LOS	D	C	D	D	B	B	D	D	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	3.16	10.79	11.75	4.10	2.89	3.03	1.83	4.31	4.05	4.42	3.93	3.56
50th-Percentile Queue Length [ft]	79.00	269.78	293.71	102.55	72.33	75.75	45.87	107.86	101.21	110.54	98.34	88.92
95th-Percentile Queue Length [veh]	5.69	16.18	17.37	7.38	5.21	5.45	3.30	7.72	7.29	7.87	7.08	6.40
95th-Percentile Queue Length [ft]	142.20	404.47	434.24	184.59	130.20	136.36	82.57	193.02	182.18	196.75	177.01	160.06

Movement, Approach, & Intersection Results

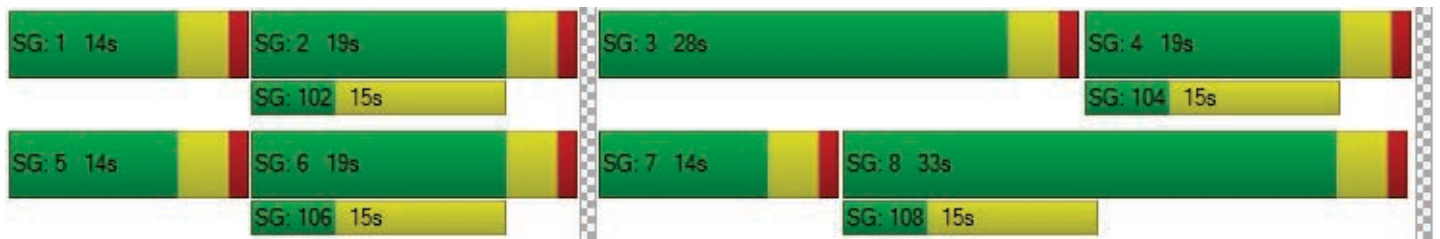
d_M, Delay for Movement [s/veh]	42.51	29.97	35.45	43.28	16.55	17.00	46.34	36.97	37.71	45.90	29.25	29.46
Movement LOS	D	C	D	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	31.80			22.21			38.68			34.53		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	30.92											
Intersection LOS	C											
Intersection V/C	0.847											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	2.993	2.954	2.492	2.573
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	375	375	725	375
d_b, Bicycle Delay [s]	26.41	26.41	16.26	26.41
I_b,int, Bicycle LOS Score for Intersection	2.618	2.058	1.976	2.083
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Self Storage Facility

Vistro File: J:\...\pmE.vistro

Scenario 2 Opening Year (2023) With Project

Report File: J:\...\pmOYP.pdf

2/13/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Indian Street (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	SB Left	0.595	22.3	C
2	Project West Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Left	0.155	17.7	C
3	Project East Access (NS) at JFK Dr (EW)	Two-way stop	HCM 6th Edition	NB Right	0.078	11.0	B
4	Perris Blvd (NS) at JFK Dr (EW)	Signalized	HCM 6th Edition	SB Right	0.869	33.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Indian Street (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.595

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	135.00	100.00	100.00	55.00	100.00	100.00	125.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	38	377	90	66	265	56	107	303	27	43	228	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	2	1	0	0	0	13	0	23	80	17
Site-Generated Trips [veh/h]	18	48	18	1	71	1	1	46	27	20	41	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	463	119	75	363	63	119	392	57	90	372	75
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	128	33	21	101	17	33	109	16	25	103	21
Total Analysis Volume [veh/h]	67	513	132	83	402	70	132	435	63	100	412	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	19	0	12	19	0	10	19	0	10	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	24	24	4	24	24	6	12	12	4	11	11
g / C, Green / Cycle	0.06	0.40	0.40	0.06	0.41	0.41	0.10	0.20	0.20	0.07	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.18	0.05	0.13	0.13	0.07	0.14	0.14	0.06	0.14	0.14
s, saturation flow rate [veh/h]	1781	1870	1740	1781	1870	1775	1781	1870	1789	1781	1870	1763
c, Capacity [veh/h]	104	743	691	116	755	716	172	369	353	134	329	310
d1, Uniform Delay [s]	27.77	13.33	13.35	27.65	12.31	12.33	26.56	22.46	22.48	27.33	23.70	23.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.47	1.96	2.12	8.04	1.11	1.19	6.93	2.27	2.42	8.11	3.86	4.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.45	0.45	0.72	0.32	0.32	0.77	0.69	0.69	0.75	0.77	0.78
d, Delay for Lane Group [s/veh]	34.24	15.29	15.47	35.69	13.42	13.52	33.49	24.74	24.90	35.44	27.56	27.96
Lane Group LOS	C	B	B	D	B	B	C	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.08	3.31	3.12	1.37	2.18	2.11	2.07	3.32	3.21	1.64	3.55	3.41
50th-Percentile Queue Length [ft]	27.07	82.66	78.11	34.23	54.60	52.71	51.87	83.11	80.31	40.88	88.73	85.22
95th-Percentile Queue Length [veh]	1.95	5.95	5.62	2.46	3.93	3.80	3.73	5.98	5.78	2.94	6.39	6.14
95th-Percentile Queue Length [ft]	48.73	148.78	140.60	61.61	98.28	94.88	93.36	149.60	144.56	73.58	159.72	153.40

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.24	15.35	15.47	35.69	13.46	13.52	33.49	24.80	24.90	35.44	27.71	27.96
Movement LOS	C	B	B	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	17.15			16.79			26.63			29.05		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	22.31											
Intersection LOS	C											
Intersection V/C	0.595											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.530	2.531	2.510	2.523
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	500	500
d_b, Bicycle Delay [s]	16.88	16.88	16.88	16.88
I_b,int, Bicycle LOS Score for Intersection	2.147	2.017	2.079	2.050
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

**Intersection Level Of Service Report
Intersection 2: Project West Access (NS) at JFK Dr (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	17.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.155

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↔		↔		↔	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	46	0	537	9	12	358
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.10	1.00	1.00	1.10
In-Process Volume [veh/h]	0	0	16	0	0	120
Site-Generated Trips [veh/h]	3	1	67	2	4	63
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	1	674	11	16	577
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	0	177	3	4	152
Total Analysis Volume [veh/h]	52	1	709	12	17	607
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.01	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	17.74	12.64	0.00	0.00	9.19	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.55	0.55	0.00	0.00	0.06	0.00
95th-Percentile Queue Length [ft]	13.76	13.76	0.00	0.00	1.48	0.00
d_A, Approach Delay [s/veh]	17.64		0.00		0.25	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.78					
Intersection LOS	C					

**Intersection Level Of Service Report
Intersection 3: Project East Access (NS) at JFK Dr (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.078

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	↻		↻		||	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	44	479	44	0	344
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.10	1.00	1.00	1.10
In-Process Volume [veh/h]	0	0	16	0	0	120
Site-Generated Trips [veh/h]	0	4	68	0	0	67
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	48	611	44	0	565
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	161	12	0	149
Total Analysis Volume [veh/h]	0	51	643	46	0	595
Pedestrian Volume [ped/h]	0		0		0	

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.08	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	10.99	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.25	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	6.35	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.99		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.42					
Intersection LOS	B					

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Level Of Service Report
Intersection 4: Perris Blvd (NS) at JFK Dr (EW)

Control Type:	Signalized	Delay (sec / veh):	33.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	TTT			TTT			TT			TT		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	165.00	100.00	100.00	165.00	100.00	100.00	120.00	100.00	100.00	165.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	105	733	109	125	856	73	69	292	154	152	182	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	15	21	2	7	31	21	7	0	9	21	84	7
Site-Generated Trips [veh/h]	38	234	60	2	227	9	8	24	40	70	20	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	169	1061	182	147	1200	110	91	345	218	258	304	71
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	275	47	38	312	29	24	90	57	67	79	18
Total Analysis Volume [veh/h]	175	1102	189	153	1246	114	94	358	226	268	316	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	24	0	11	23	0	16	19	0	16	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	21	21	7	20	20	5	14	14	12	21	21
g / C, Green / Cycle	0.11	0.30	0.30	0.10	0.29	0.29	0.07	0.20	0.20	0.17	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.10	0.24	0.24	0.09	0.25	0.25	0.05	0.17	0.17	0.15	0.11	0.11
s, saturation flow rate [veh/h]	1781	3560	1733	1781	3560	1791	1781	1870	1632	1781	1870	1749
c, Capacity [veh/h]	205	1085	528	180	1035	521	126	364	318	306	553	517
d1, Uniform Delay [s]	30.51	22.45	22.45	31.07	23.70	23.70	32.03	27.31	27.38	28.36	19.52	19.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.66	6.20	12.02	10.69	10.24	18.20	8.45	5.66	6.88	7.86	0.40	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.80	0.80	0.85	0.87	0.87	0.75	0.85	0.86	0.88	0.36	0.37
d, Delay for Lane Group [s/veh]	40.17	28.65	34.47	41.75	33.94	41.89	40.48	32.97	34.25	36.23	19.92	19.97
Lane Group LOS	D	C	C	D	C	D	D	C	C	D	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	3.34	7.06	7.73	2.98	8.11	9.31	1.81	5.33	4.82	4.85	2.49	2.35
50th-Percentile Queue Length [ft]	83.43	176.47	193.15	74.59	202.73	232.72	45.20	133.19	120.42	121.24	62.32	58.85
95th-Percentile Queue Length [veh]	6.01	11.42	12.28	5.37	12.78	14.31	3.25	9.11	8.42	8.46	4.49	4.24
95th-Percentile Queue Length [ft]	150.18	285.41	307.11	134.27	319.49	357.82	81.36	227.83	210.40	211.52	112.18	105.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.17	29.89	34.47	41.75	36.11	41.89	40.48	33.14	34.25	36.23	19.94	19.97
Movement LOS	D	C	C	D	D	D	D	C	C	D	B	B
d_A, Approach Delay [s/veh]	31.70			37.12			34.53			26.58		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	33.26											
Intersection LOS	C											
Intersection V/C	0.869											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
I_p,int, Pedestrian LOS Score for Intersection	3.029	2.970	2.539	2.554
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	543	429	429
d_b, Bicycle Delay [s]	17.86	18.58	21.61	21.61
I_b,int, Bicycle LOS Score for Intersection	2.366	2.392	2.119	2.102
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

APPENDIX D

Calculation of Queue at Project Entrance (Gate Stacking)

PROJECT: MV Self Storage - EP AM		DATE: February 13, 2018	
LOCATION: Vehicles Entering Project Gate (SB)		JN: 7280	
DEMAND RATE (q)	5.00		
SERVICE RATE (Q) per channel	30.00		
NO. OF SERVICE POSITIONS (N)	1.00		
NO. OF STORAGE LANES (N1)	1.00		
PROBABILITY OF NOT EXCEEDING (P)	0.05		
UTILIZATION FACTOR (q/N*Q)	0.17		
Q(M) VALUE	0.17		
NO. OF VEHICLES BEING SERVED (N)	1.00		
NO. OF VEHICLES IN QUEUE (M)	-0.33	SAY =	0
TOTAL NUMBER OF VEHICLES (N+M)	0.67	SAY =	1
NO. OF VEHICLES IN EACH LANE PER LANE ((N+M)/N1)	0.67	SAY =	1
LENGTH OF QUEUE (L) FEET	14.78	SAY =	22

NO. OF VEHICLES IN THE QUEUE (NOT INCLUDING THOSE BEING SERVED) = M = ((LN(P) - LN(Q(M)))/LN(p)) - 1

Q(M) = TABLED VALUES BASED UPON NUMBER OF SERVICE CHANNELS (N) AND UTILIZATION FACTOR (q/NQ) AS SHOWN ON TABLE 8-11, PG.231, TRANSPORTATION AND LAND DEVELOPMENT, INSTITUTE OF TRANSPORTATION ENGINEERS (ITE), 1988.

PROJECT: MV Self Storage - EP PM		DATE: February 13, 2018	
LOCATION: Vehicles Entering Project Gate (SB)		JN: 7280	
DEMAND RATE (q)	7.00		
SERVICE RATE (Q) per channel	30.00		
NO. OF SERVICE POSITIONS (N)	1.00		
NO. OF STORAGE LANES (N1)	1.00		
PROBABILITY OF NOT EXCEEDING (P)	0.05		
UTILIZATION FACTOR (q/N*Q)	0.23		
Q(M) VALUE	0.23		
NO. OF VEHICLES BEING SERVED (N)	1.00		
NO. OF VEHICLES IN QUEUE (M)	0.06	SAY =	0
TOTAL NUMBER OF VEHICLES (N+M)	1.06	SAY =	1
NO. OF VEHICLES IN EACH LANE PER LANE ((N+M)/N1)	1.06	SAY =	1
LENGTH OF QUEUE (L) FEET	23.29	SAY =	22

NO. OF VEHICLES IN THE QUEUE (NOT INCLUDING THOSE BEING SERVED) = M = $\frac{((LN(P) - LN(Q(M)))/LN(p)) - 1}{Q(M)}$

Q(M) = TABLED VALUES BASED UPON NUMBER OF SERVICE CHANNELS (N) AND UTILIZATION FACTOR (q/NQ) AS SHOWN ON TABLE 8-11, PG.231, TRANSPORTATION AND LAND DEVELOPMENT, INSTITUTE OF TRANSPORTATION ENGINEERS (ITE), 1988.



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Attachment: Focused Traffic Analysis (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located

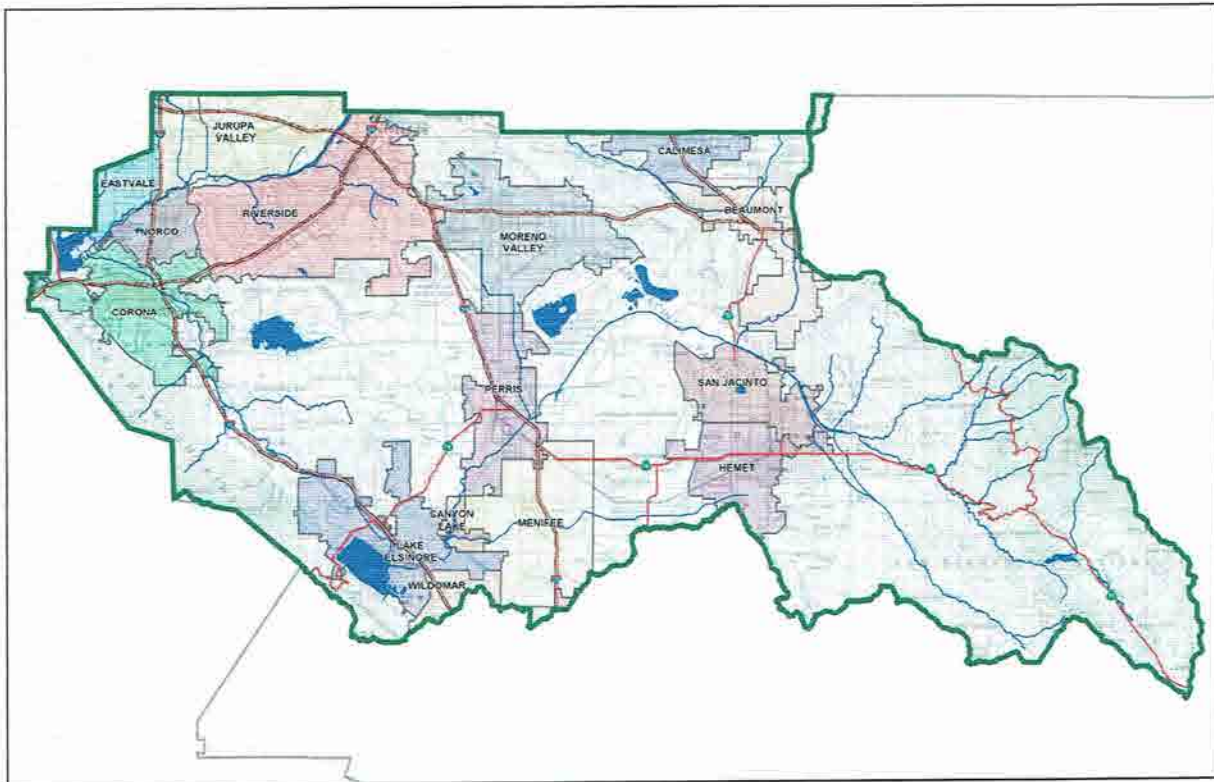
Project Specific Water Quality Management Plan

A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County

Project Title: Self Storage JFK Dr & Perris Blvd

Development No: n/a

Design Review/Case No: PEN17-0135



- Preliminary
- Final

Original Date Prepared: February 19, 2018

Revision Date(s): n/a

*Prepared for Compliance with
Regional Board Order No. **R8-2010-0033***

Template revised June 30, 2016

Feb. 20, 2018

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Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

OWNER’S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for GOSSETT DEVELOPMENT by WINCHESTER ASSOCIATES, Inc for the SELF STORAGE JFK DR & PERRIS BLVD project.

This WQMP is intended to comply with the requirements of City of Moreno Valley for Ordinance No. 827 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Moreno Valley Water Quality Ordinance (Municipal Code Section 8.10).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner’s Signature

Date

Owner’s Printed Name

Owner’s Title/Position

PREPARER’S CERTIFICATION

“The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto.”

Preparer’s Signature

Date

Mariela Anguelov

Preparer’s Printed Name

Senior Engineer

Preparer’s Title/Position

Preparer’s Licensure: C75563

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Commercial
Planning Area:	Parcel 1 of LLA No 1032 and Parcel 2 of Parcel Map 36449
Community Name:	n/a
Development Name:	Self Storage JFK Drive & Perris Blvd
PROJECT LOCATION	
Latitude & Longitude (DMS): Latitude 33.902778° / Longitude -117.228056°	
Project Watershed and Sub-Watershed: Santa Ana Rivers Watershed; San Jacinto Valley Sub-Watershed	
Gross Acres: 4.78 ac	Net Acres: 4.47 ac
APN(s): 485-081-036, 037, & 040	
Map Book and Page No.: Map book 234, pages 60-61 Records of Riverside, California	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Self Storage Units
Proposed or Potential SIC Code(s)	1542
Area of Impervious Project Footprint (SF)	163,343 sf
Total Area of <u>proposed</u> Impervious Surfaces within the Project Footprint (SF)/or Replacement	150,525 sf
Does the project consist of offsite road improvements?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Does the project propose to construct unpaved roads?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is the project part of a larger common plan of development (phased project)?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the Project limits Footprint (SF)	12,818 sf
Is the project located within any MSHCP Criteria Cell?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
If so, identify the Cell number:	n/a
Are there any natural hydrologic features on the project site?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is a Geotechnical Report attached?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	Soil type B
What is the Water Quality Design Storm Depth for the project?	0.65

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling
- BMP Locations (Lat/Long)

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

Project Description

The project site is located at the southwest corner of John F Kennedy Drive and Perris Boulevard in the City of Moreno Valley. Existing commercial buildings separate the site from Perris Boulevard. The site's gross acreage is 4.78 ac, 0.31 ac have been developed as perimeter streets. The site's net acreage is 4.47 ac. 0.48 ac of the site are developed and serving the existing neighboring plaza. The topography of the remaining 3.99 ac is generally planar with a gentle fall to the southeast. The project site will be developed as self-storage units. It will consist of 5 irregularly shaped self-storage buildings, parking stalls surfaced with porous asphalt, driveways surfaced with asphalt concrete, landscaped areas around the perimeter of the project site and a water quality bioretention area located at the southeast corner of the site. The project is a portion of Sections 19, T. 3 S., R. 3 W., SBM. The project site has not been impacted by off-site storm water runoffs.

During the pre-developed conditions the storm water runoff accumulated by the existing driveway/access (0.48 ac) is draining to the CVS store parking lot and discharging onto Perris Boulevard. The storm water runoff accumulated from 3.99 ac sheets southeasterly through the site and is intercepted by an existing temporary detention basin at the southeast corner of the site. The detention basin discharges to an existing 18" RCP which conveys the stormflow to the existing Sunnymead ADP Line M-4 (48" RCP) in Perris Boulevard. The 3.99 ac tributary area generates $Q_{10}=4.2$ cfs and $Q_{100}=6.5$ cfs.

During the post-developed conditions the drainage patterns of the existing driveway/access (0.48 ac) to the CVS store will remain the same. The remaining 3.99 ac are proposed to drain to the southeast corner of the property, where the runoff will be routed through a bioretention area and accepted by the existing 18" RCP and discharged into the existing 48" RCP storm drain (Line M-4) in Perris Boulevard. The 3.99 ac tributary area generates $Q_{10}=6.1$ cfs and $Q_{100}=9.0$ cfs.

The project consists of self-treating, self-retaining, and an area draining to a structural LID BMP, located at the southeast corner of the site. The self-treating and self-retaining areas are incorporated into the previously developed 0.48 ac to the maximum extent practicable.

The proposed project does not create any impact to the downstream storm drain system. The existing Sunnymead ADP Line M-4 was sized to accept and convey the peak flow rates for 100-year 1-hour return frequency storm event during post-developed conditions.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
San Jacinto River (Reach 3)	None	AGR, GWR, REC1, REC2, WARM, WILD, MUN	Not a water body classified as RARE
Canyon Lake (Aka: San Jacinto River Reach 2)	Nutrients, Pathogens	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not a water body classified as RARE
San Jacinto River (Reach 1)	None	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not a water body classified as RARE
Lake Elsinore	Nutrients, Organic Enrichments, Low Dissolved Oxygen, PCBs, Sediment Toxicity, Unknown Toxicity	REC1, REC2, WARM, WILD, MUN	Not a water body classified as RARE
Temescal Creek (Reach 6)	Indicator Bacteria	GWR, REC1, REC2, WARM, WILD, MUN	Not a water body classified as RARE
Temescal Creek (Reach 5)	None	AGR, GWR, REC1, REC2, WARM, WILD, RARE, MUN	22 miles
Temescal Creek (Reach 4)	None	AGR, GWR, REC1, REC2, WARM, WILD, RARE	28 miles
Temescal Creek (Reach 3) – Lee Lake	None	AGR, IND, GWR, REC1, REC2, WARM, WILD, MUN	Not a water body classified as RARE
Temescal Creek (Reach 2)	None	AGR, IND, GWR, REC1, REC2, WARM, WILD, MUN	Not a water body classified as RARE
Temescal Creek (Reach 1)	None	REC1, REC2, WARM, WILD	Not a water body classified as RARE
Santa Ana River (Reach 3)	Copper, Lead, Pathogens	AGR, GWR, REC1, REC2, WARM, WILD, RARE, MUN	47 miles
Prado Basin Management Zone	Pathogens, Nutrients	REC1, REC2, WARM, WILD, RARE, MUN	49 miles
Santa Ana River (Reach 2)	Indicator Bacteria,	AGR, GWR, REC1, REC2, WARM, WILD, RARE, MUN	68 miles
Santa Ana River (Reach 1)	None	REC1, REC2, WARM, WILD, MUN	Not a water body classified as RARE
Tidal Prism of Santa Ana River (to within 1000' of Victoria Street) and Newport Slough	Enterococcus, Fecal Coliform, Total Coliform	REC1, REC2, COMM, WILD, RARE, MAR, MUN	77 miles
Pacific Ocean Nearshore Zone	None	IND, NAV, REC1, REC2, COMM, WILD, RARE, SPWN, MAR, SHEL, MUN	78 miles
Pacific Ocean Offshore Zone	None	IND, NAV, REC1, REC2, COMM, WILD, RARE, SPWN, MAR, MUN	80 miles

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
US Army Corps of Engineers, CWA Section 404 Permit	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Statewide Construction General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Industrial General Permit Coverage	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other <i>(please list in the space below as required)</i>		
City of Moreno Valley Grading Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
City of Moreno Valley Building Permit		

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, constraints might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. Opportunities might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e. no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

During the post-developed condition the drainage patterns of the project site will remain the same.

Did you identify and protect existing vegetation? If so, how? If not, why?

*There is **no** existing vegetation on the area that is going to be developed.*

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

The site was previously mass graded, therefore the natural infiltration capacity was previously compromised.

Did you identify and minimize impervious area? If so, how? If not, why?

16% of the project site shall be landscaped. Porous pavement as LID Principle will be implemented where it is feasible.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Roof drains shall be directed to landscape areas where is feasible.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s) ^{1,2}	Area (Sq. Ft.)	DMA Type
DMA 1	Roofs, Asphalt, Ornamental Landscape	173,705	Type "D"
DMA S1	Porous Asphalt	1,280	Type "B"
DMA L1	Ornamental Landscape	5,030	Type "A"
DMA L2	Ornamental Landscape	1,880	Type "A"
DMA EXIST	Asphalt	12,818	Exist to remain

¹Reference Table 2-1 in the WQMP Guidance Document to populate this column

²If multi-surface provide back-up

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
DMA L1	5,030	Ornamental Landscape	Dripping / Sprinkles
DMA L2	1,880	Ornamental Landscape	Dripping / Sprinkles

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet)	Storm Depth (inches)	DMA Name / ID	[C] from Table C.4	Required Retention Depth (inches)
		[A]	[B]			[D]
DMA S1	Porous Asphalt	1,280	0.65	-	-	0.65

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Permeable pavers were used as a **sight design concept – LID Principles**.

A cross section detail is shown on the Site Plan in Appendix A. The retention depth of the proposed gravel base is **2.4"** (40% voids x 6" gravel depth= 2.4"), which exceeds the retention depths required for DMA S1.

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Impervious fraction	Product		Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]	DMA name /ID	[D]	[C]/[D]
N/A							

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA 1	Buoretention w/underdrain

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? Y N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermitee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? Y N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site...	YES	NO
...have any DMAs with a seasonal high groundwater mark shallower than 10 feet? If Yes, list affected DMAs:		X
...have any DMAs located within 100 feet of a water supply well? If Yes, list affected DMAs:		X
...have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact? If Yes, list affected DMAs:		X
...have measured in-situ infiltration rates of less than 1.6 inches / hour? If Yes, list affected DMAs:	X	
...have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface? If Yes, list affected DMAs:		X
...geotechnical report identify other site-specific factors that would preclude effective and safe infiltration? Describe here:		X

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies:

- Reclaimed water will be used for the non-potable water demands for the project.
- Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).
- The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 0.69 ac

Type of Landscaping (Conservation Design or Active Turf): Conservation Design

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 2.08 ac (roofs)

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 1.05

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: $2.08 \times 1.05 = 2.18$ ac

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
2.18 ac	0.69 ac

The project is **not feasible** for harvesting stormwater runoff for irrigation use.

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 2

Project Type: commercial

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 0.69

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number of toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 141

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 0.69 x 141 = 97.3

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
97.3	2

The project is **not feasible** for harvesting stormwater runoff for toilet use.

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	Projected average daily use (Step 1)
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

- LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).
- A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA 1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

DMA 1 is feasible for a structural LID BMP – Bioretention w/ underdrain.

The implementation of LID Principles fully address the DCV for DMA S1, DMA L1, and DMA L2, therefore LID BMPs were not proposed for these areas.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]			
DMA 1 ROOFS	90535	ROOFS	1	0.89	80757.2	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
DMA 1 DWYS	59990	ASPHALT	1	0.89	53511.1			
DMA 1 LDSC	23180	Ornamental landscaping	0.1	0.11	2560.4			
	$A_T = \Sigma[A]$ 173,705				$\Sigma = [D]$ 136,828.7	[E] 0.65	$[F] = \frac{[D] \times [E]}{12}$ 7,411.6	[G] 7,950

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- Or -

The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

N/A

E.1 Identify Pollutants of Concern

N/A

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
<input type="checkbox"/> Detached Residential Development	P	N	P	P	N	P	P	P
<input type="checkbox"/> Attached Residential Development	P	N	P	P	N	P	P	P ⁽²⁾
<input type="checkbox"/> Commercial/Industrial Development	P ⁽³⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁵⁾	P ⁽¹⁾	P	P
<input type="checkbox"/> Automotive Repair Shops	N	P	N	N	P ^(4, 5)	N	P	P
<input type="checkbox"/> Restaurants (>5,000 ft ²)	P	N	N	N	N	N	P	P
<input type="checkbox"/> Hillside Development (>5,000 ft ²)	P	N	P	P	N	P	P	P
<input type="checkbox"/> Parking Lots (>5,000 ft ²)	P ⁽⁶⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁴⁾	P ⁽¹⁾	P	P
<input type="checkbox"/> Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

P = Potential

N = Not Potential

⁽¹⁾ A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

⁽²⁾ A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

⁽³⁾ A potential Pollutant is land use involving animal waste

⁽⁴⁾ Specifically petroleum hydrocarbons

⁽⁵⁾ Specifically solvents

⁽⁶⁾ Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage ²
N/A	
<i>Total Credit Percentage¹</i>	

¹Cannot Exceed 50%

²Obtain corresponding data from Table 3-8 in the WQMP Guidance Document

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I _f	DMA Runoff Factor	DMA Area x Runoff Factor	Enter BMP Name / Identifier Here				
	[A]		[B]	[C]	[A] x [C]					
N/A						Design Storm Depth (in)	Minimum Design Volume or Design Flow Rate (cubic feet or cfs)	Total Storm Water Credit % Reduction	Proposed Volume or Flow on Plans (cubic feet or cfs)	
	$A_T = \sum[A]$				$\Sigma = [D]$	[E]	$[F] = \frac{[D]x[E]}{[G]}$	$[F] \times (1-[H])$	[I]	

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document

[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document

[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12

[H] is from the Total Credit Percentage as Calculated from Table E.2 above

[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High:** equal to or greater than 80% removal efficiency
- **Medium:** between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID ¹	Priority Pollutant(s) of Concern to Mitigate ²	Removal Efficiency Percentage ³
N/A		

¹ Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.

² Cross Reference Table E.1 above to populate this column.

³ As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermitttee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? Y N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration¹ of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? Y N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	INSERT VALUE	INSERT VALUE	INSERT VALUE
Volume (Cubic Feet)	INSERT VALUE	INSERT VALUE	INSERT VALUE

¹ Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? Y N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

Per the County's geodatabase the entire project is not a subject to hydromodification.
(HCOC map included in Appendix A)

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

- a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.
- b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.
- c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and “housekeeping”, that must be implemented by the site’s occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. **Identify Pollutant Sources:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.
2. **Note Locations on Project-Specific WQMP Exhibit:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.
3. **Prepare a Table and Narrative:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.
4. **Identify Operational Source Control BMPs:** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
Need for future indoor & structural pest control	<ul style="list-style-type: none"> ● Incorporate building design features that discourage entry of pests. 	<ul style="list-style-type: none"> ● Provide Integrated Pest Management information to owners, lessees, and operators.
Landscape/ Outdoor Pesticide Use	<p>Final landscape plans will accomplish all of the following.</p> <ul style="list-style-type: none"> ● Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. ● Where landscaped areas are used to retain or detain stormwater , specify plants that are tolerant of saturated soil conditions. ● Consider using pest-resistant plants, especially adjacent to hardscape. ● To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, are movement, ecological consistency, and plant interactions. 	<ul style="list-style-type: none"> ● Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in “What you should know for...Landscape and Gardening” provided in Appendix 10: Educational Materials. ● Provide IPM information to new owners, lessees and operators.
Miscellaneous Drain Roofing, Gutters and Trim	<ul style="list-style-type: none"> ● Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. 	
Plazas, sidewalks, and parking lots.		<ul style="list-style-type: none"> ● Sweep sidewalks, and parking lots regularly to prevent accumulation of litter and debris. <p>Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.</p>

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)
Bioretention	Bioretention w/underdrain Located at southeast corner of the project site	Conceptual Grading plan	33.900833°/ -117.227222°

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: *Operation, Maintenance and Funding details will be provided in the Final WQMP*

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

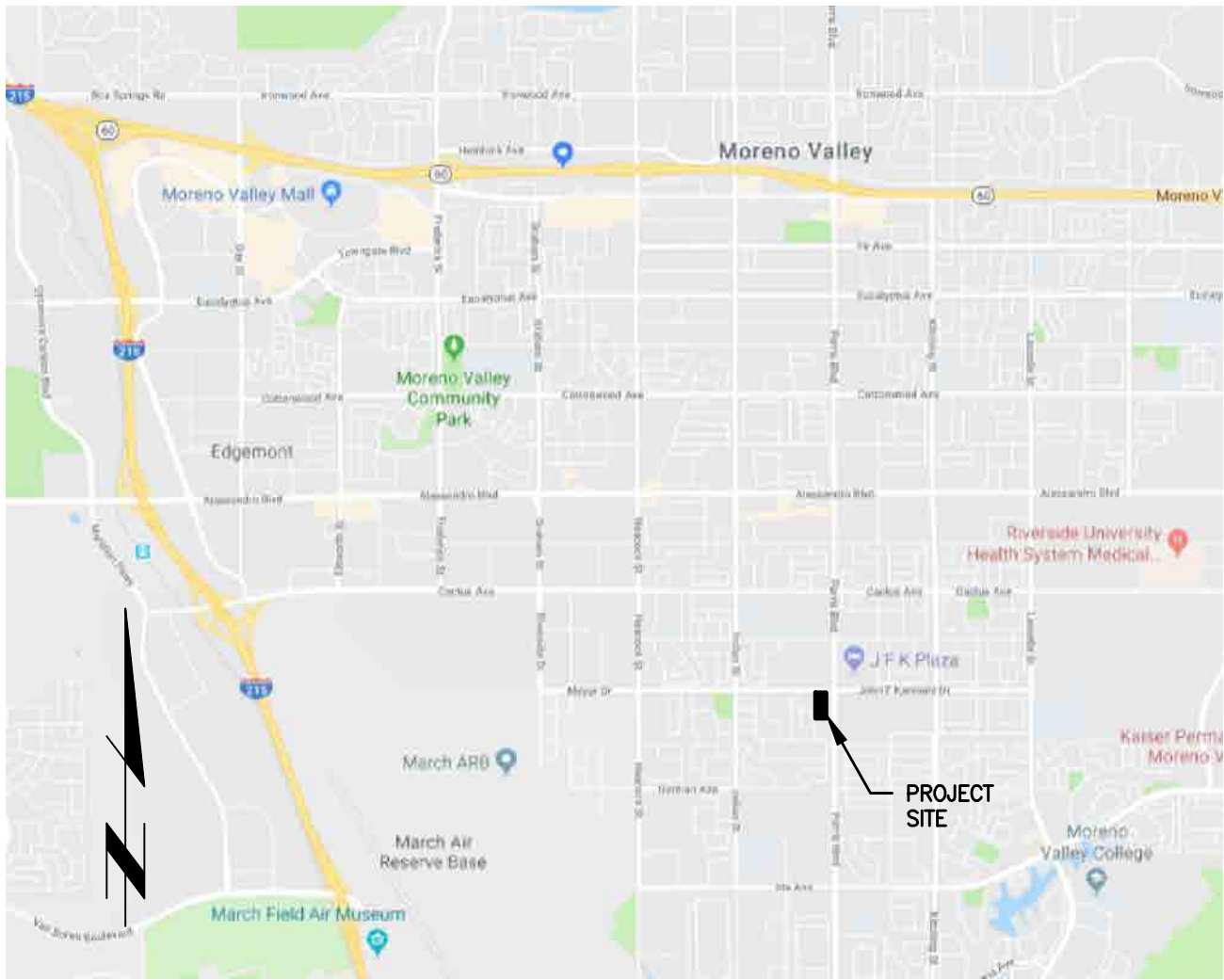
Y N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

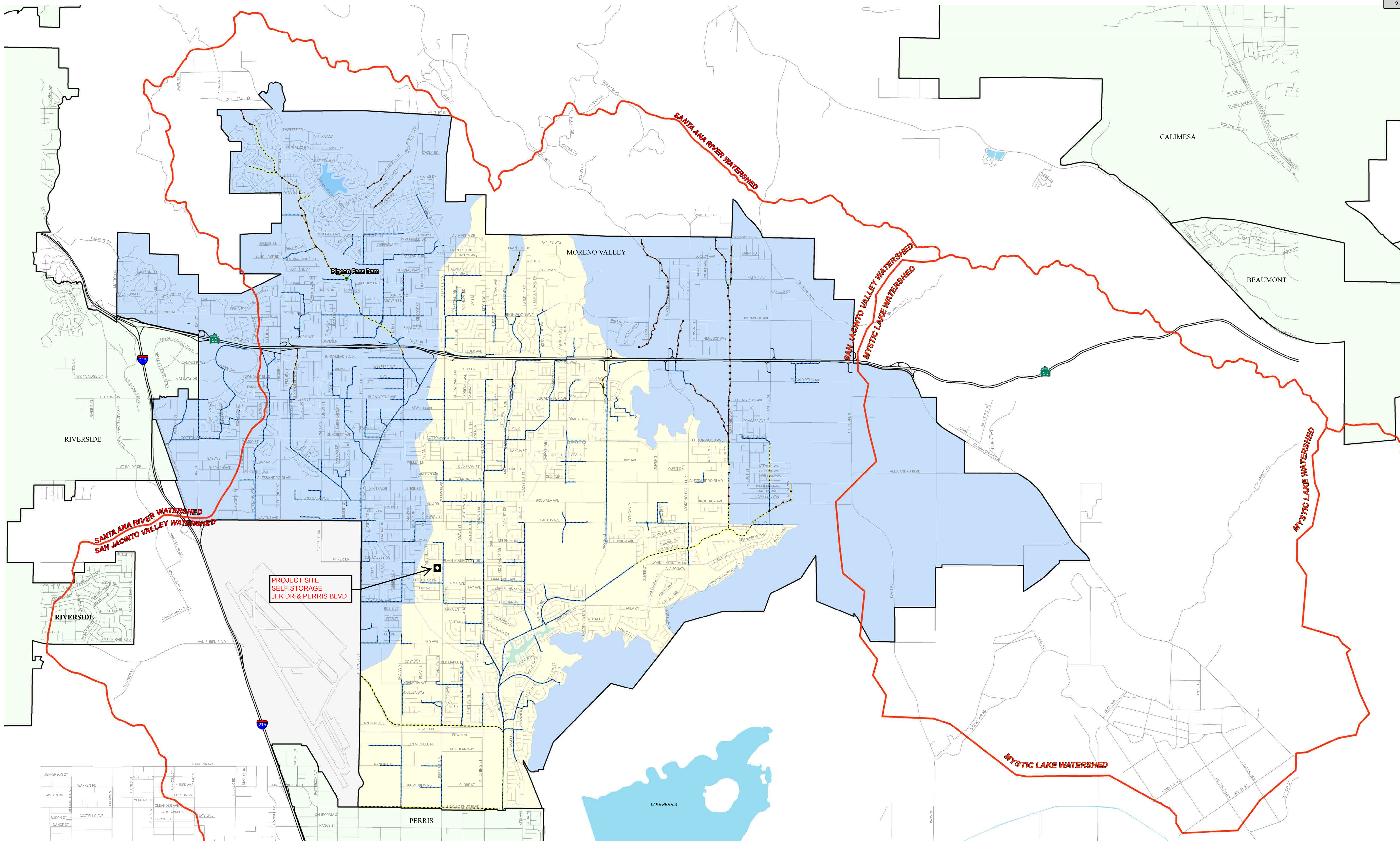
Location Map, WQMP Site Plan, HCOC Map and Receiving Waters Map

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on



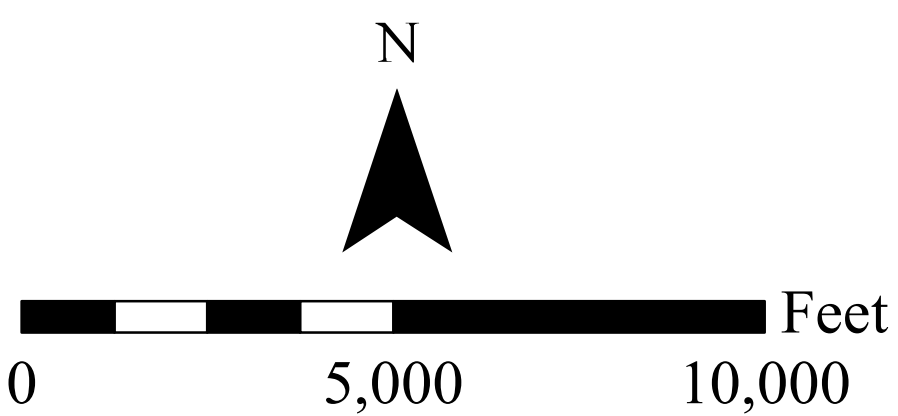
LOCATION MAP
NTS

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on



CITY OF MORENO VALLEY WATERSHED BOUNDARIES

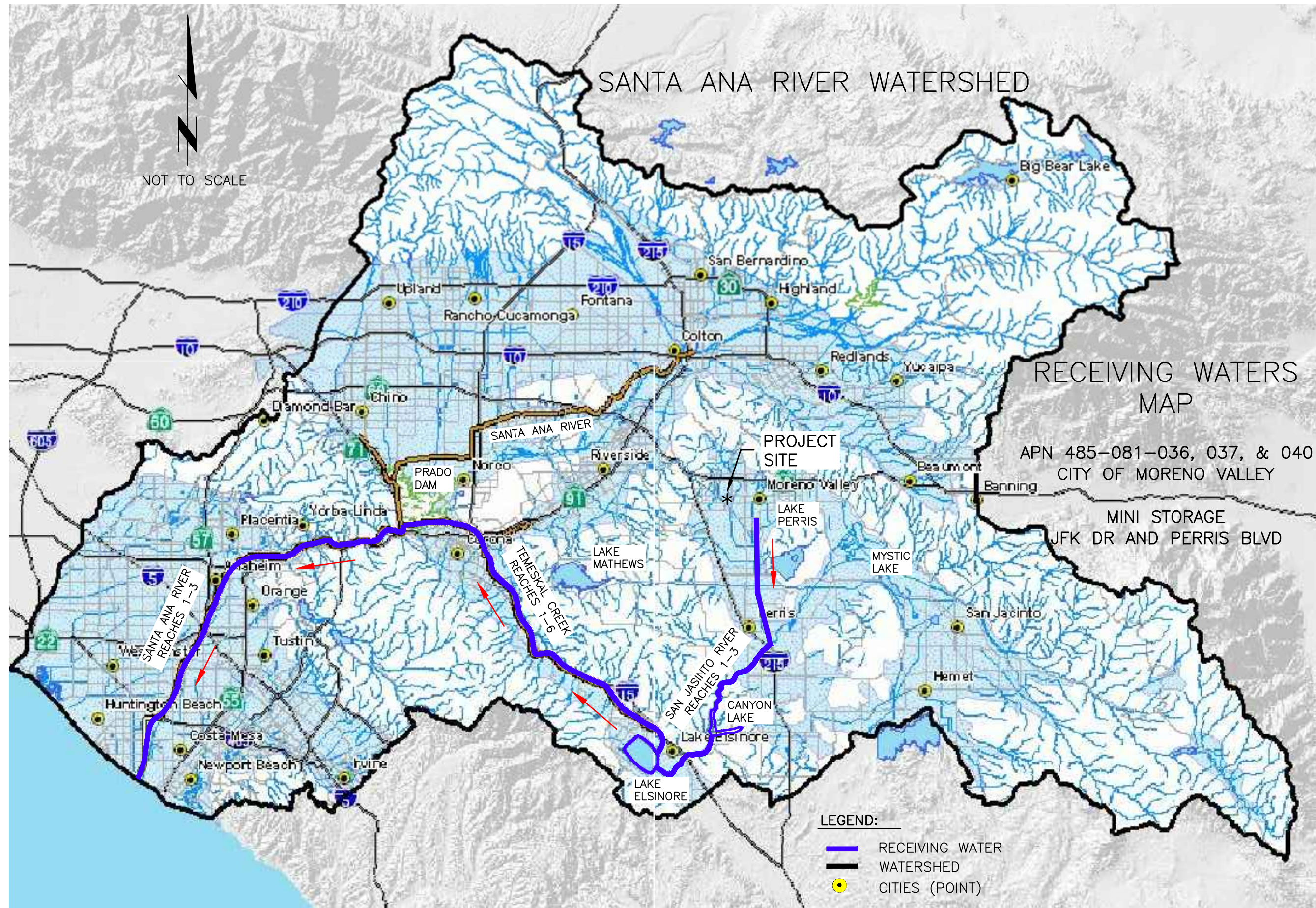
- ⊖ Controlled Release Point
- Delineation Type**
 - Engineered, Fully Hardened, and Maintained
 - Engineered, Partially Hardened, and Maintained
 - Engineered, Earthen, and Maintained
 - Not Engineered and Earthen
 - Natural
- Watercourse Susceptibility Type**
 - ⋯ Not Susceptible
 - Potentially Susceptible
 - Mitigation May Be Required
 - Mitigation Not Required
 - ⊞ Watershed Boundary
- Waterbodies
- Roads
- Highways
- ⊞ City Boundaries
- March Air Reserve Base



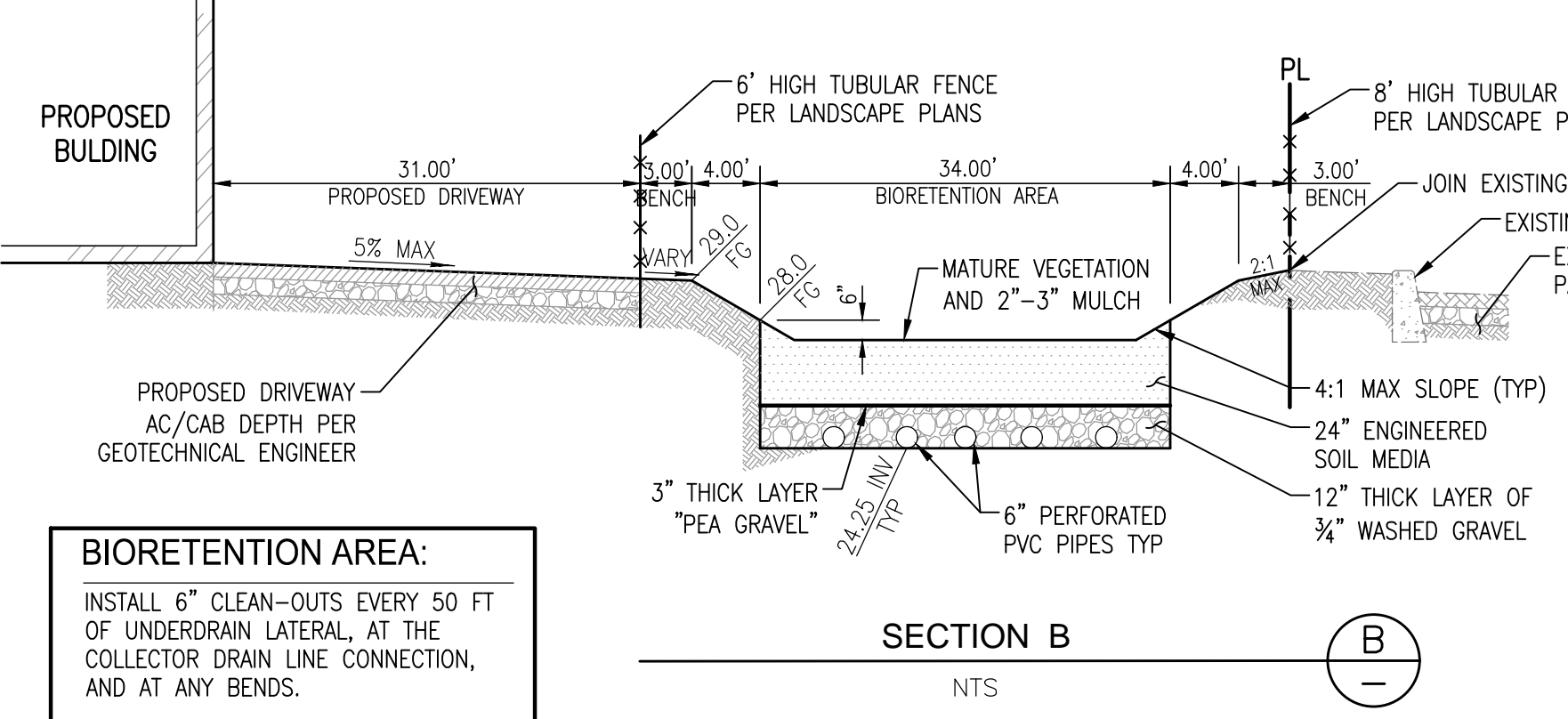
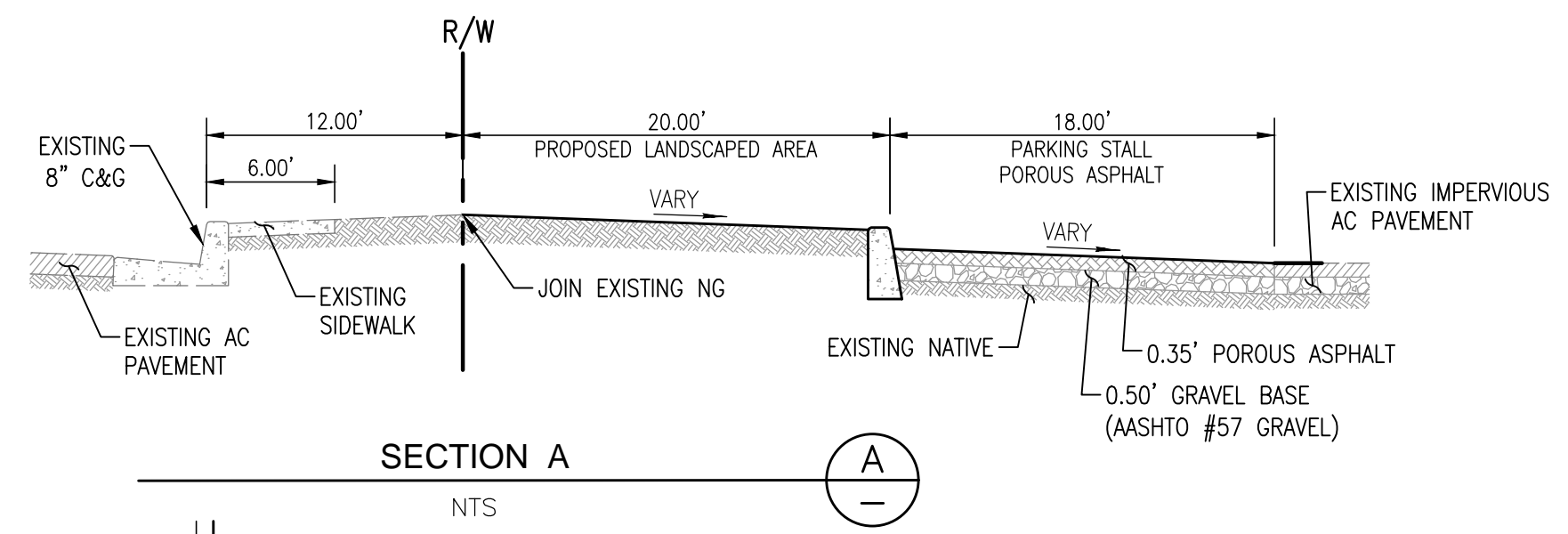
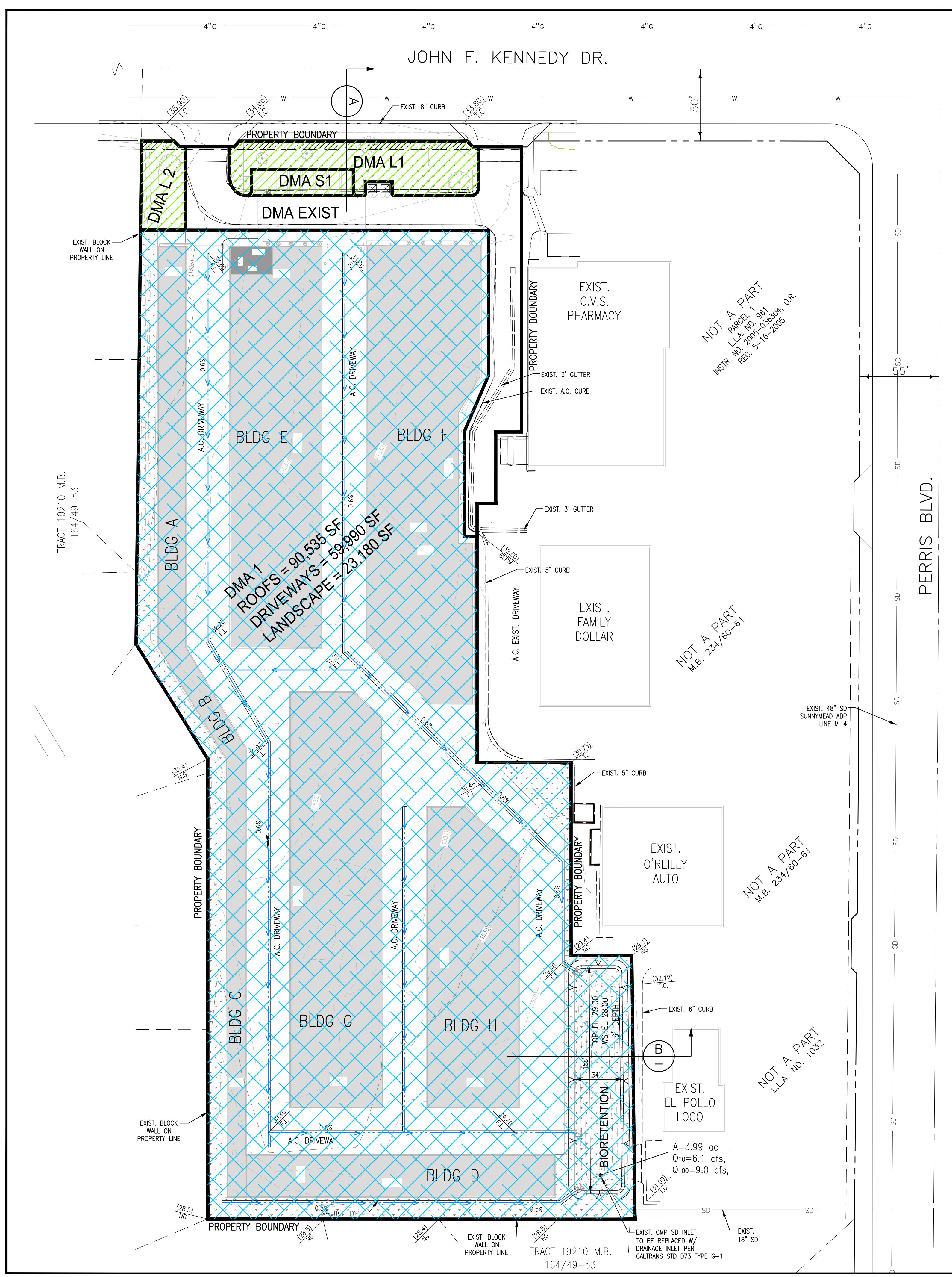
The information shown on this map was compiled from the Riverside County GIS and the City of Moreno Valley GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

City of Moreno Valley Geographic Information System:
State Plane NAD 83 California Zone 6 Feet
T:\Divisions\NPDES\2017\MXD
MVWatershedAllLayers_052317E_v1.mxd
May 23, 2017





Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on



BIORETENTION AREA:

INSTALL 6" CLEAN-OUTS EVERY 50 FT OF UNDERDRAIN LATERAL, AT THE COLLECTOR DRAIN LINE CONNECTION, AND AT ANY BENDS.

EACH CLEAN-OUT SHALL BE EXTENDED 6" ABOVE THE MEDIA AND SHALL HAVE A LOCKABLE SCREW CAP.

INSPECT MONTHLY, OR AS NEEDED AFTER STORM EVENTS. MAINTAIN IF NEEDED.

PERMANENT SOURCE CONTROL BMPs

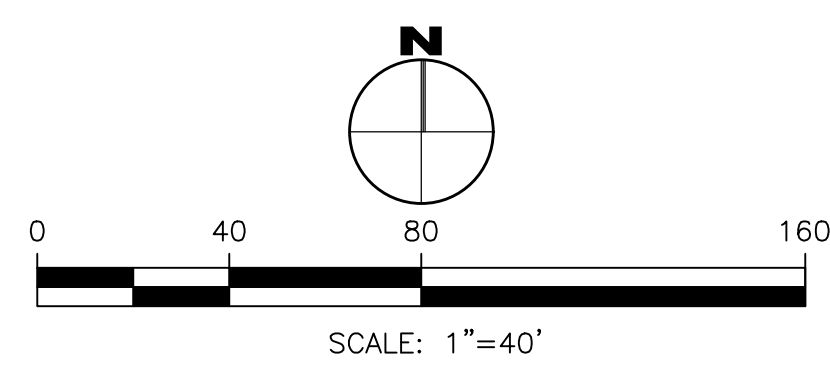
1. INCORPORATE BUILDING DESIGN FEATURES THAT DISCOURAGE ENTRY OF PESTS. APPLICABLE FOR ALL BUILDINGS.
2. DESIGN LANDSCAPING TO MINIMIZE IRRIGATION AND RUNOFF, TO MINIMIZE THE USE OF FERTILIZER AND PESTICIDES. APPLICABLE FOR ALL LANDSCAPED AREAS.
3. SWEEP DRIVEWAYS AND PARKING STALLS REGULARLY.
4. ROOF DRAINS SHALL BE DIRECTED TO LANDSCAPE AREAS WHERE IS FEASIBLE.

ABBREVIATIONS

(X,X) - EXISTING GROUND ELEVATION	N - NORTH
@ - AT	NG - NATURAL GROUND
& - AND	NTS - NOT TO SCALE
AC - ASPHALT CONCRETE	PCC - PLAIN CEMENT CONCRETE
AB - AGGREGATE BASE	PE - PAD ELEVATION
C&B - CRUSHED AGGREGATE BASE	PL - PROPERTY LINE
CF - CURB FACE	PP - POWER POLE
CL - CENTERLINE	PMWT - PAVEMENT
CLF - CHAIN LINK FENCE	PUE - PUBLIC UTILITY EASEMENT
CONC - CONCRETE	RCP - REINFORCED CONCRETE PIPE
CONST - CONSTRUCT	RT - RIGHT
C&G - CURB AND GUTTER	R/W - RIGHT OF WAY
DWG - DRAWING	SAN - EXISTING SEWER LINE
DWY - DRIVEWAY	S - SOUTH
E - EAST	SF - SQUARE FEET
EL - ELEVATION	SD - STORM DRAIN LINE
EP - EDGE OF PAVEMENT	ST - STREET
EXIST - EXISTING	STD - STANDARD
EVA - EMERGENCY VEHICLE ACCESS	SW - SIDEWALK
FG - FINISH GRADE	SWR - SEWER LINE
FF - FINISH FLOOR	TC - TOP OF CURB
FL - FLOW LINE	TG - TOP OF GRADE
FS - FINISH SURFACE	TF - TOP OF FOOTING
GFF - GARAGE FINISH FLOOR	TYP - TYPICAL
HP - HIGH POINT	TP - TOP OF PAVEMENT
HOA - HOMEOWNER ASSOCIATION	TW - TOP OF WALL
INV - INVERT	W - WATER LINE
LF - LINEAR FEET	W - WEST
LP - LOW POINT	W/ - WITH
MH - MANHOLE	WTR - WATER LINE
MIN - MINIMUM	X1 - SLOPE OF ONE FOOT MEASURED VERTICALLY FOR EVERY "X" FEET MEASURED HORIZONTALLY
No. - NUMBER	
% - PERCENT	

LEGEND

---	PROPERTY LINE	▨	AREA DRAINING INTO BIORETENTION AREA
---	RIGHT OF WAY	▨	SELF-TREATING/ SELF-RETAINING AREA
---	EASEMENT	▨	LANDSCAPE AREA
---	EXISTING BLOCK WALL	▨	3"x3" No 2 BACKING CLASS RIP-RAP DISSIPATOR
---	DAYLIGHT LINE	▨	ACCESSIBLE PATH OF TRAVEL W/ 7.5% MAX SLOPE IN THE DIRECTION OF TRAVEL AND 2% MAX CROSS SLOPE
---	PROPOSED CONTOUR	▨	H/C HANDICAP PARKING STALL
---	RETAINING WALL		
---	GRADING LIMITS		
---	EXISTING CONTOUR		
---	3 FT WIDE RIBBON GUTTER		
---	FLOWLINE		
---	EXISTING STORM DRAIN		
---	PROPOSED STORM DRAIN		
---	EXISTING SEWER LINE		
---	EXISTING WATER LINE		
---	EXISTING UTILITIES		
---	EXISTING STREET LIGHT		
---	TRASH ENCLOSURE		
---	EXISTING POWER POLES		
---	EXISTING MANHOLES		
---	STREET GRADE		
---	FENCE		
---	DMA		

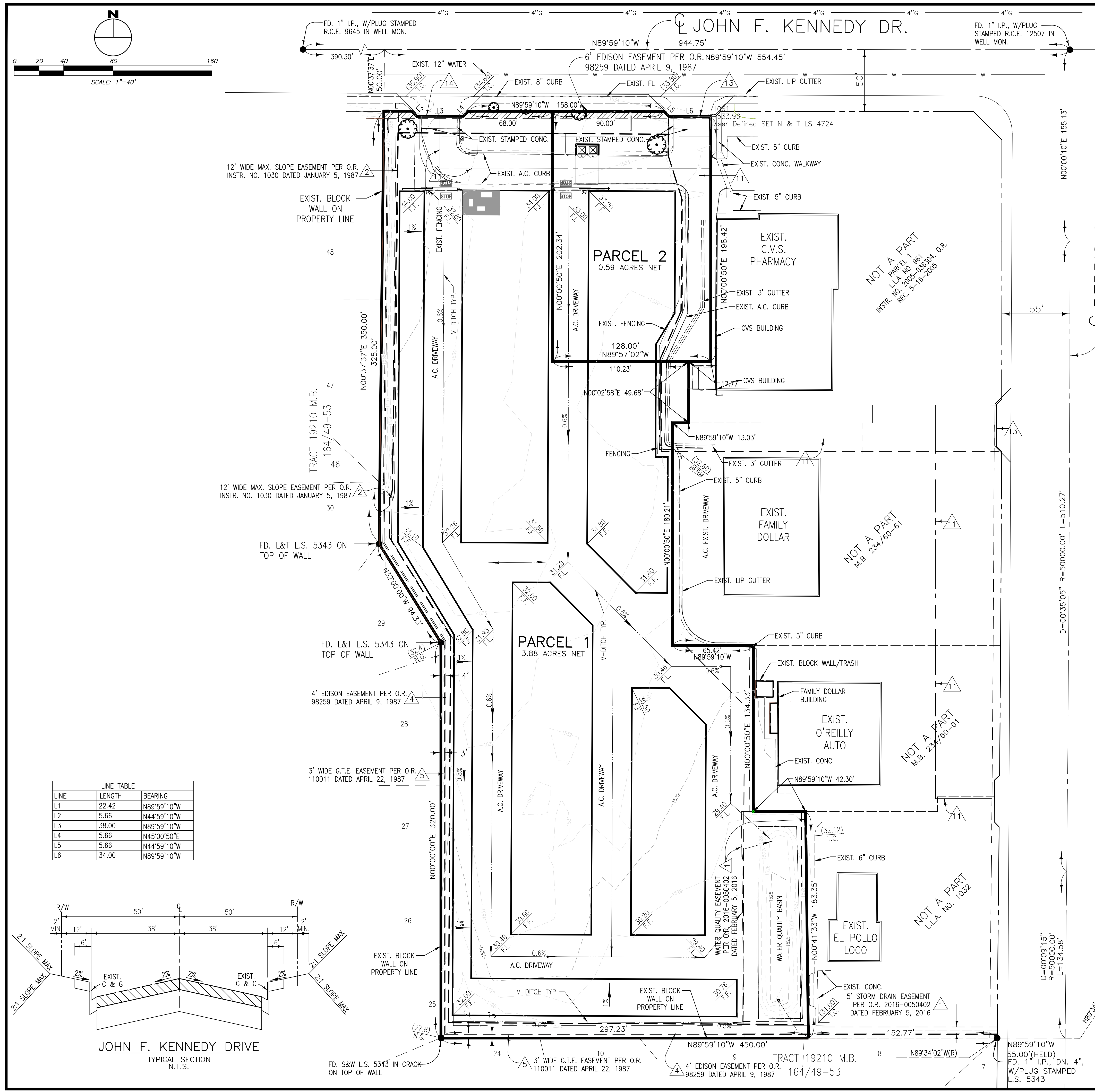


	Winchester Associates, Inc. ENGINEERING • LAND SURVEYING 23640 TOWER ST., SUITE 3 MORENO VALLEY, CA. 92553 (951) 924-5425 UNDER THE SUPERVISION OF: MARIELA ANGUELOV R.C.E. #75563 (EXP. 09/30/2018)	CITY OF MORENO VALLEY APN 485-081-036, 037, & 040 SELF STORAGE JFK DRIVE AND PERRIS BOULEVARD PRELIMINARY WQMP SITE PLAN DATE OF PLAN PREPARATION: 02-19-2018	ACCT. NO. SHEET <u>1</u> OF <u>1</u> CITY I. D. NO. PEN17-0135
	Attachment: Preliminary Water Quality Management Plan (3175 - Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)		

Appendix 2: Construction Plans

Grading and Drainage Plans

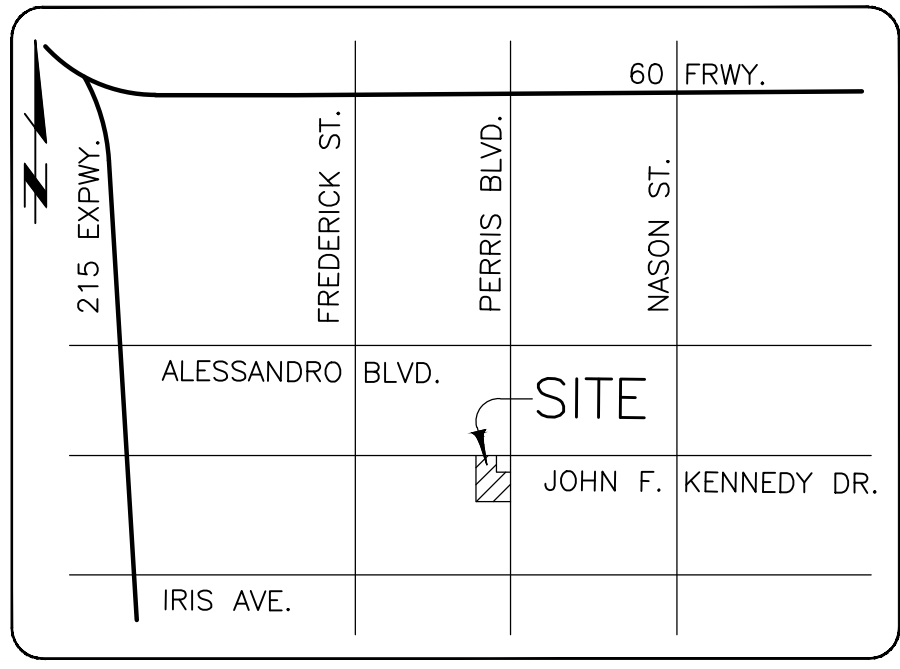
Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on



IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
CONCEPTUAL GRADING PLAN
 PARCEL 1 OF L.L.A. NO. 1032, AND PARCEL 2 OF PARCEL MAP 36449
 RECORDED IN BOOK 234, PAGES 60-61, RECORDS OF RIVERSIDE CALIFORNIA,
 LYING IN SECTION 19, T. 3 S., R. 3 W., S.B.M.
WINCHESTER ASSOCIATES, INC. AUGUST 2017

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF MORENO VALLEY, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
 THAT PORTION OF PARCELS 1 AND 5 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS SHOWN ON EXHIBIT "B" OF THAT CERTAIN LOT LINE ADJUSTMENT NO. 1032 FILED ON FEBRUARY 05, 2016 AS INSTRUMENT NO. 2016-0049874 IN THE OFFICE OF THE RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
 THAT PORTION OF PARCELS 1 AND 5 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS RECORDED IN PARCEL MAP BOOK 234, PAGES 60 AND 61, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA DESCRIBED AS FOLLOWS:
 BEGINNING AT A POINT ALONG THE SOUTH LINE OF PARCEL 5 OF SAID PARCEL MAP, SAID POINT LYING 152.77 FEET FROM THE SOUTHEAST CORNER OF SAID PARCEL 5;
 THENCE NORTH 0°41'33" WEST A DISTANCE OF 183.35 FEET TO A POINT ALONG THE SOUTH LINE OF PARCEL 4 OF SAID PARCEL MAP;
 THENCE ALONG SAID SOUTH LINE OF SAID PARCEL 4 NORTH 89°59'10" WEST A DISTANCE OF 42.30 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 4;
 THENCE NORTH 0°00'50" EAST ALONG THE WEST LINE OF SAID PARCEL 4, A DISTANCE OF 134.33 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 4;
 THENCE NORTH 89°59'10" WEST ALONG THE WEST LINE OF 65.42 FEET TO THE SOUTHWEST CORNER OF PARCEL 3 OF SAID PARCEL MAP;
 THENCE NORTH 0°00'50" EAST ALONG THE WEST LINE OF SAID PARCEL 3, A DISTANCE OF 180.21 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 3;
 THENCE SOUTH 89°59'10" EAST ALONG THE NORTH LINE OF SAID PARCEL 3, A DISTANCE OF 13.03 FEET;
 THENCE NORTH 0°02'58" EAST A DISTANCE OF 49.68 FEET TO A POINT ON THE SOUTH LINE OF PARCEL 2 OF SAID PARCEL MAP;
 THENCE NORTH 89°57'02" WEST ALONG THE SOUTH LINE OF SAID PARCEL 2, A DISTANCE OF 110.23 FEET TO THE SOUTHWEST CORNER THEREOF;
 THENCE NORTH 0°07'50" EAST ALONG THE WEST LINE OF SAID PARCEL 2 A DISTANCE OF 202.34 FEET TO THE NORTHEAST CORNER OF SAID PARCEL 2; THENCE NORTH 89°59'10" WEST ALONG THE NORTH LINE OF SAID PARCEL 1, A DISTANCE OF 68.00 FEET; THENCE SOUTH 45°09'00" WEST A DISTANCE OF 5.66 FEET; THENCE NORTH 89°59'10" WEST A DISTANCE OF 38.00 FEET; THENCE NORTH 44°59'10" WEST A DISTANCE OF 5.66 FEET;
 THENCE NORTH 89°59'10" WEST A DISTANCE OF 22.42 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 1;
 THENCE SOUTH 0°37'37" WEST ALONG THE WEST LINE OF SAID PARCEL 1 A DISTANCE OF 350.00 FEET TO AN ANGLE POINT THEREIN;
 THENCE CONTINUING ALONG SAID WEST LINE SOUTH 32°00'00" EAST A DISTANCE OF 94.33 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 1;
 THENCE ALONG THE WEST LINE OF SAID PARCEL 5 SOUTH 0°00'00" WEST A DISTANCE OF 320.00 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 5;
 THENCE ALONG THE SOUTH LINE OF SAID PARCEL 5 SOUTH 89°59'10" EAST A DISTANCE OF 297.23 FEET, MORE OR LESS, TO THE POINT OF BEGINNING AND THE END OF THIS DESCRIPTION.
 APN: 485-081-036-7 AND A PORTION OF 485-081-040-0
PARCEL B:
 PARCEL 2 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS RECORDED IN PARCEL MAP BOOK 234, PAGES 60 AND 61, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
 APN: 485-081-037-8



GENERAL NOTES

OWNER/APPLICANT
 PROFESSORS FUND IV, LLC
 990 HIGHLAND DR. SUITE 204
 SOLANA BEACH, CA 92075
 PHONE: (604) 984-6400
 CONTACT: BOB EMRI

ENGINEER
 WINCHESTER ASSOCIATES, INC.
 DAVID J. SLAWSON
 23640 TOWER STREET, SUITE 3
 PO BOX 280
 MORENO VALLEY, CA. 92556-0280
 PHONE: (951) 924-5425

ASSESSOR'S PARCEL No.
 485-081-036, 037, & 040

LAND USE AND ZONING

CURRENT GENERAL PLAN	C
CURRENT ZONING	NC
PROPOSED ZONING	CC
EXISTING USE	VACANT
PROPOSED LAND USE	SELF STORAGE UNITS

AREA AND DENSITY

GROSS ACREAGE	4.78 ACRES
NET ACREAGE	4.47 ACRES

FLOOD HAZARD
 THE SUBJECT TRACT IS IN ZONE X AND NOT WITHIN THE 100 YEAR FLOOD PLAIN. FEMA FLOOD INSURANCE PANEL NO. 0606500765G.

THOMAS BROTHERS GUIDE
 PAGE 717 G-7.

TOPOGRAPHY
 OBTAINED FROM TOPOGRAPHICAL SURVEY CONDUCTED BY WINCHESTER ASSOCIATES, INC. ON 7-23-17.

SCHOOL
 MORENO VALLEY UNIFIED SCHOOL DISTRICT

PUBLIC UTILITIES
 SEWER & WATER EMWD
 ELECTRICITY S.C.E.
 GAS THE GAS CO.
 TELEPHONE VERIZON

PREPARED BY:

Winchester Associates, Inc.
 ENGINEERING • LAND SURVEYING

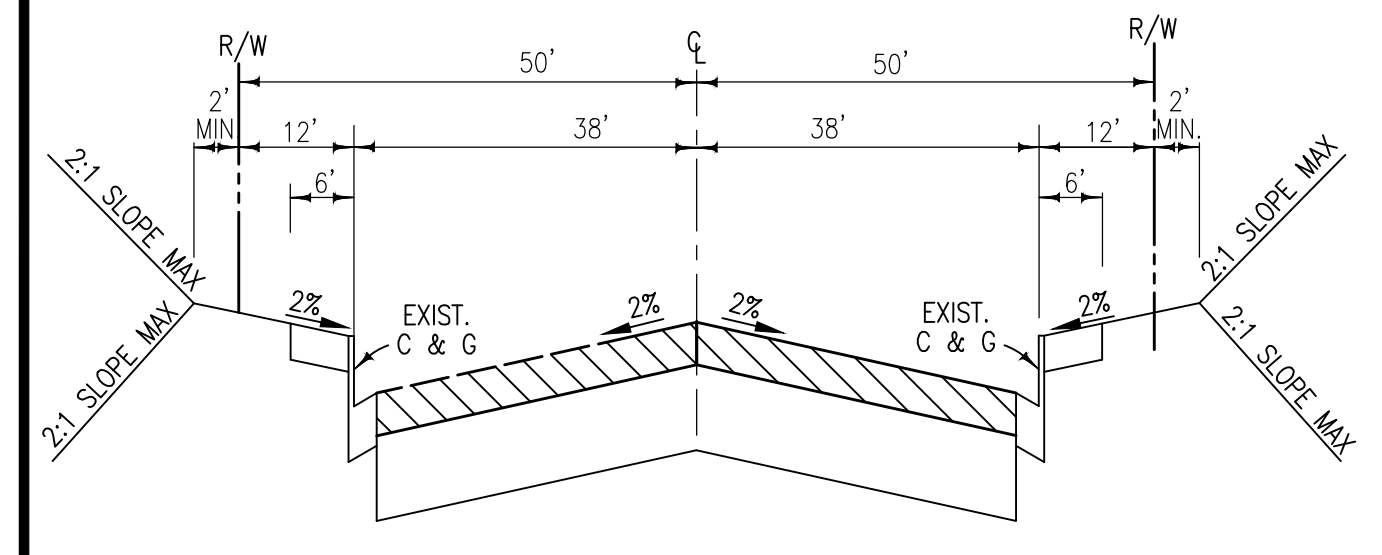
23640 TOWER ST., SUITE 3
 PO BOX 280
 MORENO VALLEY, CA 92556-0280 PH: (951) 924-5425

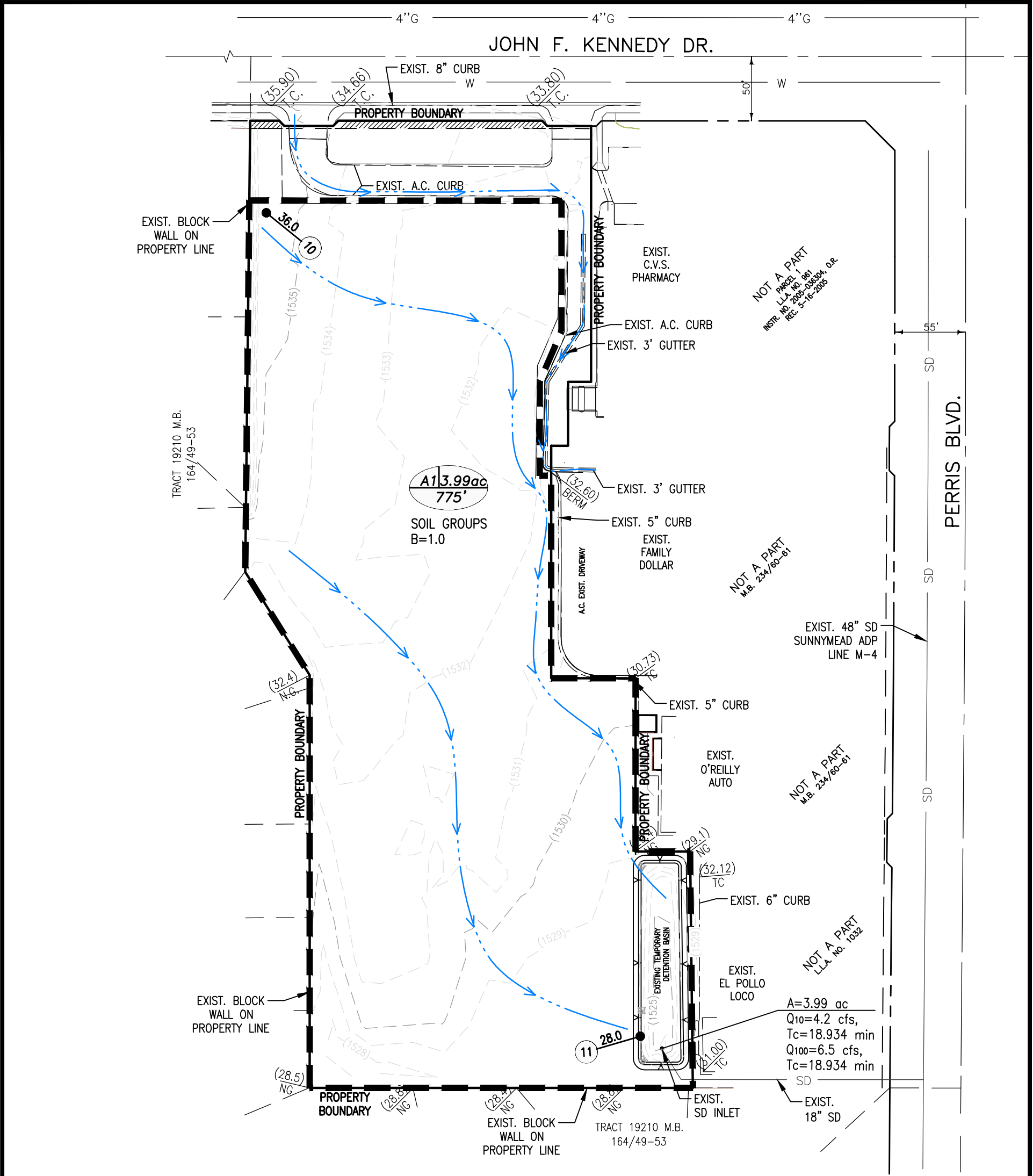
DAVID J. SLAWSON PLS 4724
 DATE OF PREPARATION: 9-12-17

SHEET 1 OF 1

LINE TABLE

LINE	LENGTH	BEARING
L1	22.42	N89°59'10"W
L2	5.66	N44°59'10"W
L3	38.00	N89°59'10"W
L4	5.66	N45°00'50"E
L5	5.66	N44°59'10"W
L6	34.00	N89°59'10"W





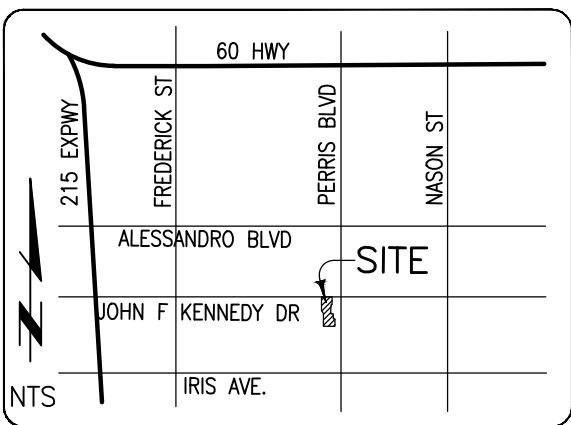
NOT A PART
 PARCEL 1
 L.L.A. NO. 861
 INSTR. NO. 2005-035304, O.R.
 REC. 5-16-2005

NOT A PART
 M.B. 234/60-61

NOT A PART
 M.B. 234/60-61

NOT A PART
 L.L.A. No. 1032

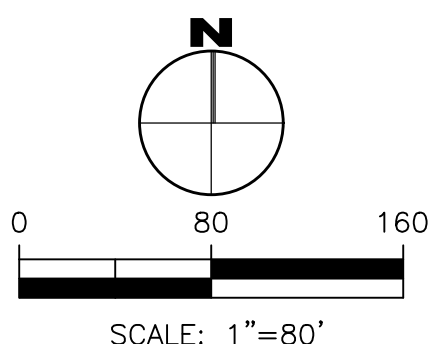
A=3.99 ac
 Q₁₀=4.2 cfs,
 T_c=18.934 min
 Q₁₀₀=6.5 cfs,
 T_c=18.934 min



VICINITY MAP

LEGEND:

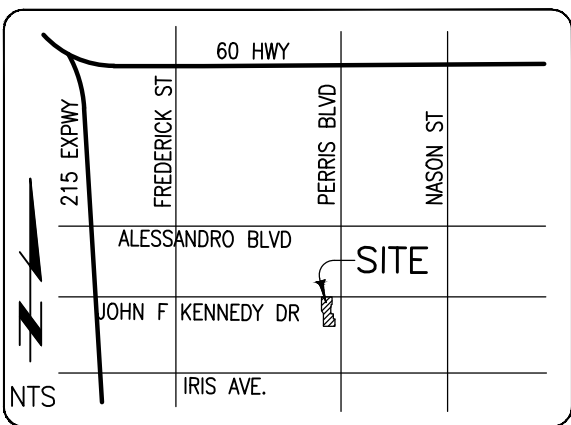
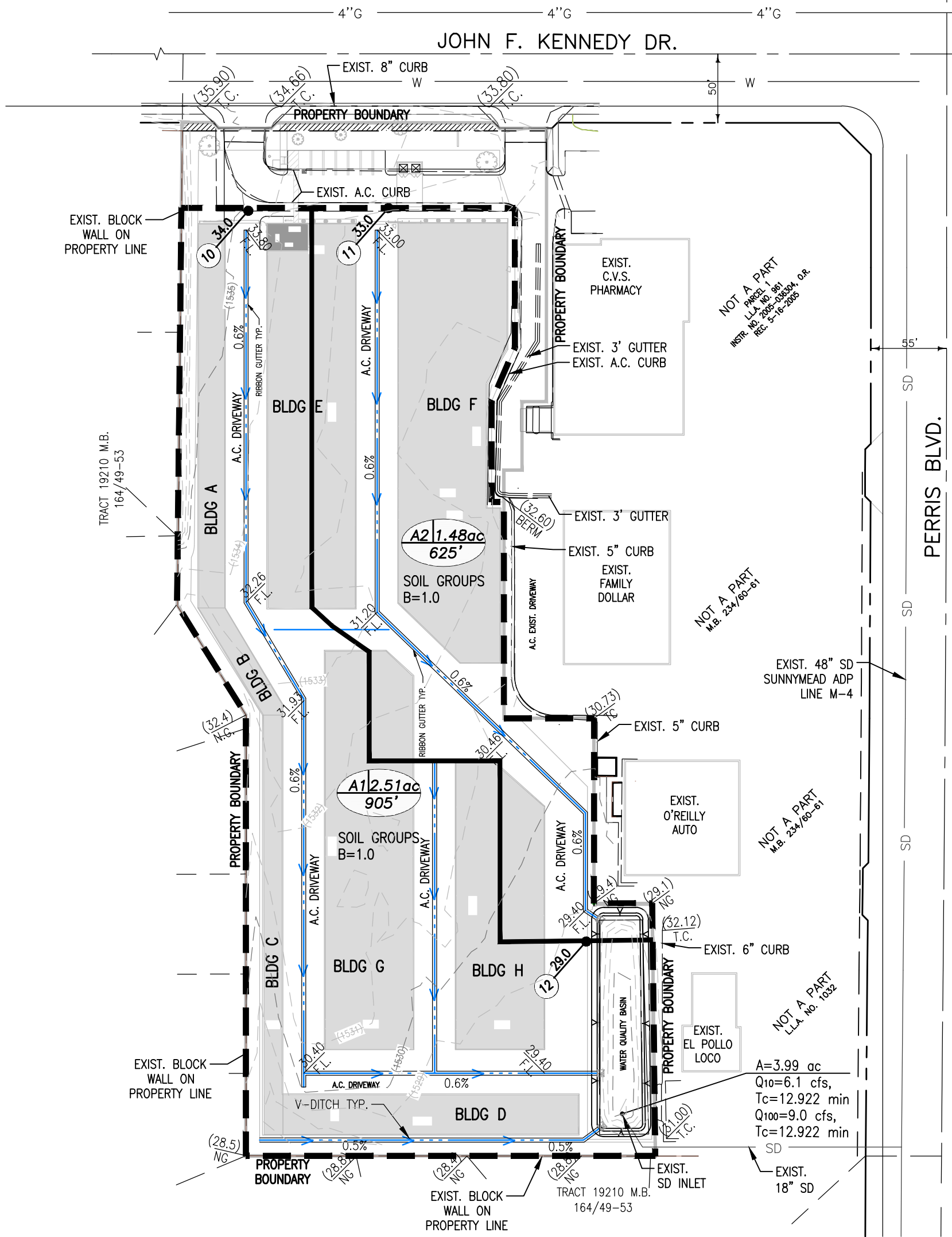
- DRAINAGE AREA BOUNDARY
- ELEVATION NODE
- HYDROLOGY SUBAREA/ACREAGE WATER COURSE LENGTH



	Winchester Associates, Inc. ENGINEERING • LAND SURVEYING 23640 TOWER ST., SUITE 3 MORENO VALLEY, CA. 92553 (951) 924-5425
	UNDER THE SUPERVISION OF: MARIELA ANGUELOV R.C.E. #75563 (EXP. 06/30/2018)

CITY OF MORENO VALLEY APN 485-081-036, 037, & 040 SELF STORAGE JFK DR & PERRIS BLVD HYDROLOGY MAP PRE-DEVELOPED CONDITIONS DATE OF PREPARATION: 02-15-2018		SHEET <u>1</u> OF <u>2</u> CITY ID No PEN17-0135
--	--	---

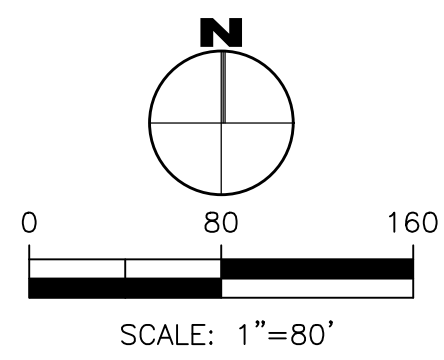
Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)



VICINITY MAP

LEGEND:

- SUB. AREA BOUNDARY
- DRAINAGE AREA BOUNDARY
- 1549.5 (11) ELEVATION NODE
- (A1 10ac / 1000') HYDROLOGY SUBAREA/ACREAGE WATER COURSE LENGTH



ENGINEER OF RECORD'S SEAL REGISTERED PROFESSIONAL ENGINEER MARIELA ANGUELOV No. C 75563 CIVIL STATE OF CALIFORNIA	Winchester Associates, Inc. ENGINEERING • LAND SURVEYING 23640 TOWER ST., SUITE 3 MORENO VALLEY, CA. 92553 (951) 924-5425 UNDER THE SUPERVISION OF: MARIELA ANGUELOV DATE R.C.E. #75563 (EXP. 06/30/2018)	CITY OF MORENO VALLEY APN 485-081-036, 037, & 040 SELF STORAGE JFK DR & PERRIS BLVD HYDROLOGY MAP POST-DEVELOPED CONDITIONS DATE OF PREPARATION: 02-15-2018	SHEET <u>2</u> OF <u>2</u> CITY ID No PEN17-0135
--	--	---	---

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on



ARAGÓN GEOTECHNICAL, INC.
 Consultants in the Earth & Material Sciences

January 25, 2018
 Project No. 4433-I

Gossett Development

207 Monarch Bay
 Dana Point, California 92629

Attention: Mr. Garrett Gossett

Subject: Soil Infiltration Test Results & Stormwater BMP Recommendations
 Proposed Self-Storage Facility, APN 485-081-037 and 043
 City of Moreno Valley, Riverside County, California.

Gentlemen:

In accordance with our proposal dated January 15, 2018, and your authorization, Aragón Geotechnical Inc. (AGI) has completed assessments of soil infiltration potential for purposes of developing a site-specific water quality management plan (WQMP) with the related selection of stormwater best management practices (BMPs) at the listed project. AGI's infiltration study was performed in advance of future geotechnical data acquisition and soil testing. Findings from the latter could slightly alter the recommendations of this infiltration test report; accordingly, this report should be viewed as preliminary until a confirmation note is issued by AGI after the geotechnical study. AGI's infiltration report is intended to support engineering design and construction of low-impact development (LID), hydromodification, and pollution prevention features for project runoff as required by the Santa Ana Region (SAR) *Water Quality Management Plan* effective January 1, 2013.

The primary infiltration-related tasks consisted of (1) Reviews of regional geologic, groundwater, and soils maps; (2) Site reconnaissance observations; (3) Field tests of soil absorption rates at two representative test sites on January 23, 2018; and (4) Preparation of this results report. Calculations or recommendations for the design precipitation event, stormwater retention or treatment flow rates, or treatment volumes were not within the scope of AGI's services.

Proposed Construction

AGI was furnished with a digital copy of a conceptual site plan dated September 12, 2017, from the Moreno Valley firm of Winchester Associates, Inc. The conterminous parcels encompass 4.47 acres of vacant terrain just west of the southwest corner of John F. Kennedy Drive and Perris Boulevard. Existing commercial buildings separate the site from Perris Boulevard. The site would be mass-graded and developed with an array of 5 irregularly shaped self-storage buildings. Construction type for the future storage units has not been specified, but might reasonably be limited to one-story light steel or CMU walls with roll-up doors and slab-on-grade concrete floors. Paved internal driveways would cover almost all remaining ground.

Per the site plans, sheetflow and ribbon gutter runoff would be directed to an *existing* 3½- to 4-foot-deep infiltration basin near the southeastern corner of the project. The existing narrow rectangular basin appears to already have a functional CMP overflow riser and connection to an inferred buried drain line extending to Perris Boulevard. The basin might be receiving periodic runoff from neighboring commercial plots. Data concerning any past infiltration results for the basin were not provided to AGI. Off-site contributions would need to be added to calculated project site volumes. We infer from the plans that the self-storage project will ultimate constitute only one drainage management area (DMA), with all impermeable-area runoff directed to the single BMP; thus, the basin will constitute an “active” treatment control system.

Surface Conditions

At the time of AGI’s basin evaluation, the nearly flat APN 485-081-037 and 043 consisted of almost barren soil surfaces hosting scattered desiccated weedy vegetation. Remnants of former piles of dumped fill soil brought from an unknown offsite source could be delineated in the western parts of the project area. Little rainfall had been recorded in Moreno Valley, and soil moisture was low. However, the existing basin floor was muddy and very moist. Basin sidewalls appeared to have been carefully trimmed to a specified line and grade but were eroded in spots with rills up to a foot or so deep. Historical aerial photo research indicated the basin was graded in mid-2016 coincident with the construction of an adjacent Family Dollar store and El Pollo Loco restaurant. Old building outlines or well sites within the self-storage area were not observed during the field testing or interpreted in the historical images.

Subsurface Investigation and Permeability Testing

One manually drilled exploratory boring was preferentially placed next to the existing basin, starting at approximately original natural grade. This boring was voluntarily terminated without refusal in alluvium at a depth of 15.0 feet. The exploratory boring was continuously observed by AGI's engineering geologist and logged for materials classifications, interpreted materials origins, relative density as estimated from augering effort, presence of groundwater, and other characteristics that can influence water uptake rates. The soil boring was not converted to a well, but was backfilled with tamped auger cuttings. The Field Boring Log for the basin boring is included in the accompanying Appendix. A small-scale version of the conceptual development plan with the mapped basin, plus AGI's exploratory soil boring location and approximate infiltration test sites done for this study, is presented on the Plate No. 1 fold-out in the back of this report.

AGI performed infiltration testing at two representative sites labeled IN-1 and IN-2 on the fold-out map. Tests were performed on native-soil substrates created about 60 inches below original grades. The test sites were prepared in small pits manually dug with shovels to approximately 12 to 16 inches below the existing basin bottom. Surficial compacted zones and deposited sand were detected during digging but were bypassed by the pits. Final exposures were hand-scraped to level, smooth natural-soil surfaces. The test depths were judged representative for a restored basin-type BMP that would potentially include an amended soil blanket for pollutant control and/or deepening to help increase capacity.

Absorption capability was determined in general conformance with the Double-Ring Infiltrometer Test Standard (ASTM D 3385-03). The standard test method consists of driving into the soil surface two concentric open cylinders of heavy steel, one 12 inches in diameter and one 24 inches in diameter and both 20 inches tall. Embedment depths are on the order of a few inches. The rings retain shallow, equal-depth constant heads of water over the soil substrate. The purpose of two rings is to force one-dimensional vertical flow below the inner ring, thus approximating absorption behavior over an infinite planar surface. The lowest inner-ring infiltration velocity (in/hr or cm/hr) is generally taken as the field test rate I_r . Soil infiltration through the annular space is usually higher due to lateral flow beyond the outer ring.

For this project, a head of 5.0 inches was designated. Excellent ring seals with the soil substrates appeared to be achieved at both test locations. Replenishment of the inner + outer water pools was done via regular manual additions of measured water volumes to the rings using laboratory graduated cylinders. Point gauges set at 5.0 inches provided visual confirmation of water surface heights above the soil. All test preparation, measurements, monitoring, and recording was performed under supervision of a qualified licensed professional. Slow uptake rates meant that 30-minute measurement trials were adequate. Total timed test durations at both infiltration sites were 3 hours, based on basic requirements to complete at least 6 trials and also achieve consecutive incremental velocities differing by approximately 10 percent or less, considered to be close to steady-state uptake rates. A typical test result will show incremental velocities asymptotically approaching a minimum value. Tabulated data for the pair of infiltration tests are attached.

FINDINGS

Local Soil Conditions

Shallow soils in the project site consist of massive, brown-colored and mostly featureless silty sand derived from granitic bedrock (Unified Soil Classification System symbol SM). Surficial zones are generally inferred to have been thoroughly “churned” [bioturbated] by cultivation or weed abatement and burrowing fauna. Surficial soils shallower than the basin bottom are believed to be porous and highly compressible. In future structural areas, remedial grading will remove compressible materials to mitigate settlement potentials.

At variable depths of around 5 to 8 feet below original grade near the basin, a sharp (erosional?) contact occurs with medium dense to possibly dense silty sand, sometimes with a trace of clay. The deeper unit is characterized by immature sand grains and traces of fine gravel that are mostly crumbly and highly weathered. The deeper unit was significantly harder to drill with AGI’s manual tools, and was locally slightly cemented.

Geologically the shallower uncemented sediments are representative of young alluvial-fan deposits originating from the Box Springs Mountains and Pigeon Pass area located north of the development. All features suggestive of distributary channels south of Poorman Reservoir, a normally dry flood basin located in northern Moreno Valley, have been obliterated by suburban sprawl. From a soil science viewpoint, the National Resources Conservation Service classifies shallow BMP basin soils as Hanford fine sandy loam HgA.

This soil series is assigned to hydrologic soil group A. Note that NRCS soil series classifications and hydrologic groups are generally only applicable to depths of 60 inches.

The denser and slightly reddish deeper sediments are part of a widespread, Pleistocene-age alluvial-fan unit (“Qvof” on regional geologic maps) that is widely exposed at the ground surface over vast areas of Moreno Valley. The top of the unit is considered part of the “Paloma” depositional surface of Woodford et al. (1971), typified by fairly strongly developed illuvial clay and calcic horizons atop the older parent materials. These characteristics were relatively mildly expressed at the project site, however. Infiltration test IN-1 was situated within the “Qvof” unit. Also notable are multiple buried soil horizons (paleosols) that represent depositional hiatuses and weathering to form slightly clayey hardpans. The older sediments also originated from the granitic bedrock hills and mountains surrounding the Perris Plain. Sediment depths are not exactly defined at the site, but would be hypothesized to be in the range of 55 to 80 feet based on valley-wide geophysical studies undertaken to define buried bedrock topography (AECOM, 2013). Geophysical models suggest the site is actually over a bedrock “high”.

Groundwater

The basin-specific manual auger boring did not encounter groundwater above the 15.0-foot termination depth. Recovered cuttings remained free of oxide mottles that might indicate past periodic saturation. AGI could not locate historical data for the minimum depth to groundwater at the site or within roughly one mile of the property.

Monitoring well records exist for scores of wells on and near March Air Reserve Base. Studies undertaken primarily for environmental cleanup purposes show that water levels have consistently been rising in western Moreno Valley for decades, although the rate of rise has greatly slowed in the last 3 to 4 years. Extrapolations of well-constrained phreatic surface elevation contours indicate groundwater should be at roughly Elev. 1485-1480' at the project site, i.e., depths of ~43-48 feet below grade. Gradients are interpreted to tilt to the southeast, toward the axis of the deepest buried bedrock relief in the region in addition to some municipal supply wells. Jurisdictional requirements usually mandate a minimum separation between stormwater BMPs and groundwater of at least 10 feet and up to 40 feet (for very permeable soils). In our judgment, there should be no limitations on BMP design or construction due to groundwater at the project.

Infiltration Test Results

The final measured “steady-state” field test infiltration velocity at site IN-1 was 1.05 cm/hr, or equivalently about 0.4 inches per hour. Site IN-2 produced a minimum velocity of about 4.78 cm/hr (~1.9 inches per hour). Site IN-2 was composed of a thin zone of younger alluvium over the older “Qvof” sediments, and probably had not reached longer-term equilibrium uptake rates.

Conclusions, Recommendations, and Advice

The SAR *Water Quality Management Plan* explicitly requires any infiltration-based BMP to be clear of water in 72 hours or less after the design storm event. We conclude the designated WQMP site is suitable for a basin or other LID stormwater BMP that can utilize partial or total infiltration of the design capture volume. Designing unlined, natural-soil sloped sidewalls will also help to maximize rates, as lateral flow in permeable upper zone soils will provide some storage.

AGI recommends adoption of an average field test infiltration velocity I_t of 1.5 inches per hour when initiating calculations for site BMPs that include basins, bioretention, or biofiltration for capture volumes. The field test velocity is derived as the arithmetic mean of IN-1 and IN-2 results, but with the latter conservatively reduced by an added 20%. Riverside County guidelines for storm water best management practices require a factor of safety $FS = 3.0$ when calculating the design infiltration velocity I_d for an infiltration-type BMP, based on the methods and results of this investigation (Appendix A, Table 1, *Riverside County – Low Impact Development BMP Design Handbook*). The reduced design velocity adds conservatism for test variability, construction practices, introduction of sediments, and degradation from less-than-ideal BMP maintenance. Accordingly, it is our recommendation that civil design for the BMP assume a design infiltration velocity I_d of 0.5 in/hr.

It is important to note the test velocities were obtained in carefully prepared test pits as free as practicable of surface sealing and boundary-zone compaction. Field performance of any designed LID improvement could be markedly lower than AGI’s achieved results if precautions are not maintained during construction. It will be imperative to follow industry standards for minimizing subgrade compaction. Basin restoration should be made with

backhoes, grade-alls, or excavators working from outside the hole. An overall goal of preventing heavy equipment from rolling or tracking any excavation bottoms should be understood. At a minimum, existing soils must be loosened to depths of at least 12 inches, based on our explorations. The substitution of an amended soil zone in the basin bottom (commonly, approximately 2 feet of sand-compost mix used to improve pollutant capture) is encouraged.

Lastly, AGI concludes from test and exploration findings that the selected site BMP location should neither cause structural concerns, nor result in significantly increased risks from slope instability, liquefaction, or settlement. A drive-through aisle and landscape strips are believed to be adequate buffers between the basin and the nearest commercial buildings. The buildings are also less than two years old, and are inferred to rest on engineered compacted soil pads monitored and tested by a qualified soils firm. Ephemeral basin stormwater inputs, plus the large volume of vadose-zone soils that can accept the water, will in our opinion not promote mounding or permanent perched-water horizons.

Investigation Limitations

The findings in this report may require modification as a result of later field observations. Our opinions have been based on the results of limited testing within the designated BMP area combined with extrapolations of soil conditions between or away from the test sites. The nature and extent of variations beyond the test locations may not become evident until construction. Any added infiltration BMPs beyond the single currently proposed site should be independently tested. If conditions encountered during construction vary significantly from those indicated by this report, then additional site preparation recommendations (or tests) for the stormwater treatment control BMP may be warranted.

Closure

This report was prepared for the use of the project proponent Gossett Development and their designates in cooperation with this office. Our findings and recommendations were prepared in accordance with generally accepted professional principles and local practice in the fields of engineering geology and geotechnical engineering. We make no other warranties either expressed or implied. Queries regarding the test results, recommendations, or AGI design advice are invited, and may be made to either of the undersigned professionals at our Riverside office at (951) 776-0345.

Respectfully submitted,

Aragón Geotechnical, Inc.



Mark G. Doerschlag, CEG 1752
Engineering Geologist



C. Fernando Aragón, P.E., M.S.
Geotechnical Engineer, G.E. 2994

MGD/CFA:mma

- Attachments: Appendix
- ▶ Field Boring Log, Boring B-1
 - ▶ Infiltration Test Data Tables
 - ▶ Exploration & Test Location Map

Distribution: (4) Addressee

REFERENCES

- AECOM Technical Services, Inc., 2013, *Final 2011-2012 Annual Monitoring Report, Long-Term Groundwater Monitoring Program, March Air Reserve Base, Former March Air Force Base, California*: contractor's report dated December 9, 2013 (Contract No. FA8903-09-D-8547-0007, Project No. 60271680-0009AG), digital download from State of California Geotracker website, <https://geotracker.waterboards.ca.gov/>
- Natural Resources Conservation Service, 2018, Web Soil Survey utility, accessed 1/24/18 from Internet URL <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- Woodford, A.O., Shelton, J.S., Doehring, D.O., and Morton, R.K., 1971, Pliocene-Pleistocene history of the Perris Block, southern California: Geological Society of America Bulletin, v. 82, p. 3421-3448.

APPENDIX

A P P E N D I X

MAP EXPLANATION AND SUBSURFACE EXPLORATION LOG

The Exploration & Test Location exhibit (Plate No. 1 fold-out) was prepared based upon information supplied by the client, or others, along with Aragón Geotechnical's field measurements and observations. Field exploration and infiltration test locations illustrated on the exhibit were derived from taped or pace measurements of distance to existing improvements, and should be considered approximate.

The Field Boring Log for soil boring B-1 on the following page schematically depicts and describes the subsurface (soil and groundwater) conditions encountered at the specific exploration location on the date that the exploration was performed. Unit descriptions reflect predominant soil types; actual variability may be much greater. Unit boundaries may be approximate or gradational. Text information often incorporates the field investigator's interpretations of geologic history, origin, diagenesis, and unit identifiers such as formation name or time-stratigraphic group. Therefore, the log contains both factual and interpretive information. Subsurface conditions may differ at future geotechnical exploration locations or within areas of the site that were not explored. The subsurface conditions may also change over the passage of time.

The included boring log is specific to the proposed treatment control BMP shown on Plate No. 1. No data or opinions shall be construed or interpreted as representative of conditions for geotechnical design of buildings, pavements, or engineered fill. AGI's WQMP investigation scope and field operations were based primarily on Riverside County technical guidelines, modified by exercise of professional judgment considering site geology and groundwater conditions.

Manual auger cuttings were regularly visually-manually classified, based on texture and plasticity, utilizing the procedures outlined in the ASTM D2487-93 standard. The assignment of a group name to alluvial soil strata was performed according to the Unified Soil Classification System (ASTM D2488-93). Where reported, plasticity comments on field logs refer to soil behavior at field moisture content unless noted otherwise. The classifications are reported on the Field Boring Log.



FIELD LOG OF BORING B - 1

Sheet 1 of 1

Project: **SEL-STORAGE FACILITY, APN 485-081-037 and 043**

Location: **MORENO VALLEY, RIVERSIDE COUNTY, CALIF.**

Date(s) Drilled: 1/23/18	Logged By: M. Doerschlag
Drilled By: AGI	Total Depth: 15.0 Ft.
Rig Make/Model: N/A	Hammer Type: N/A
Drilling Method: AMS Manual Auger	Hammer Weight/Drop: N/A
Hole Diameter: 3½ In.	Surface Elevation: ±1528.5 Ft. AMSL per site plan

Comments: Drilled adjacent to existing basin in native ground.

DEPTH (ft.)	ELEVATION (MSL DATUM)	SAMPLE INTERVALS		GRAPHIC LOG	USCS	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	WELL COMPLETION	OTHER TESTS
		BULK DRIVE	TYPE, "N" or (Blows/ft.)							
0					SM	Silty Sand: Brown; judged medium dense; slightly moist; sand ranges from fine to coarse-grained with traces of fine immature gravel and estimated 35% fines; massive. Not cemented or cohesive, and relatively easy to hand-auger. [Younger fan alluvium, unit Qyf]				
1525										
5										
1520					SM	Silty Sand: Brown; initially judged medium dense; slightly moist becoming moist by ~10 ft.; slightly variable 25-40% silty non-plastic fines interstitial to fine to coarse grained sand plus traces of weathered fine gravel. Firmer drilling than above and very slightly cemented. [Very old fan alluvium, unit Qvof]				
10										
1515						↳ Becomes yellowish brown, dense, with traces of clay, and harder to drill (interpreted paleosol Bt horizon).				
15										

Bottom of boring at 15.0 ft.
 No groundwater encountered.
 Boring backfilled with compacted soil cuttings.

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

Aragón Geotechnical Inc. - Record Chart for ASTM D3385-03 (12 & 24 Inch Infiltration Rings)

www.aragongeo.com

Project Identification:	Gossett Development	Constants	Area (cm²)	Depth of Liquid (cm)	Liquid Container Number	Liquid Container Volume Vol/ Chg H (cm³/cm)
Test Location:	Site IN - 1 South end of existing infiltration basin, depth ~60" below native grade	Inner Ring	745	12.7	500 mL	17.70
Liquid Used:	Muni water pH: n/a	Annular Space	2106	12.7	2000 mL	48.31
Tested By:	K. Lauritsen	Liquid level maintained using: () Flow Valve () Float Valve () Mariotte Tubes (X) Graduated Cylinders				
Depth to water table:	>40 ft.	Penetration Depth of Outer Ring: 7.6 cm				

Trial #	Start / End Test	Date	Time HR:MIN	Elapsed Time Chg/(Total) Min	Flow Readings				Liquid Temp (°F)	Ring Infiltration Rates		Ground Temperature		Remarks Weather conditions Etc...
					Inner Ring Reading (cm)	Inner Ring Flow (cm ³)	Annular Space Reading (cm)	Annular Space Flow (cm ³)		Inner Infiltration Rate (cm/hr)	Annular Infiltration Rate (cm/hr)	Ground Temp Depth (cm)	Temp at Depth (°F)	
Water Introduced		1/23/2018	10:00											
1	Start Test	1/23/2018	10:03	0:30:00		605		2,000	70.0	1.62	1.90	3.0	62.0	Clear, 65° F ambient temperature
	End Test	1/23/2018	10:33	0:33:00										
2	Start Test	1/23/2018	10:33	0:30:00		555		1,750		1.49	1.66	n/a	n/a	
	End Test	1/23/2018	11:03	0:63:00										
3	Start Test	1/23/2018	11:03	0:30:00		565		1,680		1.52	1.60	n/a	n/a	Good seal
	End Test	1/23/2018	11:33	0:93:00										
4	Start Test	1/23/2018	11:33	0:30:00		410		1,720		1.10	1.63	n/a	n/a	
	End Test	1/23/2018	12:03	0:123:00										
5	Start Test	1/23/2018	12:03	0:30:00		460		1,580		1.23	1.50	n/a	n/a	
	End Test	1/23/2018	12:33	0:153:00										
6	Start Test	1/23/2018	12:33	0:30:00		390		1,420		1.05	1.35	n/a	n/a	
	End Test	1/23/2018	13:03	0:183:00										
7	Start Test													
	End Test													
8	Start Test													
	End Test													
9	Start Test													
	End Test													
10	Start Test													
	End Test													
11	Start Test													
	End Test													
12	Start Test													
	End Test													

Final I_t = 1.05 cm/hr

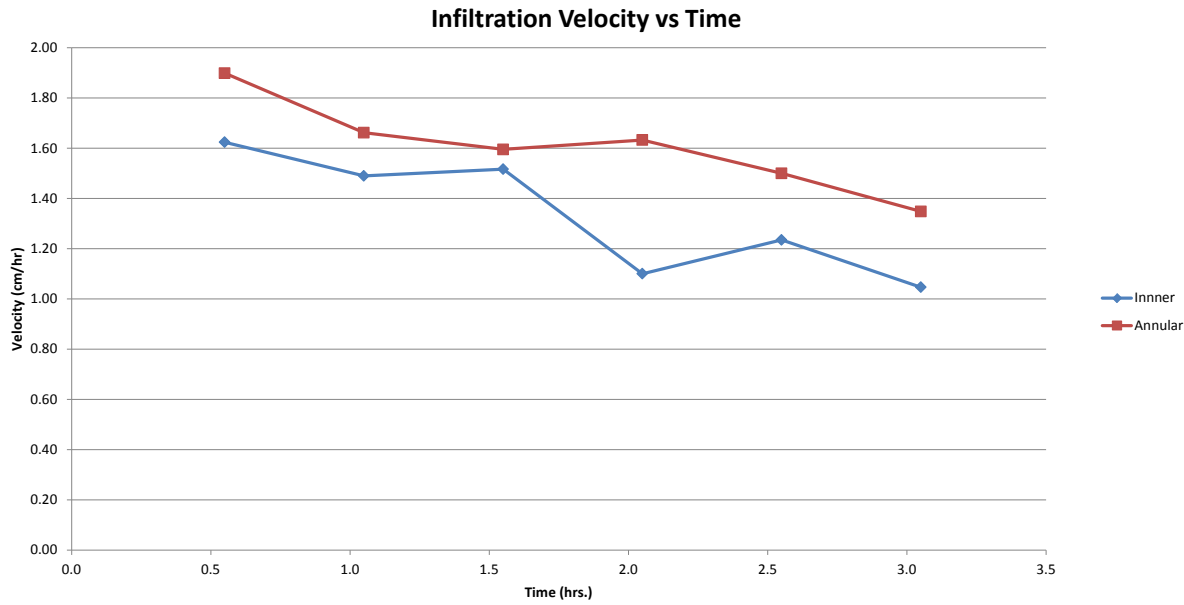


Figure A-3

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use

Aragón Geotechnical Inc. - Record Chart for ASTM D3385-03 (12 & 24 Inch Infiltration Rings)

www.aragongeo.com

Project Identification:	Gossett Development	Constants	Area (cm²)	Depth of Liquid (cm)	Liquid Container Number	Liquid Container Volume Vol/ Chg H (cm³/cm)
Test Location:	Site IN - 2 North end of existing infiltration basin, depth 60" below native grade.	Inner Ring	745	12.7	500 mL	17.70
Liquid Used:	Muni water pH: n/a	Annular Space	2106	12.7	2000 mL	48.31
Tested By:	K. Lauritsen	Liquid level maintained using: () Flow Valve () Float Valve () Mariotte Tubes (X) Graduated Cylinders				
Depth to water table:	>40 ft.	Penetration Depth of Outer Ring: 7.6 cm				

Trial #	Start / End Test	Date	Time HR:MIN	Elapsed Time Chg/(Total) Min	Flow Readings				Liquid Temp (°F)	Ring Infiltration Rates		Ground Temperature		Remarks Weather conditions Etc...
					Inner Ring Reading (cm)	Inner Ring Flow (cm ³)	Annular Space Reading (cm)	Annular Space Flow (cm ³)		Inner Infiltration Rate (cm/hr)	Annular Infiltration Rate (cm/hr)	Ground Temp Depth (cm)	Temp at Depth (°F)	
Water Introduced		1/23/2018	13:30											
1	Start Test	1/23/2018	13:40	0:30:00		4,180		14,210	70.0	11.22	13.49	7.6	70.0	Clear, 77° F ambient temperature
	End Test	1/23/2018	14:10	0:40:00										
2	Start Test	1/23/2018	14:10	0:30:00		3,180		12,740		8.54	12.10	n/a	n/a	
	End Test	1/23/2018	14:40	0:70:00										
3	Start Test	1/23/2018	14:40	0:30:00		2,640		9,340		7.09	8.87	n/a	n/a	Good seal
	End Test	1/23/2018	15:10	0:100:00										
4	Start Test	1/23/2018	15:10	0:30:00		2,080		8,420		5.58	8.00	n/a	n/a	
	End Test	1/23/2018	15:40	0:130:00										
5	Start Test	1/23/2018	15:40	0:30:00		2,000		8,080		5.37	7.67	n/a	n/a	
	End Test	1/23/2018	16:10	0:160:00										
6	Start Test	1/23/2018	16:10	0:30:00		1,780		8,000		4.78	7.60	n/a	n/a	
	End Test	1/23/2018	16:40	0:190:00										
7	Start Test													
8	Start Test													
9	Start Test													
10	Start Test													
11	Start Test													
12	Start Test													

Final I_t = 4.78 cm/hr

Infiltration Velocity vs Time

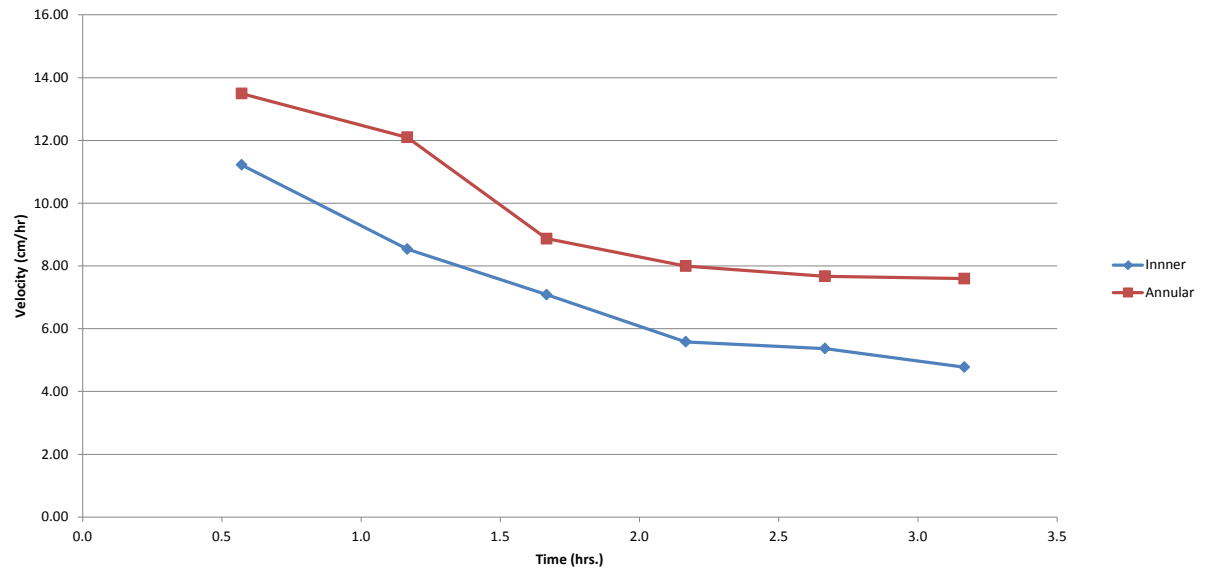
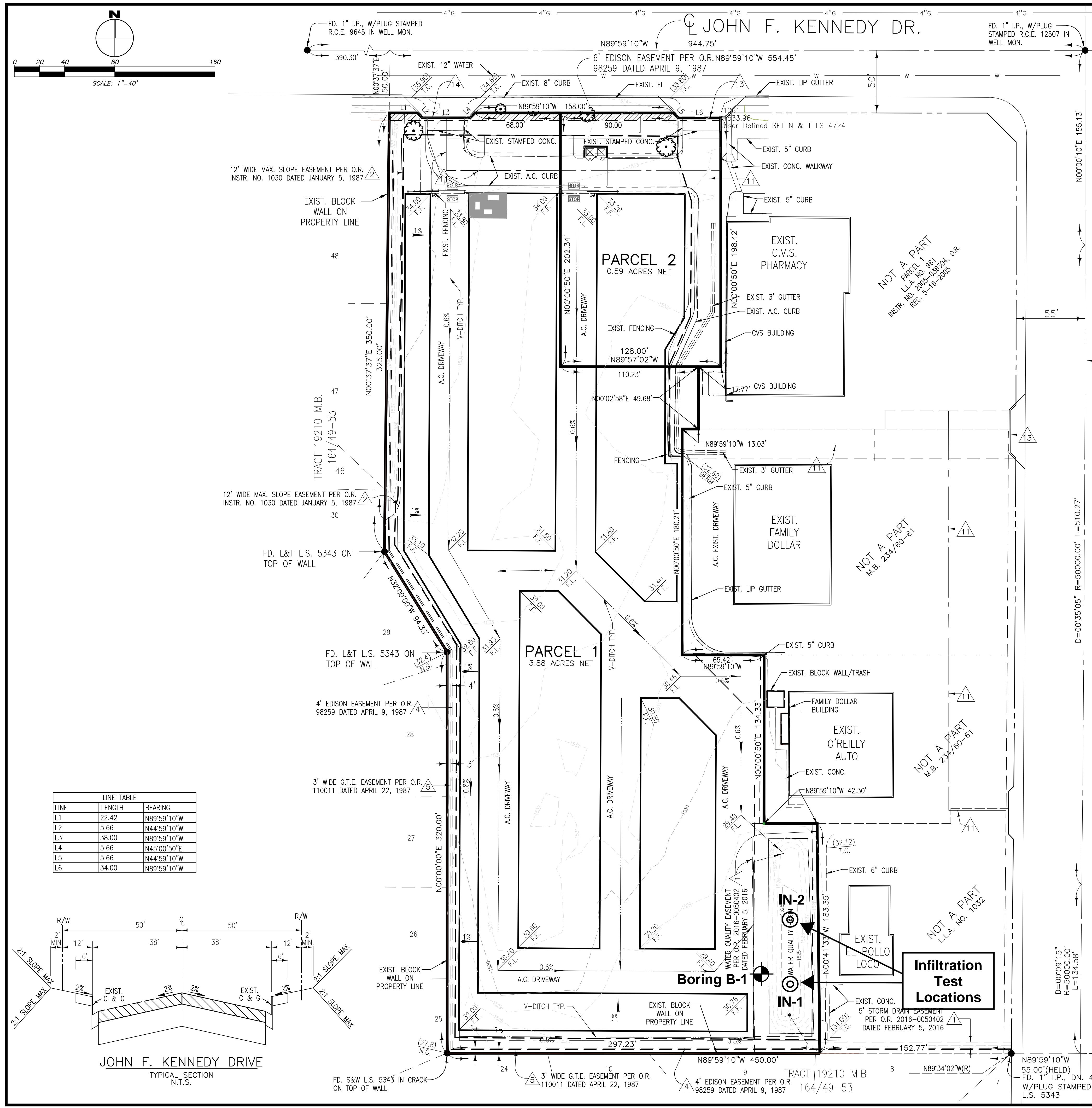


Figure A-4

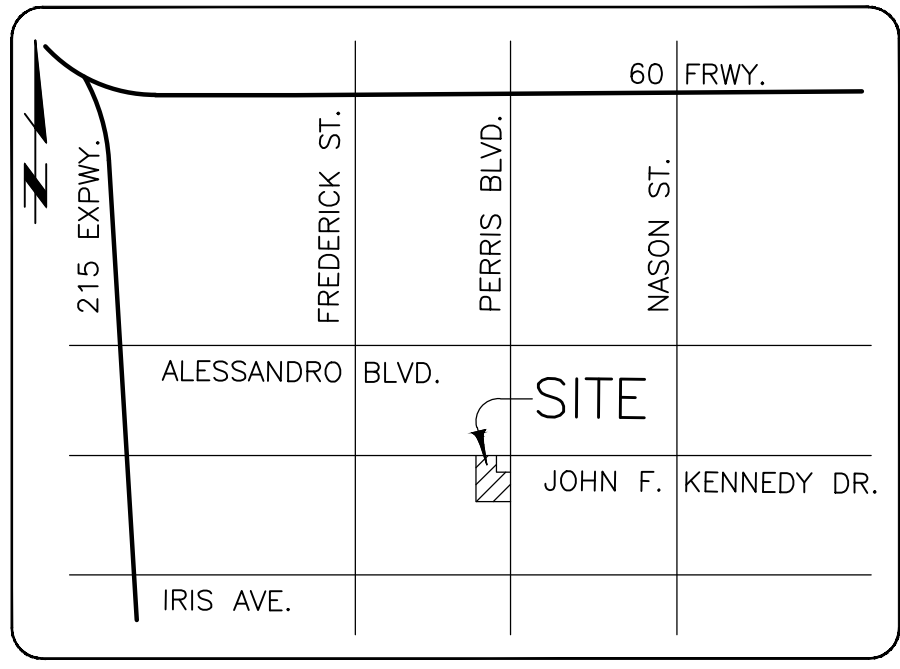
Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use



IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
CONCEPTUAL GRADING PLAN
 PARCEL 1 OF L.L.A. NO. 1032, AND PARCEL 2 OF PARCEL MAP 36449
 RECORDED IN BOOK 234, PAGES 60-61, RECORDS OF RIVERSIDE CALIFORNIA,
 LYING IN SECTION 19, T. 3 S., R. 3 W., S.B.M.
WINCHESTER ASSOCIATES, INC. AUGUST 2017

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF MORENO VALLEY, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
 THAT PORTION OF PARCELS 1 AND 5 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS RECORDED IN PARCEL MAP BOOK 234, PAGES 60 AND 61, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA DESCRIBED AS FOLLOWS:
 BEGINNING AT A POINT ALONG THE SOUTH LINE OF PARCEL 5 OF SAID PARCEL MAP, SAID POINT LYING 152.77 FEET FROM THE SOUTHEAST CORNER OF SAID PARCEL 5;
 THENCE NORTH 0°41'33" WEST A DISTANCE OF 183.35 FEET TO A POINT ALONG THE SOUTH LINE OF PARCEL 4 OF SAID PARCEL MAP;
 THENCE ALONG SAID SOUTH LINE OF SAID PARCEL 4 NORTH 89°59'10" WEST A DISTANCE OF 42.30 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 4;
 THENCE NORTH 0°00'50" EAST ALONG THE WEST LINE OF SAID PARCEL 4, A DISTANCE OF 134.33 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 4;
 THENCE NORTH 89°59'10" WEST ALONG THE WEST LINE OF 65.42 FEET TO THE SOUTHWEST CORNER OF PARCEL 3 OF SAID PARCEL MAP;
 THENCE NORTH 0°00'50" EAST ALONG THE WEST LINE OF SAID PARCEL 3, A DISTANCE OF 180.21 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 3;
 THENCE SOUTH 89°59'10" EAST ALONG THE NORTH LINE OF SAID PARCEL 3, A DISTANCE OF 13.03 FEET;
 THENCE NORTH 0°02'58" EAST A DISTANCE OF 49.68 FEET TO A POINT ON THE SOUTH LINE OF PARCEL 2 OF SAID PARCEL MAP;
 THENCE NORTH 89°57'02" WEST ALONG THE SOUTH LINE OF SAID PARCEL 2, A DISTANCE OF 110.23 FEET TO THE SOUTHWEST CORNER THEREOF;
 THENCE NORTH 0°07'50" EAST ALONG THE WEST LINE OF SAID PARCEL 2 A DISTANCE OF 202.34 FEET TO THE NORTHEAST CORNER OF SAID PARCEL 2; THENCE NORTH 89°59'10" WEST ALONG THE NORTH LINE OF SAID PARCEL 1, A DISTANCE OF 68.00 FEET; THENCE SOUTH 45°09'00" WEST A DISTANCE OF 5.66 FEET; THENCE NORTH 89°59'10" WEST A DISTANCE OF 38.00 FEET; THENCE NORTH 44°59'10" WEST A DISTANCE OF 5.66 FEET;
 THENCE NORTH 89°59'10" WEST A DISTANCE OF 22.42 FEET TO THE NORTHWEST CORNER OF SAID PARCEL 1;
 THENCE SOUTH 0°37'37" WEST ALONG THE WEST LINE OF SAID PARCEL 1 A DISTANCE OF 350.00 FEET TO AN ANGLE POINT THEREIN;
 THENCE CONTINUING ALONG SAID WEST LINE SOUTH 32°00'00" EAST A DISTANCE OF 94.33 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 1;
 THENCE ALONG THE WEST LINE OF SAID PARCEL 5 SOUTH 0°00'00" WEST A DISTANCE OF 320.00 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 5;
 THENCE ALONG THE SOUTH LINE OF SAID PARCEL 5 SOUTH 89°59'10" EAST A DISTANCE OF 297.23 FEET, MORE OR LESS, TO THE POINT OF BEGINNING AND THE END OF THIS DESCRIPTION.
 APN: 485-081-036-7 AND A PORTION OF 485-081-040-0
PARCEL B:
 PARCEL 2 OF PARCEL MAP NO. 36449, IN THE CITY OF MORENO VALLEY, AS RECORDED IN PARCEL MAP BOOK 234, PAGES 60 AND 61, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
 APN: 485-081-037-8



GENERAL NOTES

OWNER/APPLICANT
 PROFESSORS FUND IV, LLC
 990 HIGHLAND DR. SUITE 204
 SOLANA BEACH, CA 92075
 PHONE: (604) 984-6400
 CONTACT: BOB EMRI

ENGINEER
 WINCHESTER ASSOCIATES, INC.
 DAVID J. SLAWSON
 23640 TOWER STREET, SUITE 3
 PO BOX 280
 MORENO VALLEY, CA. 92556-0280
 PHONE: (951) 924-5425

ASSESSOR'S PARCEL No.
 485-081-036, 037, & 040

LAND USE AND ZONING

CURRENT GENERAL PLAN	C
CURRENT ZONING	NC
PROPOSED ZONING	CC
EXISTING USE	VACANT
PROPOSED LAND USE	SELF STORAGE UNITS

AREA AND DENSITY

GROSS ACREAGE	4.78 ACRES
NET ACREAGE	4.47 ACRES

FLOOD HAZARD
 THE SUBJECT TRACT IS IN ZONE X AND NOT WITHIN THE 100 YEAR FLOOD PLAIN. FEMA FLOOD INSURANCE PANEL NO. 0606500765G.

THOMAS BROTHERS GUIDE
 PAGE 717 G-7.

TOPOGRAPHY
 OBTAINED FROM TOPOGRAPHICAL SURVEY CONDUCTED BY WINCHESTER ASSOCIATES, INC. ON 7-23-17.

SCHOOL
 MORENO VALLEY UNIFIED SCHOOL DISTRICT

PUBLIC UTILITIES
 SEWER & WATER EMWD
 ELECTRICITY S.C.E.
 GAS THE GAS CO.
 TELEPHONE VERIZON

PREPARED BY:
 Winchester Associates, Inc.
 ENGINEERING • LAND SURVEYING

23640 TOWER ST., SUITE 3
 PO BOX 280
 MORENO VALLEY, CA 92556-0280 PH: (951) 924-5425

EASEMENT NOTES:

- 1 AN EASEMENT FOR WATER QUALITY AND STORM DRAIN PURPOSES IN FAVOR OF PROFESSORS' FUND IV, LLC, RECORDED 2-5-2016 AS INST. NO. 2016-0050402.
- 2 AN EASEMENT FOR SLOPE PURPOSES IN FAVOR OF CITATION HOMES, RECORDED 1-5-87 AS INST. NO. 1030.
- 4 AN EASEMENT FOR ELECTRICAL PURPOSES IN FAVOR OF S.C.E., RECORDED 4-9-87 AS INST. NO. 98259.
- 5 AN EASEMENT FOR TELEPHONE PURPOSES IN FAVOR OF G.T.E., RECORDED 4-22-87 AS INST. NO. 110011.
- 17 A MUTUAL ACCESS AREA IN FAVOR OF PROFESSORS' FUND IV, LLC, RECORDED 6-5-06 AS INST. NO. 2006-0405874.
- 13 AN EASEMENT FOR PEDESTRIAN ACCESS PURPOSES IN FAVOR OF THE CITY OF MORENO VALLEY, RECORDED 9-31-06 AS INST. NO. 2006-0643463.
- 14 AN EASEMENT FOR PEDESTRIAN ACCESS PURPOSES IN FAVOR OF THE CITY OF MORENO VALLEY, RECORDED 9-31-06 AS INST. NO. 2006-0643454.

EARTHWORK ESTIMATE

EXCAVATION	4,000 CY
EMBANKMENT	800 CY

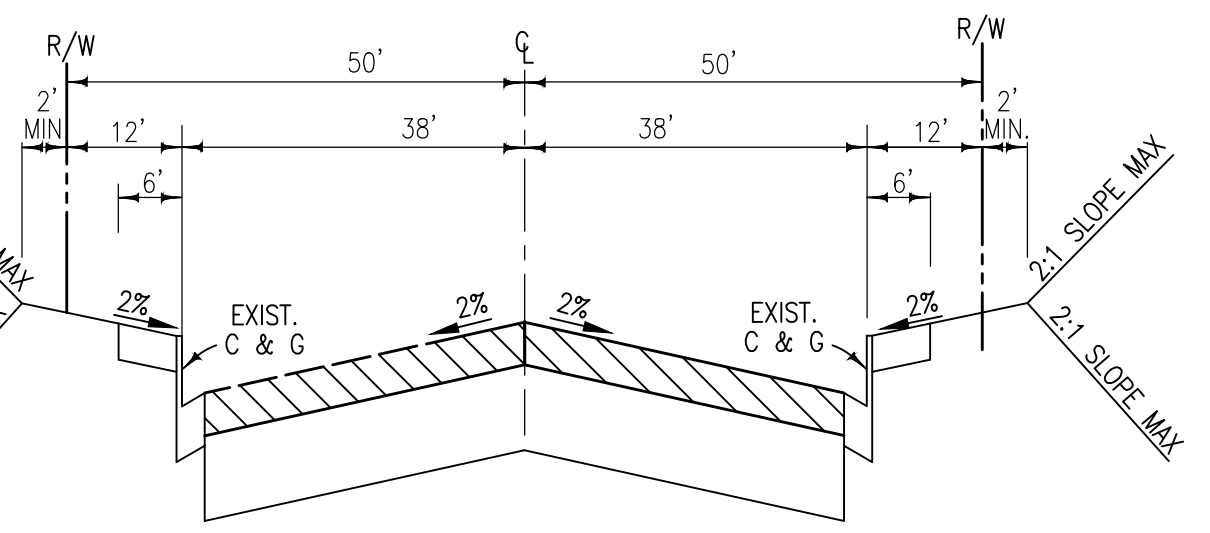


EXPLORATION & TEST LOCATION MAP

APN 485-081-037 AND 043, MORENO VALLEY, CA
 PROJECT NO. 4433-1 DATE: 1/25/18 PLATE NO. 1

LINE TABLE

LINE	LENGTH	BEARING
L1	22.42	N89°59'10"W
L2	5.66	N44°59'10"W
L3	38.00	N89°59'10"W
L4	5.66	N45°00'50"E
L5	5.66	N44°59'10"W
L6	34.00	N89°59'10"W



Attachment: Preliminary Water Quality Management Plan (3175 - Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Not Applicable

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Not Applicable

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

Santa Ana Watershed - BMP Design Volume, V_{BMP}
 (Rev. 10-2011)

Legend: Required Entries
 Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name WAI Date 2/19/2018
 Designed by Mariela Anguelov Case No
 Company Project Number/Name 866

BMP Identification

BMP NAME / ID Bioretention
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E $D_{85} =$ 0.65 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
<i>DMA 1</i> <i>BIORETEN-TION</i>	<i>90535</i>	<i>Roofs</i>	<i>1</i>	<i>0.89</i>	<i>80757.2</i>			
	<i>59990</i>	<i>Concrete or Asphalt</i>	<i>1</i>	<i>0.89</i>	<i>53511.1</i>			
	<i>23180</i>	<i>Ornamental Landscaping</i>	<i>0.1</i>	<i>0.11</i>	<i>2560.4</i>			
	173705		Total		136828.7	0.65	7411.6	7950

Notes:

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on 4.47 acres located near)

Bioretention Facility - Design Procedure		BMP ID Bioretention	Legend:	Required Entries
Company Name: WAI		Date: 2/19/2018		Calculated Cells
Designed by: Mariela Anguelov		County/City Case No.:		
Design Volume				
Enter the area tributary to this feature			$A_T =$	3.99 acres
Enter V_{BMP} determined from Section 2.1 of this Handbook			$V_{BMP} =$	7,415 ft ³
Type of Bioretention Facility Design				
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> No side slopes required (perpendicular to parking space or Planter Boxes)				
Bioretention Facility Surface Area				
Depth of Soil Filter Media Layer			$d_S =$	2.0 ft
Top Width of Bioretention Facility, excluding curb			$w_T =$	34.0 ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$			$d_E =$	1.48 ft
Minimum Surface Area, A_m $A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$			$A_M =$	5,013 ft ²
Proposed Surface Area			$A =$	5,370 ft ²
Bioretention Facility Properties				
Side Slopes in Bioretention Facility			$z =$	4 :1
Diameter of Underdrain				6 inches
Longitudinal Slope of Site (3% maximum)				0.5 %
6" Check Dam Spacing				0 feet
Describe Vegetation:			Shrubs	
Notes: 34' x 158'				

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Not Applicable

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1 on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> A. On-site storm drain inlets	<input type="checkbox"/> Locations of inlets.	<input type="checkbox"/> Mark all inlets with the words “Only Rain Down the Storm Drain” or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	<input type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com <input type="checkbox"/> Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.”
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps		<input type="checkbox"/> State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.
<input type="checkbox"/> C. Interior parking garages		<input type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input checked="" type="checkbox"/> D1. Need for future indoor & structural pest control		<input checked="" type="checkbox"/> Note building design features that discourage entry of pests.	<input checked="" type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.
<input checked="" type="checkbox"/> D2. Landscape/ Outdoor Pesticide Use	<input type="checkbox"/> Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. x Show self-retaining landscape areas, if any. <input checked="" type="checkbox"/> Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	State that final landscape plans will accomplish all of the following. <input type="checkbox"/> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. <input checked="" type="checkbox"/> Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. <input checked="" type="checkbox"/> Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. <input checked="" type="checkbox"/> Consider using pest-resistant plants, especially adjacent to hardscape. <input checked="" type="checkbox"/> To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	<input checked="" type="checkbox"/> Maintain landscaping using minimum or no pesticides. <input checked="" type="checkbox"/> See applicable operational BMPs in “What you should know for.....Landscape and Gardening” at http://rcflood.org/stormwater/Error! Hyperlink reference not valid. <input checked="" type="checkbox"/> Provide IPM information to new owners, lessees and operators.

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features.	<input type="checkbox"/> Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	<input type="checkbox"/> See applicable operational BMPs in “Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain” at http://rcflood.org/stormwater/
<input type="checkbox"/> F. Food service	<input type="checkbox"/> For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. <input type="checkbox"/> On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	<input type="checkbox"/> Describe the location and features of the designated cleaning area. <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	<input type="checkbox"/> See the brochure, “The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries” at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.
<input type="checkbox"/> G. Refuse areas	<input type="checkbox"/> Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. <input type="checkbox"/> If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. <input type="checkbox"/> Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	<input type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans. <input type="checkbox"/> State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	<input type="checkbox"/> State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, “Waste Handling and Disposal” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> H. Industrial processes.	<input type="checkbox"/> Show process area.	<input type="checkbox"/> If industrial processes are to be located on site, state: “All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.”	<input type="checkbox"/> See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure “Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities” at http://rcflood.org/stormwater/

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<p><input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)</p>	<p><input type="checkbox"/> Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.</p> <p><input type="checkbox"/> Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.</p> <p><input type="checkbox"/> Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.</p>	<p>Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.</p> <p>Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:</p> <ul style="list-style-type: none"> ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank <p>www.cchealth.org/groups/hazmat/</p>	<p><input type="checkbox"/> See the Fact Sheets SC-31, “Outdoor Liquid Container Storage” and SC-33, “Outdoor Storage of Raw Materials ” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p>

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<p><input type="checkbox"/> J. Vehicle and Equipment Cleaning</p>	<p><input type="checkbox"/> Show on drawings as appropriate:</p> <p>(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.</p> <p>(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).</p> <p>(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.</p> <p>(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.</p>	<p><input type="checkbox"/> If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.</p>	<p>Describe operational measures to implement the following (if applicable):</p> <p><input type="checkbox"/> Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to “Outdoor Cleaning Activities and Professional Mobile Service Providers” for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/</p> <p><input type="checkbox"/> Car dealerships and similar may rinse cars with water only.</p>

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<ul style="list-style-type: none"> <input type="checkbox"/> K. Vehicle/Equipment Repair and Maintenance 	<ul style="list-style-type: none"> <input type="checkbox"/> Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. <input type="checkbox"/> Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. <input type="checkbox"/> Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained. 	<ul style="list-style-type: none"> <input type="checkbox"/> State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. <input type="checkbox"/> State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency’s requirements. <input type="checkbox"/> State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency’s requirements. 	<p>In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:</p> <ul style="list-style-type: none"> <input type="checkbox"/> No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. <input type="checkbox"/> No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. <input type="checkbox"/> No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. <p>Refer to “Automotive Maintenance & Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations”. Brochure can be found at http://rcflood.org/stormwater/</p> <p>Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/</p>

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> L. Fuel Dispensing Areas	<input type="checkbox"/> Fueling areas ⁶ shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. <input type="checkbox"/> Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area ¹ .] The canopy [or cover] shall not drain onto the fueling area.		<input type="checkbox"/> The property owner shall dry sweep the fueling area routinely. <input type="checkbox"/> See the Fact Sheet SD-30 , “Fueling Areas” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

⁶ The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> M. Loading Docks	<input type="checkbox"/> Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. <input type="checkbox"/> Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. <input type="checkbox"/> Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		<input type="checkbox"/> Move loaded and unloaded items indoors as soon as possible. <input type="checkbox"/> See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> N. Fire Sprinkler Test Water		<input type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.	<input type="checkbox"/> See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<p>O. Miscellaneous Drain or Wash Water or Other Sources</p> <input type="checkbox"/> Boiler drain lines <input type="checkbox"/> Condensate drain lines <input type="checkbox"/> Rooftop equipment <input type="checkbox"/> Drainage sumps <input checked="" type="checkbox"/> Roofing, gutters, and trim. <input type="checkbox"/> Other sources		<input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. <input type="checkbox"/> Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. <input type="checkbox"/> Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. <input checked="" type="checkbox"/> Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. Include controls for other sources as specified by local reviewer.	

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input checked="" type="checkbox"/> P. Plazas, sidewalks, and parking lots.			<input checked="" type="checkbox"/> Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

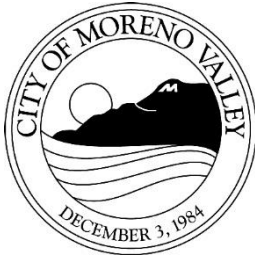
To be included in Final WQMP

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

To be included in Final WQMP

Attachment: Preliminary Water Quality Management Plan (3175 : Moreno Valley Storage - Conditional Use Permit for a mini-storage facility on



PLANNING COMMISSION

STAFF REPORT

Meeting Date: July 26, 2018

CONDITIONAL USE PERMIT FOR YUM YUM DONUTS MORENO VALLEY, A SERVICE STATION WITH CONVENIENCE STORE AND CAR WASH ON A 1.77 ACRE SITE LOCATED AT THE NORTHEAST CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE. THE APPLICANT IS ALSO REQUESTING APPROVAL FOR BEER AND WINE SALES IN THE CONVENIENCE STORE. A GENERAL PLAN AMENDMENT FROM RESIDENTIAL OFFICE TO COMMERCIAL AND A ZONE CHANGE FROM OFFICE COMMERCIAL (OC) TO COMMUNITY COMMERCIAL (CC) IS REQUESTED.

Case: PEN16-0086 – General Plan Amendment
 PEN16-0087 – Zone Change
 PEN16-0088 – Conditional Use Permit

Applicant: Yum Yum Donuts

Owner: Yum Yum Donuts

Representative: A&S Engineering, Inc.

Location: Northeast corner of Perris Boulevard and Cottonwood Avenue

Case Planner: Jeff Bradshaw

Council District: 3

SUMMARY

Applications for this project include a General Plan Amendment to change the land use designation from Office to Commercial, a Zone Change to change the zoning from Office Commercial (OC) to Community Commercial (CC), and a Conditional Use Permit for a service station with a canopy for eight pump stations, a 5,815 square foot convenience store and donut shop with beer and wine sales, and a 900 square foot

automated car wash. The service station, convenience store, and car wash would only be permitted in the currently designated OC zone as support commercial to an office complex. The OC zone limits commercial and retail activities to no more than 25 percent of the square footage of all buildings supportive of office development.

The applicant, Yum Yum Donuts, is requesting the General Plan Amendment and Zone Change in order to develop 100 percent of the 1.77 acre project site with a service station, a convenience store including a donut shop, and a car wash. Beer and wine sales are proposed in conjunction with the convenience store.

PROJECT DESCRIPTION

Site

The project site is located at the northeast corner of Perris Boulevard and Cottonwood Avenue. The undeveloped 1.77 acre site is adjacent to vacant land that extends from Cottonwood Avenue to Dracaea Avenue on the east side of Perris Boulevard, which is also owned by the applicant/developer.

The site is flat and has been disturbed in the past for use as a variety of temporary uses including circuses, fairs and season sales of Christmas trees.

The area proposed for development is comprised of a single parcel that will be expanded through a lot line adjustment to meet minimum development requirements for driveway spacing and access. The completion of the lot line adjustment prior to construction is a condition of approval of the project.

The project is generally surrounded by existing development. The surrounding area includes existing single-family tract homes located immediately to the east of the project site, vacant land to the north, St. Christopher's Church to the south and existing commercial development on the west side of Perris Boulevard.

Project

The applicant, Yum Yum donuts would develop the site under their new prototype store, the "Win Win" brand, which includes a service station, convenience store with Winchell's donut shop, and car wash. The company obtained approval for their first "Win Win" store at the northwest corner of Alessandro Boulevard and Day Street less than a year ago. As the Alessandro site is smaller, the location did not include the gasoline station.

The project at this location requires a General Plan Amendment, Zone Change and Conditional Use Permit for the 1.77 acre site located at the northeast corner of Perris Boulevard and Cottonwood Avenue with a service station with a canopy for eight pump stations, a 5,815 square foot convenience store with beer and wine sales, a donut shop, and a 900 square foot automated carwash. The project site is comprised of one parcel.

General Plan Amendment

The General Plan Amendment will change the existing designation from Residential/Office (R/O) to Commercial (C) for the 1.77 acre site. The properties to the immediate north and south with frontage on Perris Boulevard on the east side of Perris Boulevard also have a General Plan land use designation of R/O. The properties across the street to the west side of Perris Boulevard have a Commercial designation. The properties located farther east, west, northeast and southeast have an R5 designation.

The applicant is proposing to develop a service station with a car wash and a convenience store with beer and wine sales on the site. The proposed land uses are not consistent with the existing goals and policies of the General Plan for Residential/Office land uses. General Plan policy 2.4.6 states that the primary purpose of areas designated as Residential/Office on the Moreno Valley General Plan Land Use map is to provide areas for the establishment of office-based working environments or residential developments of up to 15 dwelling units per acre.

The request as submitted by the applicant is to amend the Land Use Element of the City's General Plan and change the land use designation for the 1.77 acre project site from Residential Office to Commercial.

Zone Change

The project site and the adjoining vacant parcels to the north are currently zoned Office Commercial (OC). The applicant is requesting a Zone Change to Community Commercial to allow for the service station and convenience store without an office park. If the Change of Zone is approved, the service station use and the convenience store with beer and wine sales would be allowed with approval of a Conditional Use Permit.

Properties to the north with similar frontage on the east side of Perris Boulevard are zoned Office Commercial. Properties to the south on the east side of Perris Boulevard are zoned Office. The properties across to the street to the west and to the north on the west side of Perris Boulevard are zoned Community Commercial. The properties located farther east, west, northeast and southeast are zoned R5.

Under the OC zone, the service station, convenience store with beer and wine sales, and car wash would only be permitted if they serve as support commercial uses to an office complex. None of these uses are permitted in the Office Commercial zone as stand alone or individual uses. The Office Commercial zone requires that retail uses make up no more than 25% of the total office development.

Discussion

The General Plan designation for the site was Office in the City's General Plan in 1988, and is designated as Residential/Office in the current General Plan adopted in 2006. There have been no prior development approvals for a project on the site, and no development activity over the last 30 years. The commercial center to the west was developed more than twenty-five years ago. The proposed project may help to revitalize economic activity along Perris Boulevard.

The proposed change in the General Plan designation and zoning for the site is a departure from the established General Plan land use and zoning pattern for properties on the east side of Perris Boulevard. The properties between Bay Avenue and Fir Avenue are designated as Office or Office Commercial in the General Plan. However, the properties immediately across Perris Boulevard are designated as Commercial in the General Plan.

The zoning designations follow a similar pattern with Office Commercial zoning in proximity to the project on the east side of Perris Boulevard, and Community Commercial on the west side on Perris Boulevard.

In comparing development on the west side of Perris Boulevard to the east side, there is some difference in the depth of parcels between the west and the east sides of Perris Boulevard. However, northerly of Dracaea Avenue on the west side of Perris Boulevard, there are commercially zoned parcels of a similar depth or slightly shallower compared to the subject parcel.

Conditional Use Permit

The City's Municipal Code allows for service stations and convenience stores in the Community Commercial zone with approval of a Conditional Use Permit when located within 300 feet of existing residences or a residential zoning district. The project will include a canopy for eight pump stations, a 5,815 square foot convenience store, a donut shop, and a 900 square foot automated carwash.

The applicant is also requesting approval for the sale of beer and wine from the convenience store under a Type 20 license from the California Department of Alcohol Beverage Control. The sale of alcohol at the convenience store also requires approval of a Conditional Use Permit due to the proximity of existing residences.

The canopy and gas pumps are located near the southwest corner of the project site as far as possible from residences with the convenience store located near the southeast corner to serve as a buffer to the existing homes to the east. The car wash tunnel is located along the site's northern property line and will be separated from the adjacent residences to the east by an eight (8) foot tall decorative block wall. The wall will also help attenuate any potential impacts from noise from the operation of the car wash. However, other mitigation measures will apply to the design of the car wash as described in the Initial Study and Mitigation Monitoring and Reporting Program. In addition, the car wash tunnel is required to install doors that will close when the car wash is in use.

A Conditional Use Permit allows the City to impose special development requirements to ensure that certain uses will not be detrimental to surroundings. Conditional uses may be appropriate at one location but not at another because of the potential for impacts on surrounding properties. The following summarizes the project design elements that will minimize impacts on residential uses.

- A. A 20 foot wide landscape setback is provided between the drive aisle for access to the car wash and the residential property line with the exception of the tapering of the driveway apron in proximity to Cottonwood Avenue. There will be an eight foot block wall between the project site and the nearest residences.
- B. The canopy for the gasoline station is approximately 150 feet from the property line and buffered from residential uses by the building.
- C. The trash enclosure for the project is located approximately 42 feet from the residential property line. The trash enclosure will be approximately 87 feet from the nearest residence. The Code requirement is to be located a minimum of 45 feet from any residential structure. The trash enclosure would be fully screened and include a covered roof.
- D. Access doors for employees are limited to two doors on the east side of the building toward the residential.

Access/Parking

The primary access to the proposed development will be from driveways on Perris Boulevard and Cottonwood Avenue. The driveway on Perris Boulevard is limited to right-in and right-out turning movements due to the center median in Perris Boulevard. The driveway on Cottonwood Avenue will have full access subject to approval of a revised roadway striping concept for Cottonwood Avenue near the intersection of Perris Boulevard and Cottonwood Avenue.

The project as designed satisfies all parking requirements of the City's Municipal Code including ADA accessible parking, customer parking, employee parking and parking for fuel efficient vehicles.

The driveways and interior drive aisles within the site have been reviewed and approved for adequate truck maneuvering and turnaround for fuel trucks, delivery trucks and trash pick-up, and have been reviewed and approved by the Fire Prevention Bureau for fire truck access.

Design/Landscaping

The project has been designed to meet required design and landscape standards and objectives set forth in the City's Municipal Code. The landscape elements of the project include the landscape setback areas along Perris Boulevard and Cottonwood Avenue, street trees, parking lot landscaping, and landscape treatments along the perimeter of the site and within the bio-retention basin.

The architectural design proposes single-story buildings that include a combination of stucco and stone treatments with spandrel glazing and an aluminum and glass store front. Colors are brown and tan earth tones. The perimeter walls will be eight (8) feet in height and of tan decorative block construction.

REVIEW PROCESS

For consistency with the existing Office Commercial zone, City staff and the applicant initially considered a development concept that included office buildings with the service station intended to function as a support use for the office park.

Ultimately, the applicant expressed that an office park did not meet the intended business needs of the applicant and the concept was replaced with a focus on developing the immediate corner with a service station. This approach required the submittal of applications for a General Plan Amendment and Zone Change.

Upon review of revised plans submitted in May 2018, completion of required consultation with local Native American Tribal groups, and preparation of a Preliminary Water Quality Management Plan, a determination was made to schedule this project for a public hearing before the Planning Commission on July 26, 2018.

ENVIRONMENTAL

Helix Environmental Planning, Inc. prepared an Initial Study in compliance with California Environmental Quality Act (CEQA) Guidelines. The Initial Study examined the potential of the proposed project to have an impact on the environment. The Initial Study provides information in support of the findings for a Mitigated Negative Declaration. Studies prepared for this project included a traffic study, an air quality study/greenhouse gas analysis, a cultural resource assessment, a preliminary hydrology study, a geotechnical study, a general biological assessment and burrowing owl study, and a Preliminary Water Quality Management Plan.

Project impacts were found to be less than significant for most categories in the Initial Study checklist. However, mitigation measures have been introduced to reduce impacts to a less than significant level for Traffic and Noise. Additionally, while not required to reduce an impact, mitigation measures for Cultural Resources have been included for the project to ensure compliance with City General Plan policies and other requirements related to Cultural Resources. The Mitigation Monitoring Program prepared for this project will ensure implementation of the mitigation measures (see Attachment 4).

Public notice of the availability of the Initial Study / Mitigated Negative Declaration was published in the newspaper 20 days in advance of the Planning Commission public hearing.

NOTIFICATION

The public hearing notice for this project was published in the local newspaper on July 6, 2018. Public notices were sent to all property owners of record within 300 feet of the project site on July 12, 2018. The public hearing notice for this project was posted on the project site on July 16, 2018.

As of the date of report preparation, staff has received no phone calls or correspondence in response to the noticing for this project.

REVIEW AGENCY COMMENTS

Staff has coordinated with outside agencies. Where applicable, staff has included conditions to address concerns from the responding agencies, including the Riverside County Airport Land Use Commission.

STAFF RECOMMENDATION

- A. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-35, and thereby **RECOMMEND** that the City Council:
1. **CERTIFY** that the Mitigated Negative Declaration prepared for General Plan Amendment PEN16-0086, Zone Change PEN16-0087 and Conditional Use Permit PEN16-0088 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and that the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A; and
 2. **APPROVE** the Mitigation Monitoring Program prepared for General Plan Amendment PEN16-0086, Zone Change PEN16-0087 and Conditional Use Permit PEN16-0088, attached hereto as Exhibit B.
- B. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-36, and thereby **RECOMMEND** that the City Council:
1. **APPROVE** General Plan Amendment application PEN16-0086 based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.
- C. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-37, and thereby **RECOMMEND** that the City Council:
1. **APPROVE** Zone Change application PEN16-0087 based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.

D. Staff recommends that the Planning Commission **APPROVE** Resolution No. 2018-38, and thereby **RECOMMEND** that the City Council:

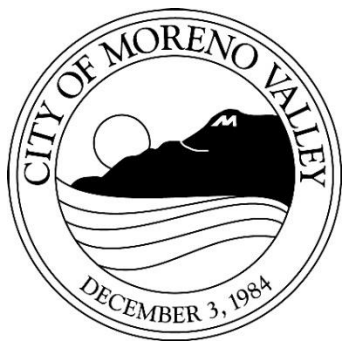
1. **APPROVE** Conditional Use Permit PEN16-0088 based on the findings contained in this resolution, and subject to the conditions of approval included as Exhibit A.

Prepared by:
Jeffrey Bradshaw
Associate Planner

Approved by:
Albert Armijo
Interim Planning Manager

ATTACHMENTS

1. Public Hearing Notice
2. Radius Map
3. Resolution No 2018-35 - CEQA
4. Exhibit A to Resolution No 2018-35 - Mitigated Negative Declaration
5. Exhibit B to Resolution No 2018-35 - Mitigation Monitoring Program
6. Resolution No 2018-36 - General Plan Amendment
7. Exhibit A to Resolution No 2018-36
8. Resolution No 2018-37 - Zone Change
9. Exhibit A to Resolution No 2018-37
10. Resolution No 2018-38 - Conditional Use Permit
11. Color Site Plan
12. Exhibit A to Resolution No 2018-38 - Conditions of Approval
13. Color Elevations - Convenience Store
14. Color Elevations - Car Wash
15. Project Plans
16. Project Location Map
17. Air Quality and Green House Gas Study
18. Cultural Resources Assessment
19. Traffic Impact Study
20. Traffic Study - Cottonwood Memorandum
21. Noise Study



Notice of PUBLIC HEARING

This may affect your property. Please read.

Notice is hereby given that a Public Hearing will be held by the Planning Commission of the City of Moreno Valley on the following item(s):

CASES: PEN16-0086 – General Plan Amendment
PEN16-0087 – Zone Change
PEN16-0088 – Conditional Use Permit

APPLICANT: Yum Yum Donuts

OWNER: Yum Yum Donuts

REPRESENTATIVE: A&S Engineering, Inc.

LOCATION: Northeast corner of Perris Boulevard and Cottonwood Avenue

PROPOSAL: The applicant proposes to develop a 1.77 acre site which is currently zoned Office Commercial (OC) with a gas station. The proposed use is not permitted in the OC zone. Applications for this project include a General Plan Amendment to change the land use from Office to Commercial; a Zone Change to change the zoning from Office Commercial (OC) to Community Commercial (CC); and a Conditional Use Permit for a service station with a canopy for eight pump stations, a 5,815 square foot convenience store with alcohol sales and a donut shop and a 900 square foot automated carwash. The project as proposed requires a lot line adjustment.

ENVIRONMENTAL DETERMINATION: Mitigated Negative Declaration

COUNCIL DISTRICT: 3

STAFF RECOMMENDATION: Approval

Any person interested in any listed proposal can contact the Community Development Department, Planning Division, at 14177 Frederick St., Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Fridays from 7:30 a.m. to 4:30 p.m.), or may telephone (951) 413-3206 for further information. The associated documents will be available for public inspection at the above address.

In the case of Public Hearing items, any person may also appear and be heard in support of or opposition to the project or recommendation of adoption of the Environmental Determination at the time of the Hearing.

The Planning Commission, at the Hearing or during deliberations, could approve changes or alternatives to the proposal.

If you challenge any of these items in court, you may be limited to raising only those items you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the Planning Commission at, or prior to, the Public Hearing.



LOCATION N ↑

PLANNING COMMISSION HEARING

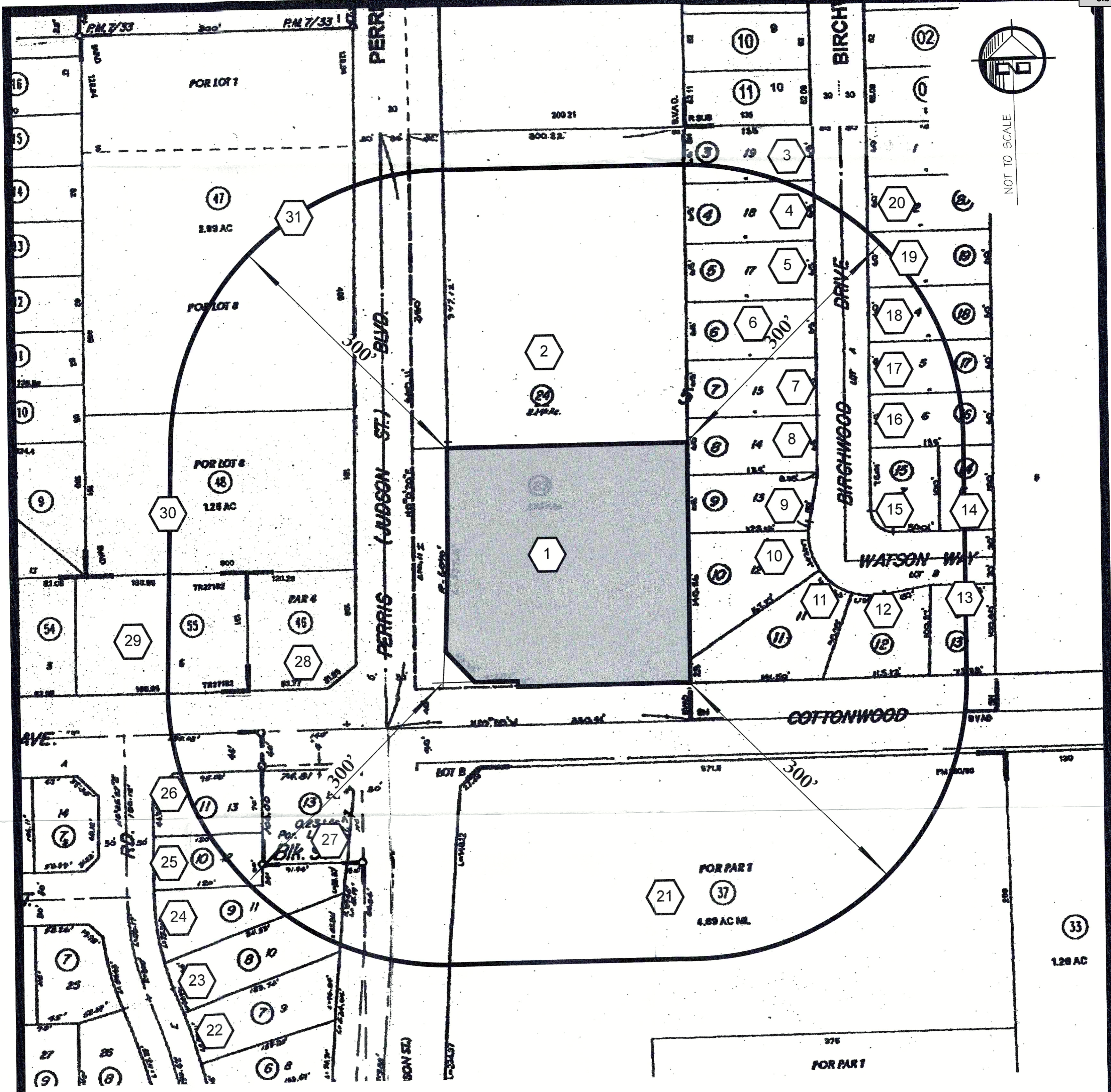
City Council Chamber, City Hall
14177 Frederick Street
Moreno Valley, Calif. 92553

DATE AND TIME: July 26, 2018 at 7 PM



CONTACT PLANNER: Jeff Bradshaw

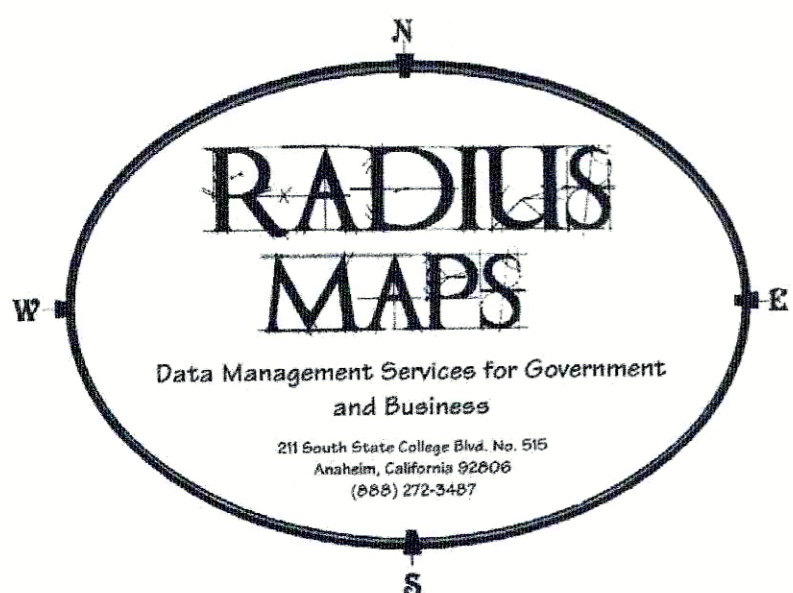
PHONE: (951) 413-3224

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 Guy Pegan, ADA Coordinator, at 951.413.3120 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.



MAP LEGEND

-  Indicates Map key Number
-  Indicates Assessor's Parcel Number



**Public Notification
Boundary**

For
N.E. Cor. Perris Blvd. & Cottonwood Ave.
Moreno Valley CA 92553
APN 479-140-023
May 7, 2015

JN 15082

Attachment: Radius Map (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store an)

PLANNING COMMISSION RESOLUTION NO. 2018-35

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL CERTIFY THE MITIGATED NEGATIVE DECLARATION AND APPROVE THE MITIGATION MONITORING AND REPORTING PROGRAM FOR THE YUM YUM MORENO VALLEY DONUT STORE PROJECT (PEN16-0086, PEN16-0087 and PEN16-0088)

WHEREAS, the applicant, Yum Yum Donuts, filed applications for the gasoline station, convenience store with beer and wine sales, and car wash (“Project”), which include General Plan Amendment application PEN16-0086, Zone Change application PEN16-0087 and Conditional Use Permit application PEN16-0088. The Project shall not be approved unless the Final Mitigated Negative Declaration is certified and approved; and

WHEREAS, the applications for the Project have been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, an Initial Study, supporting technical studies, and Mitigated Negative Declaration for the Project were prepared, consistent with the California Environmental Quality Act (CEQA); and

WHEREAS, a 20-day public review period of the Initial Study and Mitigated Negative Declaration commenced on July 7, 2018 and concluded on July 26, 2018. The Notice of Intent to adopt the Mitigated Negative Declaration was mailed to interested parties, and public agencies as well as published in the local newspaper on July 7, 2018 and filed with the Riverside County Clerk; and

WHEREAS, the City, in conducting its own independent analysis of the Final Mitigated Negative Declaration, determined that a Mitigated Negative Declaration is an appropriate environmental determination for the Project as there is substantial evidence that demonstrates the Project with mitigation would not result in any significant environmental impacts; and

WHEREAS, a Mitigation Monitoring and Reporting Program (MMRP) has been prepared in accordance with CEQA Guidelines, and is designed to ensure compliance with the identified mitigation measures outlined in the Final Mitigated Negative Declaration through Project implementation; and

WHEREAS, The City of Moreno Valley, Community Development Department, located at 14177 Frederick Street, Moreno Valley, California 92552 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based; and

WHEREAS, the Planning Commission of the City of Moreno Valley considered the Project, including all environmental documentation, at a public hearing held on July 26, 2018; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA), and based on the Initial Study including all supporting technical evidence, it was determined that the project impacts are expected to be less than significant with mitigation, and certification of a Mitigated Negative Declaration is recommended as the appropriate environmental determination for the Project.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This Planning Commission specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on July 26, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:

1. Independent Judgment and Analysis - City staff coordinated the preparation of the Mitigated Negative Declaration/Initial Study and related technical studies with Helix Environmental Planning, Inc. for the project. The documents were properly circulated for public review in accordance with the California Environmental Quality Act Guideline. The Mitigated Negative Declaration/Initial Study has been completed along with the Mitigation Monitoring and Reporting Program (MMRP) to ensure compliance with all mitigation through project implementation. All environmental documents that comprise the Mitigated Negative Declaration, including all technical studies, were independently reviewed by the City. On the basis of the whole record, there is no substantial evidence that the Project as designed, conditioned and mitigated, will have a significant effect on the environment. The Mitigated Negative Declaration prepared and completed in accordance with the CEQA Guidelines reflects the independent judgment and analysis of the City.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-35, and RECOMMENDS that the City Council:

1. CERTIFY that the Mitigated Negative Declaration prepared for General Plan Amendment PEN16-0086, Zone Change PEN16-0087 and Conditional Use Permit PEN16-0088 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and that the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A and
2. APPROVE the Mitigation Monitoring Program prepared for Conditional Use Permit PEN16-0088, attached hereto as Exhibit B.

APPROVED AND ADOPTED this 26th day of JULY, 2018.

AYES:
NOES:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

ATTEST:

Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

Exhibit A and Exhibit B

Attachment: Resolution No 2018-35 - CEQA (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

Yum Yum Donuts Moreno Valley Project

Draft Initial Study/Mitigated Negative Declaration

July 2018 | ASE-01

Prepared for:

A & S Engineering
28405 Sand Canyon Road, Suite "B"
Canyon County, CA 91387

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

MITIGATED NEGATIVE DECLARATION

PROJECT TITLE AND FILE NUMBER: Yum Yum Donuts Moreno Valley Project; PEN16-0086, PEN16-0087, PEN16-0088

PROJECT APPLICANT: A & S Engineering

TELEPHONE NUMBER: (661) 250-9300

PROJECT LOCATION: Northeastern corner of the intersection of Perris Boulevard and Cottonwood Avenue

PROJECT DESCRIPTION: The Yum Yum Donuts Moreno Valley Project (project) proposes to develop a vacant lot for a 5,515-square foot Yum Yum Donuts restaurant and convenience store with car wash and gas station. Sixteen gas pumps through eight dispensers would be provided; a 5,075-square foot steel canopy would be installed above the gas pumps. The car wash structure would be 900 square feet with an adjacent 400-square foot equipment room. In addition, two underground storage tanks would be installed in the southwest corner of the project site to provide gas for the gas station.

The majority of the project site would be paved, and 28 vehicle parking spaces and 2 bicycle parking spaces would be provided. Access to the project site would be provided from driveways on both Perris Boulevard and Cottonwood Avenue. The project would include a monument sign. A trash enclosure with concrete masonry unit wall would be provided adjacent to the restaurant and convenience store. In addition, an 8-foot-high decorative block wall would be installed at the eastern property line.

Additional improvements would include signs at the access points; air, water, and vacuum units for vehicles; curb and sidewalk improvements; fire hydrant installation; storm drain improvements; and landscaping throughout the site.

FINDING

The City of Moreno Valley has reviewed the above project in accordance with the City of Moreno Valley's Guidelines for the Implementation of the California Environmental Quality Act, and has determined that an Environmental Impact Report need not be prepared because:

- The proposed project will not have a significant effect on the environment.
- Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because mitigation measures described in the attached Initial Study and hereby made a part of this Mitigated Negative Declaration have been added to the project. The Final Conditions of Approval contain the final form and content of all mitigation measures.

This determination is based upon an Initial Study. The project file, including the Initial Study and related documents is available for review during normal business hours (7:30 a.m. to 5:30 p.m. Monday through Thursday, and 7:30 a.m. to 4:30 p.m. on Friday) at the City of Moreno Valley, Community & Economic Development Department, Planning Division, 14177 Frederick Street, Moreno Valley, California 92553 Telephone (951) 413-3206.

PREPARED BY: Jeff Bradshaw

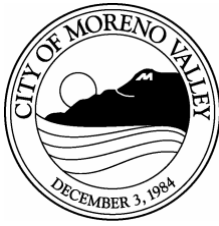
DATE: July 6, 2018

NOTICE

The public is invited to comment on the Mitigated Negative Declaration. The appropriateness and adoption of the Mitigated Negative Declaration is considered at the time of project approval in light of comments received.

DATE ADOPTED:

BY: Planning Commission



**INITIAL STUDY/
ENVIRONMENTAL CHECKLIST FORM
CITY OF MORENO VALLEY**

1. Project Title: Yum Yum Donuts Moreno Valley Project (PEN16-0086, PEN16-0087, PEN16-0088)
2. Lead Agency Name and Address: City of Moreno Valley Community & Economic Development Department, Planning Division, 14177 Frederick Street, Moreno Valley, CA 92552
3. Contact Person and Phone Number: Jeff Bradshaw, Associate Planner (951) 413-3224
4. Project Location: Northeastern corner of the intersection of Perris Boulevard and Cottonwood Avenue
5. Project Sponsor's Name and Address: A & S Engineering, 28405 Sand Canyon Road, Suite "B", Canyon Country, CA 91387
6. General Plan Designation: Existing designation is Office; proposed designation is Commercial
7. Zoning: Existing zoning is Office Commercial (OC); proposed zoning is Community Commercial (CC)
8. Description of the Project: The Yum Yum Donuts Moreno Valley Project (project) is located at the corner of Perris Boulevard and Cottonwood Avenue in the City of Moreno Valley (City; see Figure 1, *Regional Location*, and Figure 2, *Aerial Photograph*). The project site is composed of Assessor's Parcel Numbers (APNs) 479-140-023-2, 479-140-024-3, and 479-131-012-4. The project proposes to develop a vacant lot for a 5,515-square foot Yum Yum Donuts restaurant and convenience store with car wash and gas station (see Figure 3, *Site Plan*). Sixteen gas pumps through eight dispensers would be provided; a 5,075-square foot steel canopy would be installed above the gas pumps. The car wash structure would be 900 square feet with an adjacent 400-square foot equipment room. In addition, two underground storage tanks would be installed in the southwest corner of the project site to provide gas for the gas station.

The project would include a General Plan Amendment (PEN16-0086) from Office to Commercial, a Zone Change (PEN16-0087) from Office Commercial (OC) to Community Commercial (CC), and Conditional Use Permit (PEN16-0088) for a service station and convenience store. The applicant proposes to sell beer and wine; the Conditional Use Permit is also required for the proposed alcohol sales.

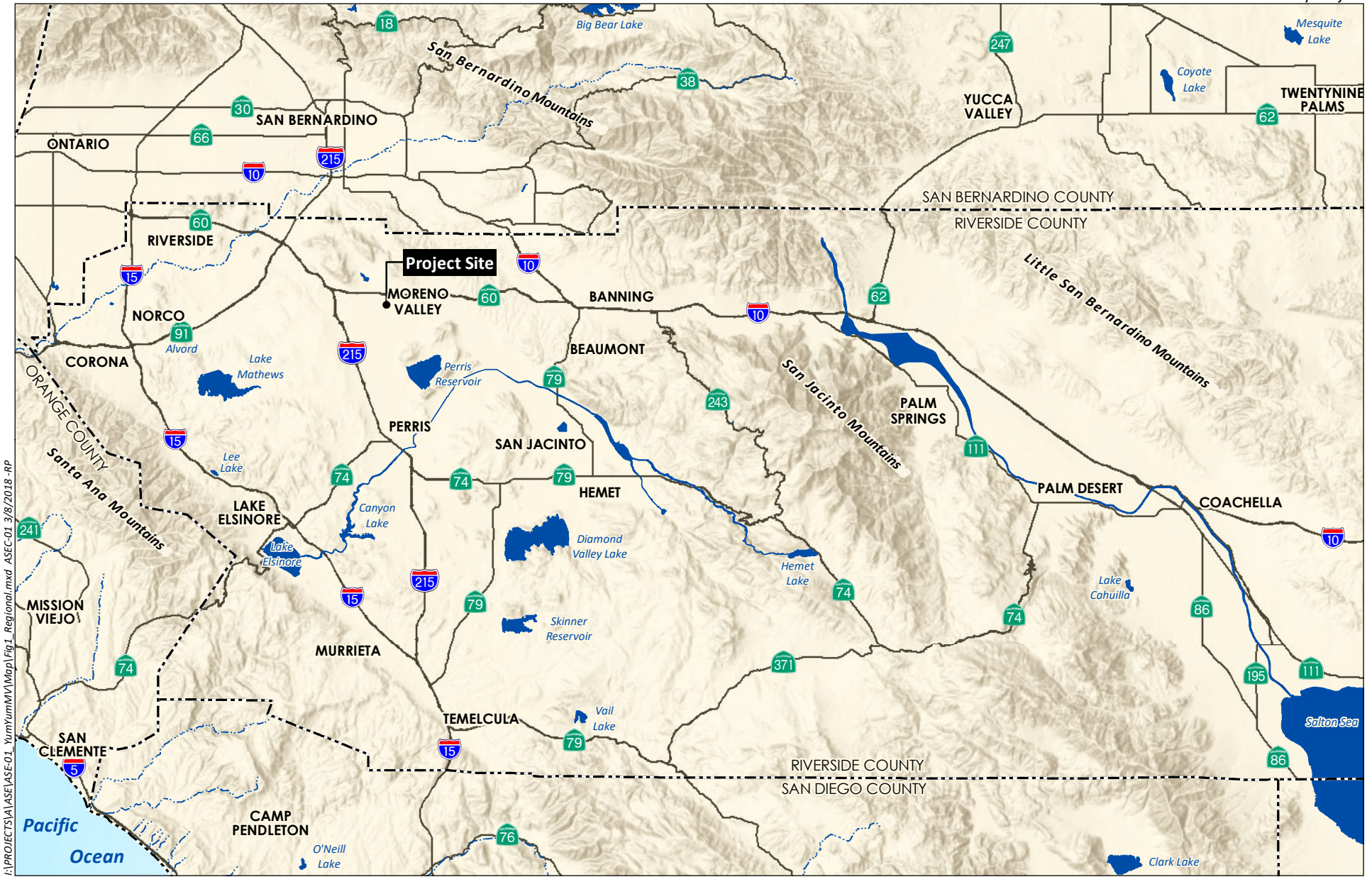
The majority of the project site would be paved, and 28 vehicle parking spaces and 2 bicycle parking spaces would be provided. Access to the project site would be provided from driveways on both Perris Boulevard and Cottonwood Avenue. The project would include a monument sign. A trash enclosure with concrete masonry unit wall would be provided adjacent to the restaurant and convenience store. In addition, an 8-foot-high decorative block wall would be installed at the eastern property line.

Additional improvements would include signs at the access points; air, water, and vacuum units for vehicles; curb and sidewalk improvements; fire hydrant installation; storm drain improvements; and landscaping throughout the site.

Construction is anticipated to begin in January 2019 and last six months. Site preparation activities would begin in January to be followed by grading in February. Both activities would involve approximately 200 cubic yards of soil export. Building construction would begin in March 2019.

9. **Surrounding Land Uses and Setting:** Adjacent to the project site are single-family residences to the east, a commercial development across Perris Boulevard to the west, a church across Cottonwood Avenue to the south, and a vacant lot to the north. The vicinity of the project site is generally occupied by single-family residential neighborhoods and schools.
10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):** N/A
11. **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, has this consultation begun?**

The City contacted applicable Tribes traditionally and culturally affiliated with the area in September 2015 for AB 52 consultation and in September 2016 for SB 18 consultation. The responding Tribes were the San Manuel Band of Mission Indians and Soboba Band of Luiseño Indians. The Soboba Band of Luiseño Indians was the only tribe to request consultation. The cultural resource mitigation measures, described further below, have been reviewed and accepted by the Soboba Band of Luiseño Indians.



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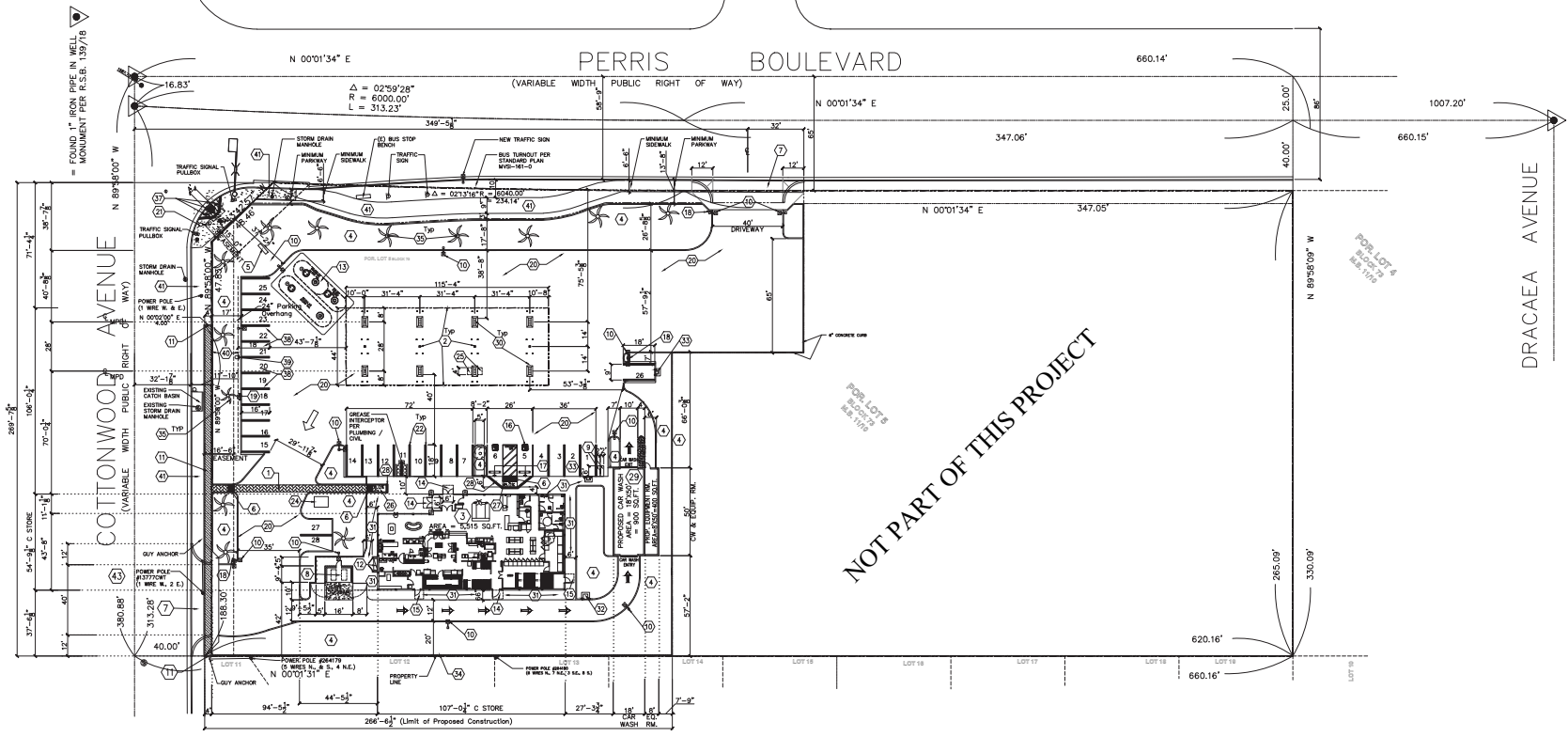
Attachment: Exhibit A to Resolution No 2018-35 - Mitigated Negative Declaration (3180 : Conditional Use



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Source: Base Map Layers (Eagle, 2014)

- SCOPE OF WORK**
1. INSTALL 48" MINIMUM ACCESSIBLE ROUTE (MISSION RED, INTERLOCKING DECORATIVE PAVING) SLOPE NOT TO EXCEED 4.5% WITH MAXIMUM 2.0% CROSS SLOPE
 2. CONSTRUCT 5,075.0 SQUARE FEET, 4-COLUMNING STEEL CANOPY PER PLAN & ELEVATIONS
 3. CONSTRUCT 5,515.0 SQUARE FEET BUILDING PER PLAN & ELEVATIONS AND STRUCTURAL DRAWINGS
 4. CONSTRUCT LANDSCAPE & PLANTING AREA PER PLAN & LANDSCAPE DRAWINGS
 5. INSTALL NEW MONUMENT SIGN WITH PRICE SIGN PER PLAN. SIGNS ARE UNDER SEPARATE PERMIT.
 6. INSTALL MINIMUM 36" WIDE YELLOW COLOR DETECTABLE WARNING PER PLAN AND CBC FIGURE 11B-705.1
 7. CONSTRUCT (2) DRIVEWAYS PER CITY OF MORENO VALLEY STANDARD PLAN MVS-1120-0 (OLD 11B-C)
 8. CONSTRUCT 4'-4 1/4"-0" HIGH STUCCO FINISH GUY TRASH ENCLOSURE WITH SOLID ROOF COVER & DOUBLE STEEL GATE PER PLAN AND CITY STANDARD PLAN MUGV-660A-D OPTION 1
 9. STRIPE (8)-2'-4"x8'-0" BICYCLE PARKING SPACES WITH REQUIRED BIKE U RACK PER PLAN
 10. INSTALL YARD LIGHTS PER ELECTRICAL DRAWINGS
 11. 4'-0" DEDICATION PER PLAN
 12. INSTALL MAIN SWITCH BOARD INSIDE ENCLOSURE MATCH BUILDING PER ELECTRICAL DRAWINGS.
 13. PROPOSED LOCATION FOR UNDERGROUND STORAGE TANKS
 14. 6'-0"x5'-0" CLEAR AND LEVEL AREA SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION. FLOOR NOT MORE THAN 2" LOWER THAN THE THRESHOLD
 15. 5'-0"x5'-0" CLEAR AND LEVEL AREA SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION. FLOOR NOT MORE THAN 2" LOWER THAN THE THRESHOLD
 16. STRIPE 18'-0"x26'-0" DISABILITY PARKING SPACE PER PLAN. SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION
 17. INSTALL DISABILITY PARKING SIGNS PER PLAN
 18. INSTALL ADDITIONAL SIGN AT EACH ENTRANCE TO OFF STREET PARKING FACILITIES OR IMMEDIATELY ADJACENT AND VISIBLE FROM EACH ACCESSIBLE STALL OR SPACE PER PLAN
 19. INSTALL AIR AND WATER UNIT PER PLAN, WITH FREE SIGN ON UNIT
 20. CONSTRUCT REINFORCED CONCRETE PAVING AT THE ENTIRE OF SITE PER SOIL REPORT AND CIVIL DRAWINGS
 21. INSTALL FIRE HYDRANT PER FIRE DEPARTMENT REQUIREMENT (6"x4"x2.5"x2.5")
 22. STRIPE STANDARD PARKING STALLS PER CITY STANDARD FIGURE 8.11.080-6
 23. INSTALL CANISTER ON TOP OF ROOF
 24. ELECTRICAL TRANSFORMER CONCRETE PAD SEE ELECTRICAL SITE PLAN, TRANSFORMER INSTALLATION BY UTILITY COMPANY
 25. 30"x48" CLEAR AND LEVEL AREA, SLOPE NO TO EXCEED 2.0% AT ANY DIRECTION
 26. CONSTRUCT CURB RAMP WITH CURB AT EACH SIDE. SLOPE NOT TO EXCEED 8.0% AND 2.0% CROSS SLOPE
 27. CONSTRUCT CURB RAMP WITH FLARE AT EACH SIDE. SLOPE NOT TO EXCEED 8.0% AND 2.0% CROSS SLOPE ON FLARE = 8.0% AS WELL
 28. CONSTRUCT GROOVED BORDER 12" INCHES WIDE AT LEVEL SURFACE OF THE SIDEWALK AT TOP APPROXIMATELY 1/2" HIGH ON CENTER
 29. CONSTRUCT 1,300.0 SQUARE FEET CAR WASH BUILDING & EQUIPMENT ROOM PER PLAN & ELEVATIONS AND STRUCTURAL DRAWINGS
 30. INSTALL PRODUCTION DISPENSER TYPICAL OF 8 PER PLAN
 31. CONSTRUCT REINFORCED CONCRETE SIDEWALK, SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION
 32. INSTALL CAR WASH COIN BOX WITH GUARD POST AT EACH SIDE PER CAR WASH MANUFACTURER DRAWINGS
 33. INSTALL (2) VACUUM PER MANUFACTURER REQUIREMENT
 34. CONSTRUCT 8'-0" HIGH DECORATIVE BLOCK WALL ALONG REAR FACILITY PER PLAN
 35. ONE FOOT MINIMUM, AND 2 FEET MAXIMUM STREET TREE PER NOTE #30 ON ATTACHED.
 36. NOT USED
 37. CURB RAMP WITH FLARE AT BOTH SIDES WILL BE RECONSTRUCTED TO MEET CURRENT ACCESSIBILITY REQUIREMENTS WITH 8.33% SLOPE AND 2.0% CROSS SLOPE ON CURB RAMP
 38. 8.33% SLOPE ON FLARES WITH GROOVED BORDER & 30" MINIMUM DETECTABLE WARNING
 39. INSTALL SIGN FOR 9'-0"x18'-0" CARPOOL/VAN POOL LOW-EMITTING FUEL-EFFICIENT PARKING
 40. INSTALL POLE WITH 208 / 240 V, 40 AMP GROUNDED AC OUTLET PER ELECTRICAL DRAWINGS
 41. INSTALL 36" TALL BERM OR HEDGE TO SCREEN THESE PARKING SPACES
 42. CONSTRUCT CONCRETE SIDEWALK WITH CONCRETE CURB AND GUTTER ON COTTONWOOD AVENUE AND PERRIS BLVD PER CITY STANDARD
 43. INSTALL 6" PLANTER CURB.
 44. RELOCATE EXISTING POWER POLE.



F:\PROJECTS\IA\ASE\ASE-01_YumYum\MM\Map\Fig3_SitePlan.indd ASE-01 02/06/18 - RP

Source: A & S Engineering, 2018

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” or “Less than Significant With Mitigation Incorporated” as indicated by the checklist on the following pages.

	Aesthetics		Greenhouse Gas Emissions		Population/Housing
	Agricultural Resources		Hazards & Hazardous Materials		Public Services
	Air Quality		Hydrology/Water Quality		Recreation
	Biological Resources		Land Use/Planning	■	Transportation/Traffic
■	Cultural Resources		Mineral Resources	■	Tribal Cultural Resources
	Geology/Soils	■	Noise		Utilities/Service Systems
				■	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 “potential significant impact” 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 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.	

Jeff Bradshaw
Signature

07/05/18
Date

Jeff Bradshaw
Printed Name

For

Attachment: Exhibit A to Resolution No 2018-35 - Mitigated Negative Declaration (3180 : Conditional Use Permit for Yum Yum Donuts Moreno

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 may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Potentially Significant Unless Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less 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 “Earlier Analysis,” as described in (5) below, may be cross-referenced).
- 5) Earlier analysis may be used where, pursuant to the tiering, program EIR, or other California Environmental Quality Act (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 Analysis 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 analysis of each issue should identify: (a) the significance criteria or threshold used to evaluate each question; and (b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?				■
<i>Source: City of Moreno Valley General Plan Conservation Element, City of Moreno Valley General Plan (Figure 7-2, Major Scenic Resources)</i>				
<p>The project site is located within Moreno Valley, which lies within a relatively flat valley floor surrounded by rugged hills and mountains. Topographic features of Moreno Valley that provide vistas include the Box Springs Mountains and Reche Canyon to the north, Moreno Peak in the middle of the City, the Badlands to the east and the Mount Russell area to the south. According to General Plan Figure 7-2, the project site is not located within a view corridor for the Box Springs Mountains, Reche Canyon, Moreno Peak, the Badlands, or Mount Russell (City 2006a). Therefore, implementation of the proposed project would not have a substantial effect on a scenic vista and no impacts would occur.</p>				
b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?				■
<i>Source: California Scenic Highway Program (California Department of Transportation [Caltrans] Mapping System); City of Moreno Valley General Plan Conservation Element; City of Moreno Valley General Plan (Figure 7-2, Major Scenic Resources)</i>				
<p>There are no State-designated or eligible scenic highways within the City. The project site is located approximately 12 miles north of Highway 74, which is the only facility within the project vicinity that is designated as a State-eligible scenic highway. The project site is located approximately one mile south of State Route 60 and three miles west of Moreno Beach Drive, which the City of Moreno Valley General Plan Figure 7-2 identifies as “Scenic Routes.” Due to the distance and intervening topography and development, the project would not be visible from State Highway 74, State Route 60, or Moreno Beach Drive. Accordingly, implementation of the proposed project would not have a substantial effect on scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway corridor. No impacts would occur.</p>				
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			■	
<p>Implementation of the proposed project would convert land that was previously vacant and undeveloped to a commercial development with a restaurant/convenience store building, car wash, equipment room, fuel station canopy, parking lot, landscaping, exterior lighting, signage, and public street improvements. The project site is located in a portion of the City that has been mostly developed with residential and commercial uses, with some vacant land remaining in the area. The design of the development would be consistent with the commercial uses located across Perris Boulevard, as well as the site’s proposed General Plan Amendment land use designation change from Office to Commercial and the Zone Change from Office Commercial (OC) to Community Commercial (CC) In addition, project signage would be consistent with City of Moreno Valley Municipal Code requirements. Therefore, although the project would develop a vacant lot, it would not substantially degrade the existing visual character or quality of the site or its surroundings and impacts would be less than significant.</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

		■	
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Source: City of Moreno Valley Municipal Code Chapter 9.08.100

The project site does not contain artificial light sources or sources of glare under existing conditions. The proposed project would include exterior lighting associated with the restaurant/convenience store, car wash, fuel station canopy, and parking lot. The proposed project would be required to adhere to the lighting requirements as set forth in the City Municipal Code. Municipal Code Chapter 9.08.100 specifies that all outdoor lighting associated with nonresidential uses shall be fully shielded and directed away from surrounding residential uses to reduce glare and light trespass and shall not exceed one-quarter-foot-candle minimum maintained lighting, measured from within five feet of any property line. Furthermore, the City’s Municipal Code specifies that exterior lighting shall not blink, flash, or oscillate or be of unusually high intensity or brightness. The project would be required to demonstrate compliance with these requirements to the City prior to issuance of building permits. Project compliance with the lighting requirements of the City Municipal Code would ensure that the proposed project would not produce a new source of substantial light or glare from artificial lighting sources that would adversely affect day or nighttime views in the area. Therefore, impacts from lighting and glare would be less than significant.

II. AGRICULTURE 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 Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

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?

			■
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Source: California Department of Conservation, California Important Farmland Finder

According to mapping available from the California Department of Conservation California Important Farmland Finder, the project site is mapped within an area defined as “Urban and Built-Up Land,” and does not support agricultural uses. The project site does not contain lands mapped by the State Department of Conservation as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. As such, the project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, and no impact would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

			■
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Source: City of Moreno Valley General Plan FEIR; Moreno Valley Map Viewer

No land within the City, including the project site, is under a Williamson contract (City 2006b, pp. 5.8-6). The project site is proposing a Zone Change to Community Commercial (CC) from Office Commercial (OC) and a General Plan Amendment land use designation change from Office to Commercial. Surrounding land uses are residential, commercial, and office. Accordingly, because the project site is not located on or adjacent to land zoned for agricultural use and is also not subject to a Williamson Act contract, the proposed project has no potential to conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, no impact would occur.

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

			■
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Source: California Department of Conservation, California Important Farmland Finder

As previously discussed under Item II(a), the project site is located within land classified as “Urban and Built-Up” by the California Department of Conservation and does not support agricultural uses. Therefore, the project would not convert Farmland to a non-agricultural use, and no impacts would occur.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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III. **AIR QUALITY:** Where available, the significance criteria established by the applicable air quality management 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?				■
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Source: South Coast Air Quality Management District (SCAQMD) 2016 Air Quality Management Plan

The project site is located in Riverside County, in the South Coast Air Basin (SCAB), where the SCAQMD is the agency principally responsible for comprehensive air pollution control. A regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments, and cooperates actively with all federal and State government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). An AQMP establishes a program of rules and regulations directed at attaining the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The regional plan applicable to the proposed project is the SCAQMD's AQMP.

On March 3, 2017, the SCAQMD adopted the 2016 AQMP, which is a regional and multi-agency effort (SCAQMD, California Air Resources Board [CARB], SCAG, and United States Environmental Protection Agency [USEPA]). The 2016 AQMP represents a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures. The plan seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, greenhouse gases, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017).

The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State air quality standards. For a project to be consistent with the AQMP, the pollutants emitted from the project should not (1) exceed the SCAQMD CEQA air quality significance thresholds or (2) conflict with or exceed the assumptions in the AQMP. As shown below under Item III(b), pollutant emissions from the proposed project would be less than the SCAQMD thresholds and would not result in a significant impact. Further, as the proposed project would be consistent with the site's proposed changes to the land use designation (from Office to Commercial) and zoning designation (from Office Commercial [OC] to Community Commercial [CC]), it would not result in development that may not have been anticipated in the AQMP. Therefore, the project would not conflict with the applicable AQMP, and no impacts would occur.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.			■	
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Sources: SCAQMD Air Quality Significance Thresholds; SCAQMD Air 2016 Air Quality Management Plan; Air Quality and Greenhouse Gas Emissions Technical Report (HELIX 2018; Appendix A); Traffic Impact Study (Kimley-Horn and Associates 2016; Appendix B)

The SCAQMD establishes significance thresholds to assess the regional impact of project-related air pollutant emissions in the SCAQMD. Table 1, *SCAQMD Criteria Pollutant Significant Mass Emissions Significance Thresholds*, summarizes the SCAQMD's mass emissions thresholds, which are presented for both long-term operational and short-term construction emissions. A project with emissions rates below these thresholds is considered to have a less-than-significant effect on air quality.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Table 1
SCAQMD CRITERIA POLLUTANT SIGNIFICANT MASS EMISSIONS
SIGNIFICANCE THRESHOLDS

Criteria Pollutant	Emission Threshold (pounds per day)	
	Construction	Operation
Volatile Organic Compounds (VOC)	75	55
Oxides of Nitrogen (NO _x)	100	55
Carbon Monoxide (CO)	550	550
Particulate Matter (PM ₁₀)	150	150
Particulate Matter (PM _{2.5})	55	55
Oxides of Sulfur (SO _x)	150	150
Lead	3	3

Source: SCAQMD 2015

Construction Impacts

The proposed project would result in construction emissions during site preparation, grading, underground utility installation, building construction, paving, and architectural coating activities. These emissions would be limited and short term. Construction emissions include those associated with the transport of construction materials and equipment to the site, and emissions associated with equipment operation and soil movement at the site. Other construction-related emissions would occur as a result of workers' vehicles traveling to and from the project site for construction activities. Criteria pollutant and ozone precursor emissions from project construction are assessed using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a computer model developed by SCAQMD with the input of several air quality management and pollution control districts to estimate criteria air pollutant emissions from various urban land uses. CalEEMod has the ability to calculate both mobile (i.e., vehicular) and area or stationary source emissions (SCAQMD 2013). Dust control by watering was assumed, consistent with the requirements of SCAQMD Rule 403 (SCAQMD 1976). A complete listing of the assumptions used in the analysis and model output is provided in Appendix A.

Maximum daily emissions during the peak work day are shown in Table 2, *Maximum Daily Construction Emissions*. As shown in Table 2, all criteria pollutant emissions would not exceed the respective screening thresholds. In addition, actual emissions could be less than those forecasted due to the conservative nature of the assumptions incorporated into the CalEEMod program regarding phasing. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). Therefore, construction-related air quality impacts would be less than significant.

Table 2
MAXIMUM DAILY CONSTRUCTION EMISSIONS

Phase	Pollutant Emissions (pounds per day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Site Preparation	1	9	4	<0.5	1	<0.5
Grading	1	9	8	<0.5	1	1
Underground Utilities	<0.5	2	2	<0.5	<0.5	<0.5
Building Construction	1	10	8	<0.5	1	1
Paving	1	8	8	<0.5	1	1
Architectural Coating	12	2	2	<0.5	<0.5	<0.5
Maximum Daily Emissions¹	12	11	11	<0.5	1	1
<i>SCAQMD Regional Thresholds</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
Significant Impact?	No	No	No	No	No	No

Source: CalEEMod (output data is provided in Appendix A).

¹ Except for ROG, maximum daily emissions occur when Grading and Underground Utilities phases overlap.

Note: Totals may not sum due to rounding.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Operational Impacts

Operational impacts were estimated using CalEEMod. Operational sources of emissions include area, energy, and transportation. Operational emissions from area sources include the use of consumer products, engine emissions from landscape maintenance equipment, and volatile organic compound (VOC) emissions from repainting of buildings.

Operational emissions from mobile source emissions are associated with project-related vehicle trip generation and trip length. Based on the Traffic Impact Study (TIS; Kimley-Horn and Associates, Inc. 2016), the project would generate 2,445 daily trips, 72 morning peak hour trips, 98 evening peak hour trips, and 138 Sunday peak hour trips. CalEEMod default vehicle speeds, trip purpose, and distance were used. The results of the CalEEMod calculations for project operations are shown in Table 3, *Maximum Daily Operational Emissions*.

**Table 3
MAXIMUM DAILY OPERATIONAL EMISSIONS**

Phase	Pollutant Emissions (pounds per day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Area	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Energy	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mobile	3	24	22	<0.5	<0.5	1
Total Daily Emissions	4	24	22	<0.5	<0.5	1
<i>SCAQMD Regional Thresholds</i>	<i>55</i>	<i>55</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
Significant Impact?	No	No	No	No	No	No

Source: CalEEMod (output data is provided in Appendix A).

As shown in Table 3, maximum daily operational emissions generated by the project would be below the screening level thresholds for criteria pollutants. Therefore, operational-related air quality impacts would be less than significant.

c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			■	
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Source: SCAQMD 2016 AQMP

The SCAQMD’s approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. As discussed under Item III(a), the proposed project would be consistent with the AQMP, which is intended to bring the SCAB into attainment for all criteria pollutants. In addition, construction and operational emissions calculated for the proposed project would be lower than the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable State and national ambient air quality standards. Therefore, cumulative impacts would be less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?			■	
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Source: Air Quality and Greenhouse Gas Emissions Technical Report (HELIX 2018; Appendix A); Traffic Impact Study (Kimley-Horn and Associates 2016)

Construction Impacts

Criteria Pollutants

The localized effects from the on-site portion of daily construction emissions were evaluated at sensitive receptor locations potentially impacted by the project according to the SCAQMD’s localized significant threshold (LST) method. Consistent with the LST guidelines, when quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Emissions related to off-site delivery/haul truck activity and construction worker trips are not considered in the evaluation of construction-

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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related localized impacts, as these do not contribute to emissions generated on a project site. The closest sensitive receptors are the single-family residences located adjacent to the east of the project site. Therefore, the LSTs for receptors located at 82 feet (25 meters) are used. As shown in Table 4, *Maximum Localized Construction Emissions*, localized emissions for all criteria pollutants would remain below their respective SCAQMD LSTs. There would be a less-than-significant impact and no mitigation is required.

**Table 4
MAXIMUM LOCALIZED DAILY CONSTRUCTION EMISSIONS**

Phase	Pollutant Emissions (pounds per day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Site Preparation	9	4	<0.5	<0.5
Grading	9	8	1	1
Underground Utilities	2	2	<0.5	<0.5
Building Construction	10	8	1	1
Paving	8	7	<0.5	<0.5
Architectural Coating	2	2	<0.5	<0.5
Maximum Daily Emissions¹	11	10	1	1
<i>SCAQMD Localized Thresholds</i>	<i>270</i>	<i>1,577</i>	<i>13</i>	<i>8</i>
Significant Impact?	No	No	No	No

Source: CalEEMod (output data is provided in Appendix A).

¹ Maximum daily emissions occur when Grading and Underground Utilities phases overlap.

Note: Totals may not sum due to rounding.

Toxic Air Contaminants

The greatest potential for toxic air contaminants (TAC) emissions during construction would be related to diesel particulate matter (DPM) associated with heavy equipment operations during earth-moving activities. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed project would be sporadic, transitory, and short-term in nature (i.e., less than one year). The assessment of cancer risk is typically based on a 30-year exposure duration. Because exposure to diesel exhaust would be well below 30 years, construction of the proposed project is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related TAC emission impacts during construction would not be significant and no mitigation is required.

Operational Impacts

Carbon Monoxide Hotspots

Carbon monoxide (CO) concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions) particularly during peak commute hours and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals. As a result, the SCAQMD recommends analysis of CO emissions at the local and regional levels.

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. If a project increases average delay at signalized intersections operating at Level of Service (LOS) E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the project, a quantitative screening is required.

According to the project traffic study (Kimley-Horn and Associates, Inc. 2016), four of the intersections evaluated would meet these criteria, indicating that there would be a potential CO hotspot and a quantitative screening is required. The four intersections and their projected LOS include: Perris Boulevard at Atwood Avenue, which would operate at LOS E (AM) and F (PM/Sun); the unsignalized intersection of Cottonwood Avenue at Crape Myrtle Drive, which would operate at LOS F in the AM and E on Sunday;

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Perris Boulevard at Alessandro Boulevard, which would operate at LOS E in PM peak hours; and the Perris Boulevard Driveway, which would operate at LOS F during AM, PM and Sunday peak hours.

In the 2003 SCAQMD AQMP, the SCAQMD modeled the four highest volume intersections in the SCAB to determine the highest potential for a CO hotspot in the SCAB. By 2004, all intersections were estimated to fall below all CO standards. Due to the high level of urbanization in the Los Angeles area where the highest volume intersections are located and due to the continuing reduction in vehicle CO emissions, background CO concentrations are expected to be lower in the City than any of the intersections analyzed in the 2003 SCAQMD AQMP analysis. When qualitatively comparing the CO modeling locations in the 2003 AQMP to those in the project area, several factors can be used to demonstrate that the project area can be expected to have lower CO concentrations than in the attainment plan, including traffic demand.

As shown in Table 14 of the Air Quality and Greenhouse Gas Emissions Technical Report (HELIX 2018; *Appendix A*), traffic volumes at the project-affected intersections are less than the maximum traffic volumes in the AQMP modeled intersections, therefore CO concentrations would be less than those modeled for the AQMP intersections. There would be no exposure of sensitive receptors to a project-generated CO hotspot and impacts would be less than significant.

Toxic Air Contaminants

The new fuel facility would require authority to construct (ATC) and permit to operate (PTO) approval from the SCAQMD, which would review the facility design and location for compliance with SCAQMD standards for criteria pollutants and air quality. All tanks and dispensers would be equipped with the latest Phase I and Phase II Enhanced Vapor Recovery (EVR) air pollution control equipment technology per CARB regulations and associated Executive Orders. The Phase I EVR equipment controls the vapors in the return path from the tanks back to the tanker truck during offloading filling operations. Phase I EVR systems are 98 percent effective in controlling fugitive emissions from escaping into the environment. The Phase II EVR equipment, which also includes “in-station diagnostics,” controls and monitors the vapors in the return path from the vehicles back to the tanks. Phase II EVR systems are 95 percent effective in controlling fugitive emissions from escaping into the environment. Therefore, operations expected to occur at the proposed project would not emit a significant quantity of toxic chemicals.

Other long-term operational emissions include toxic substances such as cleaning agents in use on site. Compliance with State and federal handling regulations would ensure that emissions remain below a level of significance. The use of such substances such as cleaning agents is regulated by the 1990 Federal Clean Air Act Amendments as well as State-adopted regulations for the chemical composition of consumer products. As such, project-related TAC emission impacts during operation would be less than significant.

e) Create objectionable odors affecting a substantial number of people?			■	
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The Air Quality Section of the City General Plan’s Environmental Impact Report (EIR; City 2006b) provides guidance for defining objectionable odors. For construction activities, odors would be short-term in nature and are subject to SCAQMD Rule 402 *Nuisance* (CARB 2018) and may be reported to the AQMD. In addition, impacts related to construction odors are limited to the number of people living and working near the source. The nearest residences are located adjacent to the east of the project. While some components of asphalt and diesel emissions are considered TACs, construction activities would be temporary and transitory and associated odors would not be unfamiliar and would cease upon construction completion. Therefore, odor impacts from construction of the project would be less than significant due to the duration of exposure.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed project, a donut restaurant and convenience store with a fueling station and car wash, would not include any of these uses. The fueling station would emit odors during operation in the form of diesel exhaust from vehicles and operation of the fueling pumps. The increase in odor emission, however, would be minimal, as vehicle exhaust is already prevalent in the area due to its proximity to busy roadways such as Perris Boulevard and Cottonwood Avenue.

Solid waste generated by the proposed on-site uses would be collected by a contracted waste hauler, ensuring that odors resulting from on-site waste would be managed and collected in a manner to prevent the proliferation of odors. Operational odor impacts would be less than significant.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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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?				■
The project site is surrounded by urbanized development. The site itself consists of heavily disturbed vacant lots with non-native, ruderal (weedy), herbaceous vegetation typical of fallow, vacant lots in urbanized areas of the region. The site is currently subject to regular disturbance associated with noise and lighting from the surrounding developed areas and roadways; maintenance activities; and pedestrian and vehicle use. Wildlife species with the potential to use the site are expected to be limited to common, non-sensitive wildlife typical of urbanized areas. The site is not within a burrowing owl special survey area (Western Riverside County Conservation Authority 2018). No wetlands as defined by Section 404 of the Clean Water Act occur on the site or would be directly impacted by the proposed project. No sensitive natural communities (including riparian habitat), sensitive plant or animal species, potential jurisdictional waters and wetlands (federally protected or otherwise), or other sensitive biological resources are known to occur on the site. Impacts to sensitive habitat, wetlands, or natural communities would not occur.				
b) Have a substantially 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. Wildlife Service?				■
See Item IV(a). No riparian habitat or sensitive natural communities are present on the project site, and no impacts would occur.				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				■
See Items IV(a) and IV(b). No streams, drainages, vernal pools, or wetlands are present within the site. Therefore, the project would have no impact on federally protected wetlands.				
d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?				■
The project site is located in an area that has undergone significant disturbance and is surrounded by urbanized development. It does not serve as a wildlife corridor or nursery site. Therefore, no impacts would occur.				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				■
See Items IV(a) and IV(b). The project site is a disturbed parcel in a mostly urbanized area of the city. The site does not contain sensitive biological resources or native tree species subject to tree preservation ordinances. Therefore, no impacts would occur.				
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?				■
The project area is located within the Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The proposed project would not conflict with the MSHCP, or any other known local, regional, or state habitat conservation plans as the project site does not contain sensitive plant or animal species, vernal pools, or sensitive natural communities. In addition, the site is not within a burrowing owl special survey area or proposed conservation area (Western Riverside County Conservation Authority 2018). The project will be conditioned to pay required Stephen's kangaroo rat mitigation fees and will also be subject to impact fees to support the implementation for the MSHCP as provided for by City ordinance. Therefore, no impacts to the MSHCP or other habitat conservation area would occur.				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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V. CULTURAL RESOURCES. Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?				■
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Source: Cultural Resources Survey Report for the Proposed Yum Yum Donuts Project (HELIX 2017; Appendix C)

HELIX conducted a record search of the California Historical Resources Information System (CHRIS) at the Eastern Information Center (EIC) on September 25, 2017. The records search covered a one-mile radius around the project area and included archaeological and historical resources, locations and citations for previous cultural resources studies, and a review of the state Office of Historic Preservation (OHP) historic properties directory. The records search indicated the presence of six previously recorded cultural resources within a one-mile radius of the project site, all of which are historic. None of the resources is located within the project site.

According to §15064.5 of the State CEQA Guidelines, a substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. Because no historical resources are present on site, the proposed project would not result in an adverse change in the significance of an historical resource. Therefore, no impacts to historical resources would occur.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		■		
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Source: Cultural Resources Survey Report for the Proposed Yum Yum Donuts Project (HELIX 2017; Appendix C)

As discussed under Item V(a), a records search was conducted for a one-mile radius around the project area and indicated that there are no recorded archaeological resources within the project site.

HELIX contacted the Native American Heritage Commission (NAHC) on September 25, 2017 for a Sacred Lands File search and list of Native American contacts for the project area. The NAHC indicated in a response dated September 27, 2017 that no known sacred lands or Native American cultural resources are within the project area. Letters were sent on October 2, 2017 to Native American representatives and interested parties identified by the NAHC. Eight responses have been received to date.

The Pala Band of Mission Indians responded on October 4, 2017, that the project is not within the boundaries of the territory that the Tribe considers its Traditional Use Area and defers to the wishes of Tribes in closer proximity to the project area. The San Manuel Band of Mission Indians responded on October 5, 2017, that the proposed project area is within the Serrano ancestral territory and as such is of interest to the Tribe. However, due to the nature and location of the proposed project, they do not have concerns with the project's implementation, as planned, at this time. The Viejas Band of Kumeyaay Indians responded on October 5, 2017 that the project site has little cultural significance or ties to the Tribe and recommended that the Tribes closest to the area are contacted. They do, however, wish to be informed of any inadvertent discoveries of cultural artifacts, cremation sites, or human remains in order to have the opportunity to reevaluate their participation in the government-to-government consultation process. The Agua Caliente Band of Cahuilla Indians replied on October 19, 2017, that the project area is within the boundaries of the Tribe's Traditional Use Area; however, they defer to Soboba. The Pauma Band of Luiseño Indians responded on October 23, 2017, that they are unaware of any specific cultural resources within the project area. They would like to receive a copy of the cultural report once it is finalized. The Augustine Band of Cahuilla Indians responded on October 23, 2017, that they are unaware of specific cultural resources within the project area.

The Soboba Band of Luiseño Indians responded on November 2, 2017, that the project area is considered sensitive by the people of Soboba, as there are existing cultural sites in the surrounding areas. The Tribe indicates that they will discuss specifics in direct consultation with the lead agency. As such, they request the following:

- To initiate a consultation with the project proponents and lead agency.
- The transfer of information to the Soboba Band of Luiseño Indians regarding the progress of this project should be done as soon as new developments occur.
- Soboba Band of Luiseño Indians continues to act as a consulting tribal entity for this project.
- Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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- Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department be present during any ground disturbing proceedings, including surveys and archaeological testing.
- Request that proper procedures be taken and requests of the tribe be honored.

The Rincon Band of Luiseño Indians responded on November 2, 2017. The project location is within the territory of the Luiseño people and within Rincon’s specific area of Historic interest. The tribe is unaware of any known cultural resources within or near the project area. They requested a copy of the cultural resources report and records search results.

A pedestrian survey of the project site was conducted on September 28, 2017 by a HELIX archaeologist and Native American monitor from the Soboba Band of Luiseño Indians. No cultural material was observed within the archaeological survey area; however, the project area was found to be overlain by fill soils with modern asphalt and debris intermixed, and the original ground surface could not be observed. Additionally, the project site is located within alluvial soils, where there is a potential for buried cultural resources.

Although no archaeological resources have been recorded or identified within the project site, the potential to discover resources on site exists based on the presence of alluvial soils and cultural sensitivity of the area. As such, impacts would be potentially significant, and mitigation measures CR-1 through CR-6 have been identified to reduce the significance of cultural resource impacts.

Mitigation Measure CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

- Project grading and development scheduling;
- The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;
- The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

Mitigation Measure CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

Mitigation Measure CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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- a. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:
 - i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.
 - ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

Mitigation Measure CR-4: The City shall verify that the following note is included on the Grading Plan:

“If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find.”

Mitigation Measure CR-5: If potential historic or cultural 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 (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric 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 Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

Mitigation Measure CR-6: If human remains are discovered, no further disturbance shall occur in the affected area 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).

Adherence to mitigation measures CR-1 through CR-6 would reduce impacts to cultural resources to a less-than-significant level.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		■		
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Source: City of Moreno Valley General Plan FEIR, Chapter 5.10 – Cultural Resources; County of Riverside General Plan

The project site is identified by the City’s General Plan FEIR Figure 5.10-3 as having a “Low Potential” to contain unique paleontological resources. However, the County of Riverside General Plan (Figure OS-8) identifies the project site as having a “high” sensitivity to contain paleontological resources. To be conservative, this analysis is based on the conclusion from the County’s General Plan and assumes that the alluvial soils underlying the project site have a high sensitivity for paleontological resources.

Project construction may involve excavation greater than four feet below the ground surface. Therefore, there is a potential to uncover fossils that may be buried beneath the surface of the site and impacts would be potentially significant. Mitigation measure PR-1 has been identified to reduce the significance of paleontological resource impacts.

Mitigation Measure PR-1: Prior to construction involving excavation four feet or more below existing surface grade, the construction contractor shall provide evidence that a qualified paleontologist has been retained, and that the paleontologist(s) shall

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

be present during all grading and other significant ground-disturbing activities that reach four feet or more below existing surface grade. In the event fossiliferous deposits are encountered, the following measures shall be implemented:

- Monitoring shall be conducted by qualified paleontological monitor(s) of excavation in areas identified as likely to contain paleontological resources, including very old alluvial fan deposits. Paleontological monitors shall be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced if the potentially fossiliferous units are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources.
- Paleontological monitoring of any earthmoving shall be conducted by a monitor, under direct guidance of a qualified paleontologist. Earthmoving in areas of the parcel where previously undisturbed sediments are buried, but not otherwise disturbed, will not be monitored.
- If too few fossil remains are found after 50 percent of the planned-for earthmoving has been completed, monitoring can be reduced or discontinued in those areas at the Project paleontologist’s direction.
- Recovered specimens shall be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.
- Specimens shall be identified and curated into a professional, fully accredited museum repository with permanent retrievable storage. The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities.
- A report of findings with and appended itemized inventory of specimens shall be prepared. The report and inventory, when submitted to the City along with confirmation of the curation of recovered of recovered specimens into an established, accredited museum repository, will signify completion of the program to mitigate impacts to paleontological resources.

Adherence to mitigation measure PR-1 would reduce impacts to paleontological resources to a less-than-significant level.

d) Disturb any human remains, including those interred outside of formal cemeteries?		■		
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Source: Cultural Resources Survey Report for the Proposed Yum Yum Donuts Project (HELIX 2017; Appendix C)

The project site does not contain a known cemetery. While not anticipated, the possibility to encounter human remains exists, and impacts are assessed as potentially significant. In the unlikely event that human remains are discovered during project excavation or other ground disturbing activities, the project would implement mitigation measure CR-6, described above, to reduce impacts to a less than significant level.

VI. GEOLOGY AND SOILS. Would the project:

a) Expose people or structures to 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 Division of Mines and Geology Special Publication 42.			■	
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Source: City of Moreno Valley General Plan Safety Element; City of Moreno Valley General Plan FEIR, Chapter 5.6 – Geology and Soils; California Department of Conservation “California Geological Survey Information Warehouse: Regulatory Maps”

The project site is located within a seismically active region and is within an Alquist-Priolo earthquake fault zone (California Department of Conservation 2015). The nearest mapped fault, however, is the San Jacinto Fault, which is located approximately six miles east of the project site as mapped on City of Moreno Valley General Plan FEIR Figure 5.6-2, *Seismic Hazards*. Because there are no faults located on the project site, the potential for the proposed project to expose people or structures to substantial adverse effects, including the risk of loss, injury or death involving ground rupture is considered low, and impacts would be less than significant.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(ii) Strong seismic ground shaking?			■	
<i>Source: City of Moreno Valley General Plan Safety Element; City of Moreno Valley General Plan FEIR, Chapter 5.6 – Geology and Soils; Geotechnical Investigation (Southern California Soil & Testing, Inc. 2016)</i>				
<p>As discussed above under Item VI(a)(i), the project site is located in a seismically active area of southern California and is expected to experience moderate to severe ground-shaking during the lifetime of the proposed project. As a mandatory condition of project approval, the project would be required to construct the proposed buildings in accordance with the California Building Standards Code (CBSC), also known as California Code of Regulations (CCR), Title 24 (Part 2), and the City of Moreno Valley Building Code, which is based on the CBSC with local amendments. The CBSC and City of Moreno Valley Building Code provide standards that must be met to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures, and have been specifically tailored for California earthquake conditions. With mandatory compliance with these standards, the project would not expose people or structures to substantial adverse effects, including loss, injury or death, involving seismic ground shaking, and impacts would be less than significant.</p>				
(iii) Seismic-related ground failure, including liquefaction?			■	
<i>Source: City of Moreno Valley General Plan FEIR, Chapter 5.6 – Geology and Soils</i>				
<p>Liquefaction occurs when loose, unconsolidated, water-laden soils are subject to shaking, causing the soils to lose cohesion and behave as a liquid. According to General Plan FEIR Figure 5.6-2, the project site is not located in an area with the potential for liquefaction. In addition, as described above in Item VI(a)(ii), the City would require that the property be developed in accordance with the latest applicable seismic safety guidelines, including the standard requirements of the CBSC and the City of Moreno Valley Building Code. Therefore, the project’s impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction, would be less than significant.</p>				
(iv) Landslides?				■
<i>Source: City of Moreno Valley General Plan; City of Moreno Valley General Plan FEIR, Chapter 5.6 – Geology and Soils; County of Riverside General Plan EIR Section 4.12</i>				
<p>The City of Moreno Valley General Plan identifies the Badlands area of the City as having a potential for landslides. The project site is located approximately five miles from the Badlands area and is in a flat area lacking steep slopes. Therefore, the project site is not at risk of landslides and no related impacts would occur.</p>				
(b) Result in substantial soil erosion or the loss of topsoil?			■	
<i>Source: Web Soil Survey, U.S. Department of Agriculture</i>				
<p>On-site soils include Hanford coarse sandy loam (HcC) and Pachappa fine sandy loam (PaC2), each of which comprises approximately half the area of the site (U.S. Department of Agriculture 2017). Development of the vacant site would involve grading and soil movement, which could result in erosion. Because the project site has an area greater than one acre, the proposed project is required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. A Storm Water Pollution Prevention Plan (SWPPP) would also be required to address erosion and discharge impacts associated with the proposed on-site grading. In addition to preparation of a SWPPP, new development projects submitted to the City would be required to submit a project-specific Water Quality Management Plan (WQMP). The WQMP would identify measures to treat and/or limit the entry of contaminants into the storm drain system. The WQMP is required to be incorporated by reference or attached to the project’s SWPPP as the Post-Construction Management Plan. Through compliance with the required permits and plans, the project would not result in substantial soil erosion or loss of topsoil, and impacts would be less than significant.</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?			■	
See Items VI(a)(iii), VI(a)(iv), and VI(b). The project site has a low potential for liquefaction, landslides, and soil erosion. With compliance with the CBSC and the City of Moreno Valley Building Code design and engineering standards, impacts would be less than significant.				
(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			■	
<p>Expansive soils generally have a significant amount of clay particles, which can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. The extent of shrink/swell is influenced by the amount and kind of clay in the soil. The occurrence of these soils is often associated with geologic units having marginal stability. The distribution of expansive soils can be widely dispersed, and they can occur in hillside areas as well as low-lying alluvial basins.</p> <p>The soil types discussed in Item VI(b) have a low shrink-swell potential due to their low clay content. Additionally, development of the proposed project site would be required to adhere to the CBSC and the City of Moreno Valley Building Code design and engineering standards. Impacts associated with this issue would therefore be less than significant.</p>				
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				■
The proposed project would be served by an existing wastewater disposal system and would not install septic tanks or alternative wastewater disposal systems on site. Therefore, no impact would occur.				
VII. GREENHOUSE GAS EMISSIONS. Would this project?				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			■	
<p><i>Source: Air Quality and Greenhouse Gas Emissions Technical Report (HELIX 2018; Appendix A); City Energy Efficiency and Climate Action Strategy (City 2012); SCAQMD Greenhouse Gas Interim CEQA Significance Thresholds</i></p> <p>Global climate change refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone, and certain hydro-fluorocarbons. These gases, known as greenhouse gases (GHGs), allow solar radiation (sunlight) into the Earth’s atmosphere, but prevent radiative heat from escaping, thus warming the Earth’s atmosphere. GHGs are emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth’s temperature. Emissions of GHGs in excess of natural ambient concentrations are thought to be responsible for the enhancement of the greenhouse effect and contributing to what is termed “global warming,” the trend of warming of the Earth’s climate from anthropogenic activities.</p> <p>GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO₂. For example, since CH₄ and N₂O are approximately 25 and 298 times more powerful than CO₂, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO₂ has a GWP of 1). Carbon dioxide equivalent (CO₂e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO₂e.</p> <p>The City’s Energy Efficiency and Climate Action Strategy (CAS) has not implemented specific GHG significance thresholds (City 2012). The City is currently utilizing the SCAQMD’s interim GHG significance threshold of 3,000 metric tons (MT) CO₂e per year of GHG emissions to determine significant impacts (SCAQMD 2008). This threshold is used to determine the significance of project GHG emissions.</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road truck trips, and worker commuting trips. Construction GHG emissions were calculated using CalEEMod and the results are output in MT CO_{2e}. The estimated construction GHG emissions for the project are shown in Table 5, *Construction GHG Emissions*.

**Table 5
CONSTRUCTION GHG EMISSIONS**

Phase	Emissions (MT CO _{2e})
Site Preparation	11
Grading	13
Underground Utilities	3
Building Construction	46
Paving	3
Architectural Coating	1
TOTAL CONSTRUCTION EMISSIONS¹	76
Amortized Construction Emissions ²	3

Source: CalEEMod (output data is provided in Appendix A).

¹ The total presented is the sum of the unrounded values.

² Construction emissions are amortized over 30 years in accordance with County guidance.

GHG emissions generated from construction activities are finite and for a relatively short-term period of time. Unlike the numerous opportunities available to reduce a project's long-term GHG emissions through design features, operational restrictions, use of green-building materials, etc., GHG emissions-reduction measures for construction equipment are relatively limited. Therefore, SCAQMD staff recommended that construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. As shown in Table 5, the 30-year amortized construction emissions would be 3 MT CO_{2e}/yr.

During operations, area and indirect emissions sources associated with the proposed project would primarily result from electricity and natural gas consumption, water and wastewater transport, and solid waste generation. GHG emissions from electricity consumed on site by the proposed project would be generated off site by fuel combustion at the electricity provider. GHG emissions from water and wastewater transport are also indirect emissions resulting from the energy required to transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point. In addition, the project would generate mobile source emissions from motor vehicle trips. The various operational GHG emissions associated with the proposed project are shown in Table 6, *Annual Operational GHG Emissions*. The emissions include the amortized annual construction emissions anticipated for the project. As shown in the table, the proposed project's total annual GHG emissions resulting from operational activities would be 1,165 MT CO_{2e} per year. This value is less than the SCAQMD's 3,000 MT CO_{2e} per year interim threshold. Therefore, GHG emissions during project operation, including amortized construction emissions, would be less than significant.

**Table 6
ANNUAL OPERATIONAL GHG EMISSIONS**

Source	Emissions (MT CO _{2e})
Area	<0.5
Energy	51
Mobile	1,092
Waste	13
Water	5
Operational Subtotal	1,162
Construction (Annualized over 30 years)	3
TOTAL OPERATIONAL EMISSIONS	1,165

Source: CalEEMod (output data is provided in Appendix A).

Note: Totals may not add up exactly due to rounding.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			■	
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Source: Air Quality and Greenhouse Gas Emissions Technical Report (HELIX 2018; Appendix A); City Energy Efficiency and Climate Action Strategy (City 2012)

There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall State plan and policy is Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. Senate Bill (SB) 32 would require further reductions of 40 percent below 1990 levels by 2030. Because of the project’s operational year in 2018, the project aims to reach the quantitative goals set by AB 32. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the Low Carbon Fuel Standard, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the statewide level; as such, compliance at the project level is not addressed. Therefore, the proposed project would not conflict with those plans and regulations.

As previously discussed, the City CAS does not have GHG emission thresholds and therefore utilizes the significance thresholds set forth by the SCAQMD. As discussed under Item VII(a), the proposed project’s increase in GHG emissions would be less than the SCAQMD’s screening threshold; therefore, the project would be consistent with the City CAS. Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

VIII. 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?			■	
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The project involves the construction and operation of fuel dispensers and underground storage tanks. The County of Riverside Health Department, Environmental Health Division, as the Certified Unified Program Agency (CUPA), would review the project to ensure the fuel dispensing system is designed in accordance with Federal and State Water Resources Control Board (SWRCB) standards for leak detection. The transport of fuel and tank filling operations would be conducted in compliance with applicable regulatory requirements. Other potentially hazardous materials associated with the fuel facility and/or car wash could be used and stored at the project site in accordance with regulatory requirements. Therefore, associated impacts would be less than significant.

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?			■	
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See Item VIII(a). Construction and operation of the fuel facility, car wash, and restaurant/convenience store would be conducted in accordance with applicable regulatory requirements, and impacts from the upset and accident conditions involving the release of hazardous materials would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				■
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Saint Christophers School is located to the south across Cottonwood Avenue, at a distance of 300 feet from the project site. As described under Item VIII(a), the project would comply with applicable regulatory requirements for hazardous materials. Therefore, the project would not emit hazardous emissions or create significant hazards from hazardous materials within one-quarter mile of an existing or proposed school, and no impacts would occur.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				■
<i>Source: Department of Toxic Substance Control, Envirostor; State Water Resources Control Board, Geotracker</i>				
<p>Pursuant to Government Code Section 65962.5, the Department of Toxic Substance Control’s Envirostor and SWRCB Geotracker databases were searched for hazardous materials sites at or in proximity to the project site. The results of the searches indicated that no hazardous materials sites are located on or immediately adjacent to the project site. The closest listed site is located approximately 0.2 mile north of the project site at the intersection of Dracaea Avenue and Perris Boulevard. The site is associated with gasoline contamination and the case was closed in 2013. The site has no potential to have an adverse effect on the project site. As such, no impacts would occur.</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 for people residing or working in the project area?				■
<i>Source: City of Moreno Valley General Plan Safety Element Figure 6-5, Air Crash Hazards</i>				
<p>The project site is located approximately 2.6 miles northeast of the nearest airport, March Air Reserve Base. According to City of Moreno Valley General Plan Figure 6-5, <i>Air Crash Hazards</i>, the project site is not located within an Accident Potential Zone or “Clear Zone” (i.e., high risk areas 3,000 feet from each end of the runway). Thus, because the project site is not located in an area identified as an Accident Potential Zone or a Clear Zone, implementation of the proposed project would not result in a safety hazard for people living or working in the project area, and no impacts would occur.</p>				
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				■
<p>There are no private airfields or airstrips in the vicinity of the project site. Therefore, there is no potential for the implementation of the project to result in a safety hazard for people residing or working in the project area and no impacts would occur.</p>				
g) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?			■	
<p>The project site does not contain emergency facilities, nor does it serve as an emergency evacuation route. During construction and long-term operation, the proposed project would be required to maintain adequate emergency access for emergency vehicles, as required by the City. Because the proposed project would not interfere with an adopted emergency response or evacuation plan, impacts would be less than significant.</p>				
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				■
<i>Source: City of Moreno Valley General Plan FEIR Section 5-5</i>				
<p>According to City of Moreno Valley General Plan FEIR Figure 5.5-2, the project site is not located in an area of substantial or high fire risk. The surrounding area has either been developed or has vacant lots mostly devoid of vegetation. No wildlands are located on or adjacent to the project site. Therefore, implementation of the proposed project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No impacts related to wildland fires would occur.</p>				
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?			■	
<p>Construction of the project would involve grading, paving, utility installation, building construction, and landscaping installation, which would result in the generation of potential water quality pollutants such as silt, debris, chemicals, paints, and other solvents</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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with the potential to affect water quality. The project would be constructed and operated consistent with all applicable regulations established by the Santa Ana Regional Water Quality Control Board (RWQCB), which includes compliance with relevant NPDES permitting requirements and adoption and implementation of a SWPPP. Construction Best Management Practices (BMPs) that may be implemented during construction include silt fences, gravel bag barriers, street sweeping, solid waste management, stabilized construction entrance/exit, water conservation practices, and spill prevention and control. Implementation of these or similar BMPs would reduce potentially adverse impacts of storm waters discharged from portions of the site affected by construction activities.

Long-term operation of the project may also generate water quality pollutants such as sediment, nutrients, heavy metals, organic compounds, trash and debris, oxygen-demanding substances, oils and grease, bacteria and viruses, and pesticides. As required by the City, the project proponent would prepare a WQMP. Post-construction BMPs would include using low-impact development such as the project's bio-retention basins, which allow for peak runoff retention and reduction of pollutant loads. Adoption and implementation of the required long term WQMP, which reflect the project's commitment to install and maintain appropriate stormwater structural facilities, as well as implement non-structural BMPs, would reduce potential long-term water quality impacts related to stormwater discharges to a less-than-significant level.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

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The proposed project would not require the use of groundwater. The project would increase the area of impervious surfaces on site through the development of a canopy structure, buildings, and a parking lot, which would reduce the amount of groundwater recharge. However, runoff from the proposed impervious surfaces would be directed into proposed on-site bio-retention basins, where it would be eventually conveyed to an area where it could infiltrate into the local groundwater basin. Therefore, the project would have a less than significant impact on groundwater supply and recharge.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

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Source: Preliminary Hydrology Report prepared by Waber Consultants (2017; Appendix D)

The existing project site is relatively flat and sheet flows in a generally southeasterly direction towards Cottonwood Avenue. Upon implementation of the proposed project, the overall drainage direction would be similar to existing conditions, but would have the potential to generate more flow due to the increase in impervious surfaces (Waber Consultants 2017). The increased flow would be directed to vegetated bioretention basins located along the western, eastern, and southern portions of the site, which would accommodate the increased runoff.

The addition of impervious surfaces on site would decrease the amount of the exposed soil and would therefore reduce the potential for soil erosion and siltation to occur. Additionally, storm flows containing sediments would be captured by the bioretention basins, thus limiting erosion and siltation on- and off-site. Implementation of the proposed project would not alter the existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on- or off-site, and impacts would be less than significant.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or surface runoff in a manner which would result in flooding on or off site?

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Source: Preliminary Hydrology Report prepared by Waber Consultants (2017; Appendix D)

See IX(c). Although the project would add impervious surfaces to the site that would have the potential to increase flow, the bio-retention basins would accommodate the increased runoff. Implementation of the project would therefore not increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. Flooding impacts would be less than significant.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			■	
<p><i>Source: Preliminary Hydrology Report prepared by Waber Consultants (2017; Appendix D)</i></p> <p>See IX(a), IX(c), and IX(d). Through the use of bioretention basins, and the implementation of a NPDES permit, SWPPP, BMPs, and a WQMP, implementation of the proposed project would not create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.</p>				
f) Otherwise substantially degrade water quality?				■
<p>No additional water quality impacts are anticipated beyond those described above under Items IX(a) through IX(e).</p>				
g) Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				■
<p><i>Source: Federal Emergency Management Agency (FEMA 2008)</i></p> <p>According to the FEMA Flood Insurance Rate Map for the area, the project site is not located within a 100-year floodplain. The project also does not include housing. Therefore, the project would not place housing within a 100-year floodplain, and no associated impact would occur.</p>				
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				■
<p>See Item IX(g). The project would not place structures in a 100-year flood hazard area and no associated impact would occur.</p>				
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				■
<p><i>Source: City of Moreno Valley General Plan FEIR Section 5.5 – Hazards</i></p> <p>The nearest dam to the project site is at the Perris Reservoir, located approximately 4.7 miles south of the project site. According to City of Moreno Valley General Plan FEIR Figure 5.5-2, the project site is not located in an identified dam inundation area. Therefore, no impacts from the failure of a levee or dam would occur.</p>				
j) Inundation by seiche, tsunamis, or mudflow?				■
<p>The Pacific Ocean is located over 40 miles from the project site; therefore, the potential for tsunamis to impact the project site is extremely low. The nearest water body to the project site is the Perris Reservoir, which is located approximately 4.7 miles to the south. Due to this distance, a seiche in the Perris Reservoir would not impact the project site.</p> <p>Mudflows are shallow, water-saturated landslides that travel rapidly down slopes carrying rocks, brush, and other debris. A mudflow occurs naturally as a result of heavy rainfall on a slope that contains loose soil or debris. There are no steep slopes in the vicinity of the project site, and no impacts from mudflows would occur.</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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X. LAND USE AND PLANNING. Would the project:
 a) Physically divide an established community? ■

The project site consists of vacant and undeveloped land located in a developed area of the City. The property is proposed to be developed in accordance with the proposed zoning designation (Community Commercial [CC]) and land use designation (Commercial). Development of the project site as a gas station, car wash, restaurant, and convenience store would not physically disrupt or divide the arrangement of the established community. Therefore, no impacts related physical dividing a community would occur.

b) Conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? ■

Source: City of Moreno Valley General Plan Land Use Map; City of Moreno Valley Zoning Map

The project proposes to develop the property with a restaurant, convenience store, car wash and gas station which would be consistent with the proposed zoning designation of Community Commercial (CC) and the proposed land use designation of Commercial. Therefore, the project would not conflict with an applicable land use plan, policy, or regulation and no impact would occur.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? ■

As described under the response to Item IV(f), the project area is located within the Riverside County MSHCP. The proposed project would not conflict with the MSHCP, or other known local, regional or State habitat conservation plans as the project site does not contain sensitive plant or animal species, vernal pools, or sensitive natural communities. In addition, the site is not within a burrowing owl special survey area or proposed conservation area (Western Riverside County Conservation Authority 2018). The project will be conditioned to pay required Stephen’s kangaroo rat mitigation fees and will also be subject to impact fees to support the implementation for the MSHCP as provided for by City ordinance. Therefore, no impacts to the MSHCP would occur.

XI. MINERAL RESOURCES. Would the project:

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? ■

Source: County of Riverside Open Space Element

The County of Riverside General Plan identifies the project area as Mineral Resource Zone 3 (MRZ-3). MRZ-3 denotes that mineral deposits are likely to exist; however, the significance of the deposit is undetermined. The proposed project would occur in an area that has not been used for mining, is designated as residential/office, and is surrounded by other urban development where mining operations are not expected to occur. Therefore, no impacts would occur.

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? ■

See Item XI(a), above. No impacts related to mineral resource recovery would occur.

XII. NOISE. Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ■

Source: City of Moreno Valley General Plan FEIR Chapter 5.4 - Noise; Moreno Valley Municipal Code, Chapter 11.80; Roadway Construction Noise Model; Noise Mitigation Analysis for the Proposed Yum Yum Donuts Car Wash (Landrum and Brown 2018; Appendix E)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Construction Noise Impacts

Construction noise impacts from general construction activities of the project would include noise generated from construction equipment involved in minor grading and building of the project structures. The loudest piece of equipment from this type of construction would be a backhoe used during grading and site preparation. According to the Roadway Construction Noise Model (RCNM; U.S. Department of Transportation [USDOT] 2008), at 130 feet (the approximate average distance of operating construction equipment to the nearest off-site noise sensitive land uses [NSLUs], the single-family residences adjacent to the eastern border of the project site), a backhoe would create a noise level of 65.3 A-weighted decibels (dBA) one-hour average sound level (L_{EQ}). Chapter 11.80 of the Moreno Valley Municipal Code states that any construction within the City shall only be completed between the hours of 7 a.m. to 7 p.m. Monday through Friday, excluding holidays and from 8 a.m. to 4 p.m. on Saturday, unless written approval is obtained from the City building official or City engineer. Construction activities would comply with the applicable hours; therefore, associated construction noise impacts from general construction activities would be less than significant.

Operational Noise Impacts

The City’s Municipal Code sets exterior noise level standards for residential properties. The Code states that noise emitted from the proposed project shall not exceed 60 dBA at residential property lines during daytime hours (8 a.m. to 10 p.m.) and 55 dBA during nighttime hours (10 p.m. to 8 a.m.). The proposed car wash would be the loudest source of operational noise and is expected to operate 24 hours a day. As such, the proposed project would be required to comply with the 55 dBA nighttime noise level limit. The project’s noise analysis determined that noise levels at the nearest residential area would be 58.5 dBA, which would exceed the nighttime noise limit (Landrum & Brown 2018). Therefore, noise levels would be potentially significant. Mitigation measure NOI-1 has been identified to reduce the significance of cultural resource impacts.

Mitigation Measure NOI-1: Noise emitted from the proposed project shall not exceed 60 dBA at residential property lines during the daytime hours (8 a.m. to 10 p.m.) and 55 dBA during nighttime hours (10 p.m. to 8 a.m.). Measures to reduce noise levels include the following:

- An 8-foot noise barrier shall be constructed that meets or exceeds the barrier shown in Exhibit 5 of the project’s noise report (Landrum & Brown 2018). The noise barrier must have a surface density of at least 3.5 pounds per square foot, and shall have no openings or gaps. The wall may be constructed of stud and stucco, 3/8-inch plate glass, 5/8-inch Plexiglas, any masonry material, or a combination of these materials.
- The car wash equipment must be equipped with automatic doors at both the entrance and exit ends that can close when a car is being washed and dried.

Analyzed noise levels from the car wash with an 8-foot wall at the property line, as described in mitigation measure NOI-1, would be 49.4 dBA at the residential property line, which is in compliance with the nighttime noise ordinance (Landrum & Brown 2018). Therefore, the project would not expose persons to noise in excess of general plan or noise ordinance standards, and associated impacts would be less than significant.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			■	
<p>The project may generate minor ground vibrations during construction from the use of heavy machinery. The use of this equipment would be intermittent and temporary, and no pile drivers or other construction equipment type known to create excessive ground vibrations would be required.</p> <p>Gas station, convenience store, restaurant, and car wash use is not typically associated with groundborne vibration or noise. Fuel delivery diesel trucks can generate minor vibration levels, but not to the extent that would adversely affect people in the project area. Overall, the project would have a less-than-significant impact associated with exposing the surrounding properties, or customers or workers on-site, to excessive groundborne vibrations or groundborne noise levels.</p>				
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		■		
<p><i>Source: Noise Mitigation Analysis for the Proposed Yum Yum Donuts Car Wash (Landrum and Brown 2018; Appendix E); Traffic Impact Study (Kimley-Horn and Associates, Inc. 2016; Appendix B)</i></p> <p>Operational noise impacts from the project include the car wash and increased traffic on nearby roadways. As discussed in Item XII(a), operation of the car wash would result in a potentially significant noise impact at the nearest residential areas. Through implementation of mitigation measure NOI-1, impacts would be less than significant.</p> <p>The project is estimated to generate 2,445 average daily trips (ADT). The two roadway segments immediately adjacent to the project site include Perris Boulevard and Cottonwood Avenue. According to the project’s TIS, Perris Boulevard from Eucalyptus Avenue to Cottonwood Avenue currently supports 31,219 ADT and Cottonwood Avenue from Perris Boulevard to Kitching Street currently supports 8,294 ADT. In general, in order to generate a 3 dBA increase in traffic noise (which is generally considered the human threshold for perception of a noise increase), traffic volumes on a roadway would have to double. The project’s addition of ADT to Perris Boulevard and Cottonwood Avenue would not double traffic volumes and therefore would not cause a 3 dBA increase in noise. Impacts from long-term traffic noise generated by the project would be less than significant.</p>				
d) A substantially temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			■	
<p>See Item XII(a) above. Although construction of the proposed project would result in temporary increases in ambient noise, the project would comply with applicable noise regulations. Therefore, associated impacts would be less than significant.</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 expose people residing or working in the project area to excessive noise levels?				■
<p><i>Source: City of Moreno Valley General Plan FEIR</i></p> <p>The closest airport, the March Air Reserve Base, is located approximately 2.6 miles southwest of the project site. According to General Plan FEIR Figure 5.4-1, the project site is located well outside of the 60 dBA CNEL noise contour for the airport and would not be subjected to excessive noise levels due to operations at the March Air Reserve Base. Therefore, the project would not expose people residing or working in the project area to excessive noise levels associated with a public airport, and no airport noise-related impacts would occur.</p>				
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				■
<p>The project site is not located near a private airfield or airstrip. Therefore, the proposed project has no potential to expose people to excessive noise levels associated with operations at a private airstrip, and no associated impacts would occur.</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XIII. POPULATION AND HOUSING. Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				■
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The project involves the construction and operation of a restaurant, convenience store, fuel facility, and car wash. No residential uses or other land uses associated with directly impacting population growth are included as part of the project. The temporary construction jobs associated with the project are expected to be fulfilled by the existing local labor pool, and it is not anticipated that the project would result in indirect population growth. Additionally, the project would use existing utilities and infrastructure on-site, and would not result in off-site improvements that would drive job or population growth; therefore, no impacts associated with population growth inducement would occur.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				■
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The project site is vacant and would not displace existing housing. No impacts associated with housing displacement would occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				■
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The project site is vacant and would not displace people. No impacts associated with displacement of people would occur.

XIV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government 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:

a) Fire protection?			■	
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Source: City of Moreno Valley General Plan Safety Element; City of Moreno Valley General Plan FEIR, Chapter 5.13-Public Services and Utilities; City of Moreno Valley Municipal Code, Chapter 3.42, Commercial and Development Impact Fees (Ordinance No. 695)

The City contracts with the Riverside County Fire Department to provide fire protection, fire prevention, and emergency services to its residents. The fire station nearest the project site is Station No. 99, located at 13400 Morrison Street, an approximate one and a half-mile driving distance east of the project site. The proposed project would increase the need for fire protection services within the City, but would not require the construction of new fire facilities to maintain acceptable service ratios, response times, or other performance objectives. The project would be required to adhere to all standards and conditions required by the City and the Riverside County Fire Department, including, but not limited to, restrictions on project design, imposition of construction standards, and payment of impact fees. Adherence to these standards would result in a less-than-significant impacts associated with the provision of fire protection.

b) Police protection?			■	
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Source: Moreno Valley General Plan Safety Element; City of Moreno Valley General Plan FEIR, Chapter 5.13-Public Services and Utilities; City of Moreno Valley Municipal Code, Chapter 3.42, Commercial and Development Impact Fees (Ordinance No. 695)

The City contracts police services from the Riverside County Sheriff's Department. The Moreno Valley Police Department (MVPD) operates out of the Central Police Station, located at 22850 Calle San Juan de Los Lagos. The proposed project would incrementally increase the need for police protection services within the City. The proposed project would be required to adhere to all standards and conditions required by the City and the MVPD, including the payment of impact fees. While the proposed project would increase the need for police protection, it would not require the construction of new facilities to maintain acceptable service ratios, response times, or other performance objectives. Therefore, the proposed project would result in a less-than-significant impact associated with the provision of police protection.

Attachment: Exhibit A to Resolution No 2018-35 - Mitigated Negative Declaration (3180 : Conditional Use Permit for Yum Yum Donuts Moreno

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Schools?				■
The proposed project does not include uses that would generate school age children. As such, implementation of the proposed project would not place an increased demand on schools or require the construction of new schools, and no impacts would occur.				
d) Parks?				■
The proposed project does not include uses that would increase population growth. As such, implementation of the proposed project would not place an increased demand on parks or require the construction of new parks, and no impacts would occur.				
e) Other public facilities?				■
The proposed project does not include uses that would increase population growth. As such, implementation of the proposed project would not place an increased demand on other public facilities or require the construction of new facilities, and no impacts would occur.				
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				■
See XIV(d), above. The proposed project would not increase the usage of parks and no impacts would occur.				
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				■
The project involves the construction and operation of a restaurant, convenience store, fuel facility, and car wash, and does not include recreational facilities or require the construction or expansion of recreational facilities. No impacts would occur.				
XVI. TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict 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 and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?		■		
<i>Source: Traffic Impact Study (Kimley-Horn and Associates, Inc. 2016; Appendix E); Supplemental Traffic Assessment (Kimley Horn and Associates, Inc. 2017; back of Appendix E).</i>				
A TIS has been prepared for the proposed project (Kimley-Horn Associates, Inc. 2016). The study is summarized below.				
Roadway segment and intersection operating conditions are typically described in terms of LOS. LOS is a scale used to indicate the quality of traffic flow on roadway segments and at intersections, with a range from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). Based upon City traffic study guidelines, a significant traffic impact under CEQA occurs when the addition of project traffic under the Existing Plus Project scenario causes an intersection or roadway that operates at an acceptable LOS under the Existing scenario to operate at an unacceptable LOS for Existing Plus Project conditions. Therefore, in this study, Existing Plus Project conditions are compared to Existing conditions to identify potentially significant, direct, project-related traffic impacts according to the following criteria:				
<ul style="list-style-type: none"> • If an intersection operating at an acceptable LOS (LOS D or better) under Existing conditions and the addition of project traffic causes the intersection to operate at an unacceptable LOS (LOS E or F); 				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

- If an intersection is operating at an unacceptable LOS (LOS E or F) under Existing conditions and the addition of project traffic at the intersection is 50 or more peak hour trips; or
- If a roadway segment operating at an acceptable LOS (LOS D or better) under Existing conditions and the addition of project traffic causes the roadway to operate an unacceptable LOS (LOS E or F).

According to the TIS, the proposed project is expected to generate 2,445 ADT, including a total of 190 AM peak-hour trips, 222 PM peak-hour trips, and 312 Sunday peak-hour trips. After applying pass-by reductions (for vehicles that would be traveling in the area regardless of the proposed project facilities), the development is projected to generate a total of 72 AM peak-hour trips, 98 PM peak-hour trips, and 138 Sunday peak-hour trips.

Cumulative traffic forecasts were developed using existing traffic volumes, an annual ambient growth rate per year to the project’s opening year (assumed to be 2020), and traffic generated from cumulative projects. The cumulative projects consist of projects within a 3.5-mile radius of the project site that have been approved but are not yet built or fully occupied, as well as projects that are in various stages of the application and approval process but have not yet been approved. The cumulative projects were assessed for their proximity to the project site and for their potential to generate traffic based on their approved or pending land uses. As part of the Cumulative scenario, the St. Christopher’s Catholic Church on the southeast corner of the intersection of Perris Boulevard and Cottonwood Avenue are assumed to undergo an expansion. The existing driveway along Cottonwood Avenue will be eliminated as part of that expansion. The removal of the church’s driveway was taken into consideration in the analysis of future conditions.

Roadway segment conditions are listed in Table 7, *Roadway Segment Conditions*, for the following scenarios: Existing, Existing Plus Project, Existing Plus Cumulative Projects, and Existing Plus Cumulative Projects Plus Project. As shown in the table, the study roadway segments currently operate at an acceptable LOS and are projected to continue to operate at an acceptable LOS under the Existing Plus Project scenario. Both roadway segments along Perris Boulevard are anticipated to operate deficiently under the Existing Plus Cumulative Projects scenario and the Existing Plus Cumulative Projects Plus Project scenario, which would be a potentially significant cumulative impact. The project’s contribution to this impact would be minimal, with an increase of 0.02 volume/capacity ratio for each roadway segment. Per the City of Moreno Valley General Plan Roadway Network, Perris Boulevard is planned to be widened to add one lane in each direction, which will increase the daily roadway capacity to 56,300 vehicles, which would exceed the projected traffic levels. This lane addition can be accomplished within the existing curb-to-curb width. Through Mitigation Measure TRA-1, the project would contribute to the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) and the City of Moreno Valley Developer Impact Fee (DIF) program on a fair-share basis, and the project’s cumulative impacts to roadway segments would be mitigated to less than significant.

**Table 7
ROADWAY SEGMENT CONDITIONS**

Roadway Segment	Existing		Existing Plus Project		Existing Plus Cumulative Projects		Existing Plus Cumulative Projects Plus Project	
	V/C ¹	LOS ²	V/C	LOS	V/C	LOS	V/C	LOS
Perris Boulevard								
Eucalyptus Avenue to Cottonwood Avenue	0.83	D	0.86	D	1.10	F	1.12	F
Cottonwood Avenue to Alessandro Boulevard	0.72	C	0.74	C	0.97	E	0.99	E
Cottonwood Avenue								
Indian Street to Perris Boulevard	0.67	A	0.70	A	0.76	B	0.79	A
Perris Boulevard to Kitching Street	0.66	A	0.68	A	0.79	B	0.81	C

Source: Kimley-Horn and Associates, Inc. 2016

¹ V/C = Vehicle to Capacity ratio

² LOS = Level of Service

Bolded segments operate at an unacceptable LOS (LOS E or F)

Attachment: Exhibit A to Resolution No 2018-35 - Mitigated Negative Declaration (3180 : Conditional Use Permit for Yum Yum Donuts Moreno

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Intersection delays and corresponding LOS are listed in Table 8, *Intersection Conditions*. As shown in the table, in the Existing scenario all intersections currently operate at an acceptable LOS except the Cottonwood Avenue/Crape Myrtle Drive intersection during the AM peak hour. In the Existing Plus Project scenario, all intersections are projected to operate at an acceptable LOS except the Cottonwood Avenue/Crape Myrtle Drive intersection during the AM peak hour and the Perris Boulevard Driveway during the AM, PM, and Sunday peak hours. The project would contribute less than 10 peak hour trips to the Cottonwood Avenue/Crape Myrtle Drive intersection, which is below the 50 peak hour trip threshold, and direct impacts to this intersection would be less than significant. For the Perris Boulevard Driveway, the deficiency is not due to the relatively small amount of trips the project is adding to the exit, and instead caused by vehicles waiting to make a westbound left-turn out of the driveway onto Perris Boulevard, which have to cross multiple lanes of traffic on a busy roadway. In addition, the driveway on Perris Boulevard is consistent with Section 9.11.080 of the Moreno Valley Municipal Code for design parameters. The distance from the driveway to the intersection of Perris Boulevard and Cottonwood Avenue exceeds 350 feet when measured from the centerline of Cottonwood Avenue. The driveway is located at the far northern portion of the site, and aligns with the existing driveway on the west side of Perris Boulevard. The forecast delays would be experienced by patrons of the proposed project, rather than by travelers on public roadways. Therefore, the project's direct impacts at this intersection would be considered less than significant.

Regarding the cumulative scenarios, the following intersections are projected to operate at an unacceptable LOS under the Existing Plus Cumulative scenario:

- Perris Boulevard/Atwood Avenue (AM, PM, and Sunday peak hours)
- Cottonwood Avenue/Crape Myrtle Drive (AM peak hour)
- Perris Boulevard/Alessandro Boulevard (PM peak hour)
- Perris Boulevard Driveway (PM and Sunday peak hours)

With the addition of project traffic to the Cumulative Without Project scenario, the same intersections would operate at an unacceptable LOS:

- Perris Boulevard/Atwood Avenue (AM, PM, and Sunday peak hours)
- Cottonwood Avenue/Crape Myrtle Drive (AM and Sunday peak hours)
- Perris Boulevard/Alessandro Boulevard (PM peak hour)
- Perris Boulevard Driveway (AM, PM, and Sunday peak hours)

These intersections are forecasted to operate deficiently before the addition of project traffic. The deficiency at the Perris Boulevard Driveway in the Existing Plus Cumulative scenario is caused by egress vehicles from the shopping center to the west of the project site. In the Existing Plus Cumulative Plus Project scenario, the westbound approach at the driveway also operates deficiently. Due to the aforementioned reasons discussed above under the Existing Plus Project scenario, the project's contribution to cumulative impacts would be less than significant for this driveway.

With the exception of the Perris Boulevard/Alessandro Boulevard intersection, the deficient intersections are unsignalized. Due to the heavy traffic volumes anticipated in Opening Year 2020 as a result of growth and nearby projects, vehicles turning from minor streets onto Perris Boulevard are forecasted to encounter significant delays, regardless of their low volumes. A traffic signal warrant analysis was conducted for each of these intersections and, based on the low volumes, signalization was determined not to be warranted. The project's contribution to cumulative impacts at these intersections would be less than significant.

For the Perris Boulevard/Alessandro Boulevard intersection, planned improvements included in existing fee programs include an additional southbound left-turn lane and an additional northbound left-turn lane. Through Mitigation Measure TRA-1, the project would contribute to the Western Riverside Council of Governments (WRCOG) TUMF and the City's DIF program on a fair-share basis, and the project's contribution to cumulative impacts to this intersection would be mitigated to less than significant.

Issues and Supporting Information

Potentially
Significant
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No Impact

**Table 8
INTERSECTION CONDITIONS**

Intersection	Existing		Existing Plus Project		Existing Plus Cumulative Projects		Existing Plus Cumulative Projects Plus Project	
	Delay ¹	LOS ²	Delay	LOS	Delay	LOS	Delay	LOS
AM Peak Hour								
Perris Blvd/Eucalyptus Ave	19.9	B	20.1	C	27.7	C	28.0	C
Perris Blvd/Atwood Ave	23.8	C	24.3	C	46.4	E	47.8	E
Perris Blvd/Dracaea Ave	26.5	C	27.0	C	44.3	D	45.1	D
Cottonwood Ave/Indian St	23.1	C	23.4	C	27.9	C	28.4	C
Cottonwood Ave/Perris Blvd	26.1	C	27.1	C	35.6	D	37.0	D
Cottonwood Ave/Crape Myrtle Dr	39.5	E	40.5	E	65.3	F	68.0	F
Cottonwood Ave/Kitching St	25.3	C	25.6	C	30.4	C	29.0	C
Perris Blvd/Bay Ave	22.2	C	22.5	C	27.9	C	28.6	C
Perris Blvd/Alessandro Blvd	30.1	C	30.2	C	50.7	D	51.1	D
Perris Blvd Driveway	13.2	B	224.4	F	16.2	C	1275.4	F
Cottonwood Ave Driveway	17.5	C	22.3	C	--*	--*	18.4	C
PM Peak Hour								
Perris Blvd/Eucalyptus Ave	20.4	C	20.8	C	28.9	C	29.5	C
Perris Blvd/Atwood Ave	29.0	D	29.8	D	79.7	F	85.3	F
Perris Blvd/Dracaea Ave	18.0	B	18.2	B	26.0	C	26.6	C
Cottonwood Ave/Indian St	20.1	C	20.3	C	22.4	C	22.8	C
Cottonwood Ave/Perris Blvd	21.7	C	22.5	C	30.9	C	32.7	C
Cottonwood Ave/Crape Myrtle Dr	15.2	C	15.4	C	18.1	C	18.4	C
Cottonwood Ave/Kitching St	16.1	B	16.2	B	16.6	B	16.7	B
Perris Blvd/Bay Ave	16.4	B	16.7	B	18.2	B	18.7	B
Perris Blvd/Alessandro Blvd	35.3	D	35.6	D	64.8	E	65.4	E
Perris Blvd Driveway	34.8	D	260.0	F	626.3	F	2499.9	F
Cottonwood Ave Driveway	13.0	B	14.8	B	--*	--*	13.7	B
Sunday Peak Hour								
Perris Blvd/Eucalyptus Ave	16.6	B	16.9	B	18.7	B	19.1	B
Perris Blvd/Atwood Ave	27.4	D	28.5	D	65.2	F	71.1	F
Perris Blvd/Dracaea Ave	20.6	C	20.8	C	27.8	C	28.7	C
Cottonwood Ave/Indian St	18.1	B	18.2	B	19.9	B	20.2	C
Cottonwood Ave/Perris Blvd	23.1	C	24.6	C	34.4	C	37.7	D
Cottonwood Ave/Crape Myrtle Dr	22.3	C	23.1	C	34.2	D	35.9	E
Cottonwood Ave/Kitching St	16.9	B	17.0	B	17.8	B	18.1	B
Perris Blvd/Bay Ave	14.6	B	14.8	B	17.2	B	17.5	B
Perris Blvd/Alessandro Blvd	28.6	C	28.8	C	38.3	D	38.8	D
Perris Blvd Driveway	32.6	D	498.3	F	397.9	F	2664.0	F
Cottonwood Ave Driveway	17.4	C	24.5	C	--*	--*	14.3	B

Source: Kimley-Horn and Associates, Inc. 2016

¹ Delay = Second per vehicle² LOS = Level of Service

* Church Driveway Removed

Bolded intersections operate at an unacceptable LOS (LOS E or F)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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The following mitigation measure is required:

Mitigation Measure TRA-1: Prior to issuance of the first building permit, the Project Applicant shall make a fair-share contribution in the funding of off-site improvements that are needed to serve acceptable cumulative traffic operations through the payment of the required Transportation Uniform Mitigation Fee (TUMF) fees in addition to the City of Moreno Valley Development Impact Fee (DIF). The fees shall be collected by the Western Riverside Council of Governments (WRCOG) for the TUMF and by the City of Moreno Valley for the DIF.

With implementation of mitigation measure TRA-1, the project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, and associated traffic impacts would be less than significant.

A Supplemental Traffic Assessment (Kimley-Horn and Associates, Inc.) was prepared for the TIA to analyze trip generation rates from the proposed zoning change from Office Commercial (OC) to Community Commercial (CC). A CC zone includes land uses such as a fast food restaurant with drive-through that is not included in an OC zone. The gas station with convenience market and car wash, which was analyzed above, is permissible under both zones. A fast-food restaurant with drive-through, which would have a generally small building footprint, would generate a similar or lower amount of traffic compared to a gas station with convenience market and car wash. For instance, in a case where a fast-food restaurant is 3,000 square-feet, a gas station with twelve pumps would generate significantly more traffic on a daily and peak hour basis. Therefore, the above analysis and mitigation would be the conservative analysis, and would be the applicable analysis for the proposed project.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?		■		
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Source: Traffic Impact Study (Kimley-Horn and Associates, Inc. 2016; Appendix E); 2011 Riverside County Congestion Management Program

See Item XVI(a). Since the project would contribute to existing roadway and intersection deficiencies, it would cause potentially significant impacts to the performance of the circulation system and would have the potential to impact existing performance of the System of Highways and Principal Arterials governed by the Riverside County Congestion Management Plan (CMP). However, implementation of mitigation measure TRA-1 would reduce impacts to the performance of the circulation system, and subsequently would reduce conflicts with the Riverside County CMP to a less-than-significant level.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				■
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The project site is located approximately 2.6 miles northeast of the nearest airport, March Air Reserve Base. The project site is not within the airport influence area of the airport. In addition, the proposed project would not include aviation components or structures where height would be an aviation concern and, therefore, would not affect air traffic patterns. No associated impacts would occur.

d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?				■
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The project does not propose a design feature or incompatible uses that could substantially increase hazards. The project's driveways along Perris Boulevard and Cottonwood Avenue have been designed to allow safe ingress and egress. Therefore, no associated impacts would occur.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?				■
<p>Access to the site for emergency vehicles would be provided via the project driveways along Perris Boulevard and Cottonwood Avenue. The project would be subject to City review and approval for consistency with design requirements while acquiring building permits to ensure that no impediments to emergency access occur. No impacts would occur.</p>				
f) Conflict with adopted policies or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				■
<p><i>Source: City of Moreno Valley General Plan Circulation Element; City of Moreno Valley Bicycle Master Plan; Traffic Impact Study (Kimley-Horn and Associates, Inc. 2016; Appendix E).</i></p>				
<p>Pedestrian access would be provided via project-installed sidewalks on Perris Boulevard and Cottonwood Avenue. No sidewalks currently exist along the project frontage; therefore, these project elements would represent improvements to pedestrian circulation in the area. A Class II bike lane is located along Cottonwood Boulevard (City 2014). The project would not interfere with the existing bike lane. Regarding mass transit, the Riverside County Transit Agency provides transit lines that run along the project frontage. Route 18 operates along Cottonwood Avenue and Route 19 operates along Perris Boulevard. A bus stop for Route 19 is located on the east side of Perris Boulevard along the project frontage. The project would incorporate a bus turnout to allow for the continued operation of the adjacent bus stop, as well as both bus routes. Implementation of the project would not conflict or interfere with policies contained in the Circulation Element of the City’s General Plan regarding alternative transportation modes. Therefore, no impacts related to these issues would occur.</p>				
<p>XVII. TRIBAL CULTURAL RESOURCES. Would the project:</p>				
<p>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:</p>				
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		■		
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.		■		
<p>Tribal cultural resources (TCRs) are sites, features, places, cultural landscapes, sacred places, and objects 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 subdivision (k) of Public Resources Code Section 5020.1, or determined to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1. As discussed in Item V(b), the project would occur within an area sensitive for cultural resources, and therefore although there are no known TCRs on site the potential exists for encountering TCRs during ground-disturbing activities of project construction. As a result, project construction would be required to implement mitigation measures CR-1 through CR-6 to reduce potentially significant impacts to TCRs to less than significant.</p>				

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVII. UTILITIES AND SERVICE SYSTEMS. Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			■	
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The proposed project would be required to comply with the applicable waste discharge prohibitions and water quality objectives established by the Santa Ana RWQCB. Treatment of wastewater generated by the project would be routine and would not exceed wastewater treatment requirements of the RWQCB. The Eastern Municipal Water District (EMWD) is the wastewater treatment provider for the project. The project would not exceed wastewater treatment capacity of the EMWD’s Moreno Water Reclamation Facility. The project proponent would also be required to satisfy City and EMWD requirements related to the payment of fees and/or the provision of wastewater conveyance features, and installation and maintenance prior to the issuance of building permits. Adherence to these wastewater treatment requirements would result in a less than significant impact.

b) Require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			■	
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Domestic water and wastewater services would be provided to the project site by EMWD. The proposed project would install connections to water and wastewater conveyance lines that exist beneath abutting public roadways. Except for small encroachments into adjacent public rights-of-way of paved streets to connect to existing lines and the construction of water and sewer lines on site, no physical disturbance for the installation of water or wastewater facilities would be required to service the proposed project. In addition, the project would not substantially increase the demand for water or wastewater treatment services and would not require the need for new or expanded water or wastewater treatment facilities; the project meets the existing zoning of the site and would not be adding additional population above what has been planned for by the EMWD. Adequate services are available to serve the project. Therefore, associated impacts would be less than significant.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			■	
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The project would involve the construction of gutters, bio-retention basins, storm drain pipes, and storm drain outlet structures. The construction of stormwater drainage facilities proposed by the project would result in physical impacts to the surface and subsurface of the project site. These impacts are considered to be part of the project’s construction phase and are evaluated throughout this Initial Study accordingly. The proposed drainage facilities are expected to be sufficient to convey post-development flows; therefore, the construction or expansion of additional off-site drainage facilities would not be required. Impacts associated with stormwater drainage facilities would be less than significant.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			■	
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Source: EMWD 2015 Urban Water Management Plan

The operation of the proposed car wash, restaurant, convenience store, and gas station would result in an increase in potable water demand from the local water purveyor, EMWD. However, the proposed project is consistent with the assumptions made in EMWD’s 2015 Urban Water Management Plan, as the Project site is consistent with the existing land use and zoning designations that are used to calculate population projections. EMWD’s 2015 Urban Water Management Plan concludes that the EMWD has sufficient water supplies available to serve planned land uses within its service area through at least 2040. In addition, the proposed project would not be subject to the provisions of Senate Bill (SB) 610, requiring a Water Supply Assessment, because the proposed project does not involve a use that would result in water demand equivalent to a residential development of more than 500 dwelling units. Therefore, impacts related to water supply would be less than significant.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project determined that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?			■	
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Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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Please see Items XVII(a) and XVII(b). EWMD would have adequate capacity for the proposed project. Impacts related to wastewater treatment capacity would be less than significant.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

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Source: CalRecycle "Facility/site Summary Details"; CalRecycle "Estimated Solid Waste Generation Rates; USEPA "Construction Waste Management Guidance"

Implementation of the proposed project would generate an incremental increase in solid waste volumes requiring off-site disposal during short-term construction and long-term operational activities. The project would be required to comply with City of Moreno Valley Ordinance No. 706, which requires a minimum of 50 percent of all construction waste and debris to be recycled. Additionally, the project would be required to comply with mandatory waste reduction requirements as described below under Item XVII(g).

Solid waste generated by the proposed project would be disposed at the Badlands Sanitary Landfill, the Lamb Canyon Sanitary Landfill, and/or the El Sobrante Landfill. Existing capacities at each of these landfills are discussed below.

The Badlands Landfill has a permitted disposal capacity of 4,800 tons per day and a remaining capacity of 15,748,799 cubic yards (CalRecycle 2018a). The Badlands Landfill is estimated to reach capacity in the year 2022; however, future landfill expansion opportunities exist at this site. During December 2017, which is the most recent time period for which reporting data are available, the Badlands Landfill accepted 70,127 tons of waste for an average daily amount of 2,805 tons (Riverside County Waste Management Department [RCWMD] 2018a).

The Lamb Canyon Landfill has a permitted disposal capacity of 5,500 tons per day and has a remaining capacity of 19,242,950 cubic yards (CalRecycle 2018b). The Lamb Canyon Landfill is estimated to reach capacity in the year 2029; however, future landfill expansion opportunities exist at this site. During October of 2017, which is the most recent time period for which reporting data are available, the Lamb Canyon Landfill accepted 47,281 tons of waste for an average daily amount of 1,818 tons (RCWMD 2017).

The El Sobrante Landfill has a permitted disposal capacity of 16,054 tons per day and a remaining capacity of 145,530,000 tons (CalRecycle 2018c). The El Sobrante Landfill is estimated to reach capacity in the year 2045; however, future landfill expansion opportunities exist at this site. During December of 2017, which is the most recent time period for which reporting data are available, the El Sobrante Landfill accepted 275,530 tons of waste for an average daily amount of 11,021 tons (RCWMD 2018b).

For the proposed project, waste would be generated by the construction process, primarily consisting of discarded materials and packaging. Based on the total project site area to undergo construction of 18,825 square feet and the USEPA's construction waste generation factor of 2.5 pounds per square foot for commercial construction (USEPA 2007), approximately 24 tons of waste would be generated during the construction process.

Based on a daily waste generation factor of five pounds of waste per 1,000 square feet of building area per day obtained from CalRecycle, long-term, on-going operation of the proposed 5,515-square foot restaurant and convenience store would generate approximately 27.5 pounds of waste per day (CalRecycle 2016). At least 50 percent is required to be recycled pursuant to State law.

Solid waste generated by the proposed project would be disposed at the aforementioned El Sobrante Landfill, the Badlands Sanitary Landfill, and/or the Lamb Canyon Sanitary Landfill. Each of these landfills receive well below their maximum permitted daily disposal volume and have the potential for future expansion. The landfills have sufficient capacity to accept solid waste generated by the project's construction and operational phases; therefore, associated impacts would be less than significant.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Comply with federal, state, and local statutes and regulations related to solid waste?			■	
<p>The project would be required to comply with the City of Moreno Valley’s waste reduction programs, including recycling and other diversion programs to divert the amount of solid waste deposited in landfills. In addition, in accordance with the California Solid Waste Reuse and Recycling Act of 1991 (California Public Resources Code Section 42911), the proposed project would provide adequate areas for collecting and loading recyclable materials where solid waste is collected. The implementation of these programs would reduce the amount of solid waste generated by the proposed project and diverted to landfills, which in turn would aid in the extension of the life of affected disposal sites. The project would comply with all applicable solid waste statutes and regulations; therefore, solid waste impacts would be less than significant.</p>				
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.				
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, 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>The project does not have the potential to impact sensitive biological resources. It does have the potential to degrade the quality of the environment associated with cultural and paleontological resources. Mitigation measures CR-1 through CR-6 have been incorporated to reduce impacts to a less-than-significant level.</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 projects, and the effects of probable future projects)?		■		
<p>The proposed project, in combination with past, present, and reasonably foreseeable projects, may contribute a significant cumulative traffic impact, as identified under Item XVI(a). With implementation of the proposed mitigation measure, the project would not result in significant, unavoidable, or adverse cumulative impacts to traffic. Therefore, the project’s potential impacts are not considered cumulatively considerable.</p>				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			■	
<p>As discussed throughout this document, it is not anticipated that project activities would create conditions that would significantly directly or indirectly impact human beings. In issue areas regarding adverse effects on human beings, either no impact or a less-than-significant impact would occur. For this reason, environmental effects that would cause substantial adverse effects on human beings would be less than significant.</p>				

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PEN16-0086, PEN16-0087, PEN16-0088 (Yum Yum Donuts Moreno Valley Project)

Mitigation Monitoring and Reporting Program

Introduction

This Mitigation Monitoring and Reporting Program has been prepared for the use in implementing mitigation for the Mitigated Negative Declaration (MND) for the Yum Yum Donuts Moreno Valley Project (PEN16-0086, PEN16-0087, PEN16-0088). The program has been prepared in compliance with State law and the MND prepared for the project.

The California Environmental Quality Act (CEQA) requires adoption of a reporting or monitoring program for those measures placed on a project to mitigate or avoid adverse effects on the environment (Public Resources Code Section 21081.6). The law states that the reporting or monitoring program shall be designed to ensure compliance during project implementation.

The monitoring program contains the following elements:

1. The mitigation measures are recorded with the action and procedure necessary to ensure compliance. In some instances, one action may be used to verify implementation of several mitigation measures.
2. A procedure for compliance and verification has been outlined for each action necessary. This procedure designates who will take action, what action will be taken and when, and to whom and when compliance will be reported.
3. The program has been designed to be flexible. As monitoring progresses, changes to compliance procedures may be necessary based upon recommendations by those responsible for the program. As changes are made, new monitoring compliance procedures are records will be developed and incorporated into the program.

Mitigation Monitoring and Responsibilities

As the Lead Agency, the City of Moreno Valley is responsible for ensuring full compliance with the mitigation measures adopted for the proposed project. The City will monitor and report on all mitigation activities. Mitigation measures will be implemented at different stages of development throughout the project. In this regard, the responsibilities for implementation have been assigned to the Applicant, Contractor, or a combination thereof. If during the course of project implementation, any of the mitigation measures identified herein cannot be successfully implemented, the City shall be immediately informed, and the City will then inform any affected responsible agencies. The City, in conjunction with any affected responsible agencies, will then determine if modification to the project is required and/or whether alternative mitigation is appropriate.

Mitigation Monitoring and Reporting Program Checklist

Project: Yum Yum Donuts Moreno Valley (PEN16-0086, PEN16-0087, PEN16-0088)

Applicant: A & S Engineering, 28405 Sand Canyon Road, Suite “B”, Canyon Country, CA 91387

Date: July 9, 2018

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
Cultural Resources						
<p>CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section</p>	City of Moreno Valley	Ongoing during construction	Prior to Certificate of Occupancy	Review of construction documents and on-site inspection		Withhold Certificate of Occupancy

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
<p>21080.3.2(b)(1) of AB52. Details in the Plan shall include:</p> <ul style="list-style-type: none"> a. Project grading and development scheduling; b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make 						

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
<p>themselves available to provide the training on an as-needed basis;</p> <p>The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.</p>						
<p>CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of</p>	<p>City of Moreno Valley</p>	<p>Prior to and ongoing during construction</p>	<p>Prior to issuance of Grading Permit</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Grading Permit/Certificate of Occupancy</p>

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
significance pursuant to California Public Resources Code Section 21083.2.						
<p>CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:</p> <ul style="list-style-type: none"> a. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department: <ul style="list-style-type: none"> i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources. ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of 	City of Moreno Valley	Ongoing during construction	Prior to Certificate of Occupancy	Review of construction documents and on-site inspection		Withhold Certificate of Occupancy

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
<p>sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.</p>						
<p>CR-4: The City shall verify that the following note is included on the Grading Plan:</p> <p>“If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find.”</p>	<p>City of Moreno Valley</p>	<p>Prior to construction</p>	<p>Prior to issuance of Grading Permit/Certificate of Occupancy</p>	<p>Review of construction documents</p>		<p>Withhold Grading Permit</p>
<p>CR-5: If potential historic or cultural 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 (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and</p>	<p>City of Moreno Valley</p>	<p>Ongoing during construction</p>	<p>Prior to Certificate of Occupancy</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Certificate of Occupancy</p>

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.						
CR-6: If human remains are discovered, no further disturbance shall occur in the affected area 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).	City of Moreno Valley	Ongoing during construction	Prior to Certificate of Occupancy	Review of construction documents and on-site inspection		Withhold Certificate of Occupancy
PR-1: Prior to construction involving excavation four feet or more below existing surface grade, the construction contractor shall provide evidence that a qualified paleontologist has been retained, and that the paleontologist(s) shall be present during all grading and other significant ground-disturbing activities that reach four feet or more below existing surface grade. In the event fossiliferous deposits are	City of Moreno Valley	Prior to and ongoing during construction	Prior to issuance of Grading Permit/Certificate of Occupancy	Review of construction documents and on-site inspection		Withhold Grading Permit/Certificate of Occupancy

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
<p>encountered, the following measures shall be implemented:</p> <ul style="list-style-type: none"> Monitoring shall be conducted by qualified paleontological monitor(s) of excavation in areas identified as likely to contain paleontological resources, including very old alluvial fan deposits. Paleontological monitors shall be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced if the potentially fossiliferous units are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources. Paleontological monitoring of any earthmoving shall be conducted by a monitor, under direct guidance of a qualified paleontologist. Earthmoving in areas of the parcel where previously undisturbed sediments are buried, but not otherwise disturbed, will not be monitored. 						

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
<ul style="list-style-type: none"> • If too few fossil remains are found after 50 percent of the planned-for earthmoving has been completed, monitoring can be reduced or discontinued in those areas at the Project paleontologist's direction. • Recovered specimens shall be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. • Specimens shall be identified and curated into a professional, fully accredited museum repository with permanent retrievable storage. The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. • A report of findings with and appended itemized inventory of specimens shall be prepared. The report and inventory, when submitted to the City along with confirmation of the curation of recovered of recovered specimens into an established, accredited museum repository, will signify completion of the program to mitigate impacts to paleontological resources. 						

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
Noise						
<p>NOI-1: Noise emitted from the proposed project shall not exceed 60 dBA at residential property lines during the daytime hours (8 a.m. to 10 p.m.) and 55 dBA during nighttime hours (10 p.m. to 8 a.m.). Measures to reduce noise levels include the following:</p> <ul style="list-style-type: none"> An 8-foot noise barrier shall be constructed that meets or exceeds the barrier shown in Exhibit 5 of the project’s noise report (Landrum & Brown 2018). The noise barrier must have a surface density of at least 3.5 pounds per square foot, and shall have no openings or gaps. The wall may be constructed of stud and stucco, 3/8-inch plate glass, 5/8-inch Plexiglas, any masonry material, or a combination of these materials. The car wash equipment must be equipped with automatic doors at both the entrance and exit ends that can close when a car is being washed and dried. 	City of Moreno Valley	Ongoing during construction	Prior to Certificate of Occupancy	Review of construction documents and on-site inspection		Withhold Certificate of Occupancy

Mitigation Measure No./ Implementation Action	Responsible for Monitoring	Monitoring Frequency	Timing of Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
Traffic/Transportation						
<p>TRA-1: Prior to issuance of the first building permit, the Project Applicant shall make a fair-share contribution in the funding of off-site improvements that are needed to serve acceptable cumulative traffic operations through the payment of the required Transportation Uniform Mitigation Fee (TUMF) fees in addition to the City of Moreno Valley Development Impact Fee (DIF). The fees shall be collected by the Western Riverside Council of Governments (WRCOG) for the TUMF and by the City of Moreno Valley for the DIF.</p>	<p>City of Moreno Valley Transportation Engineering Division, Engineering and Planning Division</p>	<p>Ongoing during construction</p>	<p>Prior to Certificate of Occupancy</p>	<p>Review of construction documents and on-site inspection</p>		<p>Withhold Certificate of Occupancy</p>

PLANNING COMMISSION RESOLUTION NO. 2018-36

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE APPLICATION NO. PEN16-0086, AN AMENDMENT TO THE GENERAL PLAN LAND USE MAP, CHANGING THE LAND USE DESIGNATION FROM RESIDENTIAL OFFICE TO COMMERCIAL ON 1.77 ACRES LOCATED AT THE NORTHEAST CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE (ASSESSOR'S PARCEL NUMBER: 479-140-023).

WHEREAS, the applicant, Yum Yum Donuts, filed Application No. PEN16-0086, requesting an amendment to the Moreno Valley General Plan, as described in the title of this resolution and the attached Exhibit A; and

WHEREAS, on July 26, 2018, the Planning Commission of the City of Moreno Valley held a public hearing to consider the subject applications and all of the environmental documentation prepared for the project; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the Planning Commission of the City of Moreno Valley as follows:

- A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.
- B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:
 1. Conformance with General Plan Policies – The proposed general plan amendment is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: The Yum Yum Donuts Moreno Valley project includes three applications – a General Plan Amendment, a Zone Change, and Conditional Use Permit. The project proposes to develop a 1.77 acre

site with a service station, convenience store with beer and wine sales and a donut shop, and a car wash.

The project site is comprised of one parcel (Assessor's Parcel Number 479-140-023) with a current General Plan land use designation of Residential Office (R/O).

Properties to the north and south with similar frontage on the east side of Perris Boulevard also have a General Plan land use designation of R/O. The properties across the street to the west and to the north on the west side of Perris Boulevard have a Commercial designation. The properties located farther east, west, northeast and southeast have an R5 designation.

The primary purpose of areas designated Residential/Office within the Moreno Valley General Plan Land Use map is to provide areas for the establishment of office-based working environments or residential developments of up to 15 dwelling units per acre. The request as submitted by the applicant is to amend the Land Use Element of the City's General Plan and change the land use designation for the 1.77 acre project site from Residential Office to Commercial.

General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

With approval of the requested General Plan Amendment, the project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan for commercial land uses and will promote development of the undeveloped parcel. The site, and the area adjacent to the site between Cottonwood Avenue and Dracaea Avenue has been vacant since City incorporation. The activity on the site has been limited to temporary events for various uses over the years. The only new development on the east side of Perris Boulevard within vicinity of the site within the last 30 years was development of the mini-storage at the southeast corner of Bay Avenue and Perris Boulevard.

2. Health, Safety and Welfare – The proposed general plan amendment will not be detrimental to the public health, safety or welfare.

FACT: The proposed General Plan Amendment is a legislative action and will not result in any direct physical impacts; therefore, the action itself could not be detrimental to the public health, safety or welfare.

The development of the vacant 1.77 acres will be required to comply with the City's General Plan policies and land use designation and the

City's Municipal Code related to commercial land uses and service stations. This will ensure that future development is consistent with the General Plan, zoning, and public health safety and welfare.

An Initial Study was prepared which assessed the potential of the proposed General Plan Amendment to impact the environment. The Initial Study provided the documentation of the factual basis for the finding in the Mitigated Negative Declaration that the proposed project will not have a significant effect on the environment. The City as the Lead Agency has prepared a Mitigated Negative Declaration (MND) pursuant to Sections 15070 et seq. of the State CEQA Guidelines. The preparation and review of the Initial Study / Mitigated Negative Declaration reflects the independent judgment of the City.

The Mitigated Negative Declaration has been considered by the Planning Commission and there is no evidence that the proposed project will have a significant impact on public health or be materially injurious to surrounding properties of the environment as a whole.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-36, and RECOMMENDS that the City Council:

1. APPROVE General Plan Amendment Application No. PEN16-0086, based on the findings contained in this resolution.

APPROVED this 26th day of July, 2018.

AYES:
NOES:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

ATTEST:

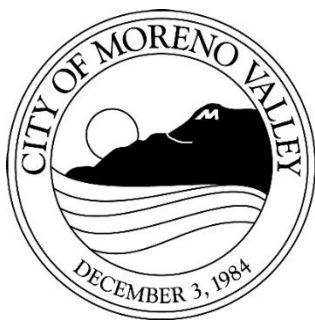
Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

ATTACHED: General Plan Map

Attachment: Resolution No 2018-36 - General Plan Amendment (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service



GENERAL PLAN AMENDMENT
Application No. PEN16-0086
APNs: 479-140-023
Resolution No. 2018-36



Attachment: Exhibit A to Resolution No 2018-36 (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

PLANNING COMMISSION RESOLUTION NO. 2018-37

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE ZONE CHANGE APPLICATION NO. PEN16-0087: AN AMENDMENT TO THE OFFICIAL ZONING ATLAS, CHANGING THE ZONING CLASSIFICATION FROM OFFICE COMMERCIAL TO COMMUNITY COMMERCIAL FOR APPROXIMATELY 1.77 ACRES LOCATED AT THE NORTHEAST CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE (ASSESSOR'S PARCEL NUMBER: 479-140-023)

WHEREAS, the applicant, Yum Yum Donuts, filed Application No. PEN16-0087, requesting an amendment to Pages 71 and 85 of the Official Zoning Atlas to the zoning classification for certain property, as described in the title of this resolution and the attached Exhibit A; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the proposed application for the Zone Change has been fully evaluated and considered with respect to the City's General Plan; and

WHEREAS, the City completed an independent review of the project for consistency with the California Environmental Quality Act (CEQA). Based on a thorough analysis including preparation of a detailed Initial Study, staff determined that that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended; and

WHEREAS, on July 26, 2018, the Planning Commission of the City of Moreno Valley held a public hearing to consider the subject applications and all of the environmental documentation prepared for the project; and

~~WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and~~

WHEREAS, the Planning Commission considered the Initial Study prepared for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended.

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

NOW, THEREFORE, BE IT RESOLVED, it is hereby found and determined and resolved by the Planning Commission of the City of Moreno Valley as follows:

- A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.
- B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed Change of Zone is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: The project area for the proposed Zone Change includes one vacant parcel (APN: 479-140-023) totaling 1.77 acres. The current General Plan Land Use designation for the project area is Residential Office with an Office Commercial (OC) zoning designation.

This project proposes to change the zone from Office Commercial (OC) to Community Commercial (CC) to allow for development of a service station with a convenience store that includes beer and wine sales.

It is the intent of the Land Use Element of the General Plan as referenced in Objective 2.4 to provide commercial areas within the City that are conveniently located, efficient, attractive, and have safe and easy pedestrian and vehicular circulation in order to serve the retail and service commercial needs of Moreno Valley residents and businesses.

Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

The proposed zone change from OC to CC is compatible with the site's proposed change to a Commercial General Plan land use designation. The proposed change is also consistent with the intent of General Plan Community Goal 2.1, to establish a pattern of land uses, which organizes future growth, minimizes conflicts between land uses, and which promotes the rational utilization of presently underdeveloped and undeveloped parcels.

2. Conformance with the Zoning Regulations – The proposed zoning is consistent with the purposes and intent of Title 9 of the City of Moreno Valley Municipal Code.

FACT: As proposed, the Change of Zone from OC to CC for the 1.77 acre project area is consistent with the purposes and intent of Title 9.

The proposed Zone Change to CC is compatible with the established zoning designations of the parcels across Perris Boulevard in proximity to the site. The CC zoning is compatible with development located at other prominent intersections along Perris Boulevard such as Alessandro Boulevard to the south and Dracaea Avenue to the north.

With the adoption of the Change of Zone, the project would be consistent with the Community Commercial zoning as designed and conditioned.

3. Health, Safety and Welfare – The proposal will not be detrimental to the public health, safety or welfare.

FACT: The proposed Zone Change is a legislative action and will not result in any direct physical impacts; therefore, the action itself could not be detrimental to the public health, safety or welfare. The proposed Zone Change is consistent with the applicant's request to change the General Plan land use designation of the project site to Commercial.

Development of the vacant 1.77 acres will be required to comply with the City's General Plan policies and land use designation and the City's Municipal Code. This will ensure that future development is consistent with the General Plan, zoning, and public health, safety, and welfare.

The Mitigated Negative Declaration is an informational document that provides the City, other public agencies, and the public at-large with an objective assessment of the potential environmental impacts that could result from implementation of the proposed project.

An Initial Study was prepared which assessed the potential of the proposed Zone Change, to impact the environment. The Initial Study provided the documentation of the factual basis for the finding in the Mitigated Negative Declaration that the proposed project will not have a significant effect on the environment. The City as the Lead Agency has prepared a Mitigated Negative Declaration (MND) pursuant to Sections 15070 et seq. of the State CEQA Guidelines. The preparation and review of the Initial

Study / Mitigated Negative Declaration reflects the independent judgment of the City.

The Mitigated Negative Declaration has been considered by the Planning Commission and there is no evidence that the proposed project will have a significant impact on public health or be materially injurious to surrounding properties of the environment as a whole.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-37, and RECOMMENDS that the City Council:

1. APPROVE Change of Zone Application No. PEN16-0087, based on the findings contained in this resolution and the Zoning Map attached hereto as Exhibit A.

APPROVED this 26th day of July, 2018.

AYES:
NOES:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

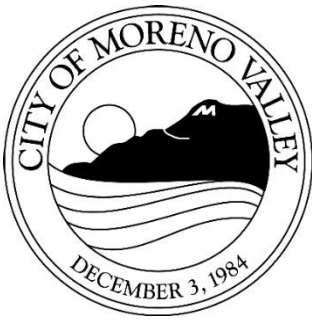
ATTEST:

Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

City Attorney

ATTACHED: Zone Change Map



ZONE CHANGE
 Application No. PEN16-0087
 APNs: 479-140-023
 Resolution No. 2018-37



PLANNING COMMISSION RESOLUTION NO. 2018-38

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE CONDITIONAL USE PERMIT APPLICATION PEN16-0088 FOR DEVELOPMENT OF A SERVICE STATION WITH A CONVENIENCE STORE TO INCLUDE BEER AND WINE SALES AND A CAR WASH ON 1.77 ACRES LOCATED AT THE NORTHEAST CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE SUBJECT TO APPROVAL OF A GENERAL PLAN AMENDMENT AND ZONE CHANGE (ASSESSOR'S PARCEL NUMBERS 479-140-023)

WHEREAS, Yum Yum Donuts, filed an application for the approval of Conditional Use Permit PEN16-0088 for development of a service station as described in the title above; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the City has reviewed this project and determined that it is consistent with the site's General Plan designation of Commercial, all applicable General Plan policies; and

WHEREAS, approval of the proposed service station with a convenience store to include beer and wine sales and a car wash is subject to and contingent upon City County approval of a General Plan Amendment from Residential Office to Commercial (PEN16-0086) and a Zone Change from Office Commercial (OC) to Community Commercial (CC) (PEN16-0087); and

WHEREAS, Helix Environmental Planning, Inc. prepared an Initial Study and Mitigated Negative Declaration for the project consistent with the California Environmental Quality Act (CEQA) based on a thorough analysis of potential environmental impacts. The Mitigated Negative Declaration represents the City's independent judgment and analysis; and

WHEREAS, upon completion of a thorough development review process the project was appropriately agendized and noticed for a public hearing before the Planning Commission of the City of Moreno Valley (Planning Commission); and

WHEREAS, the public hearing notice for this project was published in the local newspaper on July 7, 2018. Public notice was sent to all property owners of record within 300 feet of the project site on July 12, 2018. The public hearing notice for this project was also posted on the project site on July 13, 2018;

WHEREAS, on July 26, 2018, the Planning Commission held a public hearing to consider the application; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein.

NOW, THEREFORE, BE IT RESOLVED, it is hereby found, determined and resolved by the Planning Commission as follows:

A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on July 26, 2018, including written and oral staff reports, public testimony and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

FACT: With the adoption of a General Plan Amendment from Office to Commercial, the proposed land uses would be consistent with the goals and policies of the General Plan for Residential Office land uses. General Plan policy 2.4.6 states that the primary purpose of areas designated Residential/Office on the Moreno Valley General Plan Land Use map is to provide areas for the establishment of office-based working environments or residential developments of up to 15 dwelling units per acre.

General Plan Policy 2.4.1 states that the primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services.

With approval of the requested General Plan Amendment, the project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan for commercial land uses and will promote development of the undeveloped parcel.

2. Conformance with Zoning Regulations – The proposed use complies with all applicable zoning and other regulations.

FACT: The project site is currently zoned Office Commercial. Beer and wine sales in conjunction with a convenience store are permitted in the OC zone, and the service station, convenience store, and car wash would only be permitted if it was support commercial use to an office complex. None of those uses are permitted in the Office Commercial zone as stand

along or individual uses. The Office Commercial zone focuses development on office uses primarily with allowances for some retail uses in support of office development. The zone requires that retail uses make up no more than 25% of the total office development. In this case, retail uses comprise 100%.

The applicant is requesting a Zone Change to Community Commercial to allow for the service station and convenience store without having to develop an office park. If the change in zone is approved, the service station use and the convenience store with beer and wine sales would be allowed with approval of a Conditional Use Permit.

The project is designed in accordance with the provisions of Chapter 9.04 Commercial Districts, Chapter 9.09.200 Service Stations, and Chapter 9.16.150 Commercial Design Guidelines of the City's Municipal Code.

With approval of the requested Zone Change, the project as designed and conditioned would comply with all applicable zoning and other regulations.

3. Health, Safety and Welfare – The proposed use will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

FACT: The proposed Conditional Use Permit as designed and conditioned will provide acceptable levels of protection from natural and man-made hazards to life, health, and property consistent with General Plan Goal 9.6.1. The project site is located approximately one and one half mile south of the Sunnymead Fire Station. Therefore, adequate emergency services can be provided to the site consistent with General Plan Goal 9.6.2.

The proposed project as designed and conditioned will result in a development that will minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding as provided for in General Plan Objective 6.1 and General Plan Objective 6.2.

The project as designed is consistent with the City's Municipal Code Section 9.09.200 Service Stations and will satisfy all City requirements related to light and noise. Planning staff worked with Helix Environmental Planning Inc. in the preparation of an Initial Study and Mitigated Negative Declaration in accordance with the provisions of the California Environmental Quality Act (CEQA). Based on a thorough analysis of potential environmental impacts, the project as designed and conditioned, and with the implementation of mitigation measures will not result in significant impacts to the environment. The Mitigated Negative Declaration represents the City's independent judgment and analysis.

4. Location, Design and Operation – The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

FACT: The project proposes to develop vacant property subject to approval of a General Plan Amendment and Zone Change. Permitted uses for the project site would be those land uses listed under the Community Commercial zone in the City's Municipal Code, including service stations, convenience store with alcohol sales and car washes.

The project is surrounded by existing development. The surrounding area includes existing single-family tract homes located immediately to the east of the project site, vacant land to the north, St. Christopher's Church to the south and existing commercial development on the west side of Perris Boulevard. The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan and is compatible with existing and proposed land uses in the vicinity.

Municipal Code Section 9.04.020 Commercial Districts states that the primary purpose of the community commercial (CC) district is to provide for the general shopping needs of area residents and workers with a variety of business, retail, personal and related or similar services. These uses must be compatible with the surrounding residential communities. With approval of the requested General Plan Amendment and Zone Change, the project as designed and conditioned, and with implementation of mitigation measures, the project is compatible with existing and proposed land uses in the vicinity.

FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee, Transportation Uniform Mitigation Fee (TUMF), Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Habitat Conservation Fee, Underground Utilities in lieu Fee, Area Drainage Plan Fee, Bridge and Thoroughfare Mitigation fee (Future) and Traffic Signal Mitigation Fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this Resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and

resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN16-0088, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d)(1), NOTICE IS FURTHER GIVEN that the 90 day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this Resolution begins on the effective date of this Resolution and any such protest must be in a manner that complies with Government Code Section 66020(a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservations, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-38, and thereby:

1. APPROVE Conditional Use Permit Application No. PEN16-0088, based on the findings contained in this resolution, and the conditions of approval attached hereto as Exhibit A and

APPROVED this 26th day of July, 2018.

AYES:
NOES:
ABSTAIN:

Jeffrey Barnes
Chair, Planning Commission

ATTEST:

Albert Armijo, Interim Planning Manager
Secretary to the Planning Commission

APPROVED AS TO FORM:

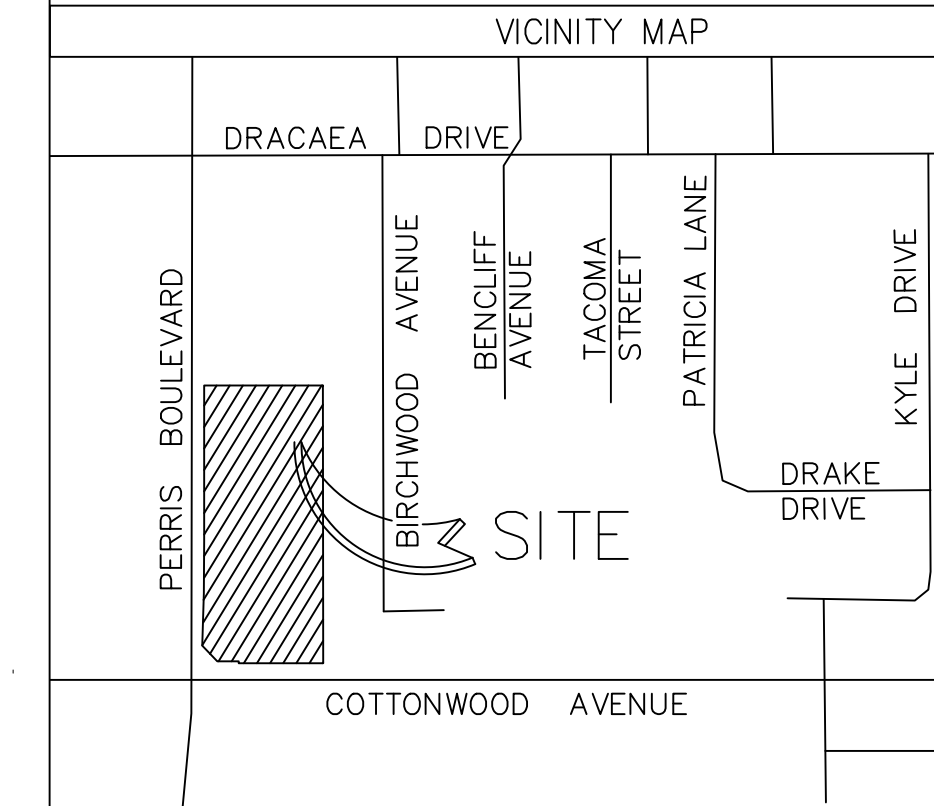
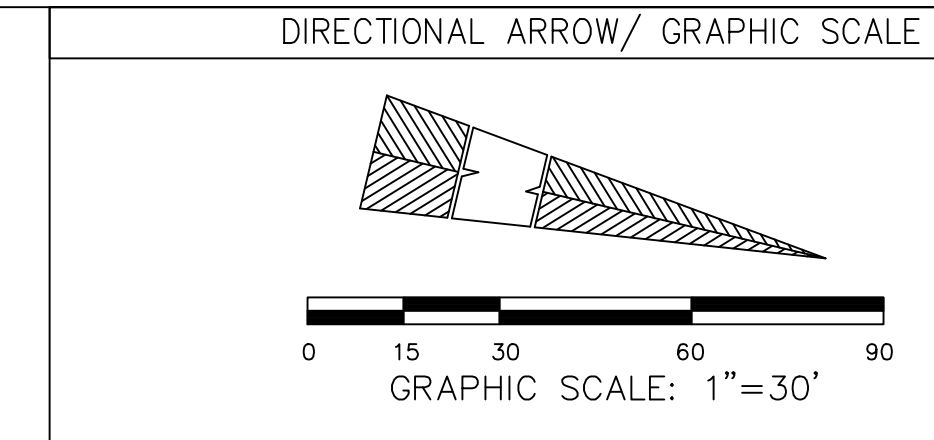
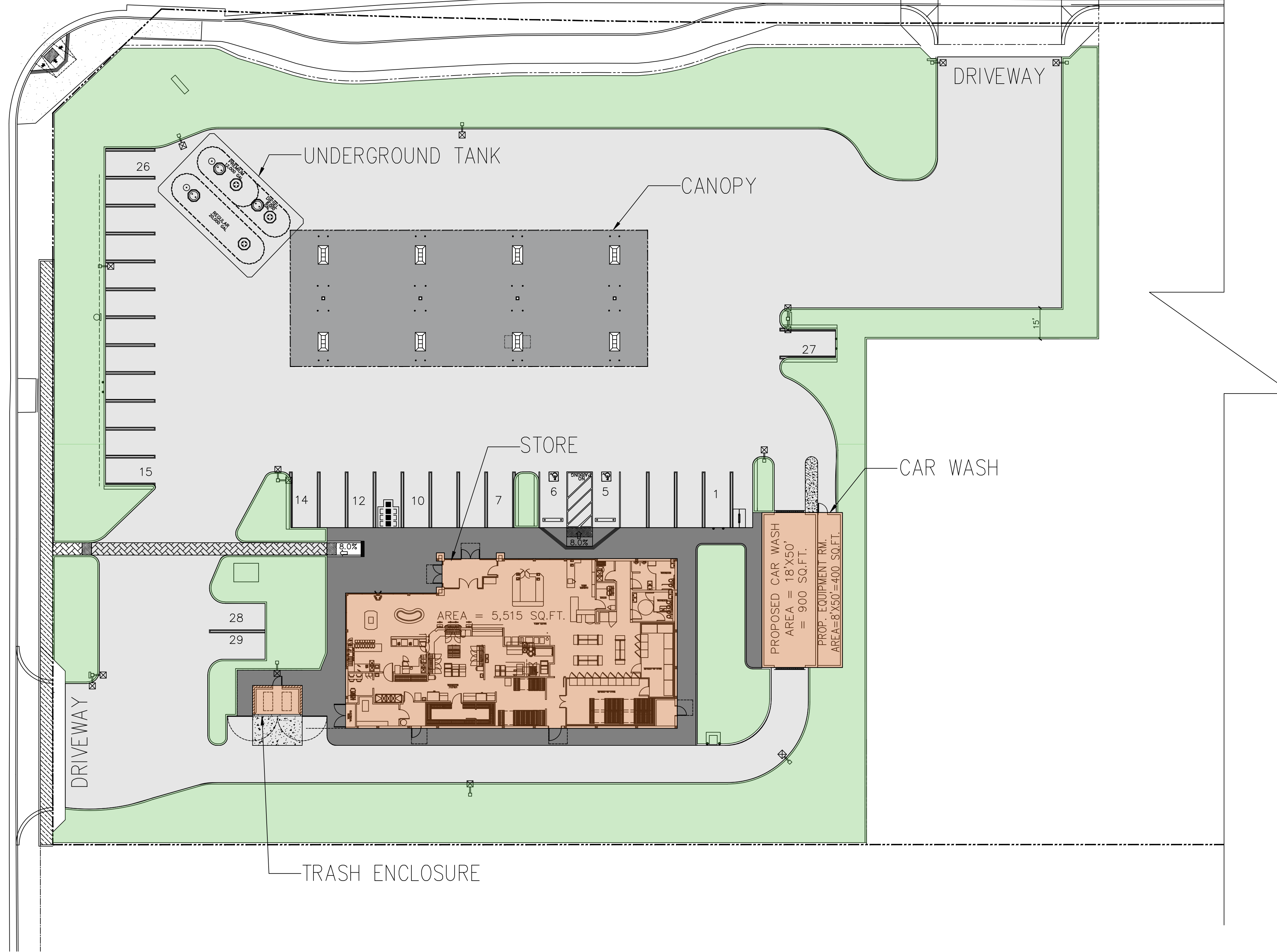
City Attorney

ATTACHED: Conditions of Approval


Attachment: Resolution No 2018-38 - Conditional Use Permit (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service

COTTONWOOD AVENUE

PERRIS BOULEVARD



REVISIONS	BY
07/13/2018	IJ

PLANS PREPARED BY:

A & S ENGINEERING INC.
 PLANNING ENGINEERING CONSTRUCTION MANAGEMENT
 28405 SAND CANYON ROAD, SUITE B
 CANYON COUNTRY, CA 91387
 PHONE #: (661) 250-9300; FAX #: (661) 250-9333



YUM YUM DONUT
 ADDRESS: 18830 SAN JOSE AVENUE, CITY OF INDUSTRY, CA 91748
 STORE #: CORNER OF PERRIS BLVD. & COTTONWOOD AVE.
 ADDRESS: MORENO VALLEY, CA 92553

DRAWN HOSS FARZAD
CHECKED HF
DATE 01-22-2016
SHT. TITLE PROPOSED SITE PLAN
JOB NUMBER -
SHEET PS1

Attachment: Color Site Plan (3180) : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store an)

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN16-0088)

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CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Conditional Use Permit (PEN16-0088)

EFFECTIVE DATE:

EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENTPlanning Division

1. Conditional Use Permit PEN16-0088 is approved for development of a 1.77 acre site with a service station to include a canopy with eight (8) pump islands, a 5,815 square foot convenience store and a 900 square foot automated car wash. The convenience store is also approved for beer and wine sales.
2. Any expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)
3. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)
4. 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. (MC 9.02.230)
5. In the event the use hereby permitted ceases operation for a period of one (1) year or more, or as defined in the current Municipal Code, this permit may be revoked in accordance with provisions of the Municipal Code.
6. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)
7. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)
8. 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),

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN16-0088)

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require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)

9. 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.
10. 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.

Special Conditions

11. The following Mitigation Measures apply to this project:

CR-1: Prior to the issuance of a grading permit, the City shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

- a. Project grading and development scheduling;
- b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide

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Conditional Use Permit (PEN16-0088)

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the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

CR-2: Prior to the issuance of a grading permit, the City of Moreno Valley shall secure agreements with the Soboba Band of Luiseno Indians for tribal monitoring. The City is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

12. NOI-1: Noise emitted from the proposed project shall not exceed 60 dBA at residential property lines during the daytime hours (8 a.m. to 10 p.m.) and 55 dBA during nighttime hours (10 p.m. to 8 a.m.). Measures to reduce noise levels include the following:
- An 8-foot noise barrier shall be constructed that meets or exceeds the barrier shown in Exhibit 5 of the project's noise report (Landrum & Brown 2018). The noise barrier must have a surface density of at least 3.5 pounds per square foot, and shall have no openings or gaps. The wall may be constructed of stud and stucco, 3/8-inch plate glass, 5/8-inch Plexiglas, any masonry material, or a combination of these materials.
 - The car wash equipment must be equipped with automatic doors at both the entrance and exit ends that can close when a car is being washed and dried.
13. CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:
- a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:
 - i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.
 - ii. Onsite reburial of the discovered items as detailed in the treatment plan

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Conditional Use Permit (PEN16-0088)

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required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

CR-4: The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

CR-5: If potential historic or cultural 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 (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the fin

14. TRA-1: Prior to issuance of the first building permit, the Project Applicant shall make a fair-share contribution in the funding of off-site improvements that are needed to serve acceptable cumulative traffic operations through the payment of the required Transportation Uniform Mitigation Fee (TUMF) fees in addition to the City of Moreno Valley Development Impact Fee (DIF). The fees shall be collected by the Western Riverside Council of Governments (WRCOG) for the TUMF and by the City of Moreno Valley for the DIF.
15. CR-6: If human remains are discovered, no further disturbance shall occur in the affected area 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).

Prior to Grading Permit

16. Prior to issuance of any grading permit, all Conditions of Approval and Mitigation Measures shall be completed to the satisfaction of the Community Development Direct and shall be printed on the grading plans.
17. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete

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Conditional Use Permit (PEN16-0088)

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- or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect dwellings with open spaces and/or recreational uses or commercial/industrial buildings with open space and/or 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 approval of any grading permits, landscape and irrigation plans for any median enhancements or construction shall be reviewed and approved by to the Planning Division.
 19. 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)
 20. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)
 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 issuance of grading permits, the developer shall submit wall/fence plans to the Planning Division for review and approval as follows:
 - A. An eight (8) foot high solid decorative block perimeter wall with pilasters and a cap shall be required adjacent to all residential zoned areas.
 - B. 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.
 - C. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.
 - D. Walls and fences for visual screening are required when there are adjacent

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN16-0088)

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residential uses or residentially zone property. The height, placement and design will be based on a site specific review of the project. All walls are subject to the approval of the Planning Official. (DC 9.08.070)

24. 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.
25. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.
26. Prior to issuance of any building, all Conditions of Approval and Mitigation Measures shall be completed to the satisfaction of the Community Development Director and shall be printed on the building plans.
27. 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.
28. Prior to the issuance of building permits, proposed covered trash enclosures shall be included in the Planning review of the Fence and Wall plan or separate Planning submittal. The trash enclosure(s), including the roof materials, shall be compatible with the architecture, color and materials of the building(s) design. Trash enclosure areas shall include landscaping on three sides. Approved design plans shall be included in a Building submittal (Fence and Wall or building design plans). (GP Objective 43.6, DG)
29. 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.
 - 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. Drought tolerant landscape shall be used. Sod shall be limited to gathering

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areas.

D. Street trees shall be provided every 40 feet on center in the right of way.

E. 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.

F. 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.

G. Landscaping on three sides of any trash enclosure.

H. All site perimeter and parking lot landscape and irrigation shall be installed prior to the release of building final or certificate of any occupancy permits for the site.

30. 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)
31. 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)
32. 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)
33. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.

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Conditional Use Permit (PEN16-0088)

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34. 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 Planning Division for review and approval 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. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, 9.16.280)
35. 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.

Prior to Building Final or Occupancy

36. 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).
37. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.
38. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).
39. Prior to building final or Certificate of Occupancy, all Conditions of Approval and Mitigation Measures shall be completed to the satisfaction of the Community Development Director.

FIRE DEPARTMENT**Fire Prevention Bureau**

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 B105.1. The applicant/developer shall provide documentation to show there exists a water

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN16-0088)

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system capable of delivering 1500 gallons per minute for 2 hour(s) duration at 20-PSI residual operating pressure. (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 Certificate of Occupancy, approval shall be required from the County of Riverside Community Health Agency (Department of Environmental Health) and Moreno Valley Fire Prevention Bureau to maintain, store, use, handle materials, or conduct processes which produce conditions hazardous to life or property, and to install equipment used in connection with such activities. (CFC 105)
43. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty-four (24) feet for buildings below 35 feet in height and thirty (30) feet for buildings over 35 feet in height. An unobstructed vertical clearance of not less than thirteen (13) feet six (6) inches shall be provided. (CFC 503.2.1 and MVMC 8.36.060[E])
44. 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)
45. Plans for private water mains supplying fire sprinkler systems and/or private fire hydrants shall be submitted to the Fire Prevention Bureau for approval. (CFC 105 and CFC 3312.1)
46. Prior to issuance of Certificate of Occupancy or Building Final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations in accordance with City specifications. (CFC 509.1 and MVLT 440A-0 through MVLT 440C-0)
47. Prior to issuance of Building Permits, the applicant/developer shall submit 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

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Conditional Use Permit (PEN16-0088)

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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.

48. Existing fire hydrants on public streets are allowed to be considered available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads. (CFC 507, 501.3)
 - a. After the local water company signs the plans, the originals shall be presented to the Fire Prevention Bureau for signatures. 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.
49. 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])
50. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire alarm system monitored by an approved Underwriters Laboratory listed central station based on a requirement for monitoring the sprinkler system, occupancy or use. Fire alarm panel shall be accessible from exterior of building in an approved location. Plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9 and MVMC 8.36.100)
51. 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. The numerals shall be a minimum of six inches in height. (CFC 505.1, MVMC 8.36.060[I])
52. Prior to issuance of Building Permits, the applicant/developer shall provide the Fire Prevention Bureau with an approved site plan for Fire Lanes and signage. (CFC 501.3)
53. The angle of approach and departure for any means of Fire Department access shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m), and the design limitations of the fire apparatus of the Fire Department shall be subject to approval by the AHJ. (CFC 503 and MVMC 8.36.060)

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN16-0088)

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54. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)
55. The Fire Department emergency vehicular access road shall be (all weather surface) capable of sustaining an imposed load of 80,000 lbs. GVW, based on street standards approved by the Public Works Director and the Fire Prevention Bureau. The approved fire access road shall be in place during the time of construction. Temporary fire access roads shall be approved by the Fire Prevention Bureau. (CFC 501.4, and MV City Standard Engineering Plan 108d)
56. Fire Department access driveways over 150 feet in length shall have a turn-around as determined by the Fire Prevention Bureau capable of accommodating fire apparatus. (CFC 503 and MVMC 8.36.060, CFC 501.4)
57. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])
58. 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)

PUBLIC WORKS DEPARTMENT

Land Development

59. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, may be required just prior to the end of the Project's construction of the public streets at the discretion of 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.
60. 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]
61. The final approved conditions of approval (COAs) and any applicable Mitigation

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN16-0088)

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Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

62. 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.
63. 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)]
64. 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]
65. The proposed private storm drain system may connect to the existing RCFC&WCD Line P-3. This connection may require a permit from RCFC&WCD prior to any storm drain construction. A storm drain manhole shall be placed at the right-of-way line to mark the beginning of the publicly maintained portion of this storm drain.
66. 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:

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- a. A Lot Line Adjustment (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. Public improvement plan (e.g., street/storm drain w/ striping, prior to encroachment permit issuance);
 - e. Final drainage study (prior to grading plan approval);
 - f. Final WQMP (prior to grading plan approval);
 - g. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, etc.) prior to building permit issuance;
 - h. As-Built revision for all plans (prior to Occupancy release);
67. Water quality best management practices (BMPs) designed to meet Water Quality Management Plan (WQMP) requirements for Industrial 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 the property owner or an established Property Owner's Association (POA).

Prior to Grading Plan Approval

68. Resolution of all drainage issues shall be as approved by the City Engineer.
69. 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.
70. 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

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- d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.
A copy of the latest version 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.
71. 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.
72. 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.
73. 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.
74. The developer shall pay all remaining plan check fees.
75. 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.
76. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recycables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.
77. For projects that will result in discharges of storm water associated with construction

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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.

78. Landscape & Irrigation plans (prepared by a registered/licensed civil engineer) for water quality BMPs shall be submitted for review and approved by the City Engineer per the current submittal requirements, if applicable.

Prior to Grading Permit

79. 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)]
80. The developer shall pay current Development Impact Fees (DIF), adopted by the City Council. [Ord. 695 § 1.1 (part), 2005] [MC 3.38.030, 040, 050]
81. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.
82. Security, in the form of a cash deposit (preferable), 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)]
83. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]
84. The developer shall pay all applicable inspection fees.
85. The developer shall pay current Transportation Uniform Mitigation Fees (TUMF) adopted by the City Council. [Ord. 835 § 2.1, 2012] [MC 3.44.060]

Prior to Improvement Plan Approval

86. 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.
87. The street improvement plans shall comply with current City policies, plans and

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applicable City standards (i.e. MVS1-160 series, etc.) throughout this project.

88. 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]
89. 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.
90. Any missing or deficient existing improvements along the project frontage within Cottonwood Avenue shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18-feet 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.
91. 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.
92. 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.
93. Perris Boulevard (110' RW / 86' CC) shall be constructed to half-width plus a raised landscaped median plus a 14-foot travel lane. The improvements shall consist of, but not be limited to, pavement, curb, gutter, sidewalk, streetlights, storm drain, catch basins, pavement transitions, dry and wet utilities, and undergrounding of overhead utilities less than 115,000 volts. The Developer shall construct pavement transitions joining existing and proposed edge of pavement beyond the northern tract boundary on Perris Boulevard. The developer shall dedicate additional right of way to meet the required street ROW width of 55-foot half street along the east side of Perris Boulevard, west side of the project property. Additional ROW shall be dedicated as noted in the City's Standard MVS1-161-0 for the bus turnout.
94. Cottonwood Avenue (88' RW/ 64' CC) shall be constructed to half-width plus a

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12-foot travel lane. The improvements shall consist of, but not be limited to, pavement, curb, gutter, sidewalk, streetlights, storm drain, catch basins, pavement transitions, dry and wet utilities, and undergrounding of overhead utilities less than 115,000 volts. The developer shall dedicate additional right of way to meet the required street ROW width of 44-foot half street along the north side of Cottonwood Avenue, south side of the project property. A striping plan shall be included in the improvement plans and approved by the City Traffic Engineer.

95. Show & label a 4-foot right-of-way dedication for pedestrian sidewalk per current City Standard MVSI-112C-0 behind all proposed driveway locations.

Prior to Encroachment Permit

96. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.
97. All applicable inspection fees shall be paid.
98. 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]
99. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

100. 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.
101. 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]
102. 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.
103. 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

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abandons such offers, unless otherwise approved by the City Engineer.

104. 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 handicap 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.

Prior to Occupancy

105. All outstanding fees shall be paid.
106. 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.
107. The final/precise grade certification shall be submitted for review and approved by the City Engineer.
108. 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 Government Code & Municipal Code]
109. The developer shall complete all public improvements in conformance with current

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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, 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.

110. For commercial, industrial and multi-family projects, a “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” 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 “Stormwater Treatment Device and Control Measure Access and Maintenance Covenant” can be obtained by contacting the Land Development Division.
111. 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.
112. 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

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civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

Special Districts Division

113. 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.
114. The Developer, or the Developer's successors or assignees shall be responsible for all parkway and/or median landscape maintenance for a period of one (1) year commencing from the time all items of work have been completed to the satisfaction of Special Districts staff as per the City of Moreno Valley Public Works Department Landscape Design Guidelines, or until such time as the District accepts maintenance responsibilities.
115. 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)
116. 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).
117. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.
118. Plan check fees for review of parkway/median landscape plans for improvements that shall be maintained by the City of Moreno Valley are due upon the first plan submittal. (MC 3.32.040)
119. 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.

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120. Prior to the issuance of the first building permit for this project, the Developer shall pay Advanced Energy 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.
121. This project has been identified to potentially be included in the formation of a Map Act Area of Benefit Special District for the construction of major thoroughfares and/or freeway 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 the district, the property owner(s) will not protest the formation, but will retain the right to object any eventual assessment that is not equitable should the financial burden of the assessment not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option 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 90 day process in compliance with the provisions of Article 13C of the California Constitution. (Street & Highway Code, GP Objective 2.14.2, MC 9.14.100).
122. 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

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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.

123. 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. Landscape Maintenance Services for parkway, open space, and/or median landscaping on _____.

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 and prior to acceptance of any improvements.

124. 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

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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.)

125. 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.
126. 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.)
127. 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.

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128. 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.

Transportation Engineering Division

129. All proposed on-site traffic signing and striping should be accordance with the latest California Manual on Uniform Traffic Control Devices (CAMUTCD).
130. Conditions of approval may be modified and/or added if the project is altered from any approved plans.
131. Perris Boulevard is classified as a 6-Lane Divided Arterial (110'RW/86'CC) per City Standard Plan No. MVSI-103C-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.
132. Cottonwood Avenue is classified as a Minor Arterial (88'RW/64'CC) per City Standard Plan No. MVSI-105A-1. Any other improvements undertaken by this project shall be consistent with the City's standards for this facility.
133. The driveways shall conform to City of Moreno Valley Standard No. MVSI-112C-0 for Commercial Driveway Approaches. Access at the driveways shall be allowed as follows:
- Perris Boulevard driveway: right turn in/out only.
 - Cottonwood driveway: full access. However, in the future, if the City determines that there is a significant traffic safety issue related to the full access driveway, then the City reserves the right to implement additional turning movement restrictions to mitigate the issue.
134. Prior to final approval of the landscape plans and construction plans for any type of fencing or monument sign, the project plans shall demonstrate that sight distance at the project driveway conforms to City Standard Plan No. MVSI-164A-0 through MVSI-164C-0. Trees, plants, shrubs, fence and monument sign shall not be located in an area that obstructs the drivers' line-of-sight.
135. 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 street segments along the project frontages. Signing and striping plans shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered civil or traffic engineer.

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136. Prior to the final approval of the street improvement plans, a median improvement plan shall be prepared by a registered civil engineer for a raised concrete median along the project frontage on Perris Boulevard. Minimum vehicle storage length shall be 250 feet.
137. Prior to the final approval of the street improvement plans, a bus turnout shall be designed per the latest City of Moreno Valley Standard Plans for northbound traffic and shall be located on the east side of Perris Boulevard, between the project driveway and Cottonwood Avenue.
138. Prior to issuance of an encroachment permit for work within the public right-of-way, construction traffic control plans prepared by a qualified, registered Civil or Traffic Engineer shall be required for plan approval by the City Traffic Engineer.
139. Prior to issuance of Certificate of Occupancy, raised median improvement along the project frontage on Perris Boulevard shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Median construction shall include but not be limited to: paving, concrete curbs, signing and striping. Exact requirements will be determined during the plan check process.
140. Prior to issuance of Certificate of Occupancy, a bus turnout shall be installed for northbound traffic and shall be located on the east side of Perris Boulevard, between the project driveway and Cottonwood Avenue.
141. Prior to issuance of Certificate of Occupancy, all signing and striping shall be installed per current City Standards and the approved plans.



North Elevation

Scale: _____ NTS



West Elevation

Scale: _____ NTS



East Elevation

Scale: _____ NTS



South Elevation

Scale: _____ NTS

Attachment: Color Elevations - Convenience Store (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a



North Elevation

Scale: _____ NTS



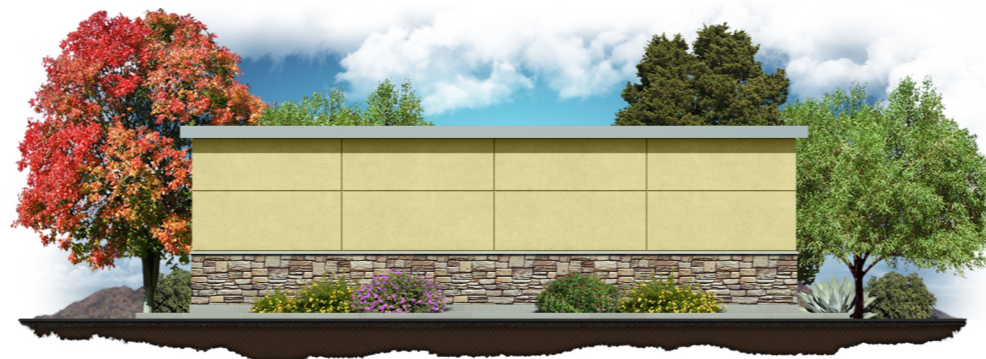
West Elevation

Scale: _____ NTS



East Elevation

Scale: _____ NTS



South Elevation

Scale: _____ NTS

Attachment: Color Elevations - Car Wash (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service

POLICE DEPARTMENT REQUIREMENT:

1. ADDRESS NUMBERS SHOULD BE PLACED AT MULTIPLE LOCATIONS ON THE BUILDING, BE ILLUMINATED AND CLEARLY VISIBLE FROM THE STREET
2. ROOFTOP ADDRESSING OF ALL BUILDINGS.
3. THE PARKING LOT AND BUILDINGS SHOULD BE WELL LIT. MINIMIZE THE SHADOWS CAST BY LANDSCAPING AND TREES ON THE PROPERTY.
4. ALL LIGHTING AFFIXED TO THE EXTERIOR OF BUILDINGS LESS THAN 8 FEET HIGH SHALL BE VANDAL RESISTANT
5. ALL EXTERIOR DOORS SHALL HAVE A VANDAL RESISTANT LIGHT FIXTURE INSTALLED ABOVE THE DOOR. THE DOORS SHALL BE ILLUMINATED WITH A MINIMUM ONE FOOT CANDLE ILLUMINATION AT GROUND LEVEL, EVENLY DISPERSED.
6. ENSURE ANY TREES SURROUNDING BUILDING ROOFTOPS BE KEPT AT A DISTANCE TO PREVENT ROOF ACCESSIBILITY BY POTENTIAL BURGLARS. SINCE TREES ALSO ACT AS A NATURAL LADDER, THE BRANCHES MUST BE PRUNED TO HAVE AT LEAST SIX FOOT CLEARANCE FROM THE BUILDINGS.
7. MINIMIZE THE NUMBER OF WINDOWS ON THE BUSINESSES SO CUSTOMERS CAN SEE OUT IN TO THE PARKING LOT WHILE INSIDE EATING. THIS WILL HELP PARKING LOT SECURITY BY GIVING PEOPLE THE OPPORTUNITY TO MAINTAIN VISUAL OF THEIR VEHICLES AND VALUABLES.
8. UPON COMPLETION OF CONSTRUCTION, EACH BUILDING OR BUSINESS SHALL HAVE AN ALARM SYSTEM THAT IS MONITORED BY A DESIGNATED PRIVATE ALARM COMPANY TO NOTIFY THE MORENO VALLEY POLICE DEPARTMENT OF ANY INTRUSION
9. SECURITY CAMARAS INSIDE THE BUSINESSES AND SEVERAL CAMERAS OUTSIDE

FIRE DEPARTMENT REQUIREMENT:

F16. COMPLETE PLANS AND SPECIFICATIONS FOR FIRE ALARM SYSTEMS, FIRE-EXTINGUISHING SYSTEMS (INCLUDING AUTOMATIC SPRINKLERS OF STANDPIPE SYSTEM), CLEAN AGENT SYSTEM (OR OTHER SPECIAL TYPES OF AUTOMATIC FIRE-EXTINGUISHING SYSTEMS), AS WELL AS OTHER FIRE PROTECTION SYSTEMS AND APPURTENANCES THERETO WILL BE SUBMITTED TO THE MORENO VALLEY FIRE PREVENTION BUREAU FOR REVIEW AND APPROVAL PRIOR TO SYSTEM INSTALLATION. SUBMITTALS WILL BE IN ACCORDANCE WITH CGC CHAPTER 9 AND ASSOCIATED ACCEPTED NATIONAL STANDARDS.

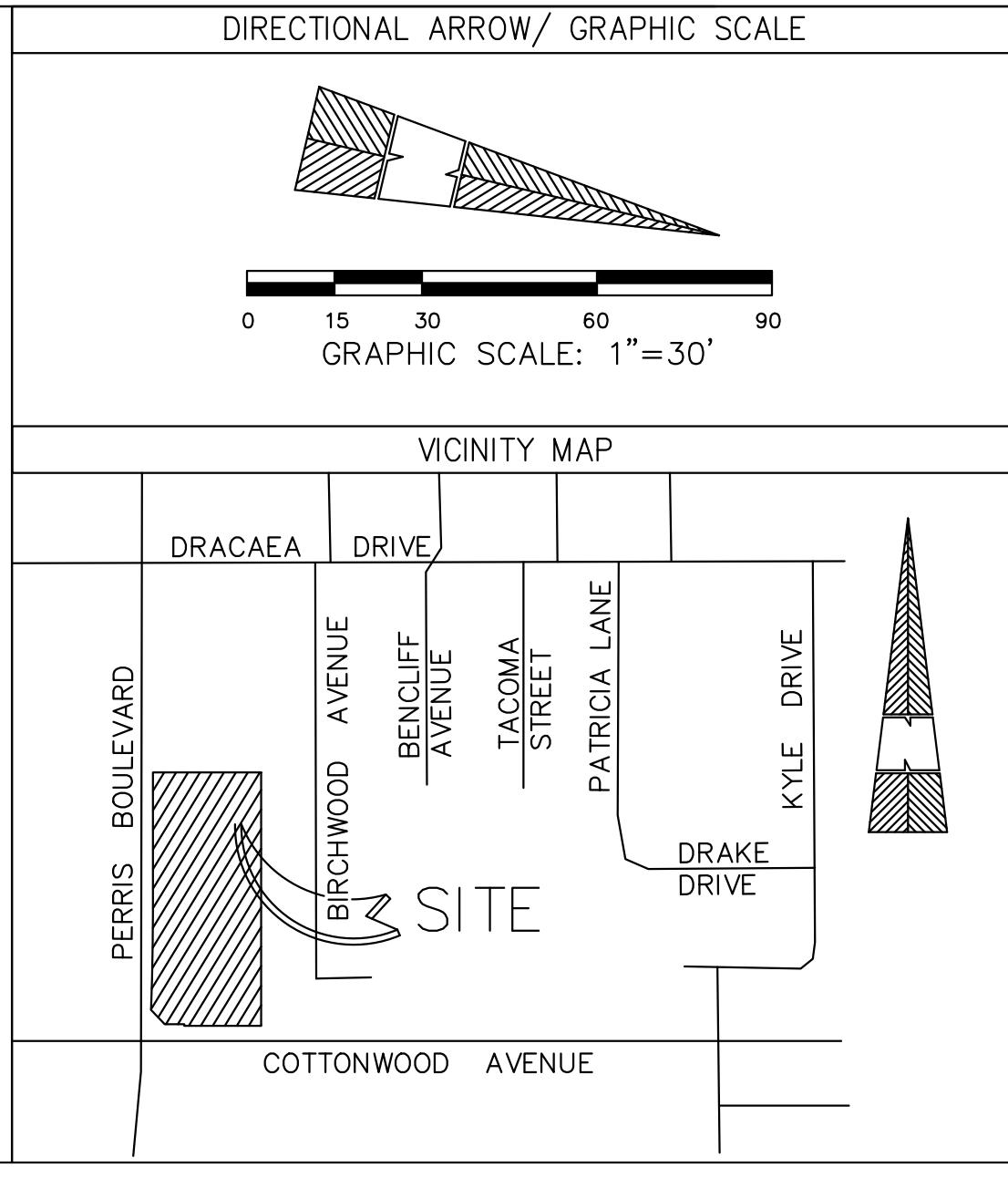
BUILDING SAFETY DIVISION COMMENT B.

ANY CONSTRUCTION WITHIN THE CITY SHALL ONLY BE AS FOLLOWS:
 MONDAY THROUGH FRIDAY (EXCEPT FOR HOLIDAYS WHICH OCCUR ON WEEKDAYS), SIX A.M. TO EIGHT P.M.
 WEEKENDS AND HOLIDAYS (AS OBSERVED BY THE CITY AND DESCRIBED IN CHAPTER 2.55 OF THE MMC), SEVEN A.M. TO EIGHT P.M., UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE CITY BUILDING OFFICIAL OR CITY ENGINEER.

- SCOPE OF WORK**
1. INSTALL 48" MINIMUM ACCESSIBLE ROUTE (MISSION RED, INTERLOCKING DECORATIVE PAVING) SLOPE NOT TO EXCEED 4.5% WITH MAXIMUM 2.0% CROSS SLOPE
 2. CONSTRUCT 5,075.0 SQUARE FEET, 4-COLUMNS STEEL CANOPY PER PLAN & ELEVATIONS
 3. CONSTRUCT 5,515.0 SQUARE FEET BUILDING PER PLAN & ELEVATIONS AND STRUCTURAL DRAWINGS
 4. CONSTRUCT LANDSCAPE & PLANTING AREA PER PLAN & LANDSCAPE DRAWINGS.
 5. INSTALL NEW MONUMENT SIGN WITH PRICE SIGN PER PLAN. SIGNS ARE UNDER SEPARATE PERMIT.
 6. INSTALL MINIMUM 36" WIDE YELLOW COLOR DETECTABLE WARNING PER PLAN AND CBC FIGURE 11B-705.1
 7. CONSTRUCT (2) DRIVEWAYS PER CITY OF MORENO VALLEY STANDARD PLAN MVS1-112C-0 (OLD 11B-C)
 8. CONSTRUCT 9'-4"x16'-0"x9'-0" HIGH STUCCO FINISH CMU TRASH ENCLOSURE WITH SOLID ROOF COVER & DOUBLE STEEL GATE PER PLAN AND CITY STANDARD PLAN MVGF-660A-0 OPTION 1
 9. STRIPE (8)-2'-6"x6'-0" BICYCLE PARKING SPACES WITH REQUIRED BIKE U RACK PER PLAN
 10. INSTALL YARD LIGHTS PER ELECTRICAL DRAWINGS
 11. 4'-0" DEDICATION PER PLAN
 12. INSTALL MAIN SWITCH BOARD INSIDE ENLOSURE MATCH BUILDING PER ELECTRICAL DRAWINGS.
 13. PROPOSED LOCATION FOR UNDERGROUND STORAGE TANKS
 14. 6'-0"x5'-0" CLEAR AND LEVEL AREA SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION. FLOOR NOT MORE THAN 1/2" LOWER THAN THE THRESHOLD
 15. 5'-0"x5'-0" CLEAR AND LEVEL AREA SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION. FLOOR NOT MORE THAN 1/2" LOWER THAN THE THRESHOLD
 16. STRIPE 18'-0"x26'-0" DISABILITY PARKING SPACE PER PLAN. SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION
 17. INSTALL DISABILITY PARKING SIGNS PER PLAN
 18. INSTALL ADDITIONAL SIGN AT EACH ENTRANCE TO OFF STREET PARKING FACILITIES OR IMMEDIATELY ADJACENT AND VISIBLE FROM EACH ACCESSIBLE STALL OR SPACE PER PLAN
 19. INSTALL AIR AND WATER UNIT PER PLAN, WITH FREE SIGN ON UNIT

20. CONSTRUCT REINFORCED CONCRETE PAVING AT THE ENTIRE OF SITE PER SOIL REPORT AND CIVIL DRAWINGS
21. INSTALL FIRE HYDRANT PER FIRE DEPARTMENT REQUIREMENT (6"x4"x2.5"x2.5")
22. STRIPE STANDARD PARKING STALLS PER CITY STANDARD FIGURE 9.11.080-6
23. INSTALL CANISTER ON TOP OF ROOF
24. ELECTRICAL TRANSFORMER CONCRETE PAD SEE ELECTRICAL SITE PLAN, TRANSFORMER INSTALLATION BY UTILITY COMPANY
25. 30"x48" CLEAR AND LEVEL AREA, SLOPE NO TO EXCEED 2.0% AT ANY DIRECTION
26. CONSTRUCT CURB RAMP WITH CURB AT EACH SIDE. SLOPE NOT TO EXCEED 8.0% AND 2.0% CROSS SLOPE
27. CONSTRUCT CURB RAMP WITH FLARE AT EACH SIDE. SLOPE NOT TO EXCEED 8.0% AND 2.0% CROSS SLOPE SLOPE ON FLARE = 8.0% AS WELL
28. CONSTRUCT GROOVED BORDER 12" INCHES WIDE AT LEVEL SURFACE OF THE SIDEWALK AT TOP APPROXIMATELY 3/4" INCH ON CENTER
29. CONSTRUCT 1,300.0 SQUARE FEET CAR WASH BUILDING & EQUIPMENT ROOM PER PLAN & ELEVATIONS AND STRUCTURAL DRAWINGS
30. INSTALL PRODUCTION DISPENSER TYPICAL OF 8 PER PLAN
31. CONSTRUCT REINFORCED CONCRETE SIDEWALK, SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION
32. INSTALL CAR WASH COIN BOX WITH GUARD POST AT EACH SIDE PER CAR WASH MANUFACTURER DRAWINGS
33. INSTALL (2) VACUUM PER MANUFACTURER REQUIREMENT
34. CONSTRUCT 8'-0" HIGH DECORATIVE BLOCK WALL ALONG REAR FACILITY PER PLAN
35. 40' ON CENTER PLANTINGS FOR STREET TREES. MINIMUM CONTAINER SIZE IS 24" BOX. THE STREET TREE FOR PERRIS BOULEVARD IS THE TULIP TREE AND THE STREET TREE FOR COTTONWOOD AVENUE IS THE JARACANDA.
36. NOT USED
37. CURB RAMP WITH FLARE AT BOTH SIDES WILL BE RECONSTRUCTED TO MEET CURRENT ACCESSIBILITY REQUIREMENTS WITH 8.33% SLOPE AND 2.0% CROSS SLOPE ON CURB RAMP 8.33% SLOPE ON FLARES WITH GROOVED BORDER & 36" INCHES MINIMUM DETECTABLE WARNING
38. INSTALL SIGN FOR 9'-0"x18'-0" CARPOOL/VAN POOL LOW-EMITTING FUEL-EFFICIENT PARKING

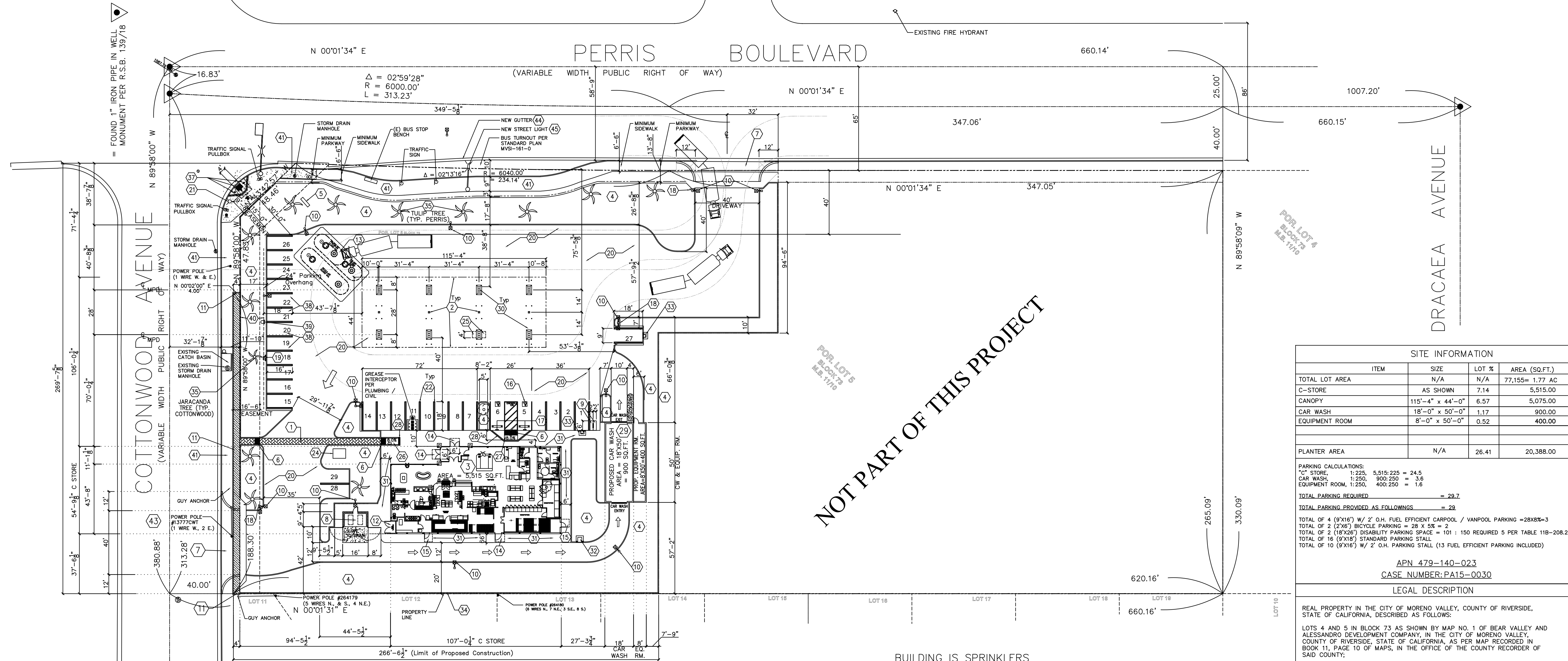
39. INSTALL POLE WITH 208 / 240 V, 40 AMP GROUNDED AC OUTLET PER ELECTRICAL DRAWINGS
40. INSTALL 36" TALL BERM, OR HEDGE TO SCREEN THESE PARKING SPACES
41. CONSTRUCT CONCRETE SIDEWALK WITH CONCRETE CURB AND GUTTER ON COTTONWOOD AVENUE AND PERRIS BLVD PER CITY STANDARD
42. INSTALL 6" PLANTER CURB.
43. RELOCATE EXISTING POWER POLE.
44. NEW GUTTER.
45. NEW STREET LIGHT.



REVISIONS	BY

PLANS PREPARED BY:
A & S ENGINEERING INC.
 PLANNING ENGINEERING CONSTRUCTION MANAGEMENT
 28405 SAND CANYON ROAD, SUITE B
 CANTON COUNTY, CA 91387
 PHONE #: (661) 250-9300; FAX #: (661) 250-9333

REGISTERED PROFESSIONAL ENGINEER
 NO. 36475
 EXP. 6-30-20
 CIVIL
 STATE OF CALIFORNIA



NOT PART OF THIS PROJECT

SITE INFORMATION

ITEM	SIZE	LOT %	AREA (SQ.FT.)
TOTAL LOT AREA	N/A	N/A	77,155= 1.77 AC
C-STORE	AS SHOWN	7.14	5,515.00
CANOPY	115'-4" x 44'-0"	6.57	5,075.00
CAR WASH	18'-0" x 50'-0"	1.17	900.00
EQUIPMENT ROOM	8'-0" x 50'-0"	0.52	400.00
PLANTER AREA	N/A	26.41	20,388.00

PARKING CALCULATIONS:
 C-STORE, 1:225, 5,515:225 = 24.5
 CAR WASH, 1:250, 900:250 = 3.6
 EQUIPMENT ROOM, 1:250, 400:250 = 1.6
TOTAL PARKING REQUIRED = 29.7
TOTAL PARKING PROVIDED AS FOLLOWS = 29

TOTAL OF 4 (9'x16') W/ 2' O.H. FUEL EFFICIENT CARPOOL / VANPOOL PARKING = 28x8% = 3
 TOTAL OF 2 (12'x6') BICYCLE PARKING = 28 x 5% = 2
 TOTAL OF 2 (18'x26') DISABILITY PARKING SPACE = 101 : 150 REQUIRED 5 PER TABLE 11B-208.2
 TOTAL OF 16 (9'x18') STANDARD PARKING STALL
 TOTAL OF 10 (9'x16') W/ 2' O.H. FUEL EFFICIENT PARKING STALL (13 FUEL EFFICIENT PARKING INCLUDED)

APN 479-140-023
 CASE NUMBER: PA15-0030
LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:
 LOTS 4 AND 5 IN BLOCK 73 AS SHOWN BY MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT COMPANY, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11, PAGE 10 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY;

BUILDING IS SPRINKLERS

ALLOWABLE HEIGHT AND BUILDING AREA PER TABLE 503

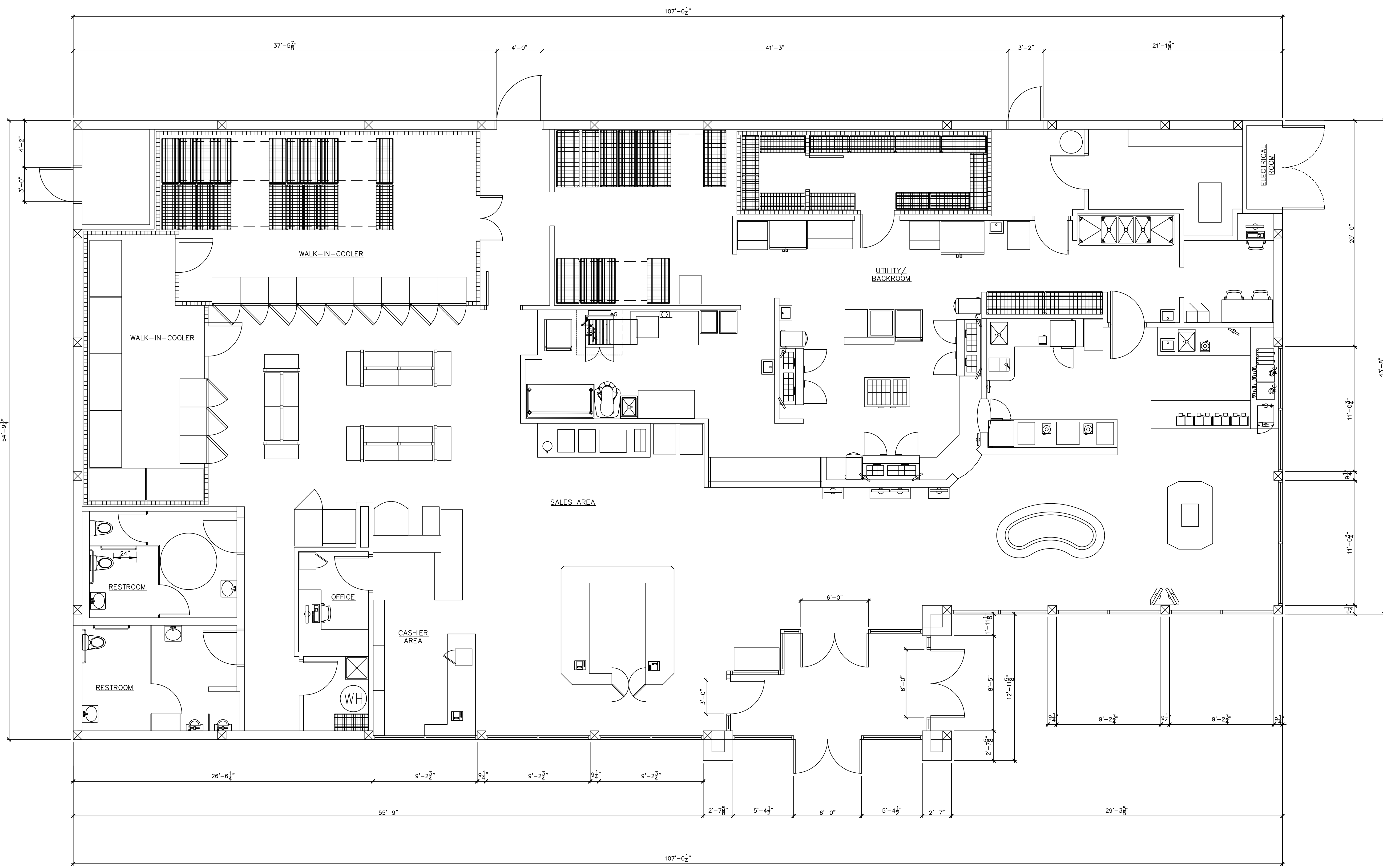
ITEM	TYPE OF CONSTRUCTION	USE GROUP	MAX. AREA SQ. FT.	MAX. HEIGHT FT.	MAX. HEIGHT PROVIDED	STORY PROVIDED	AREA PROVIDED SQ.FT.	SALES AREA	STOCK/UTILITY/CABINETS
C STORE	V-B	M	9,000	40	27'-0"	ONE	5,515.0	1,394.0 : 30 = 47	4,121.0 : 300 = 14
CANOPY	II-B	M	9,000	40	20'-6"	ONE	4,278.0	MAXIMUM ACCESS TRAVEL DISTANCE PER TABLE 1021.2(2) = 75 FEET MAXIMUM ACCESS TRAVEL DISTANCE IS = 61'-0"	
CAR WASH WITH EQPT. ROOM	V-B	B	9,000	40	15'-6"	ONE	1,300.0	MAXIMUM OCCUPANT LOAD PER TABLE 1015.01 A=49	
TOTAL OCCUPANT LOAD = 61								3- EXIST DOORS PROVIDED	

EXCEPT THE EASTERLY 330.00;
 ALSO EXCEPT THAT PORTION CONVEYED TO THE COUNTY OF RIVERSIDE BY DEED RECORDED JULY 10, 1972 AS INSTRUMENT NO. 89941 OF OFFICIAL RECORDS.

APN: 479-140-023-2; 479-140-024-3; 479-131-012-4

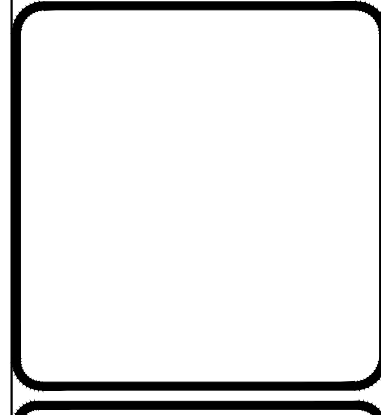
THIS SURVEY IS FOR A PORTION OF LOT 5 OF THE ABOVE DESCRIPTION ONLY PER TITLE REPORT IDENTIFIED AS FIRST AMERICAN TITLE COMPANY, ORDER NO. LDT-4808606, DATED FEBRUARY 11, 2015.

DRAWN
 HOSS FARZAD
 CHECKED
 HF
 DATE
 01-22-2016
 SHT. TITLE
 PROPOSED
 SITE PLAN
 JOB NUMBER
 SHEET
PS1

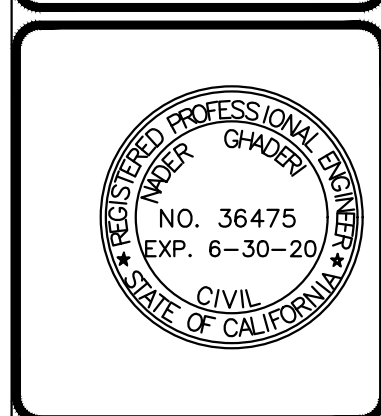


PROPOSED FLOOR PLAN
 SCALE : 1/4" = 1'-0"

REVISIONS	BY



PLANS PREPARED BY:
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 PLANNING ENGINEERING CONSTRUCTION MANAGEMENT
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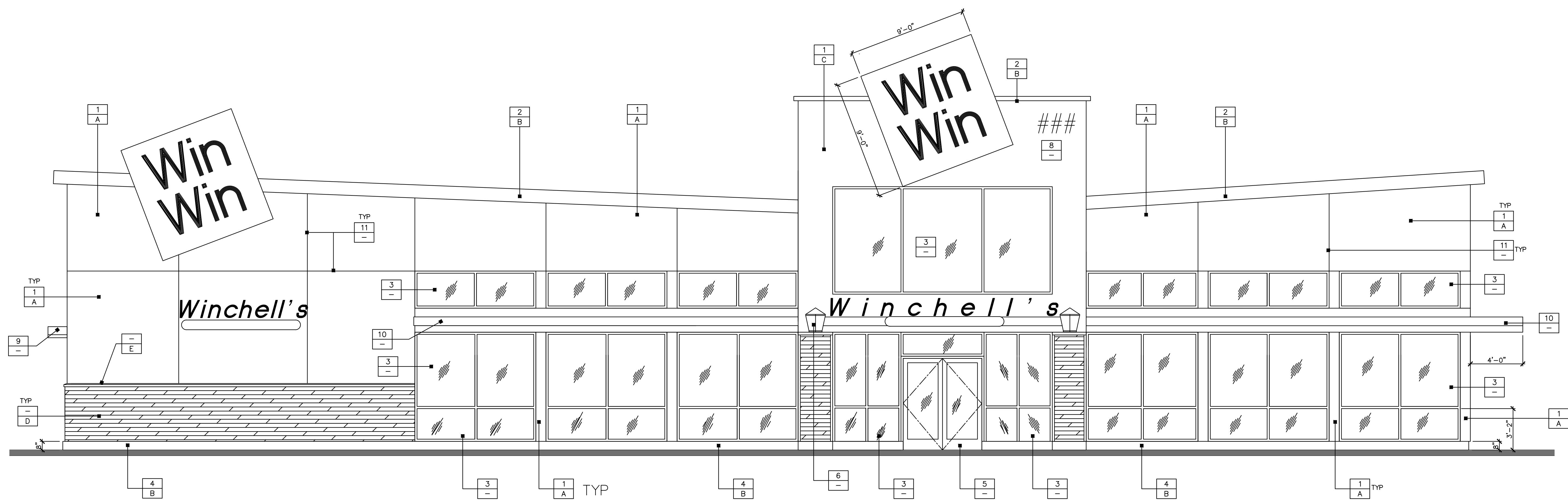


YUM YUM DONUT
 ADDRESS: 18830 EAST SAN JOSE AVENUE
 CITY OF INDUSTRY, CA 91748
 STORE #: CORNER OF PERRIS BLVD & COTTONWOOD AVENUE
 MORENO VALLEY, CA 92553

DRAWN	HOSS FARZAD
CHECKED	HF
DATE	07/07/2015
SHT. TITLE	PROPOSED FLOOR PLAN
JOB NUMBER	
SHEET	A1

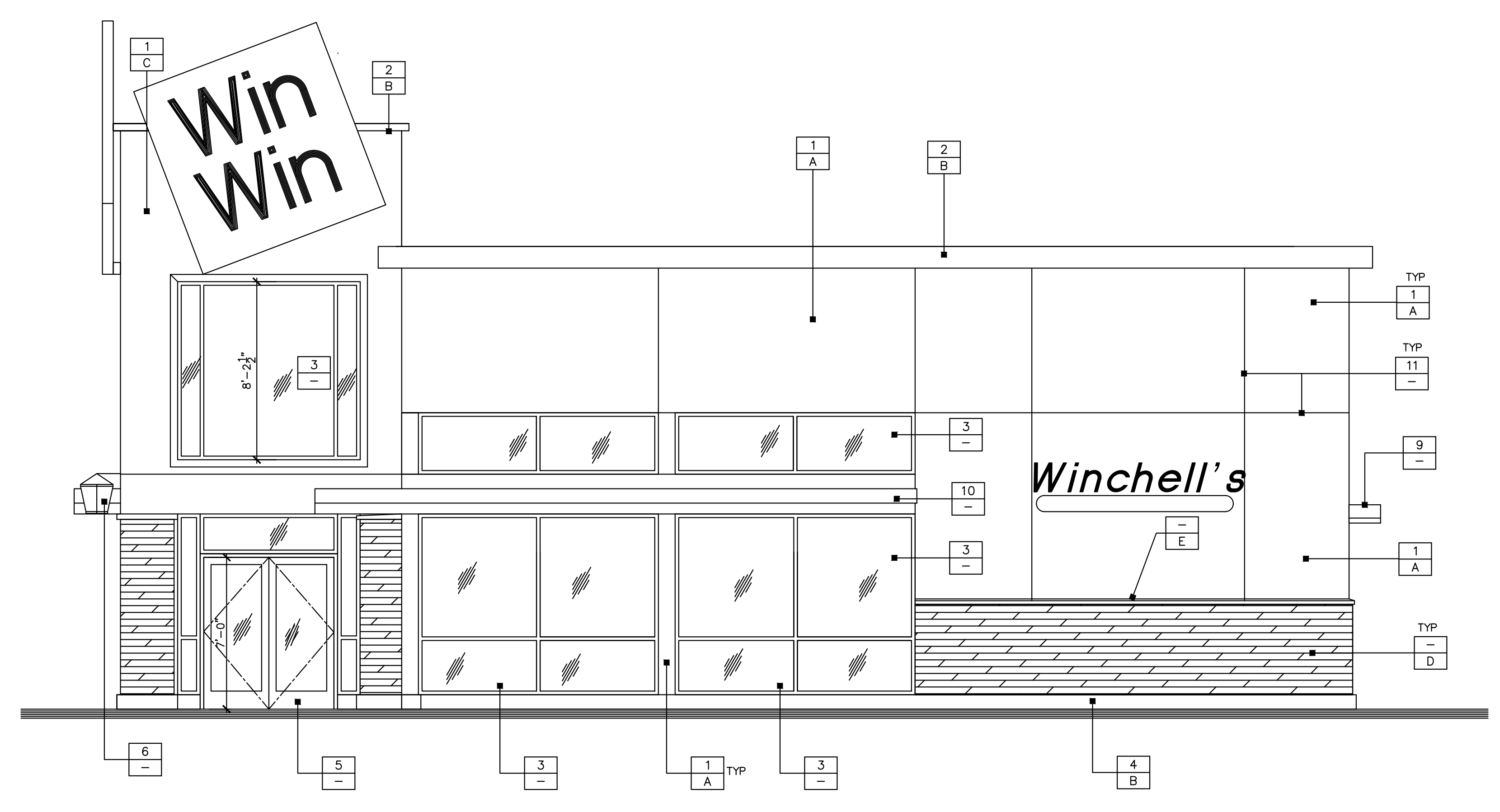
Attachment: Project Plans (3180 - Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store an)

- +27'-0" A.F.F. TOWER PARAPET
- +21'-4" A.F.F. T.O. PARAPET
- +13'-8" A.F.F. T.O. WINDOW
- +10'-10" A.F.F. B.O. WINDOW
- +9'-0" A.F.F. T.O. WINDOW
- 4'-10" A.F.F. TOP OF STONE
- 0'-0" A.F.F. FIN. FLR. (REF.)



FRONT (EAST) ELEVATION
SCALE : 1/4" = 1'-0"

- +27'-0" A.F.F. TOWER PARAPET
- +21'-4" A.F.F. T.O. PARAPET
- +13'-8" A.F.F. T.O. WINDOW
- +10'-10" A.F.F. T.O. WINDOW
- 4'-10" A.F.F. TOP OF STONE
- 0'-0" A.F.F. FIN. FLR. (REF.)



RIGHT SIDE (NORTH) ELEVATION
SCALE : 1/4" = 1'-0"

ELDORADO STONE / TRIM INSTALLATION ESR-1215, OCT. 1, 15 PER CBC 1405.6.2

A 2-INCH BY 2-INCH 0.0625-INCH CORROSION-RESISTANT WIRE MESH WITH TWO LAYERS OF WATER RESISTIVE BARRIER IN ACCORDANCE WITH SECTION 1404.2 SHALL BE APPLIED DIRECTLY TO WOOD STUDS SPACED A MAXIMUM OF 16 INCHES O.C. ON STUDS, THE MESH SHALL BE ATTACHED WITH 2-INCH-LONG CORROSION RESISTANT STEEL WIRE FURRING NAILS AT 4-INCHES O.C. PROVIDING A MINIMUM 1.125 INCH PENETRATION INTO EACH STUD AND WITH 8d CORRUS NAILS AT 8 INCHES O.C. INTO TOP AND BOTTOM PLATES OR WITH EQUIVALENT WIRE TIES. THERE SHALL BE NOT LESS THAN A 0.1055-INCH CORROSION RESISTANT WIRE, OR APPROVED EQUAL, LOOPED THROUGH THE MESH FOR EVERY 2 SQUARE FEET OF STONE VENEER. THIS TIE SHALL BE A LOOP HAVING LEGS NOT LESS THAN 15 INCHES IN LENGTH, SO BENT THAT IT WILL LIE IN THE STONE VENEER MORTAR JOINT. THE LAST 2 INCHES OF EACH WIRE LEG SHALL HAVE A RIGHT ANGLE BEND, ONE INCH MINIMUM THICKNESS OF CEMENT GROUT SHALL BE PLACED BETWEEN THE BACKING AND THE STONE VENEER.

EXTERIOR MATERIALS

- 1 7/8" 3- COATS STUCCO SAND FINISH OVER WIRE MESH, OVER 2 LAYERS OF BUILDING PAPER OVER PLYWOOD SHEATHING PER SPEC. COLOR PER FINISH SCHEDULE
- 2 20 GAUGE PARAPET WALL CAP FLASHING
- 3 GRAY COLOR TEMPERED SAFETY GLASS & ALUMINUM WINDOW FRAME
- 4 8" CONCRETE BASE
- 5 GRAY COLOR TEMPERED SAFETY STOREFRONT DOORS & FRAME
- 6 EXTERIOR WALL MOUNTED LIGHT FIXTURE, PROVINCIAL LANTERN 9" WIDE CURVED ARM SEE ELECTRICAL DRAWINGS
- 7 NOT USED
- 8 5" INCHES HIGH X 2 INCHES WIDE WITH 1/2" INCH STROKE BUILDING ADDRESS NUMBERS. VERIFY WITH FIRE INSPECTOR PRIOR TO INSTALLATION
- 9 EXTERIOR WALL MOUNTED LIGHT FIXTURE, LS1 SIERRA FULL CUTOFF SEE ELECTRICAL DRAWINGS
- 10 BRONZE COLOR ALUMINUM AWNING
- 11 "CEMCO" STUCCO EXPANSION JOINT TYP.
- 12 INSULATED HOLLOW METAL DOOR FRAME AND DOOR

GENERAL NOTES

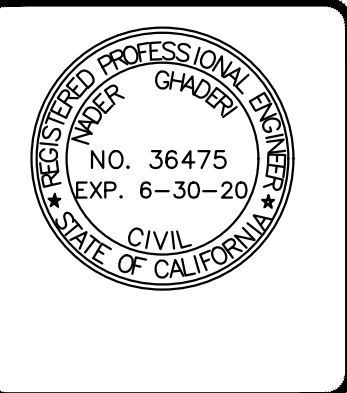
- STUCCO**
- COLD JOINTS WILL NOT BE ACCEPTABLE UNDER ANY CIRCUMSTANCES.
 - LATH WITH GRID EXCEEDING 2"x2" WILL BE REJECTED.
 - ALL FASTENERS SHALL BE GALVANIZED.
 - STUCCO FINISH PER EXTERIOR MATERIALS
- 7/8" STUCCO OVER 3.4 LB./SQ. YD. SELF FURRING METAL LATH.
 - MESH AS SPECIFIED SHALL NOT OVERLAP AT CONTROL JOINTS.
 - MESH OVERLAPS SHALL NOT COINCIDE WITH PLYWOOD JOINTS.
 - SCARIFICATION AS SPECIFIED SHALL ALWAYS BE IN THE HORIZONTAL DIRECTION.
 - INTERIOR DRYWALL SHALL ALWAYS BE INSTALLED AFTER BUILDING HAS BEEN "DRIED-IN," BUT PRIOR TO APPLICATION OF STUCCO - UNLESS DRYWALL IS SCREWED, NOT NAILED.
- SEALERS (REFER TO MANUFACTURER SPECIFICATION)**
- SEALANT AT ALL WALL AND ROOF PENETRATIONS.
 - SEALANT AT ALL WINDOWS AND DOOR FRAMES AT HEAD, SILL AND JAMB.

EXT. COLORS AND FINISHES

- PAINT - FRAZEE - 7750W BEACH BASKET
- PAINT - SHERWIN WILLIAMS - SW1105 TORTOISE
- PAINT - SHERWIN WILLIAMS - SW2185 TOWER TAN
- EL DORADO STONE - MOUNTAIN LEDGE - BUCKSKIN INSTALL PER SPEC. ON THIS DRAWING "ESR-1215"
- ELDORADO STONE - CHISELED EDGE WAINSCOT SILL - BUCKSKIN INSTALL PER SPEC. ON THIS DRAWING "ESR-1215"

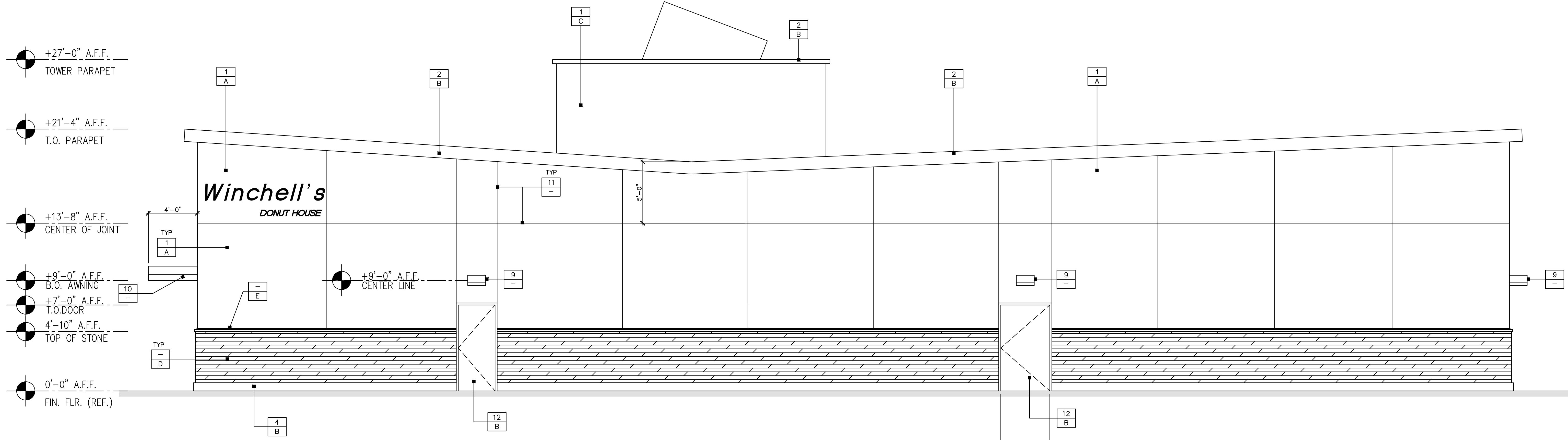
REVISIONS	BY

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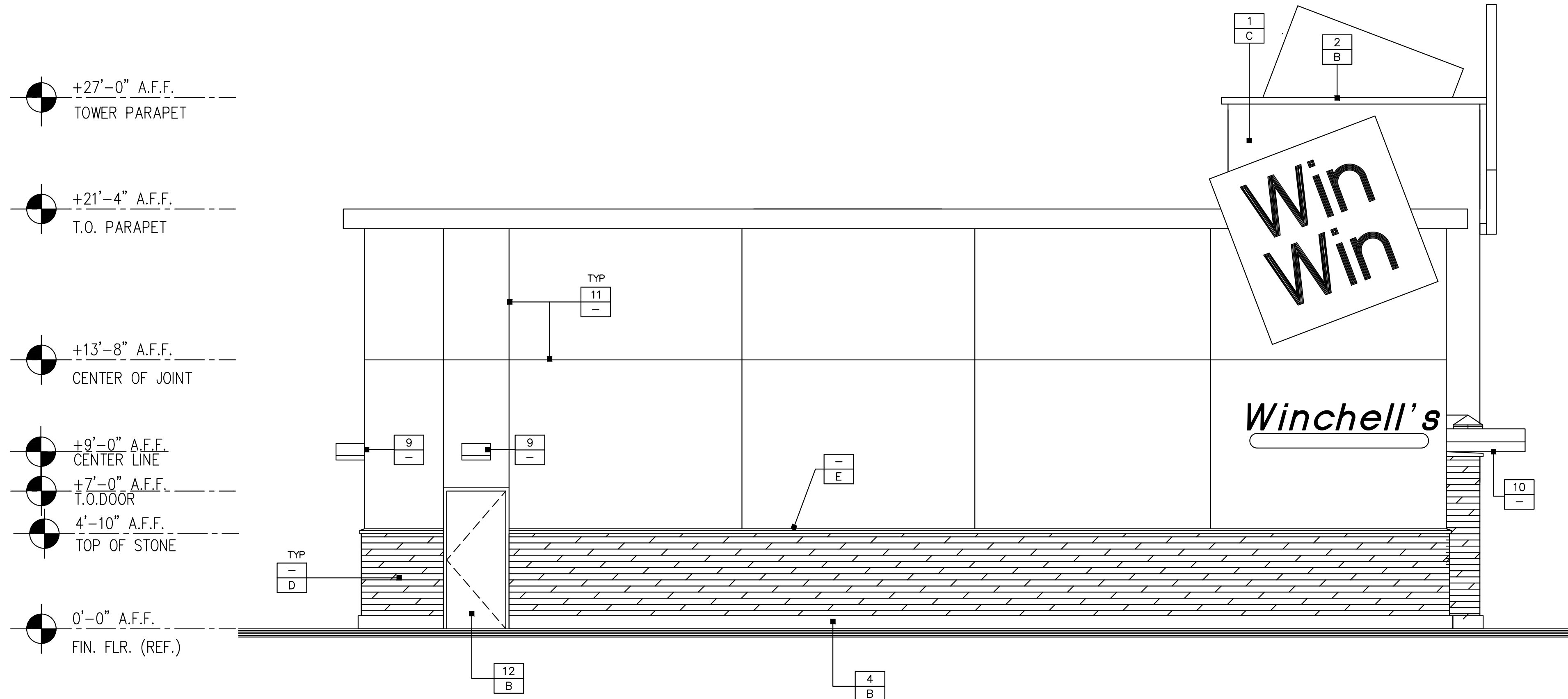


YUM YUM DONUT
ADDRESS: 18830 EAST SAN JOSE AVENUE
CITY OF INDUSTRY, CA 91748
STORE #: CORNER OF PERRIS BLVD & COTTONWOOD AVENUE
ADDRESS: MERONO VALLEY, CA 92553

DRAWN: HOSS FARZAD
CHECKED: HF
DATE: 07/20/2015
SHT: TITLE PROPOSED EXTERIOR BUILDING ELEVATIONS
JOB NUMBER: -
SHEET: A2.1



REAR (WEST) ELEVATION
SCALE : 1/4" = 1'-0"



LEFT SIDE (SOUTH) ELEVATION
SCALE : 1/4" = 1'-0"

ELDORADO STONE / TRIM INSTALLATION ESR-1215, OCT. 1, 15 PER CBC 1405.6.2

A 2-INCH BY 2-INCH 0.0625-INCH CORROSION-RESISTANT WIRE MESH WITH TWO LAYERS OF WATER RESISTIVE BARRIER IN ACCORDANCE WITH SECTION 1404.2 SHALL BE APPLIED DIRECTLY TO WOOD STUDS SPACED A MAXIMUM OF 16 INCHES O.C. ON STUDS, THE MESH SHALL BE ATTACHED WITH 2-INCH-LONG CORROSION RESISTANT STEEL WIRE FURRING NAILS AT 4-INCHES O.C. PROVIDING A MINIMUM 1.125 INCH PENETRATION INTO EACH STUD AND WITH 8d COMMON NAILS AT 8 INCHES O.C. INTO TOP AND BOTTOM PLATES OR WITH EQUIVALENT WIRE TIES. THERE SHALL BE NOT LESS THAN A 0.1055-INCH CORROSION RESISTANT WIRE, OR APPROVED EQUAL, LOOPED THROUGH THE MESH FOR EVERY 2 SQUARE FEET OF STONE VENEER. THIS TIE SHALL BE A LOOP HAVING LEGS NOT LESS THAN 15 INCHES IN LENGTH, SO BENT THAT IT WILL LIE IN THE STONE VENEER MORTAR JOINT. THE LAST 2 INCHES OF EACH WIRE LEG SHALL HAVE A RIGHT ANGLE BEND. ONE INCH MINIMUM THICKNESS OF CEMENT GROUT SHALL BE PLACED BETWEEN THE BACKING AND THE STONE VENEER.

- ### GENERAL NOTES
- STUCCO**
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 - LATH WITH GRID EXCEEDING 2"x2" WILL BE REJECTED.
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- SEALANT AT ALL WALL AND ROOF PENETRATIONS.
 - SEALANT AT ALL WINDOWS AND DOOR FRAMES AT HEAD, SILL AND JAMB.

- ### EXTERIOR MATERIALS
- | | |
|----|---|
| 1 | 7/8" 3- COATS STUCCO SAND FINISH OVER WIRE MESH, OVER 2 LAYERS OF BUILDING PAPER OVER PLYWOOD SHEATHING PER SPEC. COLOR PER FINISH SCHEDULE |
| 2 | 20 GAUGE PARAPET WALL CAP FLASHING |
| 3 | GRAY COLOR TEMPERED SAFETY GLASS & ALUMINUM WINDOW FRAME |
| 4 | 8" CONCRETE BASE |
| 5 | GRAY COLOR TEMPERED SAFETY STOREFRONT DOORS & FRAME |
| 6 | EXTERIOR WALL MOUNTED LIGHT FIXTURE, PROVINCIAL LANTERN 9" WIDE CURVED ARM SEE ELECTRICAL DRAWINGS |
| 7 | NOT USED |
| 8 | 5" INCHES HIGH X 2 INCHES WIDE WITH 1/2" INCH STROKE BUILDING ADDRESS NUMBERS. VERIFY WITH FIRE INSPECTOR PRIOR TO INSTALLATION |
| 9 | EXTERIOR WALL MOUNTED LIGHT FIXTURE, LS1 SIERRA FULL CUTOFF SEE ELECTRICAL DRAWINGS |
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| 12 | INSULATED HOLLOW METAL DOOR FRAME AND DOOR |

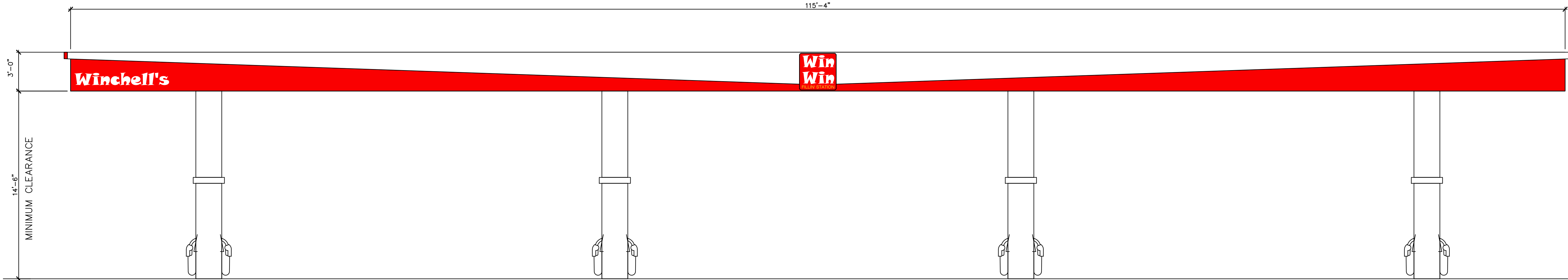
- ### EXT. COLORS AND FINISHES
- | | |
|---|--|
| A | PAINT - FRAZEE - 7750W BEACH BASKET |
| B | PAINT - SHERWIN WILLIAMS - SW1105 TORTOISE |
| C | PAINT - SHERWIN WILLIAMS - SW2185 TOWER TAN |
| D | EL DORADO STONE - MOUNTAIN LEDGE - BUCKSKIN INSTALL PER SPEC. ON THIS DRAWING "ESR-1215" |
| E | ELDORADO STONE - CHISELED EDGE WAINSCOT SILL - BUCKSKIN INSTALL PER SPEC. ON THIS DRAWING "ESR-1215" |

REVISIONS	BY

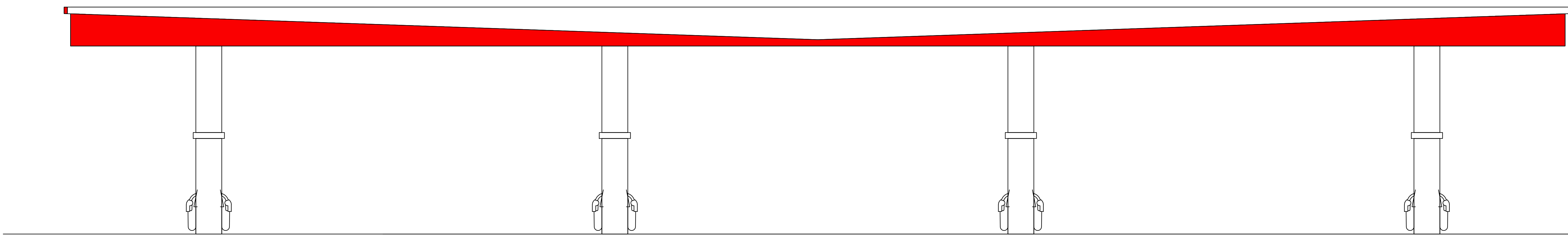
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ADDRESS: MERON VALLEY, CA 92553

DRAWN
HOSS FARZAD
CHECKED
HF
DATE
07/20/2015
SHT: TITLE
PROPOSED EXTERIOR
BUILDING ELEVATIONS
JOB NUMBER
-
SHEET
A2.2



WEST ELEVATION
SCALE : 1/4" = 1'-0"



EAST ELEVATION
SCALE : 1/4" = 1'-0"



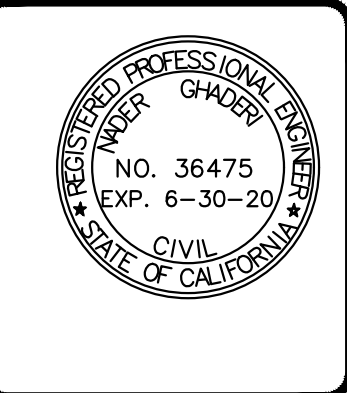
NORTH ELEVATION
SCALE : 1/4" = 1'-0"

SOUTH ELEVATION
SCALE : 1/4" = 1'-0"

REVISIONS	BY

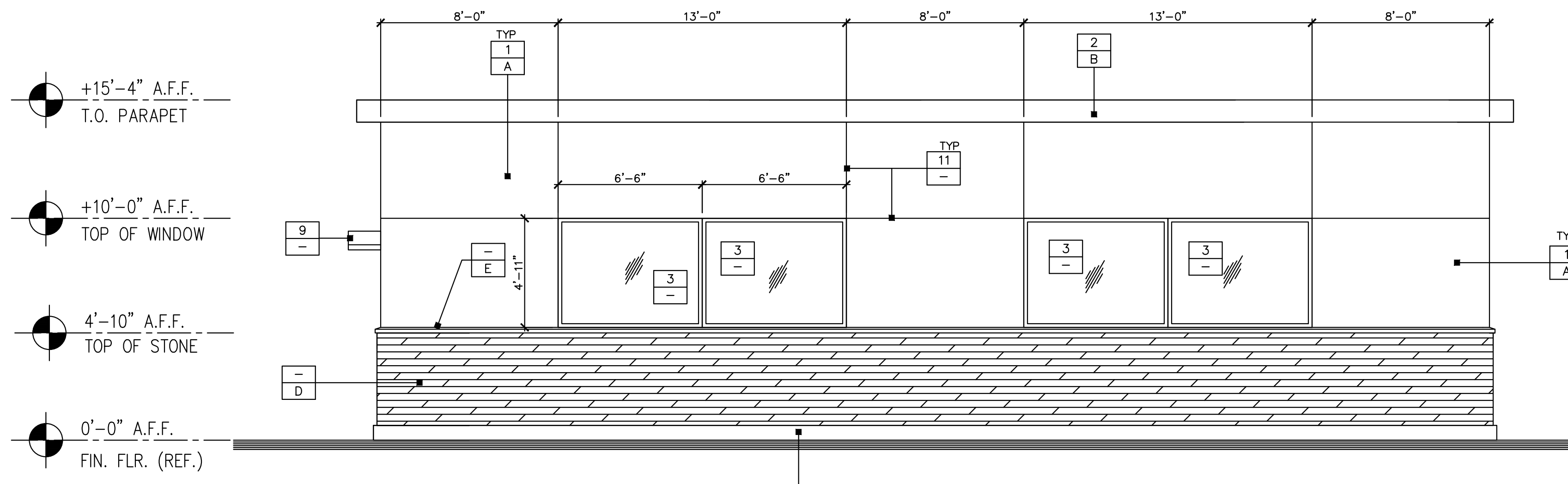
PLANS PREPARED BY:

A & S ENGINEERING INC.
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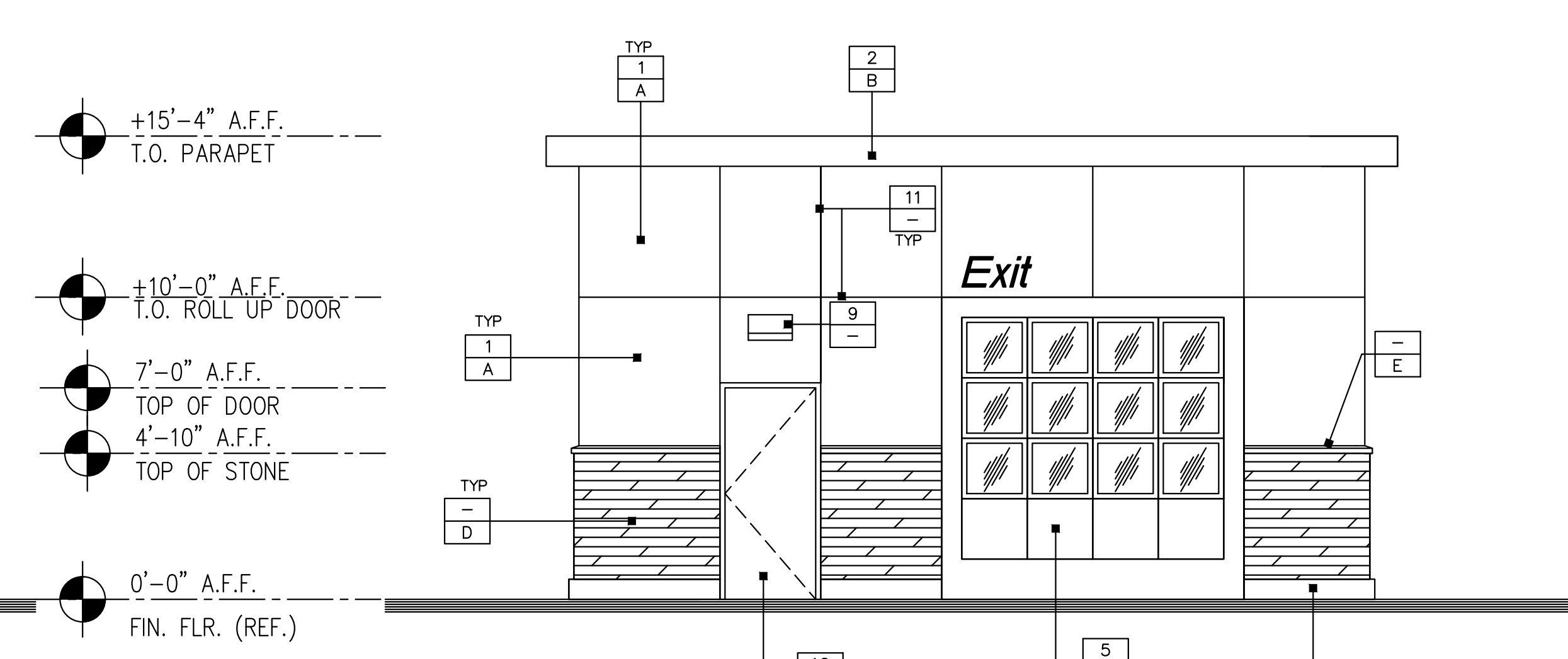
YUM YUM DONUT
 ADDRESS: 18830 EAST SAN JOSE AVENUE
 CITY OF INDUSTRY, CA 91748
 STORE #: CORNER OF PERRIS BLVD & COTTONWOOD AVENUE
 MORENO VALLEY, CA 92553

DRAWN
HOSS FARZAD
CHECKED
HF
DATE
04/10/2015
SHT. TITLE
PROPOSED
CANOPY ELEVATIONS
JOB NUMBER
-
SHEET
A2.3



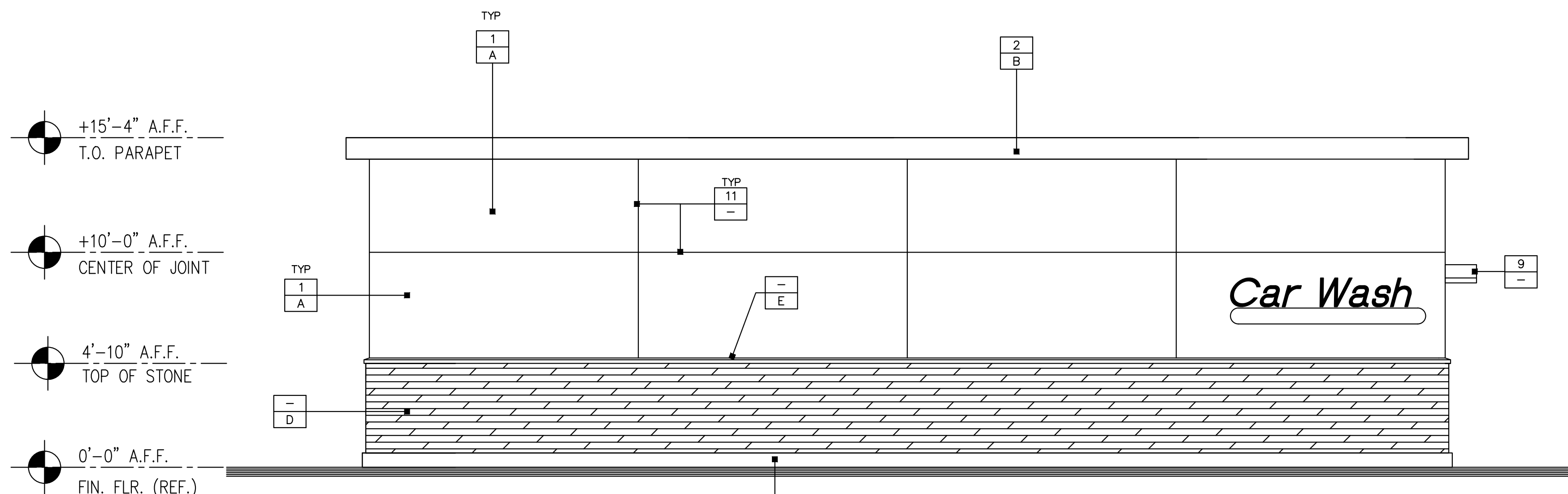
RIGHT SIDE (NORTH) ELEVATION

SCALE : 1/4" = 1'-0"



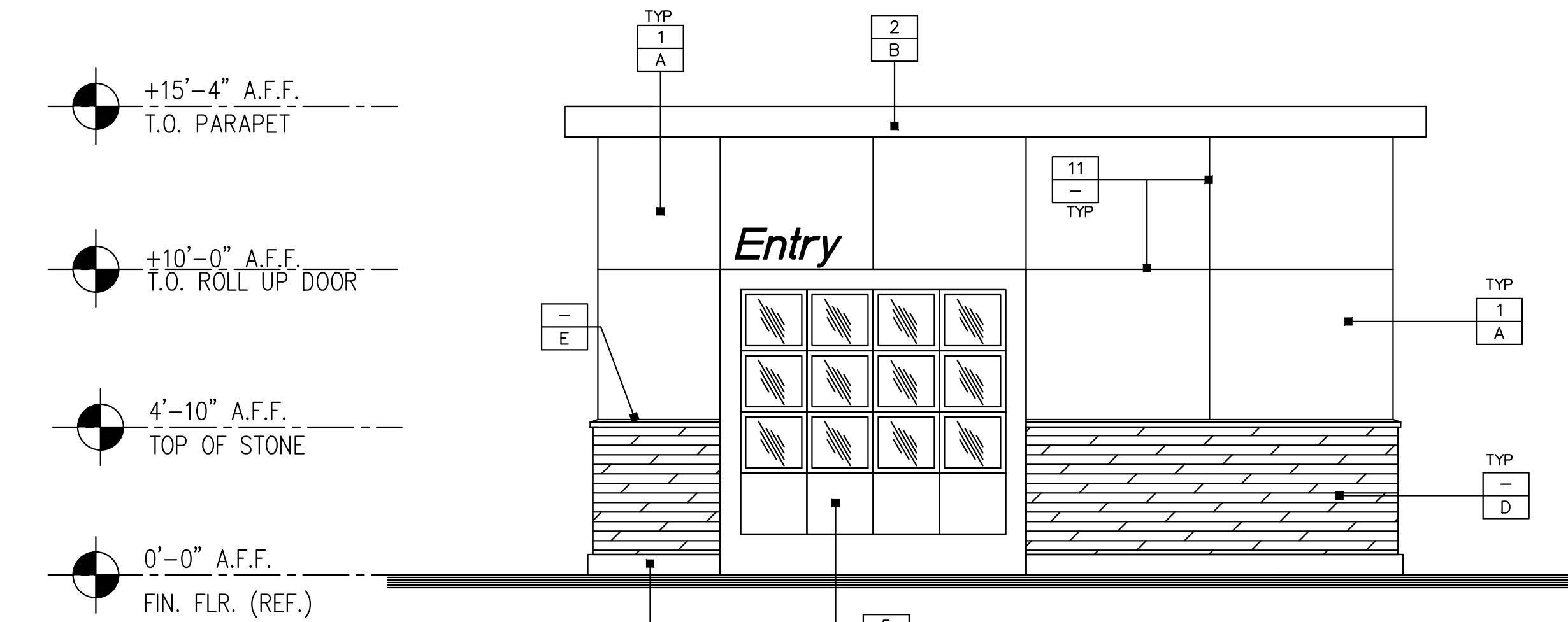
CAR WASH EXIT (EAST) ELEVATION

SCALE : 1/4" = 1'-0"



LEFT SIDE (SOUTH) ELEVATION

SCALE : 1/4" = 1'-0"



CAR WASH ENTRY (WEST) ELEVATION

SCALE : 1/4" = 1'-0"

ELDORADO STONE / TRIM INSTALLATION ESR-1215, OCT. 1, 15 PER CBC 1405.6.2

A 2-INCH BY 2-INCH 0.0625-INCH CORROSION-RESISTANT WIRE MESH WITH TWO LAYERS OF WATER RESISTIVE BARRIER IN ACCORDANCE WITH SECTION 1404.2 SHALL BE APPLIED DIRECTLY TO WOOD STUDS SPACED A MAXIMUM OF 16 INCHES O.C. ON STUDS, THE MESH SHALL BE ATTACHED WITH 2-INCH-LONG CORROSION RESISTANT STEEL WIRE FURRING NAILS AT 4-INCHES O.C. PROVIDING A MINIMUM 1.125 INCH PENETRATION INTO EACH STUD AND WITH 8d COMMON NAILS AT 8 INCHES O.C. INTO TOP AND BOTTOM PLATES OR WITH EQUIVALENT WIRE TIES. THERE SHALL BE NOT LESS THAN A 0.1055-INCH CORROSION RESISTANT WIRE, OR APPROVED EQUAL, LOOPED THROUGH THE MESH FOR EVERY 2 SQUARE FEET OF STONE VENEER. THIS TIE SHALL BE A LOOP HAVING LEGS NOT LESS THAN 15 INCHES IN LENGTH, SO BENT THAT IT WILL LIE IN THE STONE VENEER MORTAR JOINT. THE LAST 2 INCHES OF EACH WIRE LEG SHALL HAVE A RIGHT ANGLE BEND. ONE INCH MINIMUM THICKNESS OF CEMENT GROUT SHALL BE PLACED BETWEEN THE BACKING AND THE STONE VENEER.

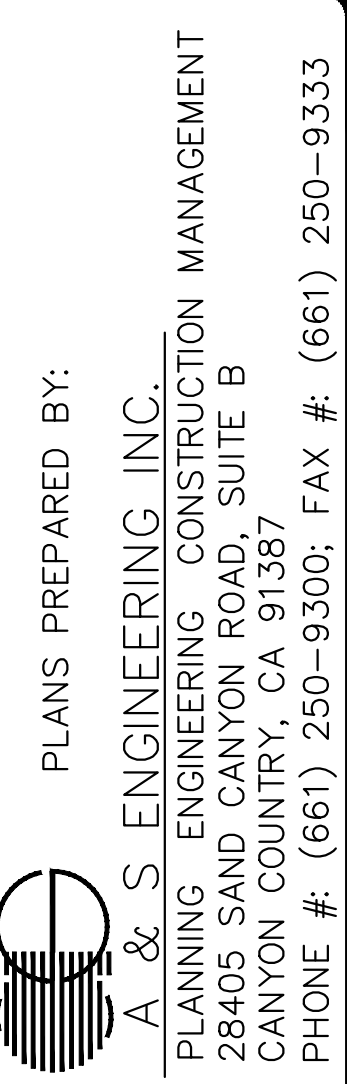
- ### GENERAL NOTES
- STUCCO**
- COLD JOINTS WILL NOT BE ACCEPTABLE UNDER ANY CIRCUMSTANCES.
 - LATH WITH GRID EXCEEDING 2"x2" WILL BE REJECTED.
 - ALL FASTENERS SHALL BE GALVANIZED.
 - STUCCO FINISH PER EXTERIOR MATERIALS
- 7/8" STUCCO OVER 3.4 LB./SQ. YD. SELF FURRING METAL LATH.
 - MESH AS SPECIFIED SHALL NOT OVERLAP AT CONTROL JOINTS.
 - MESH OVERLAPS SHALL NOT COINCIDE WITH PLYWOOD JOINTS.
 - SCARIFICATION AS SPECIFIED SHALL ALWAYS BE IN THE HORIZONTAL DIRECTION.
 - INTERIOR DRYWALL SHALL ALWAYS BE INSTALLED AFTER BUILDING HAS BEEN "DRYED-IN," BUT PRIOR TO APPLICATION OF STUCCO - UNLESS DRYWALL IS SCREWED, NOT NAILED.
- SEALERS (REFER TO MANUFACTURER SPECIFICATION)**
- SEALANT AT ALL WALL AND ROOF PENETRATIONS.
 - SEALANT AT ALL WINDOWS AND DOOR FRAMES AT HEAD, SILL AND JAMB.

- ### EXTERIOR MATERIALS
- | | |
|----|--|
| 1 | 7/8" 3-COATS STUCCO SAND FINISH OVER WIRE MESH, OVER 2 LAYERS OF BUILDING PAPER OVER PLYWOOD SHEATHING PER SPEC. COLOR PER FINISH SCHEDULE |
| 2 | 20 GAUGE PARAPET WALL CAP FLASHING |
| 3 | GRAY COLOR TEMPERED SAFETY GLASS & ALUMINUM WINDOW FRAME |
| 4 | 8" CONCRETE BASE |
| 5 | GRAY COLOR ROLL UP DOOR |
| 6 | EXTERIOR WALL MOUNTED LIGHT FIXTURE, PROVINCIAL LANTERN 9" WIDE CURVED ARM SEE ELECTRICAL DRAWINGS |
| 7 | NOT USED |
| 8 | 5" INCHES HIGH X 2 INCHES WIDE WITH 1/2" INCH STROKE BUILDING ADDRESS NUMBERS. VERIFY WITH FIRE INSPECTOR PRIOR TO INSTALLATION |
| 9 | EXTERIOR WALL MOUNTED LIGHT FIXTURE, LS1 SIERRA FULL CUTOFF SEE ELECTRICAL DRAWINGS |
| 10 | BRONZE COLOR ALUMINUM AWNING |
| 11 | "CEMCO" STUCCO EXPANSION JOINT TYP. |
| 12 | INSULATED HOLLOW METAL DOOR FRAME AND DOOR |

- ### EXT. COLORS AND FINISHES
- | | |
|---|--|
| A | PAINT - FRAZEE - 7750W BEACH BASKET |
| B | PAINT - SHERWIN WILLIAMS - SW1105 TORTOISE |
| C | PAINT - SHERWIN WILLIAMS - SW2185 TOWER TAN |
| D | EL DORADO STONE - MOUNTAIN LEDGE - BUCKSKIN INSTALL PER SPEC. ON THIS DRAWING "ESR-1215" |
| E | ELDORADO STONE - CHISELED EDGE WAINSCOT SILL - BUCKSKIN INSTALL PER SPEC. ON THIS DRAWING "ESR-1215" |

REVISIONS	BY

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YUM YUM DONUT
 ADDRESS: 18830 EAST SAN JOSE AVENUE
 CITY OF INDUSTRY, CA 91748
 STORE #: CORNER OF PERRIS BLVD & COTTONWOOD AVENUE
 MORENO VALLEY, CA 92553

DRAWN: HOSS FARZAD
 CHECKED: HF
 DATE: 07/20/2015
 SHT. TITLE: PROPOSED EXTERIOR CAR WASH ELEVATIONS
 JOB NUMBER: -
 SHEET: A2.4



Location Map



Legend

- Public Facilities
 - Public Facilities
 - ★ Fire Stations
- Parcels
- ⬡ City Boundary
- ◻ Sphere of Influence

Notes

1,261.9 0 630.96 1,261.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 7/12/2018

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: Project Location Map (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

Appendix A

Air Quality and Greenhouse Gas Emissions Technical Report



Yum Yum Donuts Moreno Valley Project

Air Quality and Greenhouse Gas Emissions Technical Report

March 2018 | ASE-01

Prepared for:

A & S Engineering
28405 Sand Canyon Road, Suite "B"
Canyon County, CA 91387

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

Attachment: Air Quality and Green House Gas Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

Yum Yum Donuts Moreno Valley Project

Air Quality and Greenhouse Gas Emissions Technical Report

Prepared for:

A & S Engineering
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March 2018 | ASE-01

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ADT	average daily trips
AQMP	Air Quality Management Plan
C ₂ F ₆	hexafluoroethane
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CF ₄	tetrafluoromethane
CFC	chlorofluorocarbon
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
County	Riverside County
DPM	diesel particulate matter
EIR	Environmental Impact Report
EO	Executive Order
GHG	greenhouse gas
GWP	global warming potential
H ₂ S	hydrogen sulfide
HFC	hydrofluorocarbon
HI	Hazard Index
HRA	health risk assessment
I-	Interstate
IPCC	Intergovernmental Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LOS	Level of Service
LST	localized significance threshold
mg/m ³	milligrams per cubic meter
MMT	million metric tons

ACRONYMS AND ABBREVIATIONS (cont.)

MT	metric tons
mpg	miles per gallon
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NHTSA	National Highway Traffic Safety Administration
NO	nitrogen oxide
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO _x	nitrogen oxides
O ₃	ozone
Pb	lead
PFC	perfluorocarbon
PM	particulate matter
PM ₁₀	particulate matter less than 10 microns
PM _{2.5}	particulate matter less than 2.5 microns
ppm	parts per million
ROG	reactive organic gas
RTP	Regional Transportation Plan
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SF ₆	hexafluoride
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SRA	source receptor area
TACs	toxic air contaminants
TIA	Transportation Impact Analysis
USEPA	U.S. Environmental Protection Agency
VMT	vehicle miles traveled
VOC	volatile organic compound

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EXECUTIVE SUMMARY

This report presents an assessment of potential air quality and greenhouse gas (GHG) emission impacts during construction and operation of the proposed Yum Yum Donuts Moreno Valley Project (project), located at the corner of Perris Boulevard and Cottonwood Avenue in the City of Moreno Valley (City).

The project would result in emissions of criteria air pollutants during construction and operation. Construction emissions include fugitive dust, heavy construction equipment exhaust, and vehicle trips associated with workers commuting to and from the site and trucks hauling materials. In accordance with South Coast Air Quality Management District (SCAQMD) Rule 403, fugitive dust control measures including the use of an on-site water truck to wet down active grading areas and roads at least twice daily are incorporated into the project design. Operational sources of emissions include area, on-site energy use, and transportation. Project emissions of criteria pollutants during construction and operation would remain below SCAQMD emissions thresholds.

The project would be consistent with air quality policies set forth by the SCAQMD as presented in the most recent Air Quality Management Plan.

Project-generated traffic would not result in a carbon monoxide hot spot. Construction and operation of the project would not result in exposure of sensitive receptors to significant quantities of toxic air contaminants (TACs). In addition, evaluation of potential odors from the project indicated that associated impacts would be less than significant.

Construction sources of GHG emissions include heavy construction equipment, worker vehicle miles traveled (VMT), and water use. Operational sources of GHG emissions include area, energy, transportation, water use, and solid waste. The project would be required to comply with the 2016 Title 24 Energy Code; the 2016 California Green Building Standards Code (CALGreen); the Assembly Bill (AB) 341 solid waste diversion target of 75 percent; reduction of potable water use by 20 percent when compared to the statewide average; low-flow water and bathroom fixtures; reduction of wastewater generation by 20 percent; weather-based irrigation systems; provide areas for storage and collection of recyclables and yard waste.

The project-related construction activities are estimated to generate 76 metric tons (MT) of carbon dioxide equivalent (CO₂e). Construction emissions are amortized over 30 years, such that the proposed construction activities would contribute an average of 3 MT per year of CO₂e emissions. The project-related operational and amortized construction GHG emissions for opening year are estimated to generate 1,165 MT CO₂e. Project emissions would not exceed the GHG screening threshold of 3,000 MT CO₂e established by the SCAQMD and adopted by the City Climate Action Strategy (CAS). Therefore, the project would be consistent with the City CAS and result in a less than significant impact related to GHG emissions.

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1.0 INTRODUCTION

This report presents an assessment of potential air quality and greenhouse gas (GHG) emissions impacts during construction and operation of the proposed Yum Yum Donuts Moreno Valley Project (project), located in the City of Moreno Valley (City) in Riverside County (County).

1.1 PROJECT LOCATION

The project site is located at the corner of Perris Boulevard and Cottonwood Avenue and is composed of Assessor's Parcel Numbers (APNs) 479-140-023-2, 479-140-024-3, and 479-131-012-4. Project site access would be provided via driveways on both Perris Boulevard and Cottonwood Avenue. Surrounding land uses include single-family residences to the east, a commercial area across Perris Boulevard to the west, a church across Cottonwood Avenue to the south, and a vacant lot to the north. Interstate (I-) 215 is located approximately 3.5 miles east of the project site (see Figure 1, *Regional Location*, and Figure 2, *Aerial Photograph*).

1.2 PROJECT DESCRIPTION

The project proposes to develop a 3.77-acre vacant lot for a 5,515-square foot Yum Yum Donuts restaurant and convenience market with a car wash and gas station. Sixteen gas pumps through eight production dispensers would be provided and a 5,075-square foot steel canopy would be constructed above. The car wash would be 900-square feet with an adjacent 400-square foot equipment room. Additionally, two underground storage tanks would be installed in the southeast corner of the project to provide gas. The majority of the project site would be paved and would provide 28 vehicle parking spaces and 2 bicycle parking spaces. Additional improvements include signs at the access points; air, water, and vacuum units for vehicles; curb and sidewalk improvements; fire hydrant installation; and storm drain improvements. Landscaping would be maintained throughout the site. See Figure 3, *Site Plan*, for details. The project would not require demolition, as the site is currently vacant and undeveloped.

1.3 CONSTRUCTION ACTIVITIES AND PHASING

Project construction is assumed to begin in January 2019 and be completed in June 2019, for a total construction period of six months. Construction activities include site preparation, grading, installation of underground utilities, construction of structures and paving and coating of the site. Grading and underground utilities installation are expected to overlap in February 2019. During grading, export of 200 cubic yards of soil is expected. Detailed construction phasing and equipment assumptions are summarized in Section 4.1, *Methodology*, and provided in Appendix A.

2.0 REGULATORY SETTING

2.1 AIR QUALITY

2.1.1 Criteria Pollutants

Criteria pollutants are defined by state and federal law as a risk to the health and welfare of the general public. In general, air pollutants include the following compounds:

- Ozone (O₃)
- Reactive organic gases (ROGs) or volatile organic compounds (VOCs)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO₂)
- Respirable particulate matter and fine particulate matter (PM₁₀ and PM_{2.5})
- Sulfur dioxide (SO₂)
- Lead (Pb)

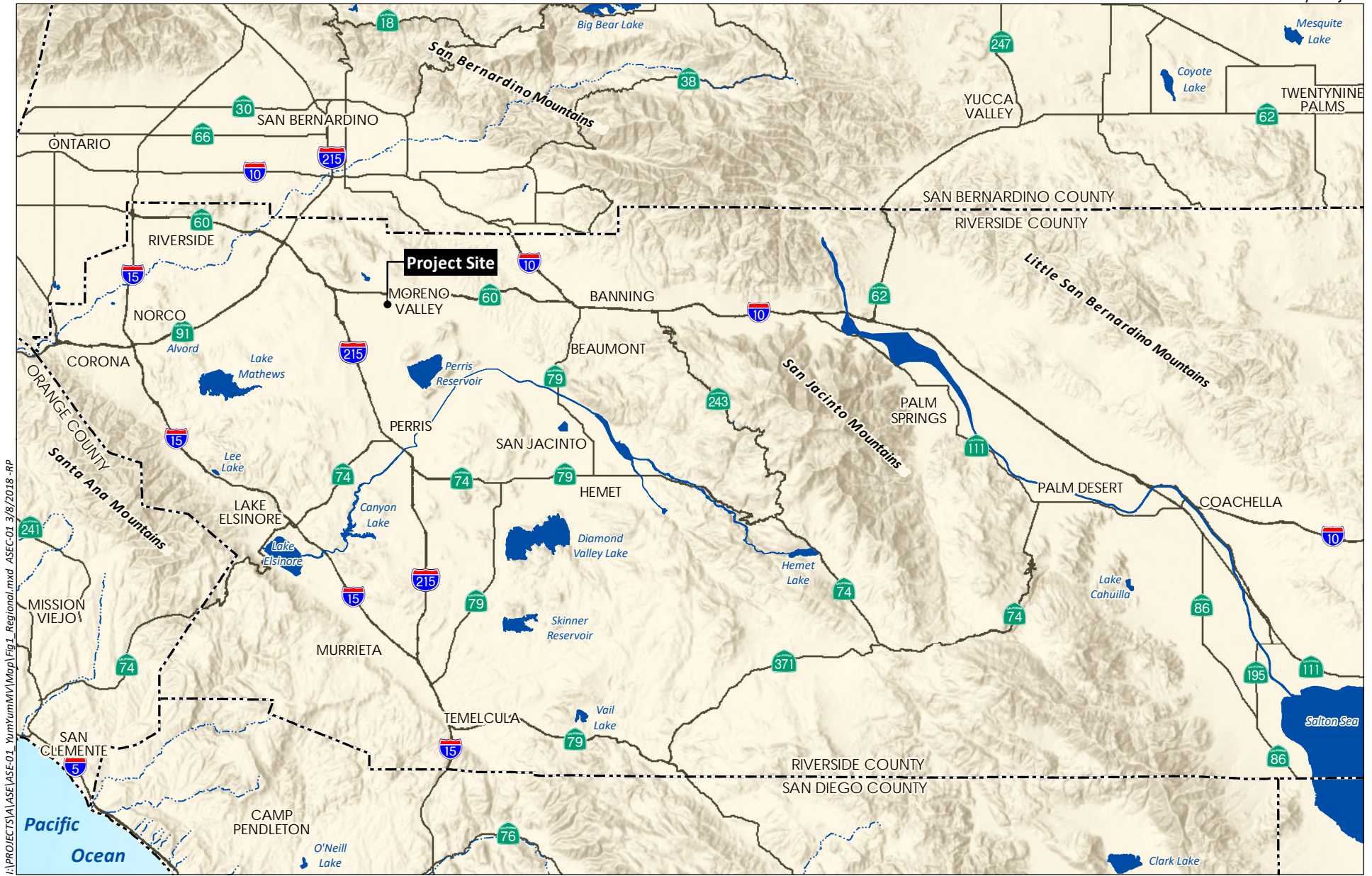
The following specific descriptions of health effects for each of the air pollutants potentially associated with project construction and operation are based on information provided by the California Air Resources Board (CARB; 2009) and the U.S. Environmental Protection Agency (USEPA; 2017a).

Ozone. Ozone is considered a photochemical oxidant, which is a chemical that is formed when VOCs and nitrogen oxides (NO_x), both by-products of fuel combustion, react in the presence of ultraviolet light. Ozone is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma, and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to ozone.

Reactive Organic Gases. ROGs (also known as VOCs) are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. While ROGs can be a health concern indoors, CARB regulates ROGs outdoors mainly because of their ability to create photochemical smog under certain conditions.

Carbon Monoxide. CO is a by-product of fuel combustion. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease and can also affect mental alertness and vision.

Nitrogen Dioxide. NO₂, a species of the aforementioned NO_x, is also a by-product of fuel combustion and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide (NO) with oxygen. NO₂ is a respiratory irritant and may affect those with existing respiratory illness, including asthma. NO₂ can also increase the risk of respiratory illness.



F:\PROJECTS\IASE\IASE-01_YumYum\MV\Map\Fig1_Regional.mxd ASE-01_3/8/2018-RP

Source: Base Map Layers (ESRI, 2013)

Attachment: Air Quality and Green House Gas Study (3180 : Conditional Use Permit for Yum Yum Donuts



Regional Location

Figure 1
Packet Pg. 792



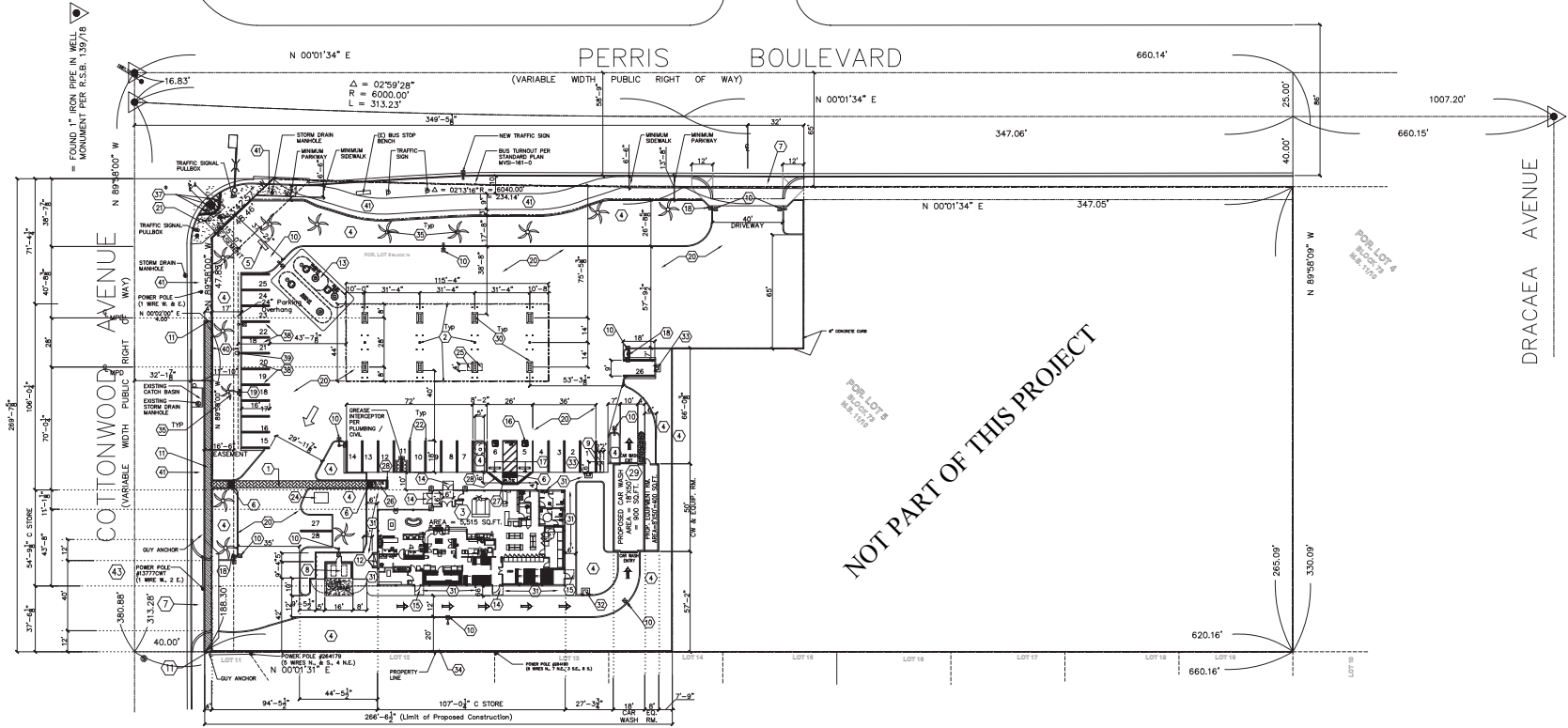
 Project Boundary

I:\PROJECTS\IA\ASE\ASE-01_YumYum\MV\Map\Fig2_Aerial.mxd ASE-01_3/8/2018 -RP



Source: Base Map Layers (Eagle, 2014)

- SCOPE OF WORK**
1. INSTALL 48" MINIMUM ACCESSIBLE ROUTE (MISSION RED, INTERLOCKING DECORATIVE PAVING) SLOPE NOT TO EXCEED 4.5% WITH MAXIMUM 2.0% CROSS SLOPE
 2. CONSTRUCT 5,075.0 SQUARE FEET, 4-COLUMNING STEEL CANOPY PER PLAN & ELEVATIONS
 3. CONSTRUCT 5,515.0 SQUARE FEET BUILDING PER PLAN & ELEVATIONS AND STRUCTURAL DRAWINGS
 4. CONSTRUCT LANDSCAPE & PLANTING AREA PER PLAN & LANDSCAPE DRAWINGS
 5. INSTALL NEW MONUMENT SIGN WITH PRICE SIGN PER PLAN. SIGNS ARE UNDER SEPARATE PERMIT.
 6. INSTALL MINIMUM 36" WIDE YELLOW COLOR DETECTABLE WARNING PER PLAN AND CBC FIGURE 119-705.1
 7. CONSTRUCT (2) DRIVEWAYS PER CITY OF MORENO VALLEY STANDARD PLAN MVS-1120-0 (OLD 118-C)
 8. CONSTRUCT 4'-7 1/4"-0" HIGH STUCCO FINISH GUN TRASH ENCLOSURE WITH SOLID ROOF COVER & DOUBLE STEEL GATE PER PLAN AND CITY STANDARD PLAN MVG-660A-D OPTION 1
 9. STRIPE (8)-2'-6"x8'-0" BICYCLE PARKING SPACES WITH REQUIRED BIKE U RACK PER PLAN
 10. INSTALL YARD LIGHTS PER ELECTRICAL DRAWINGS
 11. 4'-0" DEDICATION PER PLAN
 12. INSTALL MAIN SWITCH BOARD INSIDE ENCLOSURE MATCH BUILDING PER ELECTRICAL DRAWINGS.
 13. PROPOSED LOCATION FOR UNDERGROUND STORAGE TANKS
 14. 6'-0"x5'-0" CLEAR AND LEVEL AREA SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION. FLOOR NOT MORE THAN 2" LOWER THAN THE THRESHOLD
 15. 5'-0"x5'-0" CLEAR AND LEVEL AREA SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION. FLOOR NOT MORE THAN 2" LOWER THAN THE THRESHOLD
 16. STRIPE 18'-0"x26'-0" DISABILITY PARKING SPACE PER PLAN. SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION
 17. INSTALL DISABILITY PARKING SIGNS PER PLAN
 18. INSTALL ADDITIONAL SIGN AT EACH ENTRANCE TO OFF STREET PARKING FACILITIES OR IMMEDIATELY ADJACENT AND VISIBLE FROM EACH ACCESSIBLE STALL OR SPACE PER PLAN
 19. INSTALL AIR AND WATER UNIT PER PLAN, WITH FREE SIGN ON UNIT
 20. CONSTRUCT REINFORCED CONCRETE PAVING AT THE ENTIRE OF SITE PER SOIL REPORT AND CIVIL DRAWINGS
 21. INSTALL FIRE HYDRANT PER FIRE DEPARTMENT REQUIREMENT (6"x4"x2.5"x2.5")
 22. STRIPE STANDARD PARKING STALLS PER CITY STANDARD FIGURE 8.11.080-6
 23. INSTALL CANISTER ON TOP OF ROOF
 24. ELECTRICAL TRANSFORMER CONCRETE PAD SEE ELECTRICAL SITE PLAN, TRANSFORMER INSTALLATION BY UTILITY COMPANY
 25. 30"x48" CLEAR AND LEVEL AREA, SLOPE NO TO EXCEED 2.0% AT ANY DIRECTION
 26. CONSTRUCT CURB RAMP WITH CURB AT EACH SIDE. SLOPE NOT TO EXCEED 8.0% AND 2.0% CROSS SLOPE
 27. CONSTRUCT CURB RAMP WITH FLARE AT EACH SIDE. SLOPE NOT TO EXCEED 8.0% AND 2.0% CROSS SLOPE ON FLARE = 8.0% AS WELL
 28. CONSTRUCT GROOVED BORDER 12" INCHES WIDE AT LEVEL SURFACE OF THE SIDEWALK AT TOP APPROXIMATELY 1/2" HIGH ON CENTER
 29. CONSTRUCT 1,350.0 SQUARE FEET CAR WASH BUILDING & EQUIPMENT ROOM PER PLAN & ELEVATIONS AND STRUCTURAL DRAWINGS
 30. INSTALL PRODUCTION DISPENSER TYPICAL OF 8 PER PLAN
 31. CONSTRUCT REINFORCED CONCRETE SIDEWALK, SLOPE NOT TO EXCEED 2.0% AT ANY DIRECTION
 32. INSTALL CAR WASH COIN BOX WITH GUARD POST AT EACH SIDE PER CAR WASH MANUFACTURER DRAWINGS
 33. INSTALL (2) VACUUM PER MANUFACTURER REQUIREMENT
 34. CONSTRUCT 8'-0" HIGH DECORATIVE BLOCK WALL ALONG REAR FACILITY PER PLAN
 35. ONE FOOT MINIMUM, AND 2 FEET MAXIMUM STREET TREE PER NOTE #30 ON ATTACHED.
 36. NOT USED
 37. CURB RAMP WITH FLARE AT BOTH SIDES WILL BE RECONSTRUCTED TO MEET CURRENT ACCESSIBILITY REQUIREMENTS WITH 8.33% SLOPE AND 2.0% CROSS SLOPE ON CURB RAMP
 38. 8.33% SLOPE ON FLARES WITH GROOVED BORDER & 36" MINIMUM DETECTABLE WARNING
 39. INSTALL SIGN FOR 9'-0"x18'-0" CARPOOL/VAN POOL LOW-EMITTING FUEL-EFFICIENT PARKING
 40. INSTALL POLE WITH 208 / 240 V, 40 AMP GROUNDING AC OUTLET PER ELECTRICAL DRAWINGS
 41. INSTALL 36" TALL BERM OR HEDGE TO SCREEN THESE PARKING SPACES
 42. CONSTRUCT CONCRETE SIDEWALK WITH CONCRETE CURB AND GUTTER ON COTTONWOOD AVENUE AND PERRIS BLVD PER CITY STANDARD
 43. INSTALL 6" PLANTER CURB.
 44. RELOCATE EXISTING POWER POLE.



Source: A & S Engineering, 2018

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Respirable Particulate Matter and Fine Particulate Matter. Respirable particulate matter, or PM₁₀, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or PM_{2.5}, refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in these size ranges have been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM₁₀ and PM_{2.5} arise from a variety of sources, including road dust, diesel exhaust, fuel combustion, tire and brake wear, construction operations, and windblown dust. PM₁₀ and PM_{2.5} can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. PM_{2.5} is considered to have the potential to lodge deeper in the lungs. Particulate matter originating from diesel exhaust, diesel particulate matter (DPM), discussed in further detail below, is classified a carcinogen by CARB.

Sulfur dioxide. SO₂ is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil and by other industrial processes. Generally, the highest concentrations of SO₂ are found near large industrial sources. SO₂ is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO₂ can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Lead in the atmosphere occurs as particulate matter. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Lead is also present in some aircraft and racing fuels. Lead has the potential to cause gastrointestinal, central nervous system, kidney, and blood diseases upon prolonged exposure. Lead is also classified as a probable human carcinogen. Because emissions of lead are found only in specialty fuels and projects that are permitted by the local air district, lead is not an air quality of concern for the proposed project.

2.1.2 Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engines which emit exhaust containing solid material known as diesel particulate matter (DPM) (CARB 2011). TACs are different than the criteria pollutants previously discussed because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

2.1.3 Federal Air Quality Regulations

2.1.3.1 Federal Clean Air Act

Air quality is defined by ambient air concentrations of specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several

criteria pollutants, which are introduced above. Table 1, *Ambient Air Quality Standards*, shows the federal and state ambient air quality standards for these pollutants.

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. CARB has established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California Clean Air Act of 1988, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide (H₂S), vinyl chloride, and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be “nonattainment areas” for that pollutant.

Table 1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary ¹	Secondary ²
O ₃	1 Hour	0.09 ppm (180 µg/m ³)	–	–
	8 Hour	0.070 ppm (137 µg/m ³)	0.070 ppm (137 µg/m ³)	Same as Primary
PM ₁₀	24 Hour	50 µg/m ³	150 µg/m ³	Same as Primary
	AAM	20 µg/m ³	–	Same as Primary
PM _{2.5}	24 Hour	–	35 µg/m ³	Same as Primary
	AAM	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
CO	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	–
	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)	–	–
NO ₂	1 Hour	0.18 ppm (339 µg/m ³)	0.100 ppm (188 µg/m ³)	–
	AAM	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
SO ₂	1 Hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m ³)
	24 Hour	0.04 ppm (105 µg/m ³)	–	–
Lead	30-day Avg.	1.5 µg/m ³	–	–
	Calendar Quarter	–	1.5 µg/m ³	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m ³	

Table 1 (cont.)
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	No Federal Standards
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility \geq 10 miles (0.07 per km – \geq 30 miles for Lake Tahoe)	
Sulfates	24 Hour	25 $\mu\text{g}/\text{m}^3$	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu\text{g}/\text{m}^3$)	
Vinyl Chloride	24 Hour	0.01 ppm (26 $\mu\text{g}/\text{m}^3$)	

Source: CARB 2016

¹ National Primary Standards: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

² National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

O₃: ozone; ppm: parts per million; $\mu\text{g}/\text{m}^3$: micrograms per cubic meter; PM₁₀: particulate matter with an aerodynamic diameter of 10 microns or less;

AAM: Annual Arithmetic Mean; PM_{2.5}: fine particulate matter; CO: carbon monoxide; mg/m³: milligrams per cubic meter; NO₂ nitrogen dioxide; SO₂: sulfur dioxide; km: kilometer; –: No Standard.

The USEPA has classified air basins (or portions thereof) as being in “attainment,” “nonattainment,” or “unclassified” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. The project site is located within the South Coast Air Basin (SCAB) and, as such, is in an area designated a nonattainment area for certain pollutants that are regulated under the CAA. Table 2 of Section 2.2.3, *South Coast Air Basin Attainment Status*, lists the federal and state attainment status of the SCAB for the criteria pollutants. The USEPA classifies the SCAB as in attainment for CO, PM₁₀, NO₂, SO₂, and lead; in extreme nonattainment for 8-hour ozone; and in serious nonattainment for PM_{2.5} with respect to federal air quality standards.

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The SIP is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has the responsibility to review all SIPs to determine whether they conform to the requirements of the CAA.

2.1.4 California Air Quality Regulations

2.1.4.1 California Clean Air Act

The federal CAA allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California EPA (CalEPA), is responsible for the coordination and administration of both federal and state air pollution control

programs within California, including setting the California Ambient Air Quality Standards (CAAQS). CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

In addition to primary and secondary AAQS, the state has established a set of episode criteria for ozone, CO, NO₂, SO₂, and PM. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Table 2, below, lists the state attainment status of the SCAB for the criteria pollutants. Under state designation, the SCAB is currently in attainment for CO, NO₂, SO₂, and lead; and in nonattainment for ozone, PM₁₀, and PM_{2.5}.

2.1.4.2 Toxic Air Contaminants

California's air toxics control program began in 1983 with the passage of the Toxic Air Contaminant Identification and Control Act, better known as AB 1807 or the Tanner Bill. When a compound becomes listed as a TAC under the Tanner process, the CARB normally establishes minimum statewide emission control measures to be adopted by local air pollution control districts (APCDs). Later legislative amendments (AB 2728) required the CARB to incorporate all 189 federal hazardous air pollutants (HAPs) into the state list of TACs.

Supplementing the Tanner process, AB 2588 – the Air Toxics “Hot Spots” Information and Assessment Act of 1987 – currently regulates over 600 air compounds, including all of the Tanner-designated TACs. Under AB 2588, specified facilities must quantify emissions of regulated air toxics and report them to the local APCD. If the APCD determines that a potentially significant public health risk is posed by a given facility, the facility is required to perform a health risk assessment (HRA) and notify the public in the affected area if the calculated risks exceed specified criteria.

On August 27, 1998, CARB formally identified PM emitted in both gaseous and particulate forms by diesel-fueled engines as a TAC (CARB 2010). The particles emitted by diesel engines are coated with chemicals, many of which have been identified by the USEPA as HAPs and by CARB as TACs. CARB's Scientific Advisory Committee has recommended a unit risk factor (URF) of 300 in 1 million over a 70-year exposure period for diesel particulate. In September 2000, the CARB approved the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (Diesel Risk Reduction Plan; CARB 2000). The Diesel Risk Reduction Plan outlined a comprehensive and ambitious program that included the development of numerous new control measures over the next several years aimed at substantially reducing emissions from new and existing on-road vehicles (e.g., heavy-duty trucks and buses), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps), and stationary engines (e.g., stand-by power generators). These requirements are now in force on a statewide basis.

2.1.5 Local Regulations

2.1.5.1 South Coast Air Quality Management District

The project is located in Riverside County. Air quality in the non-desert portion of Riverside County is regulated by the South Coast Air Quality Management District (SCAQMD). As a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMP).

On March 3, 2017, the SCAQMD adopted the 2016 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and USEPA). The 2016 AQMP represents a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures. The plan seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, greenhouse gases, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017).

The AQMP, in combination with those from all other California nonattainment areas with serious (or worse) air quality problems, is submitted to CARB, which develops the California State Implementation Plan (SIP). The SIP relies on the same information from SCAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The current federal and state attainment status for the South Coast Air Basin (SCAB) is presented in Table 2, *South Coast Air Basin Attainment Status*.

Table 2
SOUTH COAST AIR BASIN ATTAINMENT STATUS

Criteria Pollutant	Federal Designation	State Designation
O ₃ (1-hour)	(No federal standard)	Nonattainment
O ₃ (8-hour)	Extreme Nonattainment	Nonattainment
CO	Attainment (Maintenance)	Attainment
PM ₁₀	Attainment (Maintenance)	Nonattainment
PM _{2.5}	Serious Nonattainment	Nonattainment
NO ₂	Attainment (Maintenance)	Attainment
SO ₂	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Attainment
Visibility	(No federal standard)	Attainment

Source: SCAQMD 2016

2.2 GREENHOUSE GASES

2.2.1 Climate Change Overview

Global climate change refers to changes in average climatic conditions on Earth including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as greenhouse gases (GHGs) because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The temperature record shows a decades-long trend of warming, with 2016 global surface temperatures ranking as the warmest year on record (National Aeronautics and Space Administration [NASA] 2016). The newest realize in long-term warming trends announced 2017 ranked the second warmest year with an increase of 1.62 degrees Fahrenheit compared to the 1950-1980 average (NASA 2018). GHG emissions from human activities are the most significant driver of observed climate change since the mid-20th century (Intergovernmental Panel on Climate Change [IPCC] 2013). The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The statistical models show a "high confidence" that temperature increase caused by anthropogenic GHG emissions could be kept to less than two degrees Celsius relative to pre-industrial levels if atmospheric concentrations are stabilized at about 450 parts per million (ppm) carbon dioxide equivalent (CO₂e) by the year 2100 (IPCC 2014).

2.2.2 Types of Greenhouse Gases

The GHGs defined under California's Assembly Bill (AB) 32 include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Carbon dioxide. CO₂ is the most important and common anthropogenic GHG. CO₂ is an odorless, colorless GHG. Natural sources include the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of CO₂ include burning fuels, such as coal, oil, natural gas, and wood. Data from ice cores indicate that CO₂ concentrations remained steady prior to the current period for approximately 10,000 years. The atmospheric CO₂ concentration in 2010 was 390 ppm, 39 percent above the concentration at the start of the Industrial Revolution (about 280 ppm in 1750). As of October 2017, the CO₂ concentration exceeded 403 ppm, a 44 percent increase since 1750 (National Oceanic and Atmospheric Administration [NOAA] 2018).

Methane. CH₄ is the main component of natural gas used in homes. A natural source of methane is from the decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from decay of organic material in landfills, fermentation of manure, and cattle digestion.

Nitrous oxide. N₂O is produced by both natural and human-related sources. N₂O is emitted during agricultural and industrial activities, as well as during the combustion of fossil fuels and solid waste. Primary human-related sources of N₂O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic (fatty) acid production, and nitric acid production.

Hydrofluorocarbons. Fluorocarbons are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. Chlorofluorocarbons are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere (the level of air at Earth's surface). Chlorofluorocarbons were first 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 1989 Montreal Protocol.

Sulfur Hexafluoride. SF₆ is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF₆ is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.

GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHG emissions to disperse around the globe. Because GHG emissions vary widely in the power of their climatic effects, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO₂. For example, because methane and N₂O are approximately 25 and 298 times more powerful than CO₂, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO₂ has a GWP of 1). CO₂e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO₂e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 3, *Global Warming Potentials and Atmospheric Lifetimes*.

Table 3
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO ₂)	50-200	1
Methane (CH ₄)	12	25
Nitrous Oxide (N ₂ O)	114	298
HFC-134a	14	1,430
PFC: Tetrafluoromethane (CF ₄)	50,000	7,390
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	12,200
Sulfur Hexafluoride (SF ₆)	3,200	22,800

Source: IPCC 2007

HFC: hydrofluorocarbon; PFC: perfluorocarbon

2.2.3 Federal Greenhouse Gas Regulations

2.2.3.1 Federal Clean Air Act

The U.S. Supreme Court ruled on April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency* (USEPA) that CO₂ is an air pollutant, as defined under the CAA, and that the USEPA has the

authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO₂, CH₄, N₂O, HFC, PFC, and SF₆) threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA). The standards were established on April 1, 2010 for 2012 through 2016 model year vehicles and on October 15, 2012 for 2017 through 2025 model year vehicles (USEPA 2017b; USEPA and NHTSA 2012).

2.2.3.2 Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The USEPA and the NHTSA have been working together on developing a national program of regulations to reduce GHG emissions and to improve fuel economy of light-duty vehicles. The USEPA is finalizing the first-ever national GHG emissions standards under the CAA, and the NHTSA is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking that established standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. The rules require these vehicles to meet an estimated combined average emissions level of 250 grams per mile by 2016, decreasing to an average industry fleet-wide level of 163 grams per mile in model year 2025. The 2016 standard is equivalent to 35.5 miles per gallon (mpg), and the 2025 standard is equivalent to 54.5 mpg if the levels were achieved solely through improvements in fuel efficiency. The agencies expect, however, that a portion of these improvements will be made through improvements in air conditioning leakage and the use of alternative refrigerants that would not contribute to fuel economy. These standards would cut GHG emissions by an estimated 2 billion metric tons (MT) and 4 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2017–2025). The combined USEPA GHG emission standards and NHTSA CAFE standards resolve previously conflicting requirements under both federal programs and the standards of the State of California and other states that have adopted the California standards (USEPA 2017b; USEPA and NHTSA 2012).

2.2.4 California Greenhouse Gas Regulations

There are numerous State plans, policies, regulations, and laws related to GHG emissions and global climate change. Following is a discussion of some of these plans, policies, and regulations that (1) establish overall State policies and GHG emission reduction targets; (2) require State or local actions that result in direct or indirect GHG emission reductions for the proposed project; and (3) require California Environmental Quality Act (CEQA) analysis of GHG emissions.

2.2.4.1 California Code of Regulations, Title 24, Part 6

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest update to the Title 24

standards occurred in 2016 and went into effect on January 1, 2017. The 2016 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential Standards include improvements for attics, walls, water heating, and lighting. The Standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards – the energy budgets – that vary by climate zone (of which there are 16 in California) and building type; thus, the Standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach.

2.2.4.2 California Green Building Standards Code

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for new residential and nonresidential buildings (including industrial buildings) throughout California. The code is Part 11 of the California Building Standards Code in Title 24 of the CCR (California Building Standards Commission 2017). The current 2016 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2017.

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

2.2.4.3 Executive Order S-3-05

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

2.2.4.4 Assembly Bill 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that the CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

2.2.4.5 Executive Order B-30-15

On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

2.2.4.6 Senate Bill 32

As a follow-up to AB 32 and in response to EO-B-30-15, Senate Bill (SB) 32 was passed by the California legislature in August 2016 to codify the EO's California GHG emission reduction target of 40 percent below 1990 levels by 2030.

2.2.4.7 Assembly Bill 1493 – Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009), while providing vehicle manufacturers with new compliance flexibility. The amendments also prepare California to merge its rules with the federal CAFE rules for passenger vehicles (CARB 2013). In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single packet of standards called Advanced Clean Cars (CARB 2013).

2.2.4.8 Assembly Bill 341

The state legislature enacted AB 341 (California Public Resource Code Section 42649.2), increasing the diversion target to 75 percent statewide. AB 341 requires all businesses and public entities that generate 4 cubic yards or more of waste per week to have a recycling program in place. The final regulation was approved by the Office of Administrative Law on May 7, 2012, and went into effect on July 1, 2012.

2.2.4.9 Executive Order S-01-07

This EO, signed by Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California and directs CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB approved the LCFS as a discrete early action item with a regulation adopted and implemented in April 2010. Although challenged in 2011, the Ninth Circuit reversed the District Court's opinion and rejected arguments that implementing LCFS violates the interstate commerce clause in September 2013. CARB is therefore continuing to implement the LCFS statewide.

2.2.4.10 Senate Bill 350

Approved by Governor Brown on 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 eligible resources, including solar, wind, biomass, and geothermal. In addition, large utilities are required to develop and submit Integrated Resource Plans to detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions, and increase the use of clean energy.

2.2.4.11 California Air Resources Board: Scoping Plan

On December 11, 2008, CARB adopted the Scoping Plan (CARB 2008) as directed by AB 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by AB 32. Measures applicable to development projects include those related to energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the Scoping Plan includes nine measures or recommended actions related to reducing VMT and vehicle GHG emissions through fuel and efficiency measures. These measures would be implemented statewide rather than on a project by project basis.

CARB released the First Update to the Climate Change Scoping Plan in May 2014 to provide information on the development of measure-specific regulations and to adjust projections in consideration of the economic recession (CARB 2014). To determine the amount of GHG emission reductions needed to achieve the goal of AB 32 (i.e., 1990 levels by 2020) CARB developed a forecast of the AB 32 Baseline 2020 emissions, which is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. CARB estimated the AB 32 Baseline 2020 to be 509 million metric tons (MMT) of CO₂e. The Scoping Plan's current estimate of the necessary GHG emission reductions is 78 MMT CO₂e (CARB 2014). This represents an approximately 15 percent reduction. CARB is forecasting that this would be achieved through the following reductions by sector: 25 MMT CO₂e for energy, 23 MMT CO₂e for transportation, 5 MMT CO₂e for high-GWP GHGs, and 2 MMT CO₂e for waste. The remaining 23 MMT CO₂e would be achieved through Cap-and-Trade Program reductions. This reduction is flexible—if CARB receives new information and changes the other sectors' reductions to be less than expected, the agency can increase the Cap-and-Trade reduction (and vice versa).

In response to EO B-30-15 and SB 32, all state agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the Scoping Plan to reflect the 2030 target and, therefore, is moving forward with the update process. The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue driving down emissions. CARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The 2017 Climate Change Scoping Plan Update, Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target, was adopted December 2017. The Scoping Plan Update establishes a proposed framework for California to meet a 40 percent reduction in GHGs by 2030 compared to 1990 levels. This is the most aggressive climate target in North America and aligns California with the rest of the world in fighting climate change. The Proposed Plan would continue to move California towards a sustainable future while shifting dependence away from fossil fuels. The Plan would build on the Cap-and-Trade

Regulation, Low Carbon Fuel Standard program, and continue to increase the use of renewable energy through cleaner cars, trucks and freight movement, and reduce agricultural and waste methane emissions by utilizing it for energy needs. The Proposed Plan also addresses for the first time the GHG emissions from agriculture and forestry sectors along with other natural and working lands of California (CARB 2017a).

2.2.5 Local Regulations

2.2.5.1 South Coast Air Quality Management District

Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold of 10,000 MT CO₂e per year for projects where the SCAQMD is the lead agency. The policy objective for establishing this significance threshold and the recommended screening thresholds below is to capture projects that represent approximately 90 percent of GHG emissions from new sources (SCAQMD 2008). These projects would be subject to further analysis and the incorporation of measures to reduce GHG emissions.

In September 2010, the Working Group presented a revised tiered approach to determining GHG significance for residential and commercial projects (SCAQMD 2010). These proposals have not been considered by the SCAQMD Board.

At Tier 1, GHG emissions impacts would be less than significant if a project qualifies under a categorical or statutory CEQA exemption. For projects that do not meet the Tier 1 criteria, the GHG emissions impact would be less than significant at Tier 2 if a project is consistent with a previously adopted GHG reduction plan that meets specific requirements. At Tier 3, the Working Group proposes extending the 10,000 MT CO₂e per year screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency (described above) to other lead agency industrial projects. For residential and commercial projects, the Working Group proposes a 3,000 MT CO₂e per year threshold for all land use types. A project with emissions less than the applicable screening value would be considered to have less than significant GHG emissions.

2.2.5.2 City of Moreno Valley

The City developed an Energy Efficiency and Climate Action Strategy (CAS) that was adopted in October 2012 (City 2012a). The Energy Efficiency and CAS (Strategy) establishes policies, practices, and strategies, to assist the City in energy and water conservation and reduction of GHG emissions. The program will encourage its community members to reduce their own GHG emissions through energy and water conservation by providing training and public awareness. The Strategy will help lead agencies to assess cumulative impacts of a project and provide a means for future projects to address GHG impacts under CEQA. A lead agency may conclude that a project's GHG impact is not cumulatively significant if the project demonstrates consistency with this CAS (CEQA Guidelines Section 15183.5[h][3]).

Following the state's adopted AB 32 GHG reduction target, the City set a goal to reduce emissions to 1990 levels by the year 2020. This target was calculated as a 15 percent decrease from 2007 levels, as recommended in the AB 32 Scoping Plan (2007 was the closet year to 2005 with best data available).

The estimated business-as-usual emissions for the year 2020, based on population and housing growth projections associated with the assumptions used in the proposed General Plan, is 1,298,546 MT of CO_{2e} (City 2012b). To reach 15 percent below 2007 levels, the City must reduce GHG emissions to 798,693 MT of CO_{2e} by 2020. A community-wide emissions inventory was also calculated in 2010 which is the most current year with data available.

To reach the reduction target, the City is committed to incorporating sustainable features into the community. The Strategy includes measures that encourage energy efficiency and renewable energy in buildings, access to sustainable transportation, water conservation, and increased waste diversion. Through the CAS, the City has established goals and policies that incorporate environmental responsibility into its daily management of residential, commercial and industrial growth, education, energy and water use, air quality, transportation, waste reduction, economic development and open space and natural habitats to further their commitment. The development of the CAS may require the City's General Plan to be updated to reference the Strategy for direction on energy efficiency and GHG reduction.

3.0 EXISTING CONDITIONS

3.1 CLIMATE AND METEOROLOGY

The project site is in the SCAB, which consists of all or part of four counties: Los Angeles, San Bernardino, Riverside, and Orange. The distinctive climate of the SCAB is determined by its terrain and geographic location. The SCAB is a coastal plain with connecting broad valleys and low hills. It is bound by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light, average wind speeds.

The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. Winds in the project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night, the wind generally slows and reverses direction traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons. The vertical dispersion of air pollutants in the SCAB is hampered by the presence of persistent temperature inversions. High pressure systems, such as the semi-permanent high-pressure zone in which the SCAB is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The basin-wide occurrence of inversions at 3,500 feet above mean sea level or less averages 191 days per year (SCAQMD 1993).

The annual average maximum temperature as measured at the Perris City climatic station, approximately 3 miles south of the project site, is 78.7°Fahrenheit (F). The highest monthly average maximum temperature (96.9°F) occurs in August, and the lowest monthly average minimum temperature (34.7°F) occurs in January. The average annual precipitation is approximately 10 inches (Western Regional Climate Center 2017).

3.2 EXISTING AIR QUALITY

3.2.1 Criteria Pollutants

3.2.1.1 Attainment Designations

Attainment designations are discussed in Section 2.1 and Table 2. The SCAB is a federal and state nonattainment area for 8-hour ozone and PM_{2.5}. The SCAB is also a state nonattainment area for 1-hour ozone and PM₁₀.

3.2.1.2 Monitored Air Quality

The SCAQMD maintains monitoring stations to measure ambient concentrations of pollutants in the SCAB. The nearest monitoring station to the project site is the Perris monitoring station, which is located approximately 10 miles south of the project site. The Perris station monitors ozone and PM₁₀. The Lake Elsinore monitoring station, located approximately 20 miles southeast of the project site in the City of Lake Elsinore monitors NO₂ and PM_{2.5}. Table 4, *Air Quality Monitoring Data*, presents a summary of the ambient pollutant concentrations monitored at the Perris and Lake Elsinore air quality monitoring stations during the last three years (2014 through 2016) for which the SCAQMD has reported data.

Table 4
AIR QUALITY MONITORING DATA

Pollutant Standards	2014	2015	2016
Ozone (O₃) [Perris]			
Maximum concentration 1-hour period (ppm)	0.117	0.124	0.131
Maximum concentration 8-hour period (ppm)	0.094	0.102	0.098
Days above 1-hour state standard (>0.09 ppm)	16	25	23
Days above 8-hour state/federal standard (>0.070 ppm)	59	49	55
Nitrogen Dioxide (NO₂) [Lake Elsinore]			
Maximum 1-hour concentration (ppm)	0.045	0.047	0.051
Days above state 1-hour standard (0.18 ppm)	0	0	0
Days above federal 1-hour standard (0.100 ppm)	0	0	0
Suspended Particulates (PM₁₀) [Perris]			
Maximum 24-hour concentration (µg/m ³)	87.0	188.0	76.0
Days above state standard (>50 µg/m ³)	6	4	*
Days above federal standard (>150 µg/m ³)	0	1	0
Suspended Particulates (PM_{2.5}) [Lake Elsinore]			
Maximum 24-hour concentration (µg/m ³)	33.7	42.2	31.5
Days above federal standard (>35 µg/m ³)	0	*	0

Source: CARB 2017b

ppm = parts per million

* insufficient data available to determine the value

The 1- and 8-hour ozone standards were exceeded several times in each of the sample years. The state PM₁₀ standard was exceeded 6 times in 2014 and 4 times in 2015. The federal PM₁₀ standard was exceeded once in 2015.

3.2.2 Greenhouse Gases

For 2012, total GHG emissions worldwide were estimated at 46,049 MMT CO₂e (World Resources Institute 2017). The U.S. contributed the second largest portion of GHG emissions (behind China) at 12 percent of global emissions, with 5,823 MMT CO₂e in 2012. On a national level in 2013, approximately 27 percent of GHG emissions are associated with transportation and about 31 percent are associated with electricity generation (USEPA 2015).

CARB performs statewide GHG inventories. The inventory is divided into six broad sectors; agriculture and forestry, commercial, electricity generation, industrial, residential, and transportation. Emissions are quantified in MMT CO₂e. Table 5, *California Greenhouse Gas Emissions by Sector*, shows the estimated statewide GHG emissions for the years 1990, 2000, 2010, and 2015 (CARB 2017d).

Table 5
CALIFORNIA GREENHOUSE GAS EMISSIONS BY SECTOR
(MMT CO₂e)

Sector	1990	2000	2010	2015
Agriculture and Forestry	23.6 (5%)	32.1 (7%)	34.5 (8%)	34.6 (8%)
Commercial	14.4 (3%)	15.0 (3%)	21.6 (5%)	22.2 (5%)
Electricity Generation	110.6 (26%)	105.2 (22%)	90.5 (20%)	84.1 (19%)
Industrial	103.0 (24%)	105.4 (22%)	102.7 (23%)	103.0 (23%)
Residential	29.7 (7%)	31.8 (7%)	32.2 (7%)	26.9 (6%)
Transportation	150.7 (35%)	178.1 (38%)	173.7 (38%)	169.4 (39%)
Unspecified Remaining	1.3 (<1%)	1.2 (<1%)	0.8 (<1%)	0.82 (<1%)
TOTAL	433.3	468.8	456.0	440.4

Source: CARB 2007 and CARB 2017c

As shown in Table 5, statewide GHG emissions totaled 433 MMT CO₂e in 1990, 469 MMT CO₂e in 2000, 456 MMT CO₂e in 2010, and 440 MMT CO₂e in 2015. Transportation-related emissions consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions.

The City prepared an emissions inventory as part of their CAS. The 2010 emissions inventory for the City is duplicated below in Table 6, *City of Moreno Valley Greenhouse Gas Emissions by Sector*. The sectors included in this inventory are somewhat different from those in the statewide inventory.

Table 6
CITY OF MORENO VALLEY GREENHOUSE GAS EMISSIONS
BY SECTOR (MT CO₂e [x 1,000])

Sector	2010
Transportation	514
Energy	277
Area Sources	69
Water and Wastewater	17
Solid Waste	44
TOTAL	921

Source: City 2012b

Similar to the statewide emissions, transportation-related GHG emissions were the greatest contributor, with approximately 56 percent of GHG emissions for the City in 2010. Energy-related GHG emissions ranked second, with approximately 30 percent in 2010.

4.0 METHODOLOGY AND SIGNIFICANCE CRITERIA

4.1 METHODOLOGY

Criteria pollutant and GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a computer model used to estimate criteria air pollutant and GHG emissions resulting from construction and operation of land development projects throughout the state of California. CalEEMod was developed by the SCAMQD with the input of several air quality management and pollution control districts. The input data and subsequent construction and operation emission estimates for the proposed project are discussed below. CalEEMod output files are included in Appendix A.

4.1.1 Construction Emissions

As described above, construction emissions are assessed using the CalEEMod. CalEEMod contains OFFROAD2011 emission factors and EMFAC2014 emission factors from CARB's models for off-road equipment and on-road vehicles, respectively. The construction analysis included modeling of the projected construction equipment that would be used during each construction activity and quantities of earth and debris to be moved. The model calculates emissions of CO, PM₁₀, PM_{2.5}, SO₂, and the ozone precursors ROG and NO_x.

Construction input data for CalEEMod include, but are not limited to, (1) the anticipated start and finish dates of construction activity; (2) inventories of construction equipment to be used; (3) areas to be excavated and graded; and (4) volumes of materials to be exported from and imported to the project area. The analysis assessed maximum daily emissions from individual construction activities, including site preparation, grading, underground utility installation, building construction, paving, and architectural coating. Construction would require heavy equipment during site preparation, grading, trenching for underground infrastructure, building construction, and paving. Construction equipment estimates are based on detailed assumptions provided by A & S Engineering and CalEEMod defaults. Table 7, *Construction Equipment Assumptions*, presents a summary of the assumed equipment that would be involved in each phase of construction.

Table 7
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Phase	Equipment	Number
Site Preparation	Graders	1
	Tractors/Loaders/Backhoes	1
Grading	Concrete/Industrial Saws	1
	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	2
Underground Utilities Installation	Tractors/Loaders/Backhoes	1
Building Construction	Cranes	1
	Forklifts	2
	Tractors/Loaders/Backhoes	2
Paving	Pavers	1
	Cement and Mortar Mixers	4
	Rollers	1
	Tractors/Loaders/Backhoes	1
Architectural Coating	Air Compressors	1

Source: CalEEMod defaults and pers. communication with A & S Engineers.

Note: Output data, including equipment horsepower, is provided in Appendix A

The construction schedule was based on information provided by A & S Engineers. As shown in Table 8, *Anticipated Construction Schedule*, project development is assumed to start in January 2019 and projected to be complete June 2019. Grading and underground utilities installation will overlap for 20 days.

Table 8
ANTICIPATED CONSTRUCTION SCHEDULE

Construction Activity	Construction Period		
	Start	End	Number of Working Days
Site Preparation	1/1/2019	1/31/2019	23
Grading	2/1/2019	2/28/2019	20
Underground Utilities Installation	2/1/2019	2/28/2019	20
Building Construction	3/1/2019	6/14/2019	76
Paving	6/15/2019	6/21/2019	5
Architectural Coating	6/22/2019	6/28/2019	5

Source: Schedule provided by A & S Engineers.

Note: Output data is provided in Appendix A.

The quantity, duration, and the intensity of construction activity influence the amount of construction emissions and their related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix than incorporated in the CalEEMod, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over

a longer time interval). A complete listing of the assumptions used in the analysis and model output is provided in Appendix A of this report.

CalEEMod has the capability to calculate reductions in construction emissions from the effects of dust control, diesel-engine classifications, and other selected emissions reduction measures. Emissions calculations assume application of water during grading and a 15-miles per hour (mph) speed limit on unpaved surfaces in compliance with SCAQMD Rule 403, Fugitive Dust. Based on CalEEMod, Version 2016.3.2, the control efficiency for watering two times per day is 55 percent.

CalEEMod estimates construction emissions for each year of construction activity based on the annual construction equipment profile and other factors determined as needed to complete all phases of construction by the target completion year. As such, each year of construction activity has varying quantities of GHG emissions. Per SCAQMD Guidance, total construction GHG emissions resulting from the project are amortized over 30 years and added to operational GHG emissions.

4.1.2 Operation Emissions

Operational impacts were estimated using CalEEMod. Operational sources of emissions include area, energy, transportation, water use, and solid waste. Operational emissions from area sources include the use of consumer products, engine emissions from landscape maintenance equipment, and VOC emissions from repainting of buildings.

Operational emissions from mobile source emissions are associated with project-related vehicle trip generation and trip length. Based on the Transportation Impact Analysis (TIA; Kimley-Horn and Associates, Inc. 2016), the project would generate 2,445 daily trips, 72 morning peak hour trips, 98 evening peak hour trips, and 138 Sunday peak hour trips. CalEEMod default vehicle speeds, trip purpose, and distance were used. Model output data sheets are included in Appendix A.

4.1.3 Localized Significance Threshold Methodology

As part of the SCAQMD's environmental justice program, more attention has been focused on localized air quality effects. In addition to the CEQA significance thresholds for mass daily emissions and regional conditions, the SCAQMD has established thresholds for ambient air quality (Table 9, *SCAQMD Air Quality Significance Thresholds*) to address localized impacts. Also, while regional impact analysis is based on attaining or maintaining regional emissions standards, localized impact analysis compares the concentration of a pollutant at a receptor site to a health-based standard.

SCAQMD staff then developed localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used by public agencies to determine whether a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard; they are developed based on the ambient concentrations of that pollutant for each SRA (SCAQMD 2009). The LST methodology translates the concentration standards into emissions thresholds that are a function of project site area, source to receptor distance, and the location within the SCAB. The LST methodology is recommended to be limited to projects of five acres or less and to avoid the need for complex dispersion modeling. For projects that exceed five acres, the five-acre LST look-up values can be used as a screening tool to determine which pollutants require detailed analysis (Sun 2017). The proposed project is located on a 3.77-acre lot and will therefore utilize

the applicable five-acre LST values. If a project exceeds the LST look up values, then the SCAQMD recommends that project-specific localized air quality modeling be performed.

4.2 SIGNIFICANCE CRITERIA

4.2.1 Air Quality

The following significance thresholds are based on Appendix G of the state CEQA Guidelines. A significant impact is identified if the project would result in any of the following:

- (1) Conflict with or obstruct implementation of the applicable air quality plan;
- (2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- (3) Expose sensitive receptors to substantial pollutant concentrations;
- (4) Result in a cumulatively-considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative standards for ozone precursors); or
- (5) Create objectionable odors affecting a substantial number of people.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent the most current technical information and attainment status in the SCAB. Table 9 presents the most current significance thresholds, including regional daily thresholds for short-term construction and long term operational emissions; maximum incremental cancer risk and hazard indices for TACs; and maximum ambient concentrations for exposure of sensitive receptors to localized pollutants. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

Table 9
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds (pounds per day)		
Pollutant	Construction	Operation
VOC	75	55
NO _x	100	55
CO	550	550
PM ₁₀	150	150
PM _{2.5}	55	55
SO _x	150	150
Lead	3	3

Table 9 (cont.)
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Toxic Air Contaminants	
TACs	Maximum Incremental Cancer Risk \geq 10 in 1 million Cancer Burden $>$ 0.5 excess cancer cases (in areas \geq 1 in 1 million) Chronic & Acute Hazard Index \geq 1.0 (project increment)
Ambient Air Quality for Criteria Pollutants	
NO ₂	1-hour average \geq 0.18 ppm Annual average \geq 0.03 ppm
CO	1-hour average \geq 20.0 ppm (state) 8-hour average \geq 9.0 ppm (state/federal)
PM ₁₀	24-hour average \geq 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average \geq 2.5 $\mu\text{g}/\text{m}^3$ (operation) Annual average \geq 1.0 $\mu\text{g}/\text{m}^3$
PM _{2.5}	24-hour average \geq 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average \geq 2.5 $\mu\text{g}/\text{m}^3$ (operation)
SO ₂	1-hour average \geq 0.075 ppm 24-hour average \geq 0.04 ppm

Source: SCAQMD 2015

lbs/day: pounds per day; VOC: volatile organic compound; NO_x: nitrogen oxides; CO: carbon monoxide; PM₁₀: respirable particulate matter with a diameter of 10 microns or less; PM_{2.5}: fine particulate matter with a diameter of 2.5 microns or less; SO_x: sulfur oxides; TACs: toxic air contaminants; GHG: greenhouse gas emissions; MT/yr: metric tons per year; CO_{2e}: carbon dioxide equivalent; NO₂: nitrogen dioxide; ppm: parts per million; $\mu\text{g}/\text{m}^3$: micrograms per cubic meter.

4.2.2 Greenhouse Gases

Given the relatively small levels of emissions generated by a typical development in relationship to the total amount of GHG emissions generated on a national or global basis, individual development projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant, cumulative impacts with respect to climate change. Thus, the potential for a significant GHG impact is limited to cumulative impacts.

According to Appendix G of the CEQA Guidelines, a project would have a significant environmental impact if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

There are no established federal, state, or local quantitative thresholds applicable to the project to determine the quantity of GHG emissions that may have a significant effect on the environment. CARB, the SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance that require the implementation of GHG emission reduction measures. For the proposed project, the most appropriate screening threshold for determining GHG emissions is the SCAQMD proposed Tier 3 screening threshold (SCAQMD 2010); therefore, a significant impact would occur if the

proposed project would exceed the SCAQMD proposed Tier 3 screening threshold of 3,000 MT CO₂e per year.

5.0 AIR QUALITY IMPACT ANALYSIS

This section evaluates potential direct impacts of the proposed project related to the air pollutant emissions. Project-level air quality modeling was completed as part of this analysis. Complete modeling results are included as Appendix A of this report.

5.1 CONSISTENCY WITH AIR QUALITY PLANS

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, economy, community development, and environment. With regard to air quality planning, SCAG has prepared the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), a long-range transportation plan that uses growth forecasts to project trends out over a 20-year period to identify regional transportation strategies to address mobility needs. These growth forecasts form the basis for the land use and transportation control portions of the AQMP. These documents are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. Both the RTP/SCS and AQMP are based, in part, on projections originating with County and City General Plans.¹

The proposed project is consistent with the City General Plan land use of *Office Commercial*. Because the project is consistent with the local general plan, pursuant to SCAQMD guidelines, the proposed project is considered consistent with the region's AQMP. As such, proposed project-related emissions are accounted for in the AQMP, which is crafted to bring the basin into attainment for all criteria pollutants. Accordingly, the proposed project would be consistent with the projections in the AQMP, thus resulting in a less than significant impact.

5.2 CONFORMANCE TO FEDERAL AND STATE AIR QUALITY STANDARDS

The project would generate criteria pollutants in the short term during construction and the long term during operation. To determine whether a project would result in emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SCAQMD (as shown in Table 9).

5.2.1 Construction

5.2.1.1 Project Emissions

The project's construction emissions were estimated using the CalEEMod model as described in Section 4.1.1. Project-specific input was based on general information provided in Section 1.0, assumptions provided by A & S Engineers, and default model settings to estimate reasonably conservative conditions. Additional details of phasing, selection of construction equipment, and other input parameters, including CalEEMod data, are included in Appendix A.

¹ SCAG serves as the federally designated metropolitan planning organization for the Southern California region.

The results of the calculations for project construction are shown in Table 10, *Maximum Daily Construction Emissions*. The data are presented as the maximum anticipated daily emissions for comparison with the SCAQMD thresholds.

Table 10
MAXIMUM DAILY CONSTRUCTION EMISSIONS

Phase	Pollutant Emissions (pounds/day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Site Preparation	1	9	4	<0.5	1	<0.5
Grading	1	9	8	<0.5	1	1
Underground Utilities	<0.5	2	2	<0.5	<0.5	<0.5
Building Construction	1	10	8	<0.5	1	1
Paving	1	8	8	<0.5	1	1
Architectural Coating	12	2	2	<0.5	<0.5	<0.5
Maximum Daily Emissions¹	12	11	11	<0.5	1	<0.5
<i>SCAQMD Thresholds</i>	75	100	550	150	150	55
Significant Impact?	No	No	No	No	No	No

Source: CalEEMod (output data is provided in Appendix A)

¹ Maximum daily emissions of ROG emissions occur during architectural coating; all other maximum daily emissions occur when Grading and Underground Utilities phases overlap.

Note: Totals may not sum due to rounding.

As shown in Table 10, emissions of all criteria pollutants related to project construction would be below the SCAQMD significance thresholds. Therefore, direct impacts from criteria pollutants generated during construction would be less than significant and no mitigation would be required.

5.2.2 Operation

5.2.2.1 Project Emissions

The project's operational emissions were estimated using the CalEEMod model as described in Section 4.1.2. The CalEEMod model input was based on the current vehicle trip generation provided in the project's TIA (Kimley-Horn and Associates, Inc. 2016) and the building area. Operational emission calculations and model outputs are provided in Appendix A. Table 11, *Maximum Daily Operational Emissions*, presents the summary of operational emissions for the project.

Table 11
MAXIMUM DAILY OPERATIONAL EMISSIONS

Category	Pollutant Emissions (pounds per day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Area	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Energy	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mobile	3	24	22	<0.5	<0.5	1
Total Daily Emissions	4	24	22	<0.5	<0.5	1
<i>SCAQMD Thresholds</i>	55	55	550	150	150	55
Significant Impact?	No	No	No	No	No	No

Source: CalEEMod (output data is provided in Appendix A)

Note: Totals may not sum due to rounding

As shown in Table 11, project emissions during operation would not exceed the daily thresholds set by the SCAQMD. Therefore, impacts from criteria pollutants generated during project operation would be less than significant and no mitigation would be required.

5.3 CUMULATIVELY CONSIDERABLE NET INCREASE OF NONATTAINMENT CRITERIA POLLUTANTS

In accordance with CEQA Guidelines Section 15064(h)(3), the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. If a project is not consistent with the AQMP, which is intended to bring the SCAB into attainment for all criteria pollutants, that project can be considered cumulatively considerable. Additionally, if the mass regional emissions calculated for a project exceed the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable state and national ambient air quality standards, that project can be considered cumulatively considerable. As detailed in Section 5.2, Tables 10 and 11, construction and operational emissions would not exceed the SCAQMD regional significance thresholds for all criteria pollutants and would therefore not be cumulatively considerable.

For two or more projects within close proximity, that is, 1,640 feet (500 meters) or less from the same sensitive receptor, a local cumulative analysis must be performed. The onsite emissions from the related project must be added to the background concentration, which is then summed with the proposed project emissions for comparison to the SCAQMD LSTs or State and federal AAQS. If the related projects combine with the proposed project to result in an exceedance of the ambient standards, the project is considered cumulatively significant. There are no known projects within close proximity, defined as 1,640 feet (500 meters) or less, to the proposed project. Therefore, a local cumulative analysis is not required.

5.4 IMPACTS TO SENSITIVE RECEPTORS

5.4.1 Construction Activities

5.4.1.1 Criteria Pollutants

The localized effects from the on-site portion of daily construction emissions were evaluated at sensitive receptor locations potentially impacted by the project according to the SCAQMD's LST method, described above. Consistent with the LST guidelines, when quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Emissions related to off-site delivery/haul truck activity and construction worker trips are not considered in the evaluation of construction-related localized impacts, as these do not contribute to emissions generated on a project site. The closest sensitive receptors are the single-family residences approximately 70 feet (21 meters) west of the project site. Therefore, the LSTs for receptors located at 82 feet (25 meters) are used. As shown in Table 12 below, localized emissions for all criteria pollutants would remain below their respective SCAQMD LSTs. There would be a less than significant impact and no mitigation is required.

Table 12
MAXIMUM LOCALIZED DAILY CONSTRUCTION EMISSIONS

Phase	Pollutant Emissions (pounds/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Site Preparation	9	4	<0.5	<0.5
Grading	9	8	1	1
Underground Utilities	2	2	<0.5	<0.5
Building Construction	10	8	1	1
Paving	8	7	<0.5	<0.5
Architectural Coating	2	2	<0.5	<0.5
Maximum Daily Emissions¹	11	10	1	1
<i>SCAQMD Thresholds</i>	<i>270</i>	<i>1,557</i>	<i>13</i>	<i>8</i>
Significant Impact?	No	No	No	No

Source: CalEEMod (output data is provided in Appendix A)

¹ Maximum daily emissions occur when Grading and Underground Utilities phases overlap.

Note: Totals may not sum due to rounding.

5.4.1.2 Toxic Air Contaminants

The greatest potential for TAC emissions during construction would be related to DPM associated with heavy equipment operations during earth-moving activities. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature (i.e., less than one year). The assessment of cancer risk is typically based on a 30-year exposure duration. Because exposure to diesel exhaust would be well below 30 years, construction of the proposed project is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related TAC emission impacts during construction would not be significant and no mitigation is required.

5.4.2 Operational Activities

5.4.2.1 CO Hotspots

CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions) particularly during peak commute hours and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals. As a result, the SCAQMD recommends analysis of CO emissions at the local and regional levels.

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. If a project increases average delay at signalized intersections operating at Level of Service (LOS) E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the project, a quantitative screening is required.

According to the project traffic analysis (Kimley-Horn and Associates, Inc. 2016), four of the intersections evaluated would meet these criteria, indicating that there would be a potential CO hotspot and a quantitative screening is required. The four intersections and their projected LOS include; Perris Boulevard at Atwood Avenue which would operate at LOS E (AM) and F (PM/Sun); the unsignalized

intersection of Cottonwood Avenue at Crape Myrtle Drive which would operate at LOS F in the AM and E on Sunday; Perris Boulevard at Alessandro Boulevard which would operate at LOS E in PM peak hours; and the Perris Boulevard Driveway which would operate at LOS F during all AM, PM and Sunday peak hours.

In the 2003 SCAQMD AQMP, the SCAQMD modeled the four highest volume intersections in the SCAB to determine the highest potential for a CO hotspot in the SCAB. The results of the SCAQMD's analysis are provided in Table 13 and illustrate that no intersections would exceed the federal or State 1-hour standards or the federal 8-hour standard and one intersection would likely exceed the State 8-hour CO standard (Long Beach-Imperial) in 2003². By 2004, all intersections were estimated to fall below all CO standards and be further reduced in 2005. This decrease over time is largely due to improved technologies and the use of progressively cleaner vehicles.

Table 13
CARBON MONOXIDE MODELING RESULTS FROM THE 2003 AIR QUALITY MANAGEMENT PLAN (PPM)

Intersection	Morning 1-Hour	Afternoon 1-Hour	Peak 1-Hour	2003 8-hour	2004 8-hour	2005 8-hour
Wilshire Ave at Veteran Ave	4.6	3.5	-	4.2	4.0	3.7
Sunset Ave at Highland Ave	4.0	4.5	-	3.9	3.7	3.5
La Cienega Blvd at Century Blvd	3.7	3.1	-	5.8	5.5	5.2
Long Beach Blvd at Imperial Hwy	3.0	3.1	1.2	9.3	8.8	8.4

Ppm: parts per million

Note: The federal 1-hour standard is 35 ppm, the State 1-hour standard is 20 ppm, the federal 8-hour standard is 9 ppm, and State 8-hour standard is 9.0 ppm.

Sources: SCAQMD 2003

Due to the high level of urbanization in the Los Angeles area where the highest volume intersections are located and due to the continuing reduction in vehicle CO emissions, background CO concentrations are expected to be lower in the City than any of the intersections in Table 13. When qualitatively comparing the CO modeling locations in the 2003 AQMP to those in the project area, several factors can be used to demonstrate that the project area can be expected to have lower CO concentrations than in the attainment plan. The factors considered are traffic demand, emission variables, site variables, and meteorological variables.

Table 14, *Traffic Volume Comparison*, provides a summary of the traffic volumes contained in the SCAQMD's modeling and the traffic volumes for the proposed Project for comparison.

² It should be noted that the federal 8-hour CO standard is 9 ppm and not 9.0 ppm. As such, all values less than 9.5 do not exceed the standard. Therefore, the 2003 concentration for Long Beach Blvd/Imperial Hwy of 9.3 is said to not exceed the federal 8-hour CO standard.

Table 14
TRAFFIC VOLUME COMPARISON

Intersection		Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	TOTAL (AM/PM)
2003 AQMP	Wilshire Ave at Veteran Ave	4,951/2,069	1,830/3,317	721/1,400	560/933	8,062/8,388
	Sunset Ave at Highland Ave	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/7,374
	La Cienega Blvd at Century Blvd	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,635/8,888
	Long Beach Blvd at Imperial Hwy	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514
Proposed Project	Perris Blvd at Atwood Ave	56/58	21/15	1311/1765	1531/1465	2,919/3,303
	Cottonwood Ave at Crape Myrtle Dr	373/424	532/343	1341/1706	1328/1376	3,574/3,849
	Perris Blvd at Alessandro Blvd	764/1842	1341/1136	1162/1427	1395/1255	4,662/5,660
	Perris Blvd Driveway	11/86	61/69	1334/1666	1480/1468	2,886/3,289

Source: SCAQMD 2003; Kimley-Horn and Associates, Inc. 2016.

As shown in Table 14, traffic volumes at the project-affected intersections are less than the maximum traffic volumes in the AQMP modeled intersections, therefore CO concentrations would be less than those modeled for the AQMP intersections. There would be no exposure of sensitive receptors to a project-generated CO hotspot and impacts would be less than significant.

5.4.2.2 Toxic Air Contaminants

The new fuel facility would require authority to construct (ATC) and permit to operate (PTO) approval from the SCAQMD, which will review the facility design and location for compliance with SCAQMD standards for criteria pollutants and air quality. All tanks and dispensers would be equipped with the latest Phase I and Phase II Enhanced Vapor Recovery (EVR) air pollution control equipment technology per CARB regulations and associated Executive Orders. The Phase I EVR equipment controls the vapors in the return path from the tanks back to the tanker truck during offloading filling operations. Phase I EVR systems are 98 percent effective in controlling fugitive emissions from escaping into the environment. The Phase II EVR equipment, which also includes "in-station diagnostics," controls and monitors the vapors in the return path from the vehicles back to the tanks. Phase II EVR systems are 95 percent effective in controlling fugitive emissions from escaping into the environment. Therefore, operations expected to occur at the proposed project would not emit a significant quantity of toxic chemicals.

Other long-term operational emissions include toxic substances such as cleaning agents in use on site, compliance with State and federal handling regulations would ensure that emissions remain below a level of significance. The use of such substances such as cleaning agents is regulated by the 1990 Federal Clean Air Act Amendments as well as State-adopted regulations for the chemical composition of consumer products. As such, project-related TAC emission impacts during operation would be less than significant and no mitigation is required.

5.5 ODORS

The Air Quality Section of the City General Plan's Environmental Impact Report (EIR; City 2006) provides guidance for defining objectionable odors. For construction activities, odors would be short-term in nature and are subject to SCAQMD Rule 402 *Nuisance* (CARB 2018) and may be reported to the AQMD (City 2012c). In addition, construction odors are limited to the number of people living and working near the source. The nearest residences are located adjacent to the east of the project. While some components of asphalt and diesel emissions are considered toxic air contaminants, construction activities would be temporary and transitory and associated odors would not be unfamiliar and would cease upon construction completion. Therefore, odor impacts from construction of the project would be less than significant due to the duration of exposure.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed project, a donut restaurant and convenience store with a fueling station and car wash, would not include any of these uses. The fueling station would emit odors during operation in the form of diesel exhaust from vehicles and operation of the fueling pumps. The increase in odor emission, however, would be minimal, as vehicle exhaust is already prevalent in the area due to its proximity to busy roadways such as Perris Boulevard and Cottonwood Avenue.

Solid waste generated by the proposed on-site uses would be collected by a contracted waste hauler, ensuring that any odors resulting from on-site waste would be managed and collected in a manner to prevent the proliferation of odors. Operational odor impacts would be less than significant.

6.0 GREENHOUSE GAS IMPACT ANALYSIS

This section evaluates potential impacts of the proposed project related to the generation of GHG emissions. Complete modeling results are included as Appendix A of this report.

6.1 GREENHOUSE GAS EMISSIONS

6.1.1 Construction

Project construction GHG emissions were estimated using the CalEEMod model as described in Section 4.1. Project-specific input was based on general information provided in Section 1.0, information provided by A & S Engineers, and default model settings to estimate reasonably conservative conditions. Additional details of phasing, selection of construction equipment, and other input parameters, including CalEEMod data, are included in Appendix A.

Emissions of GHGs related to the construction of the project would be temporary. As shown in Table 15, *Estimated Construction GHG Emissions*, total GHG emissions associated with construction of the project are estimated at 76 MT CO₂e. For construction emissions, SCAQMD recommends that the emissions be amortized (i.e., averaged) over 30 years and added to operational emissions. Averaged over 30 years, the proposed construction activities would contribute approximately 3 MT CO₂e emissions per year.

Table 15
ESTIMATED CONSTRUCTION GHG EMISSIONS

Phase	Emissions (MT CO ₂ e)
Site Preparation	11
Grading	13
Underground Utilities	3
Building Construction	46
Paving	3
Architectural Coating	1
TOTAL¹	76
Amortized Construction Emissions ²	3

Source: CalEEMod (output data is provided in Appendix A)

¹ The total presented is the sum of the unrounded values.

² Construction emissions are amortized over 30 years in accordance with SCAQMD guidance.

6.1.2 Operational Emissions

Operational sources of GHG emissions include: (1) area sources (landscaping equipment); (2) energy use; (3) vehicle use; (4) solid waste generation; and (5) water conveyance and treatment.

6.1.2.1 Area Source Emissions

Project area sources include emissions from use of consumer products, landscaping equipment, and VOC emissions from repainting buildings. GHG emissions associated with area sources were estimated using the CalEEMod default values for the project. The annual GHG emissions from area sources are estimated to be less than 0.5 MT CO₂e per year.

6.1.2.2 Energy Emissions

The project would use electricity for lighting, heating, and cooling. Electricity generation typically entails the combustion of fossil fuels, including natural gas and coal, which are then stored and transported to end users. A building's electricity use is thus associated with the off-site or indirect emission of GHGs at the source of electricity generation (power plant). Project electricity will be supplied by Southern California Edison. No natural gas would be used in the project.

With the implementation of energy-reducing project design features to comply with 2016 Title 24 standards, the annual GHG emissions from electricity consumption are estimated to be 51 MT CO₂e.

6.1.2.3 Vehicular (Mobile) Sources

Operational emissions from mobile source emissions are associated with project-related vehicle trip generation and trip length. Based on information from Traffic Impact Study prepared for the project (Kimley-Horn and Associates, Inc. 2016), after applying additional pass-by reductions, the project would generate 2,445 ADTs, 72 morning peak hour trips, 98 evening peak hours trips, and 138 Sunday trips. CalEEMod default vehicle speeds were used. The project would result in vehicle-related emissions of 1,092 MT CO₂e.

6.1.2.4 Solid Waste Sources

Solid waste generated by the project would also contribute to GHG emissions. Treatment and disposal of solid waste produces emissions of methane. For the project calculations, a countywide average waste disposal rate was used and was obtained from the California Department of Resources Recycling and Recovery (CalRecycle). This analysis assumes that the countywide average already accounts for the 50 percent diversion requirement from AB 75. In 2012, the State legislature enacted AB 341, increasing the diversion target to 75 percent statewide by 2020. Therefore, a 25 percent diversion rate over the countywide average was applied to the project in this analysis. Using CalEEMod defaults and a 25 percent operational solid waste diversion rate in accordance AB 341 standards, GHG emissions from project-related solid waste would be 13 MT CO₂e per year.

6.1.2.5 Water Sources

Water-related GHG emissions are from the conveyance and treatment of water. The California Energy Commission's 2006 Refining Estimates of Water-Related Energy Use in California defines average energy values for water in southern California. These values are used in CalEEMod to establish default water-related emission factors. Using these defaults and a 20 percent reduction in potable water use and wastewater generation in accordance with CALGreen, the project's estimated GHG emissions related to water treatment and conveyance would be 5 MT CO₂e per year.

6.1.3 Other GHG Emission Sources

Ozone is also a GHG; however, unlike other GHGs, ozone in the troposphere is relatively short lived and therefore is not global in nature. According to CARB, it is difficult to make an accurate determination of the contribution of ozone precursors (NO_x and VOCs) to global warming (CARB 2006). Therefore, it is assumed that emission of ozone precursors associated with the project would not significantly contribute to climate change.

At present, there is a federal ban on chlorofluorocarbons (CFCs); therefore, it is assumed that the project would not generate emissions of this GHG. Implementation of the project may emit a small amount of HFC emissions from leakage, service of, and from disposal at the end of the life of refrigeration and air conditioning equipment. However, these emissions are not quantifiable and are assumed to be negligible. PFCs and sulfur hexafluoride are typically used in heavy-duty industrial manufacturing applications. The proposed project is a donut restaurant and convenience store with a fueling station and carwash and would not include heavy-duty industrial manufacturing applications. Therefore, it is not anticipated that the project would contribute significant emissions of these GHGs.

6.1.4 Summary

Table 16, *Total Estimated Operational GHG Emissions*, includes the total annual emissions for the project. The emissions include the amortized annual construction emissions anticipated for the project. Appendix A contains the CalEEMod output files for the project. As shown in Table 16, the project would result in annual GHG emissions of 1,165 MT CO₂e. This value is less than the SCAQMD's 3,000 MT CO₂e per year interim threshold. Therefore, GHG emissions during project operation, including amortized construction emissions, are less than significant.

Table 16
TOTAL ESTIMATED OPERATIONAL GHG EMISSIONS

Emission Sources	Emissions (MT CO ₂ e)
	2019
Area Sources	<0.5
Energy Sources	51
Vehicular (Mobile) Sources	1,092
Solid Waste Sources	13
Water Sources	5
<i>Operational Subtotal</i>	<i>1,162</i>
Construction (Annualized over 30 years)	3
TOTAL OPERATIONAL EMISSIONS	1,165

Source: CalEEMod output data is provided in Appendix A

Note: Totals may not add up exactly due to rounding.

6.2 CONSISTENCY WITH LOCAL PLANS ADOPTED FOR THE PURPOSE OF REDUCING GHG EMISSIONS

There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall State plan and policy is AB 32, the California Global Warming Solutions Act of 2006. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. SB 32 would require further reductions of 40 percent below 1990 levels by 2030. Because of the project's operational year in 2018, the project aims to reach the quantitative goals set by AB 32. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the LCFS, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the statewide level; as such, compliance at the project level is not addressed. Therefore, the proposed project does not conflict with those plans and regulations.

As previously discussed, the City CAS does not have GHG emission thresholds and therefore utilizes the significance thresholds set forth by the SCAQMD. The SCAQMD applies a screening threshold for Tier 3 of 3,000 MT of CO₂e per year. The proposed project's increase in GHG emissions would be less than the SCAQMD's screening threshold; therefore, the project would be consistent with the City CAS. Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. This would represent a less than significant impact.

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Appendix C

Cultural Resources Survey Report

Yum Yum Donuts Project

CULTURAL RESOURCES SURVEY REPORT

October 2017 | ASE-01



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Yum Yum Donuts Project

CULTURAL RESOURCES SURVEY REPORT FOR THE PROPOSED YUM YUM DONUTS PROJECT, CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

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October 2017 | ASE-01

National Archaeological Database Information

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Client/Project: A & S Engineering / Yum Yum Donuts Project

Report Date: October 2017

Report Title: Cultural Resources Survey Report for the Proposed Yum Yum Donuts Project, City of Moreno Valley, Riverside County, California

Type of Study: Cultural Resources Survey

New Sites: None

Updated Sites: None

USGS Quad: Sunnymead 7.5' Quadrangle

Acreage: 3.77 acres

Key Words: Riverside County; Moreno Valley; Sunnymead; Perris Boulevard; no resources

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EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) was contracted by A & S Engineering to conduct a cultural resources study for the Yum Yum Donuts Project (project) in the City of Moreno Valley, California. A cultural resources study including a records search, Sacred Lands File search, Native American outreach, a review of historic aerial photographs and maps, and a field survey was completed. This report details the methods and results of the cultural resources study and has been prepared to comply with the California Environmental Quality Act (CEQA).

The records search conducted at the Eastern Information Center (EIC) indicated that 11 previous cultural resources studies have been conducted within one mile of the project area, none of which occurred within the project site. The records search results also indicated that a total of 6 cultural resources have been previously recorded within one mile of the project area; however, no sites have been recorded within the project site.

The field investigations included intensive pedestrian survey of the study area by a HELIX archaeologist and a Native American monitor on September 27, 2017. The survey did not result in the identification of any cultural material within the study area. As such, no impacts to cultural resources are anticipated. However, the project site was covered by fill material, and the original ground surface could not be observed. Additionally, the project site is located within alluvial soils, where there is a potential for buried cultural resources. Based on this, it is recommended that an archaeological and Native American monitoring program be implemented if grading or other ground disturbing activities (i.e., trenching for utilities) are to occur below the current layer of fill. The monitoring program would include attendance by the archaeologist and Native American monitor at a preconstruction meeting with the grading contractor and the presence of archaeological and Native American monitors during initial ground disturbing activities on site. Both archaeological and Native American monitors would have the authority to temporarily halt or redirect grading and other ground-disturbing activity in the event that cultural resources are encountered. If significant cultural material is encountered, the monitors will coordinate with the applicant and City staff to develop and implement appropriate mitigation measures.

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1.0 INTRODUCTION

1.1 PROJECT LOCATION AND DESCRIPTION

The Yum Yum Donuts Project (project) is located in the City of Moreno Valley (City) in northwestern Riverside County (Figure 1, *Regional Location*). The project is located northeast of March Air Force Base and northwest of Perris Reservoir within Section 8 of Township 3 South, Range 3 West, on the U.S. Geological Survey (USGS) 7.5' Sunnymead quadrangle (Figure 2, *Project Vicinity [USGS Topography]*). The 5.77-acre project area is located within Assessor Parcel Number (APN) 479-140-023 and 479-140-024, and is bordered by Perris Boulevard to the west and Cottonwood Avenue to the south (Figure 3, *Project Vicinity [Aerial Photograph]*). The project proposes to develop the property for commercial uses. A car wash, a convenience store, two office buildings, and a steel canopy are proposed within the study area. In addition, two underground storage tanks would be installed in the southeast corner of the project site.

1.2 REGULATORY FRAMEWORK

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, and/or scientific importance. The California Environmental Quality Act (CEQA), Public Resources Code 21084.1 and CEQA Guidelines, California Code of Regulations Title 14 Section 15064.5 discuss significant cultural resources as “historical resources,” and defines them as:

- resource(s) listed or determined eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (CRHR) (14 CCR Section 15064.5[a][1])
- resource(s) either listed in the NRHP [National Register of Historic Places] or in a “local register of historical resources” or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless “the preponderance of evidence demonstrates that it is not historically or culturally significant” (14 CCR Section 15064.5[a][2])
- resources determined by the Lead Agency to meet the criteria for listing on the CRHR (14 CCR Section 15064.5[a][3])

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

- A. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
- B. It is associated with the lives of persons important to local, California, or national history;
- C. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

- D. It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(4), a resource may also be considered a “historical resource” for the purposes of CEQA at the discretion of the lead agency.

All resources that are eligible for listing in the CRHR must have integrity, which is the authenticity of a historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular criteria under which it is proposed for nomination.

California State Assembly Bill 52 (AB 52) revised PRC Section 21074 to include Tribal Cultural Resources (TCRs) as an area of CEQA environmental impact analysis. Further, per new PRC Section 21080.3, a CEQA lead agency must consult with any California Native American tribe that requests consultation and that is traditionally and culturally affiliated with the geographic area of a proposed project to identify resources of cultural or spiritual value to the tribe, even if such resources are already eligible as historical resources as a result of cultural resources studies.

1.2.1 City of Moreno Valley General Plan

The City’s General Plan (2006) includes the following objective and related policies regarding cultural and historical resources as part of the Conservation Element (City of Moreno Valley 2006: 9-37):

Objective 7.6: Identify and preserve Moreno Valley’s unique historical and archaeological resources for future generations.

Policies

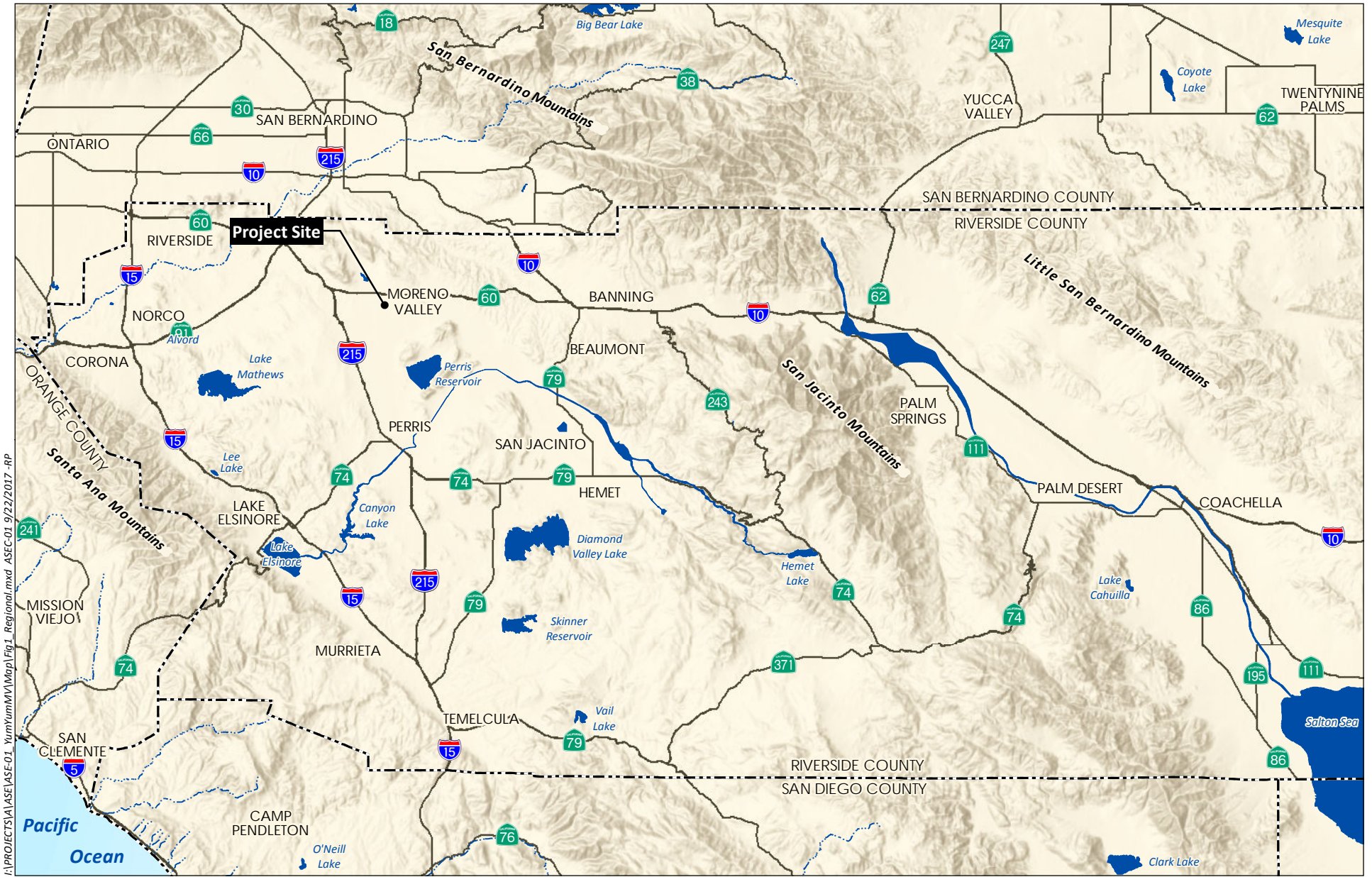
7.6.1: Historical, cultural and archaeological resources shall be located and preserved, or mitigated consistent with their intrinsic value.

7.6.2: Implement appropriate mitigation measures to conserve cultural resources that are uncovered during excavation and construction activities.

7.6.3: Minimize damage to the integrity of historic structures when they are altered.

7.6.4: Encourage restoration and adaptive reuse of historical buildings worthy of preservation.

7.6.5: Encourage documentation of historic buildings when such buildings must be demolished.

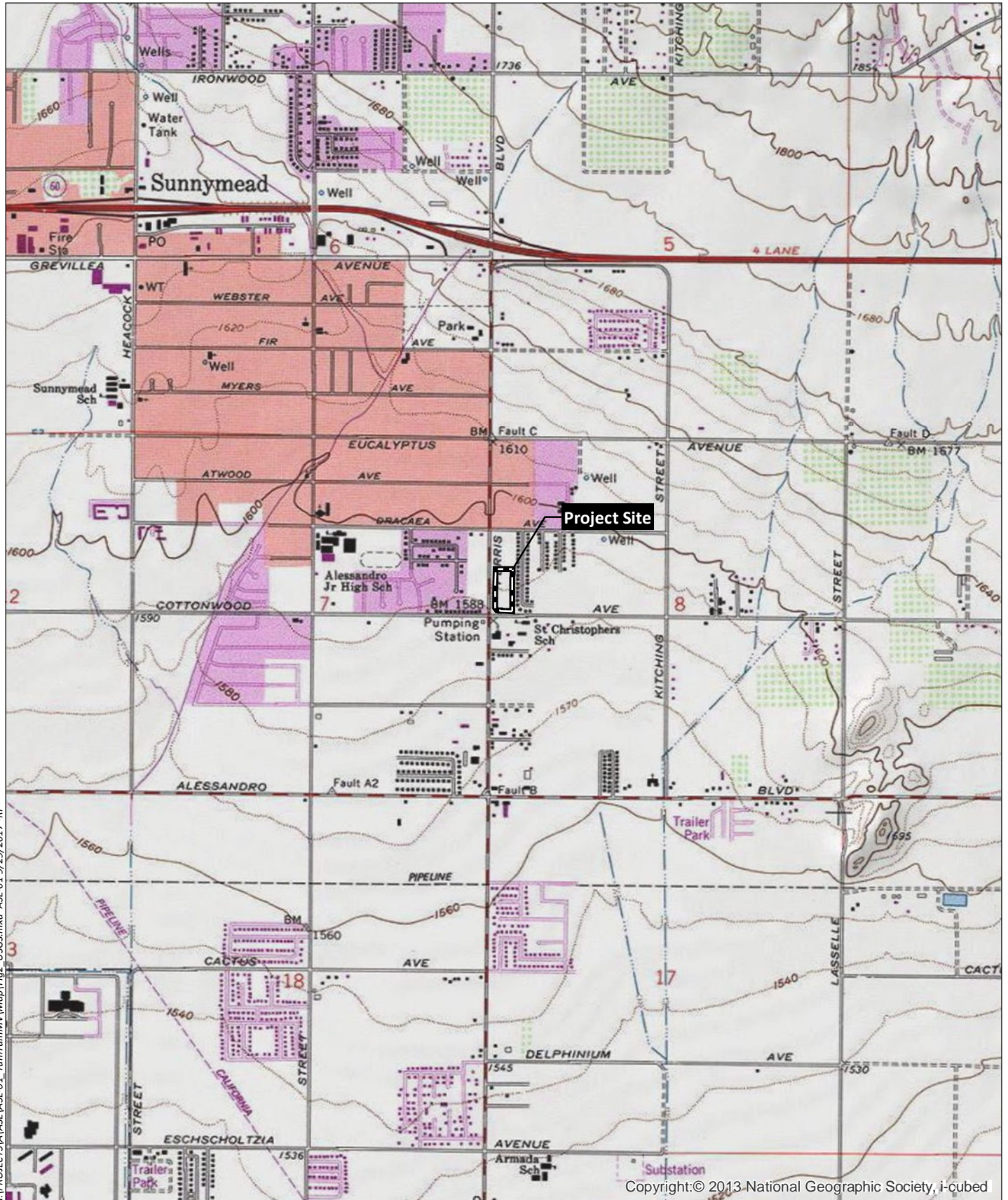


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Source: Base Map Layers (ESRI, 2013)

Attachment: Cultural Resources Assessment (3180) : Conditional Use Permit for Yum Yum Donuts



I:\PROJECTS\IA\ASE\ASE-01_YumYum\M\Map\Fig2_USGS.mxd ASE-01_9/29/2017 -RP

Attachment: Cultural Resources Assessment (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

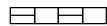
Project Vicinity (USGS Topography)

Figure 2



I:\PROJECTS\IA\ASE\ASE-01_YumYum\Map\Fig3_Aerial.mxd ASE-01 9/29/2017 -RP

0 50 Feet



Source: Base Map Layers (SanGIS, 2016)

Attachment: Cultural Resources Assessment (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

1.3 PROJECT PERSONNEL

Stacie Wilson, M.S., RPA, conducted the field survey and is the primary author of this technical report. Christina Mills of the Soboba Band of Luiseño Indians was present for the pedestrian survey. Senior technical review was provided by Mary Robbins-Wade, M.A., RPA. Resumes for key project personnel are presented in Appendix A.

2.0 PROJECT SETTING

2.1 NATURAL SETTING

The project area is in the Moreno Valley in the foothills of northwestern Riverside County. The Badlands and the San Bernardino and San Jacinto mountains lie to the east, the Santa Ana Mountains lie to the west, and the Box Spring Mountains are to the north. The climate of western Riverside County is characterized as semi-arid environment with low humidity and rainfall. Almost all rainfall occurs in the winter, but the region can also experience rare, intense summer thunderstorms. Wind is also a strong feature of this climatic regime, with dry winds in excess of 25 miles per hour in the late winter and early spring (National Oceanic and Atmospheric Administration [NOAA] 2014). Average monthly temperatures range from a December low of 53.6 degrees Fahrenheit (°F) to an August high of 79.0°F, and the average yearly rainfall is 9.97 inches (Weather Currents 2017). The property parcel is flat with an elevation of 1,590 feet above mean sea level (amsl). Various drainages in the vicinity would have made fresh water easily accessible to native populations living in the area.

Geologically, the project area is underlain by young alluvium in the southeastern portion of the study area and very old alluvium in the remainder of the project site (Morton and Matti 2001). The very old alluvium forms widespread deposits north and south of Moreno Valley, while the young alluvium is extensively developed in eastern Moreno Valley. The nearby hills south and west of the Valley are Mesozoic granitic formations, and the Badlands to the east are of undivided Pliocene nonmarine formations (Morton et al. 1999). Three soil series are mapped for the project site: Hanford coarse sandy loam (2 to 8 percent slopes), Pachappa fine sandy loam (2 to 8 percent slopes, eroded), and Ramona sandy loam (2 to 5 percent slopes, eroded). The Ramona sandy loam is found on the northern portion of the project site, Pachappa fine sandy loam is within the central portion, and Hanford coarse sandy loam is found in the southwestern area (Web Soil Survey n.d.). All three of the soil series are granite-derived alluviums found in alluvial fans and terraces that generally support wild oats, riggut brome, soft chess, filaree, foxtail, mustard, and coast live oak (Bowman 1973). Native grassland species and coast live oak would have been used by native populations for food, medicine, tools, and ceremonial and other uses (Bean and Shipek 1978; Christenson 1990; Hedges and Beresford 1986). Many of the animal species living within these communities (such as rabbits, deer, small mammals, and birds) would have been used by native inhabitants as well.

2.2 CULTURAL SETTING

2.2.1 Prehistoric Period

Proposed dates for the earliest human occupation in California vary from around 20,000 years ago (Bada and Schroeder 1974; Carter 1957, 1978, 1980) to 10,000 years ago. Carter (1957, 1978, 1980), Minshall (1976) and others (e.g., Childers 1974; Davis 1968, 1973) have long argued for the presence of Pleistocene humans in California. However, these sites identified as "early man" are all controversial. The material from the sites is generally considered nonartifactual, and the investigative methodology is often questioned (Moratto 1984).

In southern California, three major time periods are commonly recognized for the prehistoric period: Early Prehistoric, Archaic, and Late Prehistoric. The best example of Early Prehistoric Period archaeological evidence in Southern California is in the San Dieguito complex of San Diego County,

dating to over 9,000 years ago (Warren 1967; Warren et al. 2004). The San Dieguito Tradition is thought by most researchers to have an emphasis on big game hunting and coastal resources (Warren 1967). The material culture of the San Dieguito complex consists primarily of scrapers, scraper planes, choppers, large blades, and large projectile points. In some areas of California, the Early Prehistoric Period is often referred to as the Paleo-Indian period and is associated with the last Ice Age occurring during the Terminal Pleistocene (pre-10,000 years ago) and the Early Holocene, beginning circa 10,000 years ago (Erlandson 1994, 1997).

The Archaic Period, or Millingstone Horizon (Wallace 1955), dates from 7,000-8,600 to 1,300-3,000 years ago and is generally consistent with the Topanga complex of Los Angeles and the La Jolla complex of San Diego (Warren et al. 2004). The Millingstone Horizon is also referred to as the Encinitas Tradition (Warren 1968). The Encinitas tradition is generally “recognized by millingstone assemblages in shell middens, often near sloughs and lagoons” (Moratto 1984:147). According to Wallace, “a changeover from hunting to the collection of seed foods is clearly reflected in the archaeological record for the period between 6000 and 3000 B.C. The importance of seeds in the diet of the prehistoric peoples can be seen in the numbers of food-grinding implements present at their settlements” (Wallace 1978:28). Basin metates, manos, discoidals, a small number of Pinto series and Elko series points, and flexed burials are also characteristic. Most of the archaeological evidence for Archaic Period occupation in southern California is derived from sites located in near-coastal valleys, and around estuaries that are present along the San Diego coast (Warren et al. 2004). In the vicinity of the project, Archaic Period occupation is represented by a few diagnostic artifacts and one radiocarbon date of circa 2,200 years before present (B.P.) identified during archaeological excavations conducted for the Perris Reservoir project in Perris Valley (Bettinger 1974).

The Late Prehistoric period in southern California is characterized by the incursion of Uto-Aztecanspeaking people who occupied large portions of the Great Basin and an area stretching from southern Arizona and northwest and central Mexico into Nevada, Oregon, and Idaho (Miller 1986). The expansion of the Takic group into southern California is unrefined, but several scholars have hypothesized as to when and how the so-called “Uto Aztecans wedge” occurred. Sutton (2009) argues that the Takic group expanded into southern California from the San Joaquin Valley about 3,500 years ago. According to Moratto (1984), the Takic expansion into southern California occurred ca. 3,200 to 3,500 years ago. Golla (2007) suggests Uto-Aztecanspeakers expanded into southern California at approximately 2,000 years ago. While the exact chronology of Takic-speaking groups’ immigration to southern California remains uncertain, it is generally accepted that Native American population figures in the region substantially increased in the Late Prehistoric Period. In addition, the Late Prehistoric Period is marked by evidence of a number of new tool technologies and subsistence shifts in the archaeological record and is characterized by intensification of social, political, and technological systems. The changes include the production of pottery and the use of the bow and arrow for hunting instead of atlatl and dart, a reduction of shellfish gathering in some areas, an increase in the storage of foodstuffs such as acorns, and new traits such as the cremation of the dead (Gallegos 2002; McDonald and Eighmey 2004). After approximately A.D. 1600 a change occurred in settlement and subsistence patterns, and land use intensified in the San Jacinto and Perris valleys, which was reflected into the ethnohistoric period (Bean et al. 1991; Wilke 1974).

2.2.2 Ethnohistory

While some ethnographers place the area of the project site in the traditional territory of the Luiseño people (see Kroeber 1925: Plate 57), others show it as within traditional Cahuilla territory (see Bean 1978; Bean and Shippek 1978). Most probably, this is a transitional area between the two related cultural groups. The Cahuilla and Luiseño are Takic-speaking people of the Uto-Aztecan linguistic stock (Bean and Vane 1979; Miller 1986). Kroeber and others have previously referred to these Takic-speaking people of the Uto-Aztecan linguistic stock as members of the Shoshonean language family (Kroeber 1925). While, some dispute the use of this terminology (e.g., Miller 1986), it is still commonly used to refer to these groups.

2.2.2.1 Cahuilla

The Cahuilla term *?ivi?lyu?atum* (or *iviatim*) refers to those who speak the Cahuilla language and is also a recognition of a commonly shared cultural tradition (Bean 1972; Strong 1929). Prehistorically, the Cahuilla territory was topographically diverse, occupying elevations from 11,000 feet in the San Bernardino Mountains to below sea level at the Salton Sea (Bean 1978). The Cahuilla are thought to have been in part distinguished from other Shoshonean groups (the Luiseño, Serrano, and Gabrielino) by mountain ranges and plains, but they are known to have interacted regularly with these and other groups through trade, intermarriage, ritual, and war. Cahuilla villages were commonly situated within canyons extending into mountain ranges or on nearby alluvial fans, typically near sources of water and food (Bean 1978; Bean et al. 1991). The diverse habitat of the Cahuilla enabled a wide variety of plant and animal species to be used for food, goods manufacture, and medicine (Bean 1978).

2.2.2.2 Luiseño

The Late Prehistoric period is represented by the San Luis Rey complex in northern San Diego County and portions of Riverside County. The term Luiseño is derived from the Mission San Luis Rey and since Spanish-Mexican colonial times has been used in reference to those Takic-speaking people associated with the mission. The San Luis Rey (SLR) complex is divided into two phases: SLR I and SLR II. Elements of the SLR complex include small, triangular, pressure-flaked projectile points (generally Cottonwood series, but Desert Side-notched series also occurs); milling implements: mortars and pestles, manos and metates, and bedrock milling features; bone awls; Olivella shell beads; other stone and shell ornaments; and cremations (Meighan 1954; Moratto 1984; True et al. 1974). The later SLR II complex also includes several elements not found in the SLR I complex: "pottery vessels, cremation urns, red and black pictographs, and such nonaboriginal items as metal knives and glass beads" (Meighan 1954:223). SLR I was originally thought to date from A.D. 1400 to A.D. 1750, with SLR II dating between A.D. 1750 and A.D. 1850 (Meighan 1954). However, that division was based on the assumption that the Luiseño did not practice pottery manufacture until just prior to the arrival of the Spanish. The chronology has since been revised due to evidence that pottery may have been introduced to the Luiseño by their southern neighbors, the Kumeyaay, circa A.D. 1200-1600 (True et al. 1974).

2.2.3 Historical Background

Southern California's historic period began in September 1542 when Juan Rodriguez Cabrillo landed on Santa Catalina Island as part of his exploration expedition up the coast north of "New Spain." Although the impact of this initial contact did not usher in instant changes in the region, it marks the opening of the area to new contact, colonialism, and cultural shifts.

2.2.3.1 Spanish Period

During the mid-18th century, Spain escalated its involvement in California from exploration to colonization (Weber 1992). In 1769, a Spanish expedition headed by Gaspar de Portolá and Junípero Serra traveled north from San Diego seeking suitable locations to establish military presidios and religious missions in order to extend the Spanish Empire into Alta California. The Presidio of San Diego and Mission San Diego de Alcalá were established in 1769 followed by the Presidio of Monterey and Mission San Carlos Borromeo de Carmelo in 1770 in northern California. The missions and presidios stood, literally and figuratively, as symbols of Spanish colonialism, importing new systems of labor, demographics, settlement, and economies to the area. Agriculture and animal husbandry were the main pursuits of the Missions.

The first documented Spanish contact in what is now Riverside County was by Spanish military captain Juan Bautista de Anza who led expeditions in 1774 and 1775 from Sonora to Monterey (Bolton 1930). Anza embarked on the initial expedition to explore a land route northward through California from Sonora, with the second expedition bringing settlers across the land route to strengthen the colonization of San Francisco (Rolle 1963). Anza's route led from the San Jacinto Mountains northwest through the San Jacinto Valley, which was named "San José" by Anza. Little documentation exists of Anza's route being used after the two expeditions, although it was likely used to bring Spanish supplies into the newly colonized Alta California (Lech 2004). In 1781, the Spanish government closed the route due to uprisings by the Yuman Indians. However, by that time, the missions were established and self-sufficient; thus, the need for Spanish supplies from Sonora had begun to diminish.

Although Riverside County proved to be too far inland to include any missions within its limits, Missions San Juan Capistrano and San Luis Rey de Francia, established in 1776 and 1798 respectively, claimed a large part of southwestern Riverside County. Due to the inland geographical location of the Cahuilla territory, the Spanish missions did not have as direct an effect on them as it did on the Luiseño who lived along the coast (Bean 1978). On the coast, the Luiseño were moved into the Mission environment where living conditions and diseases promoted the decline of the Luiseño population (Bean and Shipek 1978). However, throughout the Spanish Period, the influence of the Spanish progressively spread further from the coast and into the inland areas of southern California as Missions San Luis Rey and San Gabriel extended their influence into the surrounding regions and used the lands for grazing cattle and other animals.

In the 1810s, ranchos and mission outposts, called *asistencias*, were established near the project area, increasing the amount of Spanish contact in the region. An *asistencia* was established in Pala in 1818 and in San Bernardino in 1819. Additionally, Rancho San Jacinto was established for cattle grazing in the San Jacinto Valley (Bean and Vane 1980; Brigandi 1999). In 1820, Father Payeras, a senior mission official, promoted the idea that the San Bernardino and Pala *asistencias* be developed into full missions in order to establish an inland mission system (Lech 2004). However, Mexico won its independence from Spain in 1821, bringing an end to the Spanish Period in California.

2.2.3.2 Mexican Period

Although Mexico gained its independence from Spain in 1821, Spanish patterns of culture and influence remained for a time. The missions continued to operate as they had in the past, and laws governing the distribution of land were also retained in the 1820s. Following secularization of the missions in 1834, large ranchos were granted to prominent and well-connected individuals, ushering in the Rancho Era,

with the society making a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With the numerous new ranchos in private hands, cattle ranching expanded and prevailed over agricultural activities.

In order to obtain a rancho, an applicant submitted a petition containing personal information and a land description and map (*diseño*). In 1835, Jose Antonio Estudillo of San Diego submitted a petition for the San Jacinto Rancho. Although Estudillo's petition was for four square leagues (approximately 30,000 acres), in 1842 he was granted close to the maximum size allowed of 11 square leagues (Lech 2004; State Lands Commission 1982). In 1845, Estudillo's son-in-law, Miguel de Pedrorena filed a petition for half of the San Jacinto Viejo Rancho and a small additional portion of land two miles to the northeast in the hills east of Lamb Canyon (Lech 2004). This portion, the northern half of the San Jacinto Viejo Rancho, became known as the San Jacinto Nuevo y Potrero Rancho, and is where the project is located.

During the Mexican period, the Cahuilla were increasingly influenced by Mexican culture. Some of the Cahuilla acquired Spanish names, learned Spanish, and adopted forms of Spanish subsistence, such as raising cattle, agriculture, and wage labor (Ward 1967; Bean 1978). Many Cahuilla worked seasonally for the Mexicans, traveling to and from their villages (Bean 1978).

2.2.3.3 American Period

American governance began in 1848, when Mexico signed the Treaty of Guadalupe Hidalgo, ceding California to the United States at the conclusion of the Mexican–American War.

California's acquisition by the United States substantially increased the growth of the population in California. The California gold rush, the end of the Civil War, and the passage of the Homestead Act implementing the United States' manifest destiny to occupy and exploit the North American continent brought many people to California after 1848. While the American system required that the newly acquired land be surveyed prior to settlement, the Treaty of Guadalupe Hidalgo bound the United States to honor the land claims of Mexican citizens who were granted ownership of ranchos by the Mexican government (Lech 2004). The Land Act of 1851 established a board of commissioners to review land grant claims, and land patents for the land grants were issued from 1876 to 1893. The San Jacinto Nuevo y Potrero Rancho land grant was patented in 1883 to Miguel Pedorena, Maria Antonia Estudillo Pedorena, Isabel Pedorena, and Helena Pedorena.

Initially southern California was divided into only two counties: Los Angeles and San Diego. In 1853, San Bernardino County was added, placing what is now Riverside County primarily within San Diego County and partially within San Bernardino County.

Southern California was developed by Americans and other immigrants who migrated to the western frontier in pursuit of gold and other mining, agriculture, trade, and land speculation (Lech 2004). This population growth of southern California during the early years of the American Period brought a need for mail and freight travel. In 1857, John Butterfield was awarded a six-year contract to transport mail twice a week between St. Louis, Missouri, and San Francisco, California (Helmich 2008). The Butterfield Stage Route used the same trail as the Sonora (or Southern Emigrant) Trail from Yuma through Warner Springs and Temecula, and then up through Temescal Valley to Chino, and then to Los Angeles. By the mid-nineteenth century, the Southern Emigrant Trail ran through western Riverside County in a similar alignment to the current I-15 freeway. The Butterfield Overland Stage route went through a major stop

called “Alamos,” the Spanish word for cottonwoods, in Murrieta. Another branch of the Southern Emigrant Trail veered northward from Temecula to Box Springs near present-day Moreno Valley, roughly following the present-day route of I-215 (Lech 2004).

Local mail routes within southern California were also developed beginning in the 1850s, such as the line begun in 1852 by Phineas Banning between Los Angeles and San Diego (Stott 1968). In 1868, Tomlinson & Co. briefly operated a daily mail route from Tucson, Arizona to Los Angeles via San Diego and San Bernardino (Stott 1968), although after only four months the company had lost \$12,000 and discontinued service (Mills 1957). In 1867, the U.S. Mail Company sent weekly stages that ran between San Diego and San Bernardino.

While stagecoaches were successful at transporting gold, people, and mail, the need for a railroad to California was imperative. In the 1850s, surveys were initiated by the federal government to determine a railroad route to the Pacific coast (Lech 2004). Although the first transcontinental railroad was completed in 1869 to northern California, in the 1870s the Southern Pacific Railroad Company, incorporated in 1865 and consolidated in 1870, began to construct a southern route that would traverse the state (Fickewirth 1992). In the early 1880s, the California Southern Railway, a subsidiary of the Atchison, Topeka and Santa Fe Railway (Santa Fe), was completed and allowed for travel through the Cajon Pass to Barstow to a junction of the Atlantic and Pacific Railroad and down to San Diego through western Riverside County. In 1887, Santa Fe officials consolidated their family of railroads in southern California, forming the California Central Railway. Although the California Southern remained an individual subsidiary at that time, it consolidated with the California Central Railway and the Redondo Beach Railway two years later 1889. The resulting corporation was the Southern California Railway Company, wholly owned by Santa Fe (Price 1988). In 1906 all of lines of Southern California Railway Company were deeded to the Atchison, Topeka and Santa Fe Railway Company.

The project area and the surrounding region developed along with the railroad. The trains were used to transport settlers into the area, creating a period of agricultural and land development, ultimately resulting in the establishment of Riverside County in 1893, formed from portions of San Bernardino and San Diego counties. Moreno Valley, which consisted of small, unincorporated communities, got its name from Frank E. Brown (“Moreno” in Spanish), who formed the Bear Valley Land and Water Company in 1883. Brown built a dam at Bear Valley and provided water to the Perris and Moreno communities until 1899, when he lost a legal suit, and thereby water rights, to the City of Redlands. This litigation and a period of natural drought devastated the local farming communities, forcing families to either move or abandon their homes in favor of better irrigated areas. The few who remained turned to “the dry farming of hay, grain, and grapes” (City of Moreno Valley, n.d.).

The community was revived in 1918, with the construction of March Field in anticipation of America’s entry into World War I. It began as a temporary base for training fighter pilots but was established as a permanent base and flight training school in the late 1920s. This led to a population boom in the Moreno Valley, with the Base supporting up to 85,000 troops at a time. The establishment of the Riverside International Raceway in 1958 and the Lake Perris Recreation Area in 1973 led to further population increases until the unincorporated communities of Moreno, Edgemont, and Sunnymead were combined into the City of Moreno Valley in 1984 (City of Moreno Valley, n.d.).

3.0 ARCHIVAL RESEARCH AND CONTACT PROGRAM

3.1 RECORDS SEARCH

HELIX conducted a record search of the California Historical Resources Information System (CHRIS) at the Eastern Information Center (EIC) on September 25, 2017. The records search covered a one-mile radius around the project area and included archaeological and historical resources, locations and citations for previous cultural resources studies, and a review of the state Office of Historic Preservation (OHP) historic properties directory. The records search summary and map are included as Appendix A (Confidential Appendices, bound separately).

3.1.1 Previous Surveys

The records search results identified 11 previous cultural resource studies within the record search limits, none of which occurred within the project area (Table 1, *Previous Studies within One Mile of the Project Area*). Six of the studies were cultural resource inventories, record searches, or site visits; the remaining studies include an archaeological survey, a historical resource investigation, an architectural evaluation, and an environmental impact report. Only two of the studies, a historical resources investigation (Alexandrowicz 2006) and the California Living Moreno Valley Project (Hogan et al. 2011) identified resources within the search radius.

Table 1
PREVIOUS STUDIES WITHIN ONE MILE OF THE PROJECT AREA

Report Title	Author, Date	Report Type	Results
Environmental Impact Evaluation: Archaeology of Brodiaea Avenue, PI 984, Water Systems Addition, Riverside County, California	Weaver, 1975	Environmental Impact Report	None in search radius
Cultural Resource Report on Tracts 12608, 12606-2 and 11410 Located in the Sunnymead Area, Riverside County, California	Scientific Resource Surveys, Inc., 1983	Cultural Resources Report	None
Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California	McCarthy, 1987	Cultural Resources Inventory	None in search radius
Cultural Resource Assessment for AT&T Wireless Facility 950-031-029a Located at 24899 Alessandro Boulevard, City of Moreno Valley, Riverside County, California	Kyle, 2004	Cultural Resource Assessment	None
An Architectural Evaluation of Structures Located within Assessor Parcel Numbers 482-090-009-0, -010-0, and 033-0, within the City of Moreno Valley, Riverside County, California	McKenna et al., 2004	Architectural Evaluation	None

Table 1 (cont.)
PREVIOUS STUDIES WITHIN ONE MILE OF THE PROJECT AREA

Report Title	Author, Date	Report Type	Results
An Archaeological Survey for the Alessandro Plaza Project, City of Moreno Valley, County of Riverside, California	Rosenberg and Smith, 2005	Archaeological Survey	None
An Historical Resources Identification Investigation of the Alessandro Pointe Project, Tract 34681, 25817 Alessandro Boulevard, City of Moreno Valley, Riverside County, California	Alexandrowicz, 2006	Historical Resources Investigation	P-33-015454
Letter Report: Cultural Resources Records Search and Site Visit for Royal Street Telecommunications, LLC Candidate LA2356b (Sunnymead Plaza), 24903 Sunnymead Boulevard, Moreno Valley, Riverside County, California	Bonner and Aislin-Kay, 2007	Record Search and Site Visit	None
Cultural Resources Search and Site Visit Results for T-Mobile USA Candidate IE24173-B	Bonner et al., 2011	Cultural Resources Search and Site Visit	None
Letter Report: Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate IE24899-H (A Storage Place)	Bonner and Williams, 2011	Record Search and Site Visit	None
California Living Moreno Valley Project	Hogan et al., 2011	Unknown	P-33-007280, 33-007284, and 33-007289

3.1.2 Previously Recorded Sites

The EIC has a record of six previously recorded cultural resources within a one-mile radius of the project, but none have been recorded within the project area (Table 2, *Previously Recorded Resources within One Mile of the Project Area*). Two of the resources, P-33-007279 and 33-007280, are within a half mile of the project. All of the resources are historic, including five historic addresses of private residences displaying vernacular architecture and dating to between ca. 1880 and ca. 1920. The sixth resource, P-33-015454, is a historic site consisting of the remains of two private residences and associated structures and trash scatters.

Table 2
PREVIOUSLY RECORDED RESOURCES WITHIN ONE MILE OF THE PROJECT AREA

Resource Number (P-37-#)	Resource Number (CA-RIV-#)	Description	Recorder, Date
007276	7276	Vernacular ranch house built ca. 1920	Warner, 1983
007279	7279	Vernacular ranch house built in 1896, home of Moreno Valley pioneer D.C. Hield	Warner, 1983
007280	7280	Historic Rosa More House, vernacular ranch house built ca. 1880	Warner, 1983
007284	7284	Vernacular wood framed house built ca. 1915	Warner, 1983
007289	7289	Vernacular ranch house built ca. 1915	Warner, 1983
015454	8149	Historic site consisting of the remains of two early to mid-20th Century residences with associated trash scatters	Alexandrowicz, 2006

3.1.3 Other Archival Research

Various additional archival sources were also consulted, including historic topographic maps and aerial imagery. The purpose of this research was to identify historic structures and land use in the area.

One building appears in the northwest corner of the project area on the 1901 USGS 30' Elsinore quadrangle, along with several roads in street grids and other buildings in the vicinity. The community of "Armada" is indicated two blocks south of the project site. On the 1942 (Department of the Army 15' Perris quadrangle) and 1953 (USGS 7.5' Perris quadrangle) historic topographic maps, several more buildings are shown in the project vicinity, as well as community structures, such as schools. Additionally, Cottonwood Avenue, running east-west along the southern border of the project site, is named. No buildings or structures are shown within the project site on historic topographic maps from 1942 (Department of the Army 15' Perris quadrangle), 1953 (USGS 7.5' Perris quadrangle), and historic aerial photographs available at historicaerials.com from 1966, 1967, and 1978 (NETR Online 2017). On the 1996 aerial photograph, the housing development located directly to the east of the project site is in place, and Perris Boulevard, located adjacent to the project on the west, is shown as a two-lane road. By 1997, aerial photographs show Perris Boulevard has been expanded into a four-lane road, and the project area looks as if grading had occurred, possibly with fill placed within the area prior to the grading.

3.2 NATIVE AMERICAN CONTACT PROGRAM

HELIX contacted the Native American Heritage Commission (NAHC) on September 25, 2017 for a Sacred Lands File search and list of Native American contacts for the project area. The NAHC indicated in a response dated September 27, 2017 that no known sacred lands or Native American cultural resources are within the project area. Letters were sent on October 2, 2017 to Native American representatives and interested parties identified by the NAHC. Two responses have been received to date. The Pala Band of Mission Indians responded on October 4, 2017, that the project is not within the boundaries of the territory that the tribe considers its Traditional Use Area and defers to the wishes of Tribes in closer proximity to the project area. The San Manuel Band of Mission Indians responded on October 5, 2017, that proposed project area is within the Serrano ancestral territory and as such, is of interest to the Tribe. However, due to the nature and location of the proposed project, they do not have any concerns

with the project's implementation, as planned, at this time. If any additional responses are received, they will be forwarded to City staff. Native American correspondence is included as Appendix C (Confidential Appendices, bound separately).

4.0 METHODS

4.1 SURVEY METHODOLOGY

A pedestrian survey of the project site was conducted on September 28, 2017 by HELIX senior archaeologist Stacie Wilson and Native American monitor, Christine Mills from the Soboba Band of Luiseño Indians. The project area was walked in transects spaced approximately 15 meters (m) apart.

Visibility was excellent for the project area (Plates 1 and 2). It was observed that fill had been overlain on the entirety of project site except for the eastern edge of the site along the property line next to the adjacent private residences. Based on the berm present along the east side of the project area, it is estimated that the fill is approximately three to four feet in height (Plate 3). The fill dirt contained gravel, asphalt chunks, and modern clay pipe fragments. The project area was devoid of vegetation except for a few small weeds.



Plate 1. Overview of the project area from northeast corner, view to the south.



Plate 2. Overview of the project area from northwest corner, view to the south.



Plate 3. Overview of the berm located along the eastern border of project area, view to the south.

5.0 RESULTS

No cultural material was observed within the archaeological survey area; however, as noted above, the project area is overlain by fill soils with modern asphalt and debris intermixed.

6.0 SUMMARY AND MANAGEMENT RECOMMENDATIONS

A study was undertaken to identify cultural resources that are present in the Yum Yum Donuts Project Area and to determine the effects of the project on historical resources. The cultural resources survey did not identify any cultural resources within the project area; therefore, no impacts to cultural resources are anticipated. However, the project site was covered by fill material and the original ground surface could not be observed. Additionally, the project site is located within alluvial soils, where there is a potential for buried cultural resources. Based on this, it is recommended that an archaeological and Native American monitoring program be implemented if grading or other ground disturbing activities (i.e., trenching for utilities) are to occur below the current layer of fill. The monitoring program would include attendance by the archaeologist and Native American monitor at a preconstruction meeting with the grading contractor and the presence of archaeological and Native American monitors during initial ground disturbing activities on site. Both archaeological and Native American monitors would have the authority to temporarily halt or redirect grading and other ground-disturbing activity in the event that cultural resources are encountered. If significant cultural material is encountered, the monitors will coordinate with the applicant and City staff to develop and implement appropriate mitigation measures.

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Appendix A

Resume

Stacie Wilson, RPA

Senior Archaeologist

Summary of Qualifications

Ms. Wilson has been professionally involved in cultural resources management for 14 years. She has served as principal investigator on numerous cultural resources management projects, and regularly coordinates with local, state, and federal agencies and Native American tribal representatives. She is skilled in project management, archaeological inventories and excavation, and report documentation and has broad experience on private, municipal, federal, utility, and renewable energy projects. She also is proficient at creating, organizing, and analyzing GIS data; technical skills include ArcGIS 10.4, Spatial Analyst, Geostatistical Analyst, and working with large datasets. Ms. Wilson is detail oriented and has strong organizational and coordination capabilities.

Selected Project Experience

The Lakes - Unit 4B & Unit 6 (2017). Senior Archaeologist for an approximately 130-acre construction monitoring project in Rancho Santa Fe. Provided cultural resources consultation support, arranged for archaeological and Native American monitors, and provided project status updates to the County. Work performed for Lennar Homes of California, with the County of San Diego as the lead agency.

El Cuervo Del Sur Phase II Mitigation Support (2016 - 2017). Principal Investigator for a cultural resources study for the El Cuervo Del Sur restoration site. Conducted as part of an as-needed contract with the City of San Diego, Transportation & Storm Water Department, the project proposed the creation of approximately 1.4 acres of wetland habitat. Duties included conducting background research, reviewing previous cultural resource surveys, conducting Native American outreach, and preparing reports. Work performed for the City of San Diego.

Emerald Drive Planned Residential Development Project (2016). Principal Investigator for a cultural resources study for a proposed residential development. Conducted as part of an as-needed contract with the City of Vista, the project proposed the subdivision of a 6.9-acre parcel into 27 single family detached lots. Duties included conducting background research, overseeing field survey and recording of cultural resources, Native American outreach and coordination, and report preparation. Work performed for the City of Vista.

Coastal Reliability Project (2016). Project Archaeologist and field director for a cultural resource survey of eight miles of transmission line located within

Education

Master of Science,
Applied
Geographical
Information
Science, Northern
Arizona University,
2008

Bachelor of Arts,
Anthropology,
University of
California, San
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Bachelor of Science,
Biological
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Registrations/ Certifications

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Professional Affiliations

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Society for
American
Archaeology

Stacie Wilson, RPA

Senior Archaeologist

the cities of San Diego and Del Mar. The project involved the reconfiguration, removal, and conversion of transmission lines. Duties included the oversight of pedestrian archaeological and historic architecture surveys and documentation of 45 cultural resources. Work performed for SDG&E, with California Public Utilities Commission as the lead agency.

Terramar Area Coastal Improvement Project (2015 - 2016). Task Lead for a cultural resources study of the Terramar Area Coastal Improvement Project. The project proposed to enhance the City of Carlsbad's Terramar community by improving safety, traffic, and coastal access by constructing new sidewalks and walking paths, creating more parking, improving road conditions, and building a buffer for bicyclists. Duties included oversight of the cultural resources records search, field survey, and archaeological documentation for the project. Work performed for the City of Carlsbad

County of San Diego Department of Parks and Recreation As-Needed Consulting Services (2012 - 2016). Cultural Resources Task Lead and Principal Investigator for as-needed CEQA and NEPA support. Duties included coordination of archaeological monitors, site assessments, survey, California Department of Parks and Recreation (DPR) documentation, and reporting efforts.

San Diego Gas & Electric (SDG&E) As-Needed Services (2011 - 2016). Cultural Resources Project Manager and Principal Investigator for cultural resources as-needed services for SDG&E pole replacement, operation and maintenance, transmission line planning, and other projects in San Diego and Imperial counties on private, local agency, and federal lands. Activities included task coordination and management of field survey, monitoring, and archaeological documentation for project task orders.

Otay Truck Route (2013 - 2014). Task Lead for a cultural resources study for the Otay Truck Route project. The Otay Truck Route fronts a portion of the U.S./Mexico international border in the Otay Mesa community of the City of San Diego. Duties included conducting an archaeological survey of approximately 18.4 acres, recording prehistoric and archaeological sites, and reporting efforts that included a Historic Property Survey Report, Archaeological Survey Report, and City of San Diego Archaeological Resource Report Form. The project proponent was the City of San Diego, with local assistance funding from the FHWA. The City of San Diego was the lead agency for CEQA compliance and (via delegated authority from the FHWA) Caltrans was the lead agency for NEPA.

Blythe and Palen Solar Power Projects (2009 - 2014). Field Archaeologist and GIS analyst for concentrated solar electric-generating facilities proposed on approximately 2,000-acre and 7,000-acre sites on U.S. Bureau of Land Management land in eastern Riverside County. The projects, under a fast-track American Recovery and Reinvestment Act of 2009 funding schedule, use parabolic trough solar thermal technology to produce electrical power using a steam turbine generator fed from a solar steam generator. Work included extensive resource and project GIS data management. Work performed for Solar Millennium, LCC, with the U.S. Bureau of Land Management as the lead agency.

Appendix D

Preliminary Hydrology Report

PRELIMINARY HYDROLOGY REPORT

For

YUM YUM MORENO VALLEY

NEC PERRIS BOULEVARD AND COTTONWOOD AVENUE

MORENO VALLEY, CA

Prepared For:

YUM YUM DONUT

18830 SAN JOSE AVENUE

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Prepared By:



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November 2017

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- Appendix B – Reference Figures and Tables
- Appendix C –Hydrology Maps

1.0 Scope

Hydrologic calculations to evaluate surface runoff associated with 2- and 100-year hypothetical design storm frequency from the tributary drainage areas were performed based on the latest *Riverside County Flood Control and Water Conservation District* rational method. Hydrologic parameters used in the analysis, such as rainfall and soil classification are presented in the *Riverside County Hydrology Manual* (Hydrology Manual).

2.0 Project Description

2.1. Existing Conditions

The subject property is located at NEC of Cottonwood Avenue and Perris Boulevard in Moreno Valley, California. The existing site is a portion of an existing lot, Lot 5, that is approximately 3.77 acres. The site is approximately 1.61 acres and is the southern portion of Lot 5. It is an existing vacant lot and it is bounded by a vacant lot to the north, a residential development to the east, Perris Boulevard to the west, and Cottonwood Avenue to the south. The existing site is relatively flat and sheet flows in a generally southeasterly direction towards Cottonwood Avenue.

2.2. Proposed Conditions

The proposed project will include a gas station with a one-story mini-mart and a drive-thru, fuel dispenser area with overhead canopy, and a surface parking lot area.

Site has underlying soil with low infiltration rates per soil report. Therefore, the site is proposing a vegetated bioretention area along the western, eastern, and southern perimeter of the site.

3.0 Hydrology

3.1 Methodology

The hydrologic calculations to determine the 2-year and 100-year peak flow rates were performed using the criteria in the *Riverside County Flood Control District and Riverside County Hydrology Manual*. The Rational Method is an empirical computation procedure for developing a peak runoff rate (discharge) for storms of a specific recurrence interval. Rational Method equations are based on the assumption that the peak flow rate is directly proportional to the drainage area, rainfall intensity, and a loss rate coefficient, which describes the effects of land use and soil type. The Rational Method flow rates were computed by generating a hydrologic "link-node" model, which divides the area into drainage subareas. Please see Appendix A for hydrology calculations.

3.2 Areas

Hydrology Maps are included in Appendix C of this report delineating the drainage subareas. Areas are provided in the maps in both square feet (SF) and acres (AC). AC units are used in the rational method calculations. Hydrology Maps are provided in Appendix C of this report.

3.3 Soil

When making estimates of storm water runoff it is assumed that infiltration is a loss for the storm event under consideration. The major affecting infiltration is the nature of the soil itself. The site is underlain by soil with slow infiltration rates. Therefore, Soil Type C was selected for the hydrology analysis.

3.4 Time of Concentration

The Time of Concentration (T_c) is the time required for runoff to flow from the most remote part of the drainage area to the point of interest. The T_c (minutes) is based on slope and runoff coefficient and it was obtained using the nomograph in Plate D-3 of the Hydrology Manual, and it is included in Appendix B of this report for reference.

3.5 Rainfall Intensity

The rainfall intensity is the rainfall in inches per hour (in/hr) for a duration equal to the T_c for a selected storm frequency. Intensity is dependent on precipitation and T_c . The time-averaged rainfall intensity for the 2- and 100-year storm event were obtained from the precipitation intensity curves using the regression equation in Plate D-4.1 of the Hydrology Manual. The regression equations determine the precipitation intensities corresponding to the time of concentrations and selected design frequency. Calculations of intensities are provided as part of the hydrology calculations and included in Appendix A.

3.6 Hydrology

The peak rate runoff flow of the proposed site increases due to increase in impervious areas including roofs, drive aisles, and sidewalks. The existing and proposed flows were calculated using the Rational Method based on the site conditions discussed in Sections 2.1 and 2.2, respectively.

3.6.1 Existing Hydrology

The entire existing site sheet flows in a generally southerly direction towards the south side of the property. Runoff from the site eventually sheet flows onto Cottonwood Avenue to the south of the property. The existing flow for the different storm frequencies is outlined in Table 1 below.

Table 1 – Summary of Existing Flow

Subarea	Area		
	100-year	(sf)	(ac)
Area 1	3.65	75,175	1.73
Total	3.65	75,175	1.73

3.6.2 Proposed Hydrology

The proposed project site has been subdivided into subareas for runoff of storm water based on drainage patterns including ridge lines and low/confluence points. The drainage patterns include the roof surface runoff and ground surface runoff areas. Each subarea and the discharge point of each subarea is identified in the Proposed Hydrology Map. Flow for each subarea is outlined in Table 2 below:

Table 2 – Summary of Proposed Flows

Subarea	Area		
	100-year	(sf)	(ac)
Area 1	1.75	25,032	0.57
Area 2	2.50	34,536	0.79
Area 3	0.76	10,578	0.24
Total	5.01	70,146	1.6

4.0 Conclusion

The overall drainage patterns in the proposed condition are similar to the existing condition in terms of the overall drainage direction. However, the proposed drainage patterns are divided into subareas as shown on the attached Hydrology Map – Proposed Condition. The subareas account for the ridges in the roof areas as well as the ground surfaces including the drive aisles, parking spaces, and landscape areas.

Due to increase in impervious areas, the proposed site generates more flow than the existing condition. Table 3 below summarizes the flows of the existing and proposed site.

Table 3 - Pre- and Post-Construction Flows

Storm Event	Existing Q (CFS)	Proposed Q (CFS)
100-yr	3.65	5.01

This site’s runoff is mitigated by proposing a storm drain system that includes vegetated bioretention basins.

Appendix A – Hydrology Calculations

**HYDROLOGY CALCULATIONS
CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE**

EXISTING AREA

$$Q = CIA$$

$$A = 75,175 \text{ sf} = 1.73 \text{ acres}$$

$$\text{Soil Group} = C \quad (\text{Plate C-1.17})$$

$$T_c = 13.0 \text{ min} \quad (\text{Plate D-3})$$

$$I_{100} = 2.58 \text{ in/hr} \quad (\text{Plate D-4.1})$$

$$C_{100} = 0.82 \text{ in/hr} \quad (\text{Plate D-5.3})$$

$$Q_{100} = 3.65 \text{ cfs}$$

Where Q = proposed peak flows, cfs
 A = total area, acres
 C = coefficient of runoff
 I = rainfall intensity (in/hr) corresponding to the time of concentration

T_c = duration, min

HYDROLOGY CALCULATIONS
CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE

AREA-1

$$Q = CIA$$

$$A = 25,032 \text{ sf} = 0.57 \text{ acres}$$

Where Q = proposed peak flows, cfs
 A = total area, acres
 C = coefficient of runoff
 I = rainfall intensity (in/hr) corresponding to the time of concentration

$$\text{Soil Group} = C \quad (\text{Plate C-1.17})$$

$$T_c = 7.4 \text{ min} \quad (\text{Plate D-3})$$

T_c = duration, min

$$I_{100} = 3.42 \text{ in/hr} \quad (\text{Plate D-4.1})$$

$$C_{100} = 0.89 \text{ in/hr} \quad (\text{Plate D-5.3})$$

$$Q_{100} = 1.75 \text{ cfs}$$

HYDROLOGY CALCULATIONS
CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE

AREA-2

$$Q = CIA$$

$$A = 34,536 \text{ sf} = 0.79 \text{ acres}$$

Where Q = proposed peak flows, cfs
 A = total area, acres
 C = coefficient of runoff
 I = rainfall intensity (in/hr) corresponding to the time of concentration

$$\text{Soil Group} = C \quad (\text{Plate C-1.17})$$

$$T_c = 4.9 \text{ min} \quad (\text{Plate D-3})$$

T_c = duration, min

$$I_{100} = 3.54 \text{ in/hr} \quad (\text{Plate D-4.1})$$

$$C_{100} = 0.89 \text{ in/hr} \quad (\text{Plate D-5.3})$$

$$Q_{100} = 2.50 \text{ cfs}$$

HYDROLOGY CALCULATIONS
CORNER OF PERRIS BOULEVARD AND COTTONWOOD AVENUE

AREA-3

$$Q = CIA$$

$$A = 10,578 \text{ sf} = 0.24 \text{ acres}$$

$$\text{Soil Group} = C \quad (\text{Plate C-1.17})$$

$$T_c = 4.8 \text{ min} \quad (\text{Plate D-3})$$

$$I_{100} = 3.51 \text{ in/hr} \quad (\text{Plate D-4.1})$$

$$C_{100} = 0.89 \text{ in/hr} \quad (\text{Plate D-5.3})$$

$$Q_{100} = 0.76 \text{ cfs}$$

Where Q = proposed peak flows, cfs
 A = total area, acres
 C = coefficient of runoff
 I = rainfall intensity (in/hr) corresponding to the time of concentration

T_c = duration, min

**HYDROLOGY CALCULATIONS
67670 CAREY ROAD, CATHEDRAL CITY**

Proposed

Subarea	Area		
	100-year	(sf)	(ac)
Area 1	1.75	25,032	0.57
Area 2	2.50	34,536	0.79
Area 3	0.76	10,578	0.24
Total	5.01	70,146	1.61

Existing

Area	Area		
	100-year	(sf)	(ac)
Area 1	3.65	75,175	1.73

Appendix B – Reference Figures and Tables

EXISTING AREA

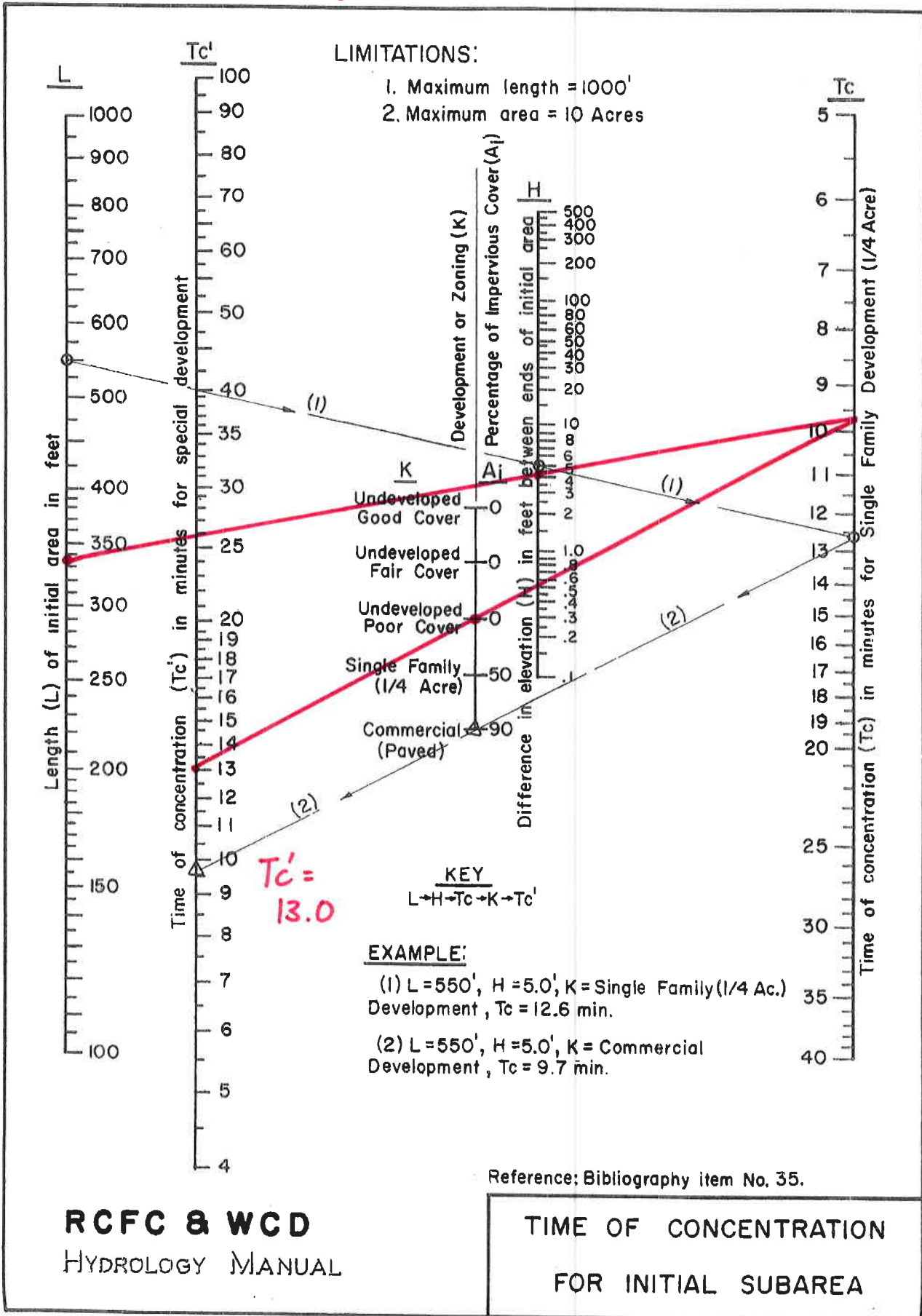
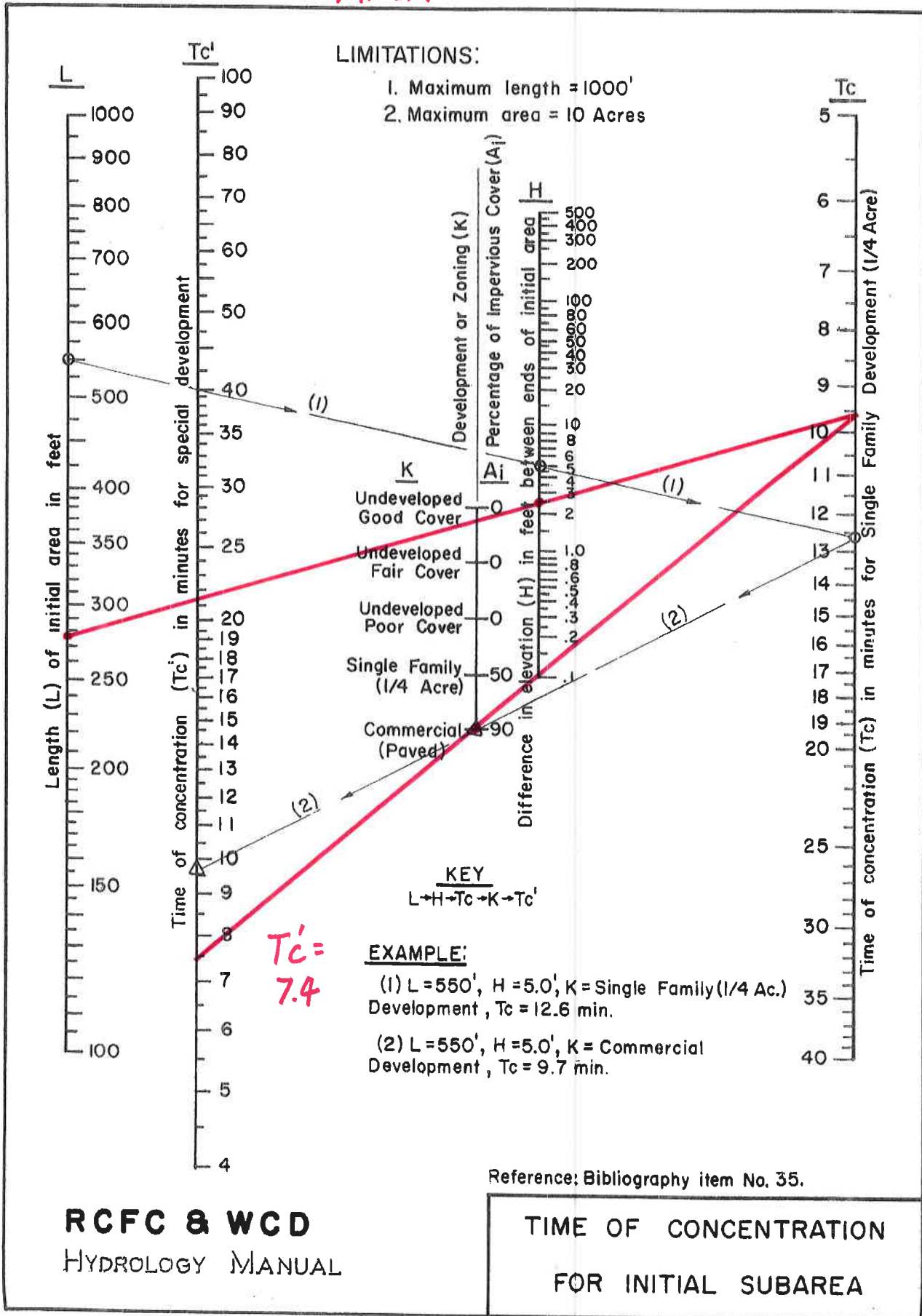


PLATE D-3



Attachment: Cultural Resources Assessment (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with

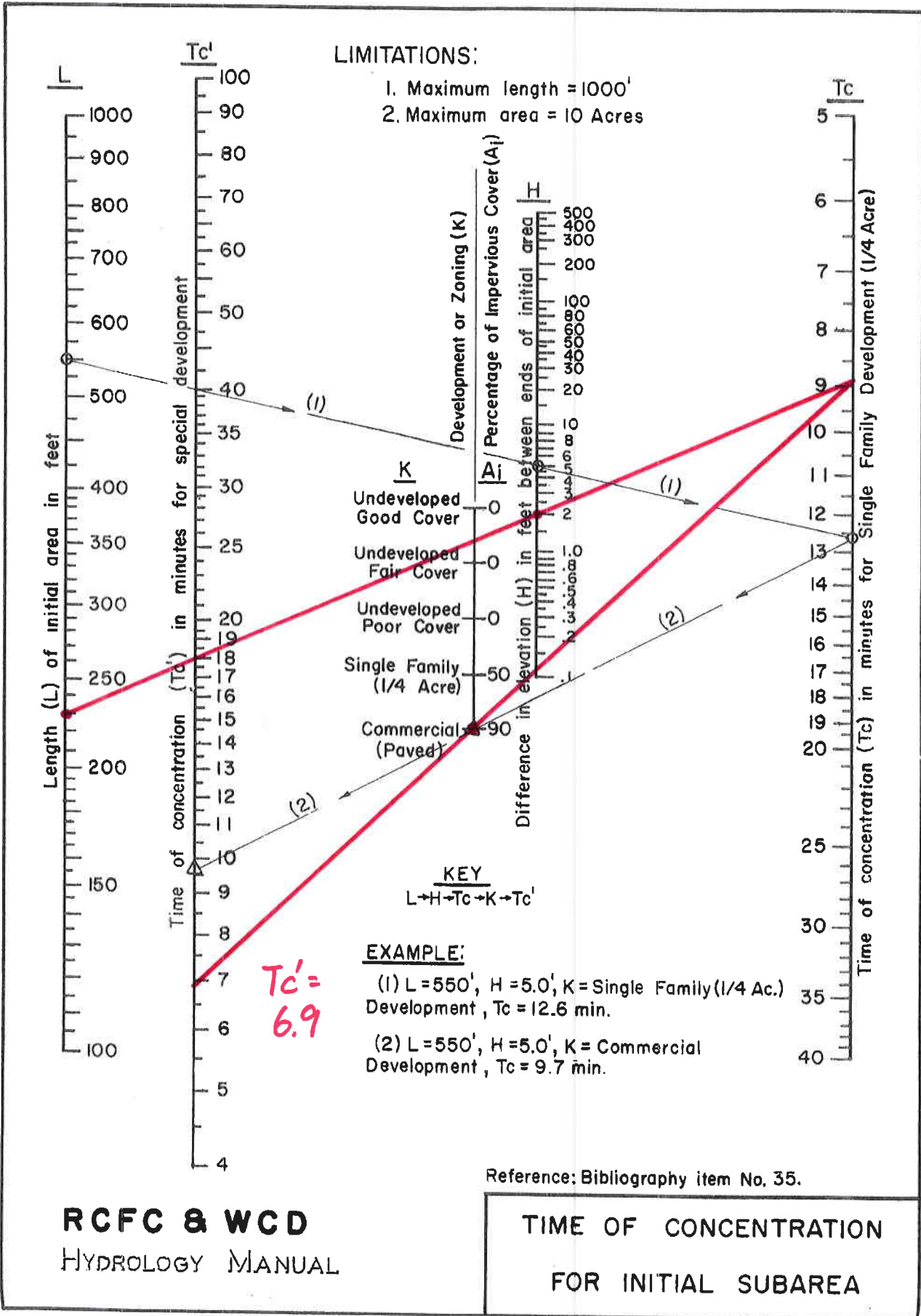
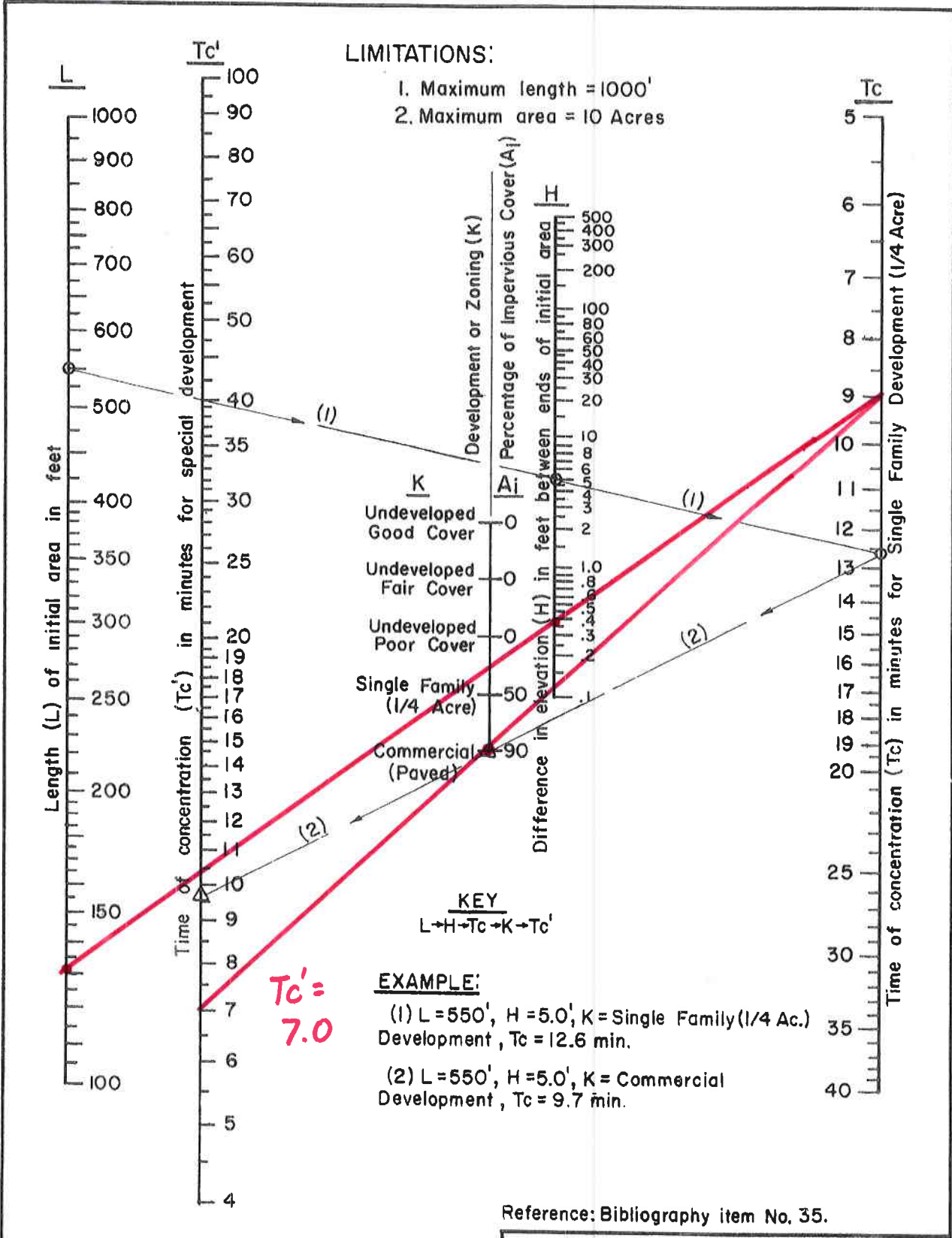


PLATE D-3

Attachment: Cultural Resources Assessment (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with



RCFC & WCD
HYDROLOGY MANUAL

**TIME OF CONCENTRATION
FOR INITIAL SUBAREA**

Reference: Bibliography item No. 35.
PLATE D-3

Attachment: Cultural Resources Assessment (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with

Appendix E

Noise Mitigation Analysis

**Noise Mitigation Analysis for
The Proposed Yum Yum Donuts Car Wash
City of Moreno Valley, California**

**Project #0110.0026.001.0001
February 14, 2018**

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**NOISE MITIGATION ANALYSIS FOR
THE PROPOSED YUM YUM DONUTS CAR WASH
CITY OF MORENO VALLEY**

1.0 INTRODUCTION

A car wash is being proposed at the northeast corner of Perris Boulevard and Cottonwood Avenue in Moreno Valley, as shown in Exhibit 1. The car wash will be “self-serve” and is planned to be open 24 hours per day. The purpose of this report is to determine whether the noise levels from the proposed car wash will be consistent with the Noise Ordinance adopted by the City of Moreno Valley. The project calls for the addition of a tunnel-type car wash. The developer is planning to design and construct this car wash very similar to an existing car wash facility located in the City of San Diego. This report presents the results of the car wash noise measurements at the existing San Diego car wash, and determines whether that design is acceptable for the planned Yum Yum Donuts car wash in Moreno Valley.

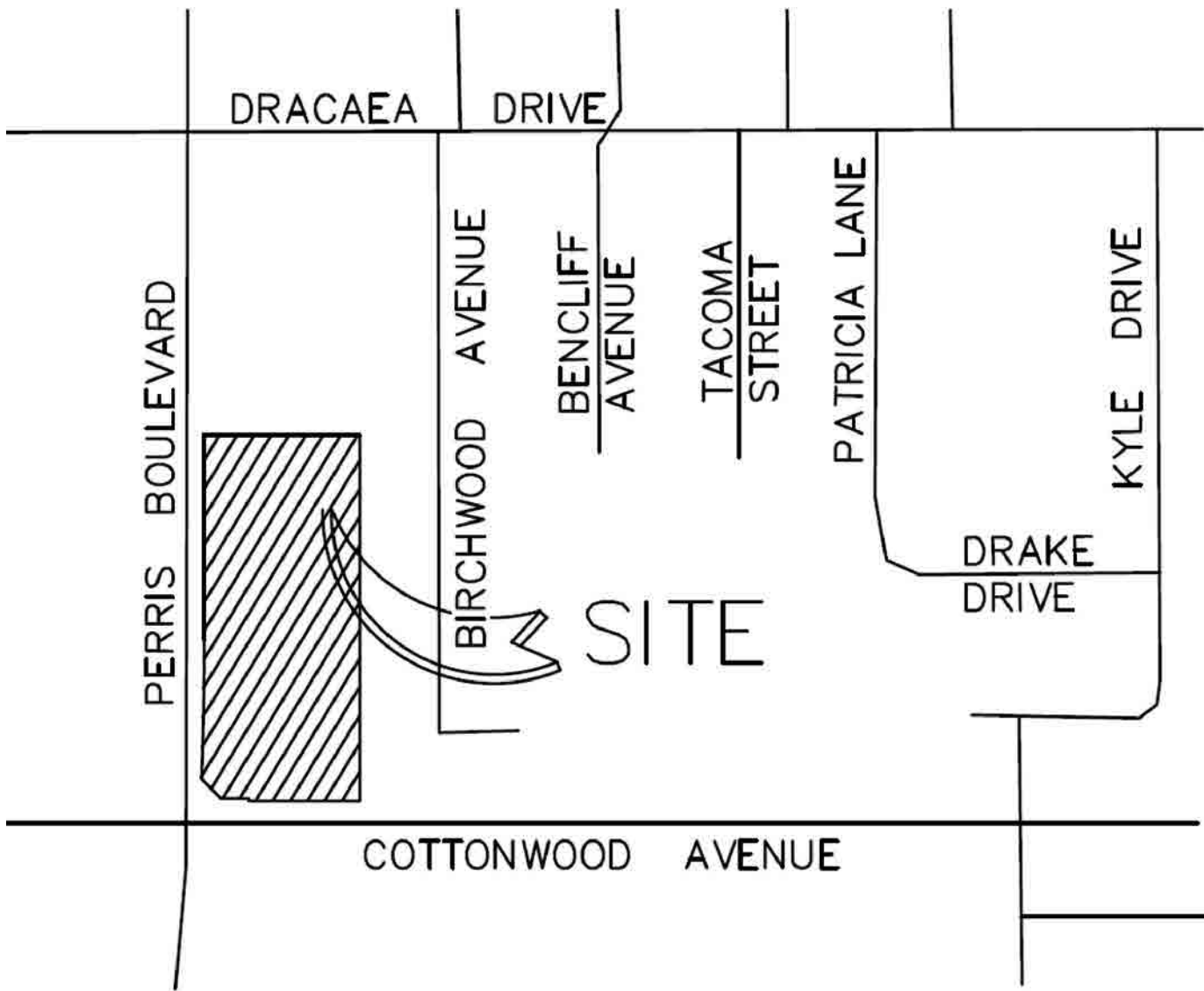
The site plan is shown in Exhibit 2. The nearest residences are located directly to the east. Other residential areas are located much farther from the facility. The potential noise impacts on the nearest residential area are addressed in this report, and any required mitigation measures are identified.

2.0 BACKGROUND INFORMATION ON NOISE

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the “A-weighted decibel” abbreviated dBA. Exhibit 3 provides examples of various noises and their typical A-weighted noise level.

Two commonly used metrics to describe fluctuating noise levels are Leq and Lmax. These metrics are described below. The noise level limits set forth in the City’s Noise Ordinance are specified in terms of these metrics.

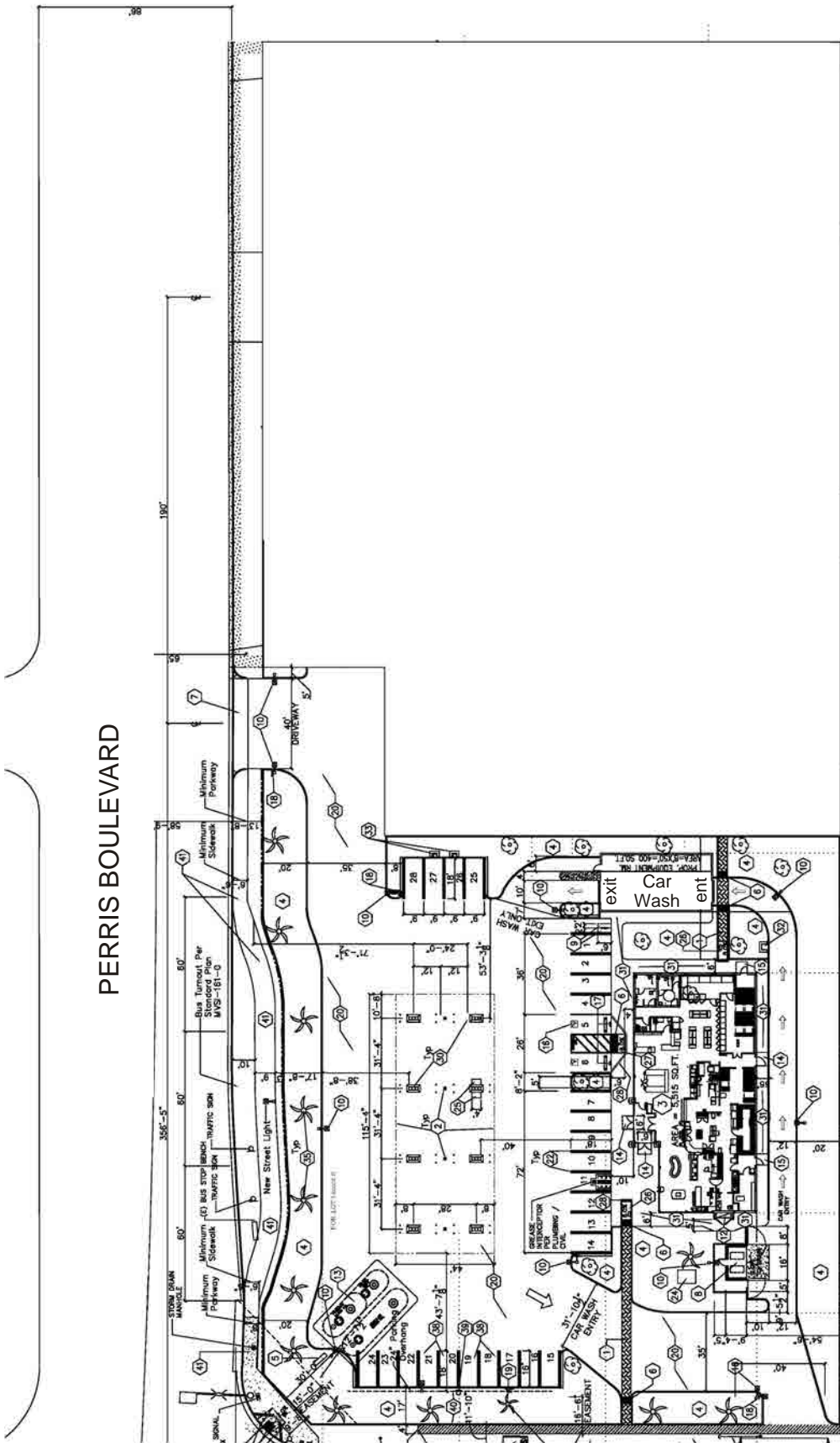


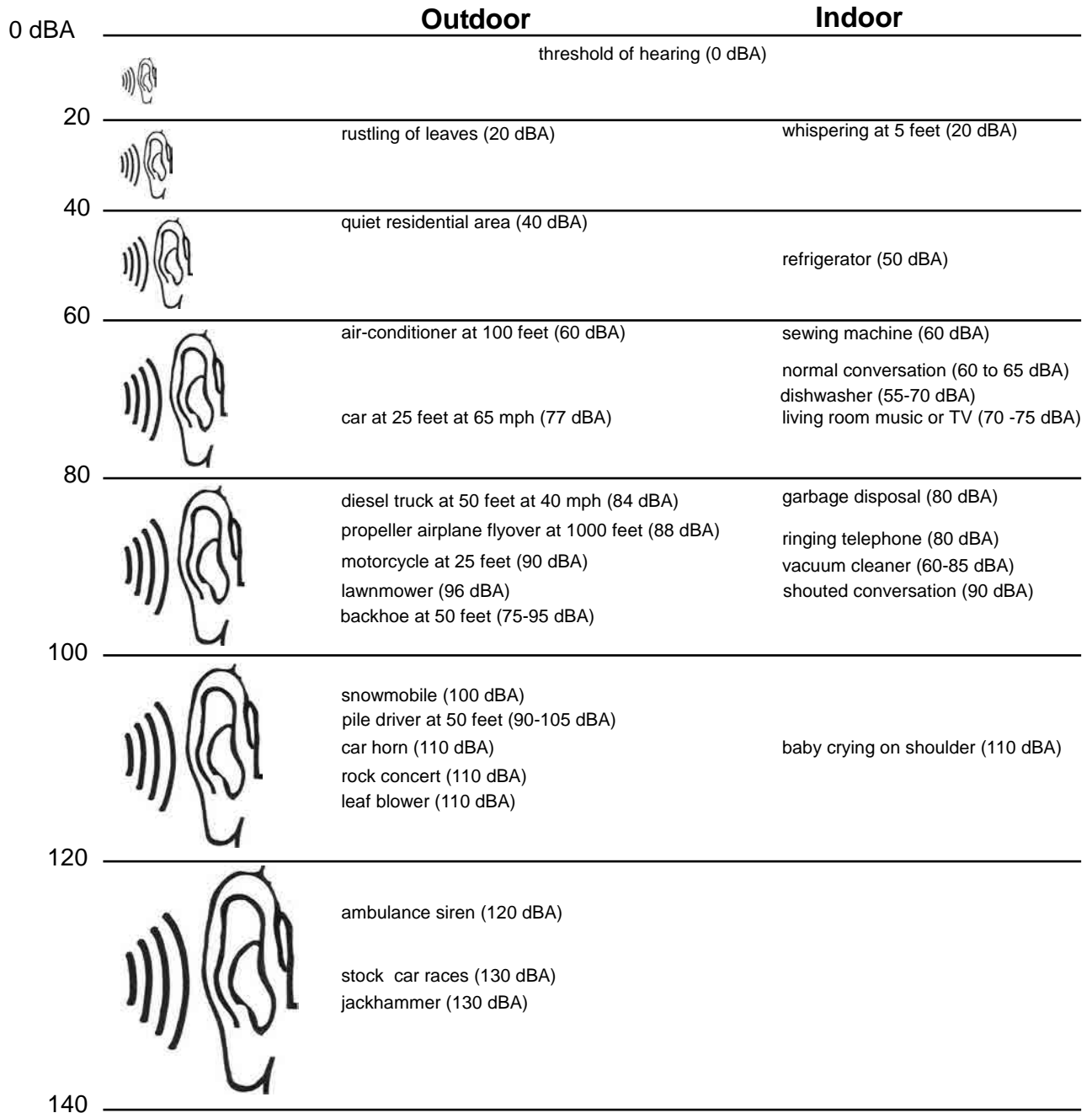


PERRIS BOULEVARD

COTTONWOOD AVENUE

Residential Area





Sources: League for the Hard Of Hearing, www.lhh.org
 Handbook of Noise Control, McGraw Hill, Edited by Cyril Harris, 1979
 Measurements by Landrum & Brown

Leq is the sound level corresponding to a steady-state sound level that would contain the same total energy as the time-varying signal over a given sample period. Leq is the “energy” average noise level during the time period of the sample. It is the energy average of all the events and background noise levels that occur during that time period.

Lmax is the loudest sound level measured during the time period of the sample.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption and ground attenuation. As the sound wave travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Intervening topography or sound walls can also have a substantial effect on the effective perceived noise levels.

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance. Each of these potential noise impacts on people are briefly discussed in the following narratives:

HEARING LOSS is not a concern in community noise situations of this type. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.

SPEECH INTERFERENCE is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA, and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

SLEEP INTERFERENCE is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

PHYSIOLOGICAL RESPONSES are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are signs of harm.

ANNOYANCE is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

3.0 MORENO VALLEY NOISE ORDINANCE STANDARDS

Noise ordinances are designed to protect adjacent noise-sensitive land uses from non-transportation related noise sources operating on private property (e.g., manufacturing facilities, music, and mechanical equipment). Many communities have developed noise ordinances to control these types of non-transportation related noise.

The City's noise level limits for car wash noise are shown in Section 9.10.140 of the City's Noise Ordinance. These standards are given in terms of maximum allowable noise levels. Higher noise levels are permitted during the daytime hours (8 a.m. to 10 p.m.) than are during nighttime hours (10 p.m. to 8 a.m.). The City of Moreno Valley Noise Ordinance levels are contained in Table 1, and they show the acceptable levels at outdoor residential land uses during each time period. The Lmax criterion applies to the highest noise level experienced at the receptor site.

**Table 1
CITY OF MORENO VALLEY
EXTERIOR NOISE ORDINANCE STANDARDS**

LAND USE	NOISE METRIC	NOISE LEVEL NOT TO BE EXCEEDED	
		Daytime 8 a.m. to 10 p.m.	Nighttime 10 p.m. to 8 a.m.
Residential	Lmax	60 dBA	55 dBA

As the car wash is expected to operate 24 hours a day, the projected noise levels will be compared to the nighttime criteria, since meeting the nighttime criteria ensures that the daytime criteria will also be met. The City's Noise Ordinance does not contain any indoor noise standards. Therefore, compliance with the nighttime Lmax exterior standard in the Noise Ordinance is addressed.

4.0 PROJECTED CAR WASH NOISE LEVELS

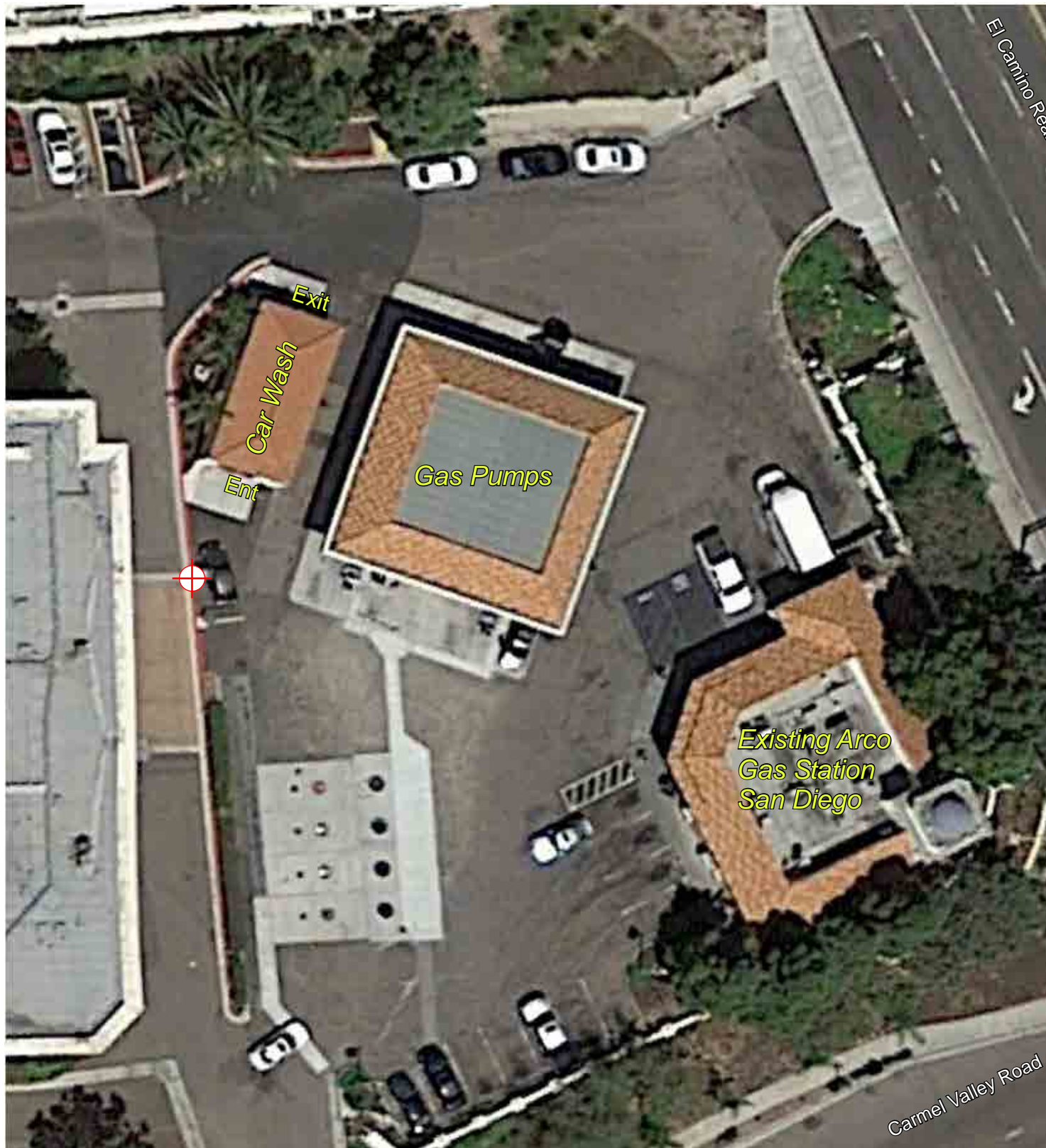
The projected noise levels from the planned Yum Yum Donuts car wash are based on the measured noise levels at the existing Arco car wash facility at 3170 Carmel Valley Road in San Diego. This car wash is equipped with automatic doors at both the entrance and exit ends, and these doors are essential in reducing the noise levels from the car wash facility when they are closed. The noise levels at this facility were measured on August 12, 2016. Measurements were performed on-axis with the tunnel at a distance of 25 feet from the entrance end with both car wash doors closed. The measurements at this location were used to determine the noise levels at the nearest noise-sensitive receptors at the Moreno Valley site. The measurement site is shown in Exhibit 4. The car wash operations of interest (wash cycle, rinse cycle, and dry cycle) were measured. Truck passes in the parking lot passes were not able to be excluded from the measurements, and were edited out of the data in order to assess the car wash noise levels alone.

The sound level meter used for the measurements was a Brüel and Kjær Model 2236 sound level meter. This meter conforms to American National Standards Institute (ANSI) Type 1 specifications. The meter and calibrator are laboratory calibrated and certified annually with calibration traceable to the National Institute of Standards and Technology (NIST). The meter was field calibrated before and after the measurement period using a Brüel and Kjær Model 4231 acoustical calibrator. The measured L_{max} was 65.7 dBA at a distance of 25 feet from the entrance end of the tunnel with the car wash doors closed.

Based upon the measured car wash source noise data and the proposed site plan, the noise level was calculated for the nearest observer at the adjacent residential area, at a distance of 57 feet from the entrance end of the tunnel. The resulting unmitigated noise level at the residential area is 58.5 dBA. This noise level would exceed the nighttime noise standard of 55 dBA. The developer plans to construct a 6-foot high masonry wall at the east property line. The wall will need to wrap around the northeast corner of the project and extend westward to the car wash tunnel. The required barrier location is shown in Exhibit 5. With this noise barrier, the resulting projected noise level is shown below in Table 2.

**Table 2
PROJECTED NOISE LEVELS (dBA)**

Location	Projected Noise Level (L _{max})	Comparison To Noise Level Limit
<u>With Yum Yum Donuts car wash designed like existing Arco facility and 6.0'-high noise barrier</u>		
Nearest Residence	49.4	Meets Ordinance



 - Measurement Location



Existing Car Wash Measurement Locations

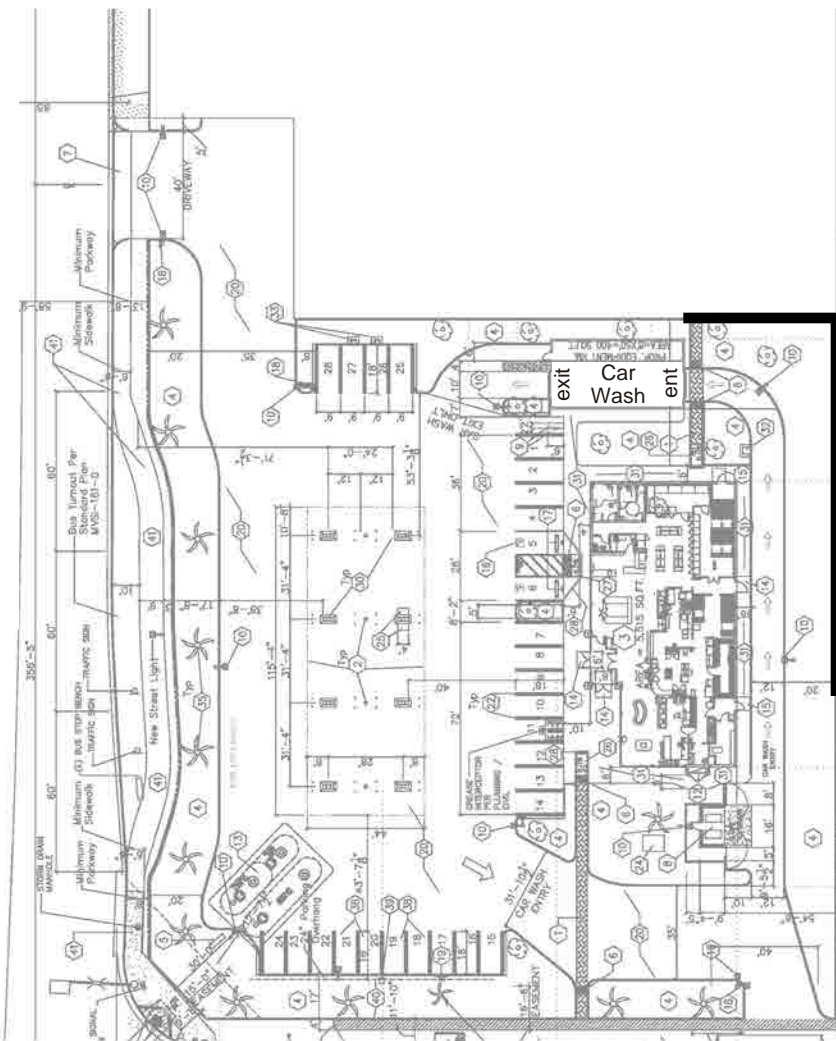
Exhibit 4

Packet Pg. 897

Attachment: Cultural Resources Assessment (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

Requires 6.0'-High Noise Barrier

PERRIS BOULEVARD



Residential Area

COTTONWOOD AVENUE



The projected Lmax at the nearest residential receiver from the proposed car wash is 49.4 dBA. This meets the City's nighttime exterior Noise Ordinance limit of 55 dBA. The results of the analysis indicate that with the car wash designed like the existing Arco facility, the Lmax noise levels at all the nearest residential areas are projected to meet the daytime and nighttime Noise Ordinance limits. The proposed car wash must be designed, constructed, and operated the same as the existing Arco car wash in order for the noise level limits to be met. This includes such items as equipment types and locations, door types and configuration, and operational parameters such as when the doors open and close.

6.0 DESIGN MEASURES

Calculations have shown that with the car wash designed and operated like the existing Arco facility, the project will meet the City's daytime and nighttime Noise Ordinance limits. The following design items must be adhered to in order for the noise level limits to be met.

- The car wash equipment shall be the same as that used at the Arco facility, and placed in the same locations within the tunnel as at the Arco facility.
- The building design (walls and roof) shall be the same materials as used at the Arco facility.
- The roll-up doors shall be the same type, and shall be installed the same as the Arco facility.
- Both the entrance end and exit end doors need to be in the closed position when a car is being washed and dried.
- A noise barrier shall be constructed that meets or exceeds the barrier shown in Exhibit 5.
- The noise barrier must have a surface density of at least 3.5 pounds per square foot, and shall have no openings or gaps. The wall may be constructed of stud and stucco, 3/8-inch plate glass, 5/8-inch Plexiglas, any masonry material, or a combination of these materials.

With these design measures in place, the noise levels at the nearest homes will meet the City's daytime and nighttime Noise Ordinance limits.

APPENDIX
Calculation Spreadsheets

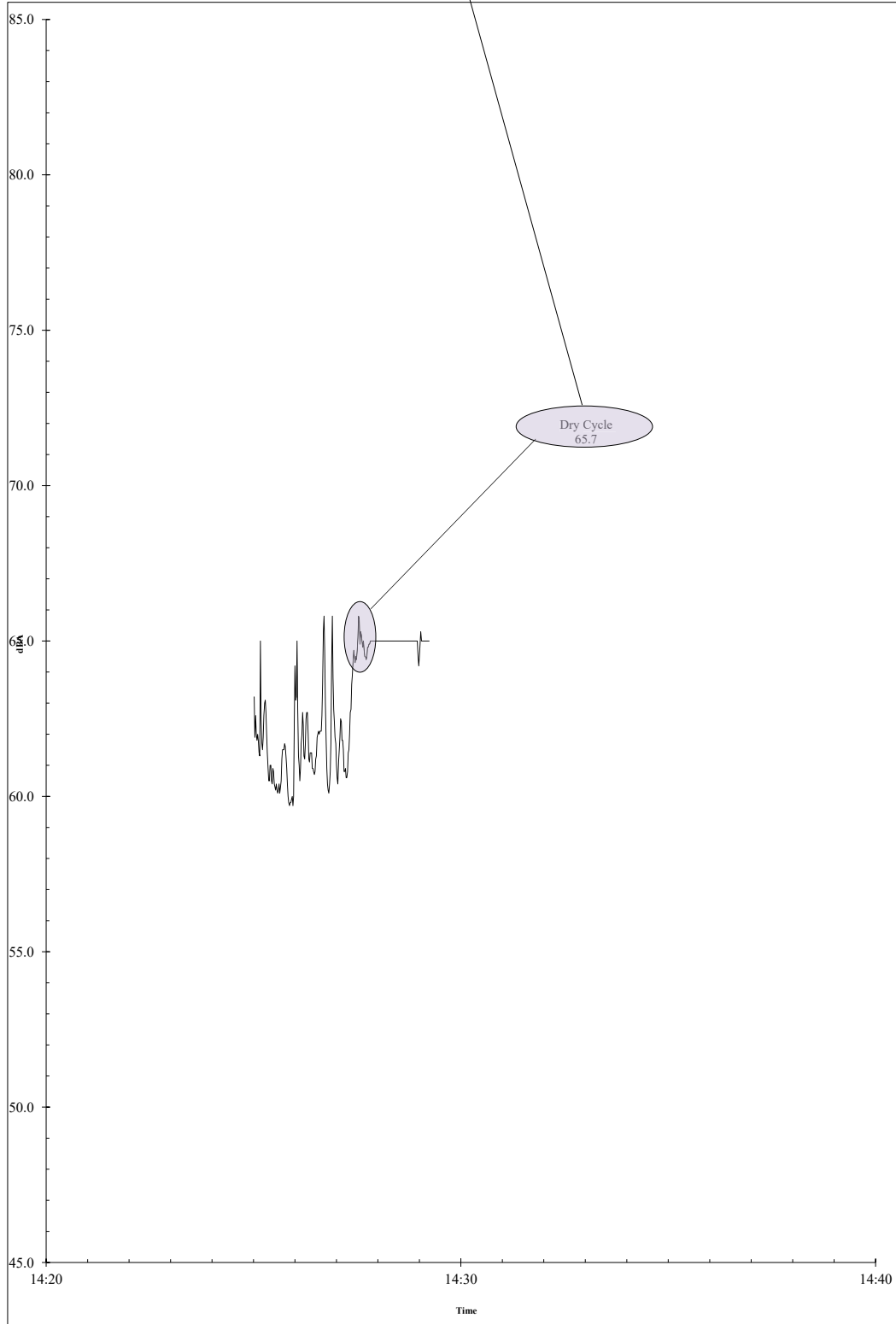
Attachment: Cultural Resources Assessment (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

Arco Car Wash
3170 Carmel Valley Road
San Diego
25' from Entrance End, Doors Closed
8-12-16

ref at 25' Distance, On-Axis

Metric	Level	at 57'
LEQ	63.0	
Lmax	65.7	58.5 no wall
L1.7	65.3	
L8.3	65.0	
L25	#NUM!	
L50	62.7	
L90	60.4	
Lmin	59.7	

Night STD = 55



Attachment: Cultural Resources Assessment (3180) : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with

Source: Arco Car Wash SD, Entrance End, Door Closed
Reference Frequency (Hz): 500

Nighttime Lmax Standard
55

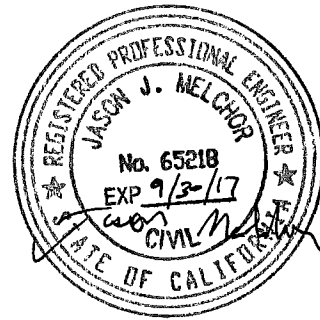
Residential property to the east

Source Height	Source Elevation	Source Level	Reference Distance	Source to Barrier	Barrier Height	Barrier Elevation	Barrier to Receiver	Receiver Height	Receiver Elevation	Barrier Reduction	Lmax (dBA)
8	0	65.7	25	57	0.0	0	1	5	0	0.000	58.4
8	0	65.7	25	57	6.0 planned	0	1	5	0	9.139	49.2

Appendix B

Traffic Impact Study and Supplemental Traffic Assessment

**TRAFFIC IMPACT STUDY
FOR THE
PERRIS BLVD/COTTONWOOD AVE PROJECT
IN THE CITY OF MORENO VALLEY**



Prepared for:

A & S Engineering, Inc.

Prepared by:

Jason Melchor, PE
Tim Chan, EIT

Kimley-Horn and Associates, Inc.

765 The City Drive, Suite 200
Orange, California 92868

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store

TRAFFIC IMPACT STUDY
FOR THE PERRIS BLVD/COTTONWOOD AVE PROJECT
IN THE CITY OF MORENO VALLEY

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TRAFFIC IMPACT STUDY
FOR THE PERRIS BLVD/COTTONWOOD AVE PROJECT
IN THE CITY OF MORENO VALLEY

INTRODUCTION

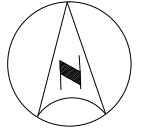
This traffic impact study has been prepared to evaluate the project-related traffic impacts associated with the proposed development of a Yum Yum Donut Shop and Gas Station with Car Wash within a vacant parcel located at the northeast corner of Perris Boulevard and Cottonwood Avenue in the City of Moreno Valley, California. The study assesses the project impact by providing an analysis of existing and future conditions, with and without project traffic. This document follows the assumptions established during discussions with the City of Moreno Valley staff and the approved Scoping Agreement. The approved Scoping Agreement is provided in *Appendix A*.

This report has been prepared in accordance with the City of Moreno Valley Traffic Impact Analysis Preparation Guide.

PROJECT DESCRIPTION

The proposed project, designated as Planning Case PA15-0030, will be developed on the northeast corner of Perris Boulevard and Cottonwood Avenue in the City of Moreno Valley. The project site location is shown in its regional setting on Figure 1. The project will involve development of a 16-pump gas station with a 5,515-square-foot building consisting of a donut shop/convenience market and a drive-through car wash. The project site is located in an Office Commercial (OC) zone based on the City of Moreno Valley Zoning Code, which allows the development of retail sales and service. The site is bounded to the south by Cottonwood Avenue, to the north by vacant parcels, to the west by Perris Boulevard, and to the east by residential land uses. Ingress and egress to the site will be provided via an unsignalized driveway on Perris Boulevard and an unsignalized driveway on Cottonwood Avenue. There is an existing church on Cottonwood Avenue across the street from the project. The project site plan is shown on Figure 2.

The project is anticipated to be completed in 2016. To be consistent with the analysis methodology detailed in the City's guidelines, a minimum five-year horizon was considered for the future conditions analysis. Therefore, a project opening year of 2020 was used in this study.



NOT TO SCALE

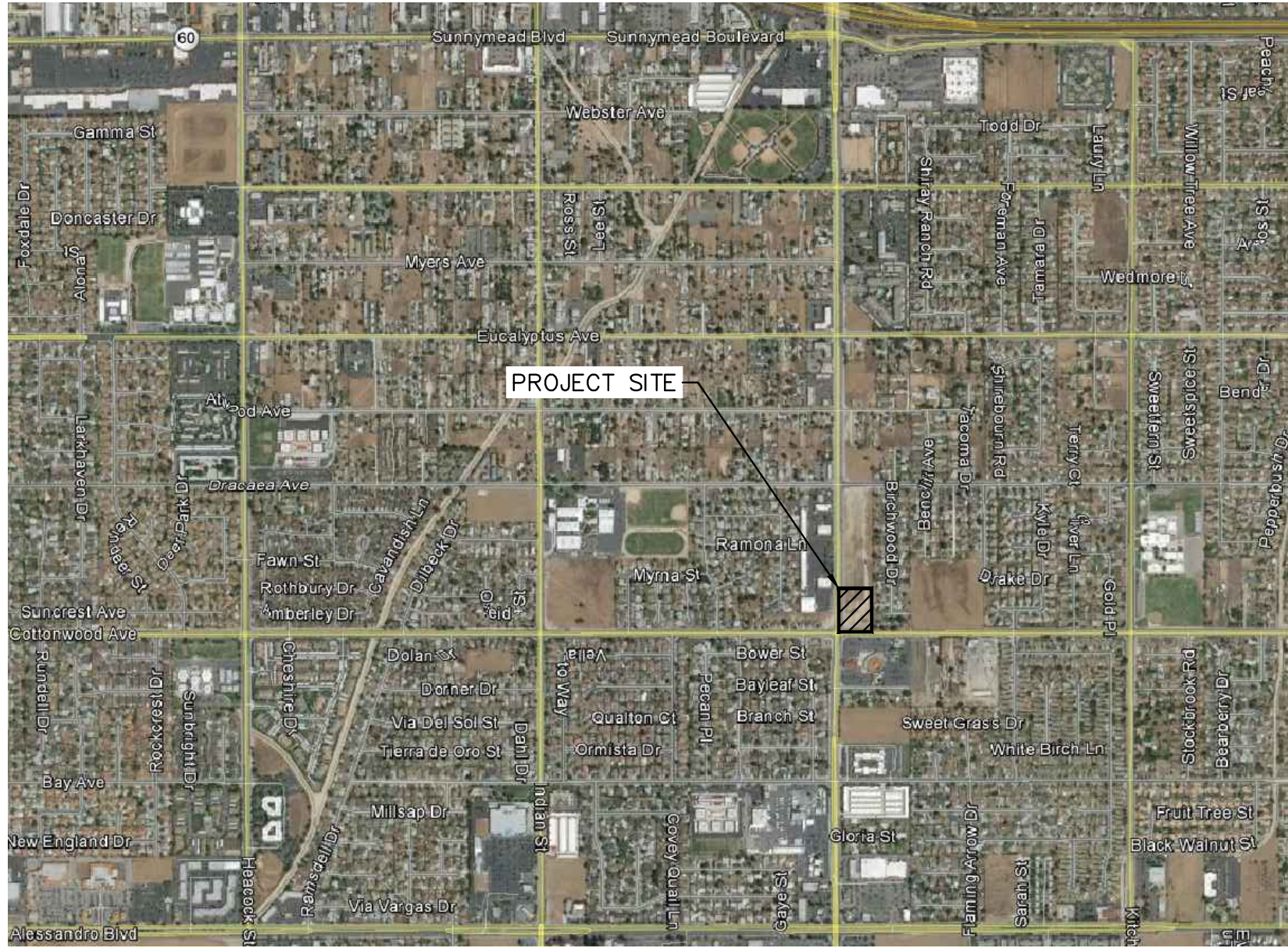


FIGURE 1
VICINITY MAP

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

ANALYSIS SCENARIOS AND METHODOLOGY

Analysis Scenarios

The study area was determined with input from City Staff through the scoping process. The following study intersections were identified for evaluation:

Int. #	Study Intersection	Traffic Control	LOS Standard ¹
1	Perris Boulevard at Eucalyptus Avenue	Signalized	D
2	Perris Boulevard at Atwood Avenue	Unsignalized	D
3	Perris Boulevard at Dracaea Avenue	Signalized	D
4	Cottonwood Avenue at Indian Street	Signalized	C
5	Cottonwood Avenue at Perris Boulevard	Signalized	D
6	Cottonwood Avenue at Grape Myrtle Drive	Unsignalized	C
7	Cottonwood Avenue at Kitching Street	Signalized	C
8	Perris Boulevard at Bay Avenue	Signalized	D
9	Perris Boulevard at Alessandro Boulevard	Signalized	D
D1	Perris Boulevard Driveway	Unsignalized	D
D2	Cottonwood Avenue Driveway	Unsignalized	D

¹ The Level of Service (LOS) Standard is based on the City of Moreno Valley General Plan (July 2006)

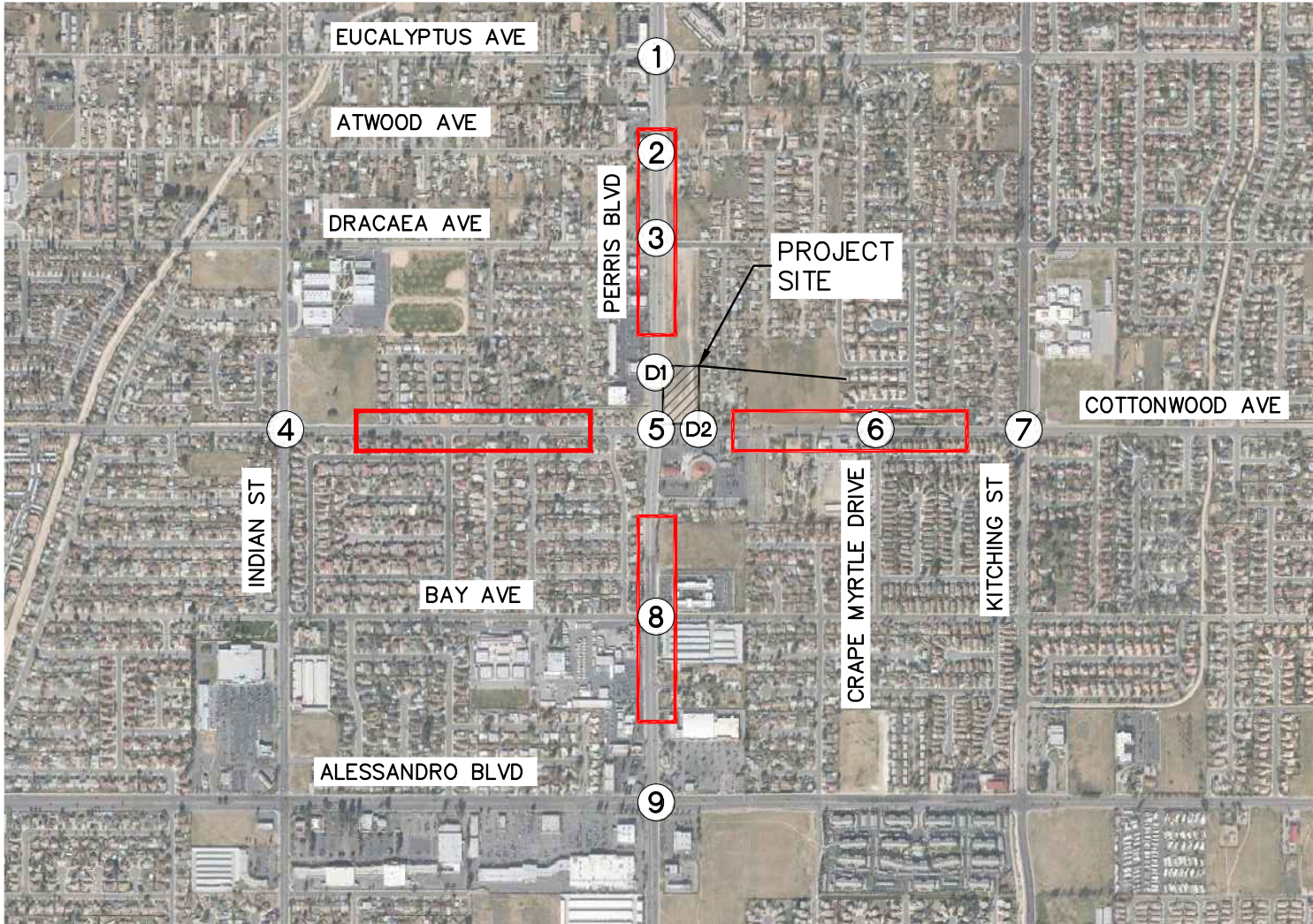
The following roadway segments were also identified for evaluation:

1. Perris Boulevard: Eucalyptus Avenue to Cottonwood Avenue
2. Perris Boulevard: Cottonwood Avenue to Alessandro Boulevard
3. Cottonwood Avenue: Indian Street to Perris Boulevard
4. Cottonwood Avenue: Perris Boulevard to Kitching Street

The location of the study intersections and roadway segments are shown on Figure 3. Based on the City's guidelines, this traffic analysis provides an evaluation of daily as well as morning and evening peak hour operations. Additionally, City staff identified the need to study Sunday noon conditions to account for traffic generated by the existing church adjacent to the project site. The analysis includes the following scenarios:

- Existing Conditions
- Existing With Project Conditions
- Cumulative (Opening Year 2020) Without Project
- Cumulative (Opening Year 2020) With Project

Any mitigation measures for the future conditions will be identified, if necessary.



LEGEND:



-  Study Intersection
-  Study Roadway

FIGURE 3
STUDY INTERSECTIONS AND ROADWAYS

ANALYSIS METHODOLOGY

The Synchro 8 software (Trafficware) was used to analyze the peak hour operations of both signalized and unsignalized intersections. Synchro 8 uses the methodologies outlined in the 2010 *Highway Capacity Manual (HCM)*. Analysis assumptions presented in the City of Moreno Valley Traffic Impact Analysis Preparation Guide were used.

Signalized Intersections

The 2010 Highway Capacity Manual (HCM), published by the Transportation Research Board (TRB), establishes a system whereby highway facilities are rated for their ability to accommodate traffic volumes. The terminology “Level of Service” is used to provide a qualitative evaluation based on certain quantitative calculations, which are related to empirical values.

Level of Service (LOS) for signalized intersections is defined in terms of average vehicle delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. Specifically, LOS criteria are stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay. The Level of Service criteria for the various LOS designations are summarized on the following chart.

LEVEL OF SERVICE (LOS) CRITERIA FOR SIGNALIZED INTERSECTIONS			
LOS	Control Delay (sec/veh)	V/C Ratio	Description
A	≤10.0	≤ 0.60	Operations with very low delay and most vehicles do not stop.
B	>10.0 – 20.0	0.61 – 0.70	Operations with good progression but with some restricted movement.
C	>20.0 – 35.0	0.71 – 0.80	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35.0 – 55.0	0.81 – 0.90	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	>55.0 – 80.0	0.91 – 1.00	Operations where there is significant delay, extensive queuing, and poor progression.
F	>80.0	> 1.00	Operations are unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.
Source: 2010 Highway Capacity Manual, Chapter 18, Page 18-6, Exhibit 18-4			

Unsignalized Intersections

The Level of Service for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement. The Level of Service criteria for unsignalized intersections, as described in the 2010 Highway Capacity Manual, are provided in the following chart.

LEVEL OF SERVICE (LOS) CRITERIA FOR UNSIGNALIZED INTERSECTIONS	
Level of Service	Control Delay (sec/veh)
A	0 - 10.0
B	>10.0 - 15.0
C	>15.0 - 25.0
D	>25.0 - 35.0
E	>35.0 - 50.0
F	>50.0

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches, or for the intersection as a whole.
Source: 2010 Highway Capacity Manual, Chapter 19, Page 19-2, Exhibit 19-1

Roadway Segments

In order to determine the project-related impacts on the study area roadway segments, the following roadway capacities, provided in the City of Moreno Valley Traffic Impact Analysis Preparation Guide, were used. Roadway capacities are provided in vehicles per day.

TYPE OF ROADWAY	LEVEL OF SERVICE FOR ROADWAY SEGMENTS				
	A	B	C	D	E
Six Lane Divided Arterial	33,900	39,400	45,000	50,600	56,300
Four Lane Divided Arterial	22,500	26,300	30,000	33,800	37,500
Four Lane Undivided Arterial	15,000	17,500	20,000	22,500	25,000
Two Lane Industrial Collector	7,500	8,800	10,000	11,300	12,500
Two Lane Undivided Residential	N/A	N/A	N/A	N/A	2,000

Significant Impact Criteria

Based on the City of Moreno Traffic Impact Analysis Preparation Guide, significant impacts are defined by the California Environmental Quality Act (CEQA) under the following conditions:

- Existing traffic conditions exceed the General Plan target LOS.
- When cumulative traffic exceeds the target LOS, and impacts cannot be mitigated through the Transportation Uniform Mitigation Fee (TUMF) and/or the City of Moreno Valley Developer Impact Fee (DIF) network (or other funding mechanism), project conditions of approval, or other implementation mechanism.

EXISTING TRAFFIC CONDITIONS

This section summarizes the existing roadway circulation network, daily and peak-hour traffic volumes, and existing operating conditions and Level of Service at the study intersections and roadway segments.

Existing Street System

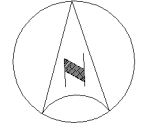
Regional access to the site will be provided by the SR-60 and the I-215 Freeways. The SR-60 Freeway is located approximately 1.0 mile to the north of the project site. The I-215 Freeway is located approximately 3.5 miles to the west of the project site.

Local access to the project vicinity is provided by several roadways. Roadway classifications were taken from the City of Moreno Valley General Plan Circulation Element. These roadway classifications are shown on Figure 4. Typical roadway cross sections corresponding to these classifications are shown on Figure 5.

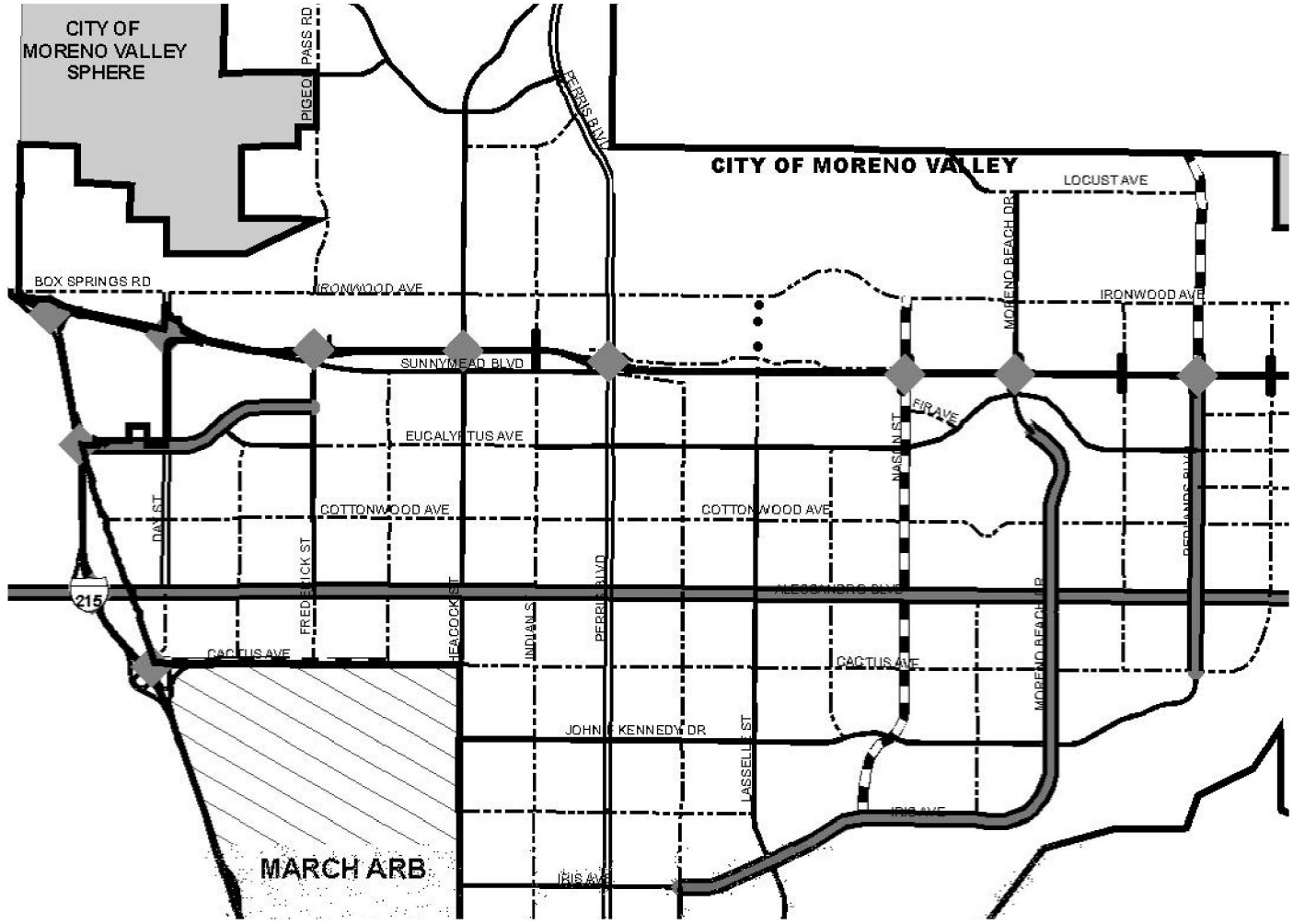
Perris Boulevard is a four-lane divided roadway with two lanes in each direction and a two-way-left-turn median. Perris Boulevard has a width of 86 feet measured from curb to curb within the study area. The posted speed limit is 40 miles per hour. The street traverses the City of Moreno Valley in the north-south direction and is classified as a Divided Arterial in the City of Moreno Valley General Plan.

Cottonwood Avenue is a two-lane divided roadway with one lane in each direction and a two-way-left-turn median. Cottonwood Avenue has a width of 64 feet measured from curb to curb. The posted speed limit is 45 miles per hour throughout the study area. There is currently a bike lane striped in each direction. Based on the City of Moreno Valley Bicycle Master Plan, Cottonwood Avenue is designated as a Bicycle Boulevard. The street runs east-west and is classified as a Minor Arterial in the City of Moreno Valley General Plan.

Alessandro Boulevard is a six-lane divided roadway running east-west with three lanes in each direction and a two-way-left-turn median. At the intersection of Perris Boulevard, there is a raised median



NOT TO SCALE



Street Classification	Row
Highways	
Divided Major Arterial	134
Modified Divided Major Arterial	120
Divided Arterial	110
Arterial	100
Modified Minor Arterial (Pigeon Pass Rd)	98
Minor Arterial	88
Collector	66
SP218/Minor Arterial	*
SP218/Arterial	*
SP218/Modified Divided Major Arterial	*
Freeway Overpass	
Freeway Interchange	

FIGURE 4
 GENERAL PLAN ROADWAY NETWORK
 SOURCE: CITY OF MORENO VALLEY GENERAL PLAN CIRCULATION ELEMENT

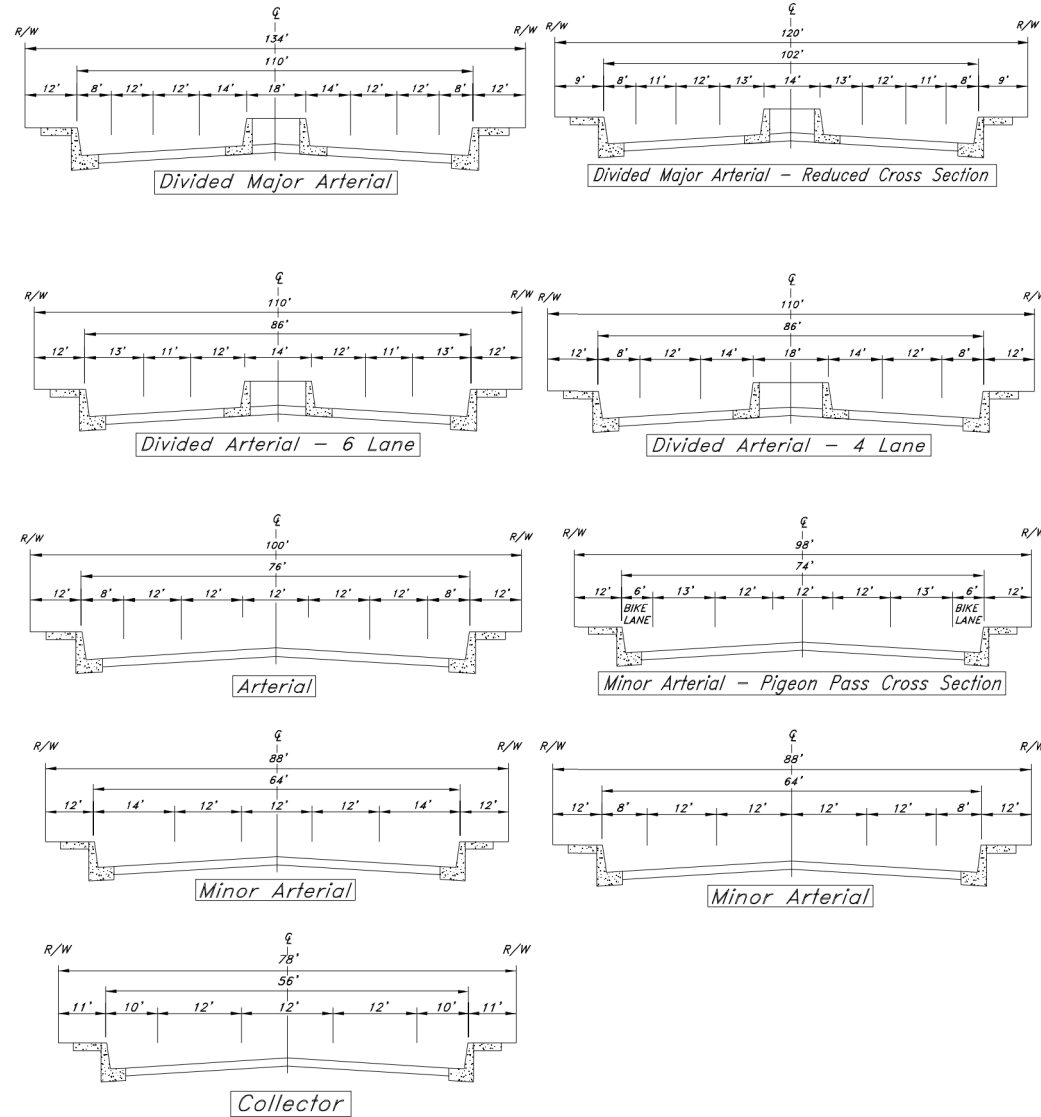


FIGURE 5
ROADWAY CROSS SECTIONS

SOURCE: CITY OF MORENO VALLEY GENERAL PLAN CIRCULATION ELEMENT

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

along Alessandro Boulevard. Alessandro Boulevard has a width of 110 feet measured from curb to curb. The posted speed limit is 45 miles per hour. The street is classified as a Divided Major Arterial in the City of Moreno Valley General Plan.

Existing Transit Services

Riverside Transit Agency Route 18 is a bus route that operates along Cottonwood Avenue within the project vicinity. Route 18 operates seven days a week and provides transportation services between Sunnymead Ranch and Moreno Valley College.

Riverside Transit Agency Route 19 is a bus route that currently operates along Perris Boulevard within the project vicinity. Route 19 operates seven days a week and provides transportation between the Moreno Valley Mall and the Perris Station Transit Center to the south of the project site.

Riverside Transit Agency Route 20 is a bus route that runs in the east-west direction along Alessandro Boulevard within the study area. Route 20 operates seven days a week and provides transportation between Magnolia Center in the City of Riverside and Moreno Valley College.

Truck Routes

Perris Boulevard is a designated truck route within the study area and provides access to the SR-60 Freeway to the north of the project site. Alessandro Boulevard is a truck route in the east-west direction along its entirety within the City of Moreno Valley limits.

Existing Traffic Volumes

Existing morning peak period (7:00 to 9:00 AM) and evening peak period (4:00 to 6:00 PM) turning movement counts were collected for all study intersections, and 24-hour roadway volumes were collected for all study roadway segments. Sunday Noon counts (11:00 AM to 2:00 PM) were collected at all study intersections to coincide with peak traffic generated by the St. Christopher Catholic Church. The counts were completed in September, 2015, when area schools were in session.

The existing lane configurations and traffic control at the study intersections are shown in Figure 6. Existing peak hour turning movement volumes at the study intersections and daily volumes on study roadways are shown in Figure 7. Existing Sunday traffic volumes are shown in Figure 8. Peak hour intersection traffic count and daily roadway traffic count worksheets are provided in *Appendix B*.

Intersection Analysis – Existing Operating Conditions

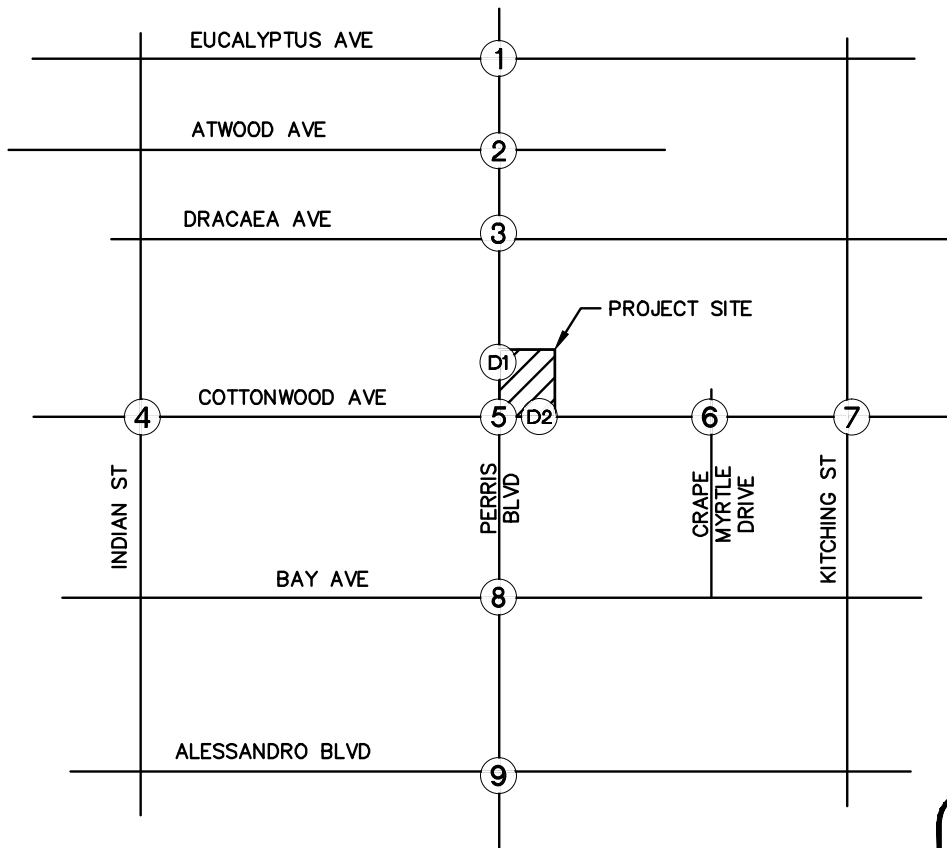
The study intersections were analyzed in accordance with the analysis methodology described earlier in this report. Intersection Level of Service worksheets are provided in *Appendix C*. The Existing Conditions analysis results and Level of Service for the study intersections are presented in Table 1. Review of this table shows that all study intersections currently operate at LOS D or better during all peak hour periods, with the exception of the unsignalized intersection of Cottonwood Avenue at Grape Myrtle Drive. The intersection currently operates at a LOS E in the morning peak hour based on the worst-case approach. This worst-case delay is caused by 31 vehicles making a southbound left-turn movement from the minor street approach.

Roadway Segment Analysis – Existing Conditions

The study roadway segments were analyzed in accordance with the analysis methodology described earlier in this report. The Existing Conditions analysis results and Level of Service for the study roadway segments are presented in Table 2. As review of this table shows, all study roadway segments are currently operating at LOS D or better under Existing Conditions.



NOT TO SCALE



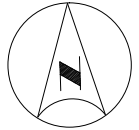
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

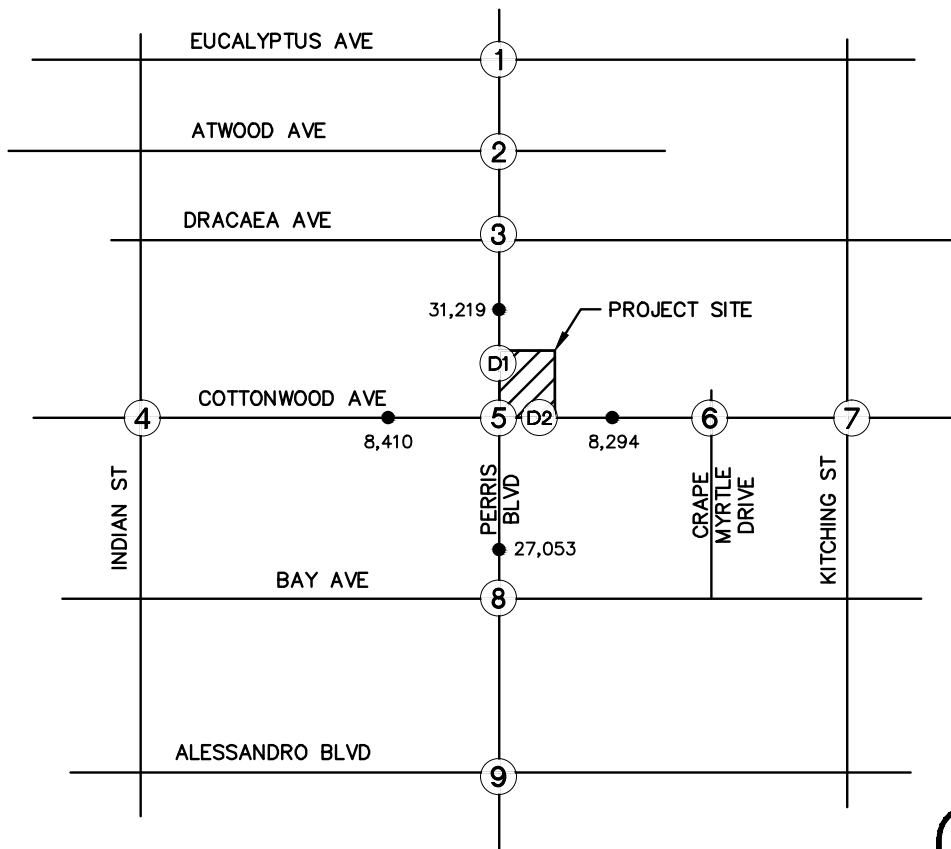
- Study Intersection
- Traffic Signal
- Stop Sign
- Defacto Right Turn

FIGURE 6
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a



NOT TO SCALE



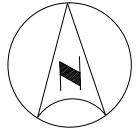
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

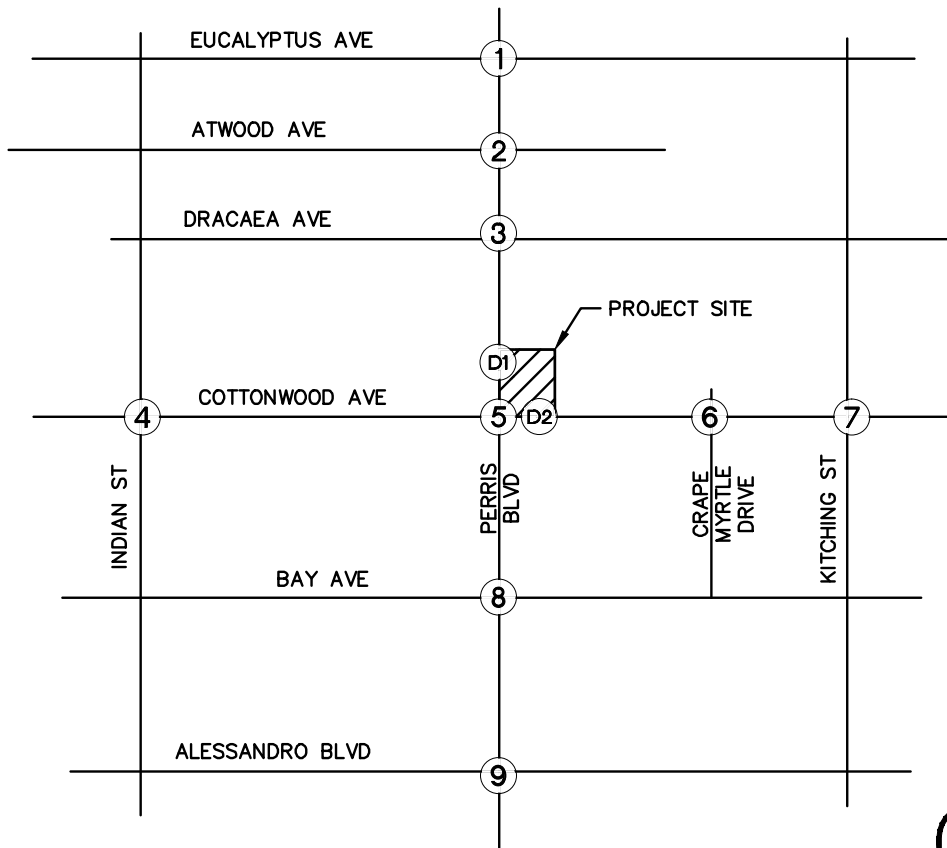
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume
- Average Daily Traffic Volume
- XXXX

FIGURE 7
EXISTING TRAFFIC VOLUMES – WEEKDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 8
EXISTING TRAFFIC VOLUMES – SUNDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

TABLE 1 SUMMARY OF INTERSECTION OPERATION EXISTING CONDITIONS					
Int. #	Intersection	Intersection Control	Peak Hour	Existing Conditions	
				Delay (sec/veh)	LOS
1	Perris Boulevard at Eucalyptus Avenue	Signal	AM	19.9	B
			PM	20.4	C
			SUN	16.6	B
2	Perris Boulevard at Atwood Avenue	Unsignalized	AM	23.8	C
			PM	29.0	D
			SUN	27.4	D
3	Perris Boulevard at Dracaea Avenue	Signal	AM	26.5	C
			PM	18.0	B
			SUN	20.6	C
4	Cottonwood Avenue at Indian Street	Signal	AM	23.1	C
			PM	20.1	C
			SUN	18.1	B
5	Cottonwood Avenue at Perris Boulevard	Signal	AM	26.1	C
			PM	21.7	C
			SUN	23.1	C
6	Cottonwood Avenue at Crape Myrtle Drive	Unsignalized	AM	39.5	E
			PM	15.2	C
			SUN	22.3	C
7	Cottonwood Avenue at Kitching Street	Signal	AM	25.3	C
			PM	16.1	B
			SUN	16.9	B
8	Perris Boulevard at Bay Ave	Signal	AM	22.2	C
			PM	16.4	B
			SUN	14.6	B
9	Perris Boulevard at Alessandro Boulevard	Signal	AM	30.1	C
			PM	35.3	D
			SUN	28.6	C
D1	Perris Boulevard Driveway	Unsignalized	AM	13.2	B
			PM	34.8	D
			SUN	32.6	D
D2	Cottonwood Avenue Driveway	Unsignalized	AM	17.5	C
			PM	13.0	B
			SUN	17.4	C
Unsignalized Intersection Delay is reported for the worst approach					

TABLE 2
SUMMARY OF ROADWAY OPERATIONS
EXISTING CONDITIONS

Roadway Segment	Roadway Classification	Roadway Capacity	ADT	V/C	LOS
Perris Boulevard: Eucalyptus Avenue to Cottonwood Avenue	4-Lane Divided Arterial	37,500	31,219	0.83	D
Perris Boulevard: Cottonwood Avenue to Alessandro Boulevard	4-Lane Divided Arterial	37,500	27,053	0.72	C
Cottonwood Avenue: Indian Street to Perris Boulevard	2-Lane Arterial	12,500	8,410	0.67	A
Cottonwood Avenue: Perris Boulevard to Kitching Street	2-Lane Arterial	12,500	8,294	0.66	A

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a

PROJECT TRAFFIC

Trip Generation

The trips expected to be generated by the project were calculated using trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition (2012). Trip rates are based on ITE Land Use Category 946 – Gas Station with Convenience Market & Car Wash.

It is recognized that not all inbound and outbound trips to the proposed project will be “new” trips on the roadway system in the vicinity of the proposed project. Some trips to the project site will consist of “pass-by” trips -- motorists who are already traveling on the surrounding roadways from one place to another. Common pass-by trips for a gas station would be individuals who stop at the project site on the way to work, home, or school.

The ITE Trip Generation Handbook, 9th Edition (2012) was used to determine the pass-by factors for the Gas Station with Convenience Market & Car Wash. For the Gas Station component, a pass-by rate of 62% was applied to the morning peak hour, and a pass-by rate of 56% was applied to the evening peak hour. Since pass-by rates were not provided for the Sunday peak, the lower 56% from the evening peak hour was used for a conservative estimate. The trip generation assumptions were approved by City Staff in the Scoping Agreement.

Daily, morning peak hour, evening peak hour, and Sunday trip generation estimates are summarized on Table 3. The project is estimated to generate 2,445 daily trips, 190 morning peak hour trips, 222 evening peak hour trips, and 312 Sunday peak hour trips. After applying pass-by reductions, the development is projected to generate a net of 2,445 daily trips, 72 morning peak hour trips, 98 evening peak hour trips, and 138 Sunday peak hour trips.

Trip Distribution and Assignment

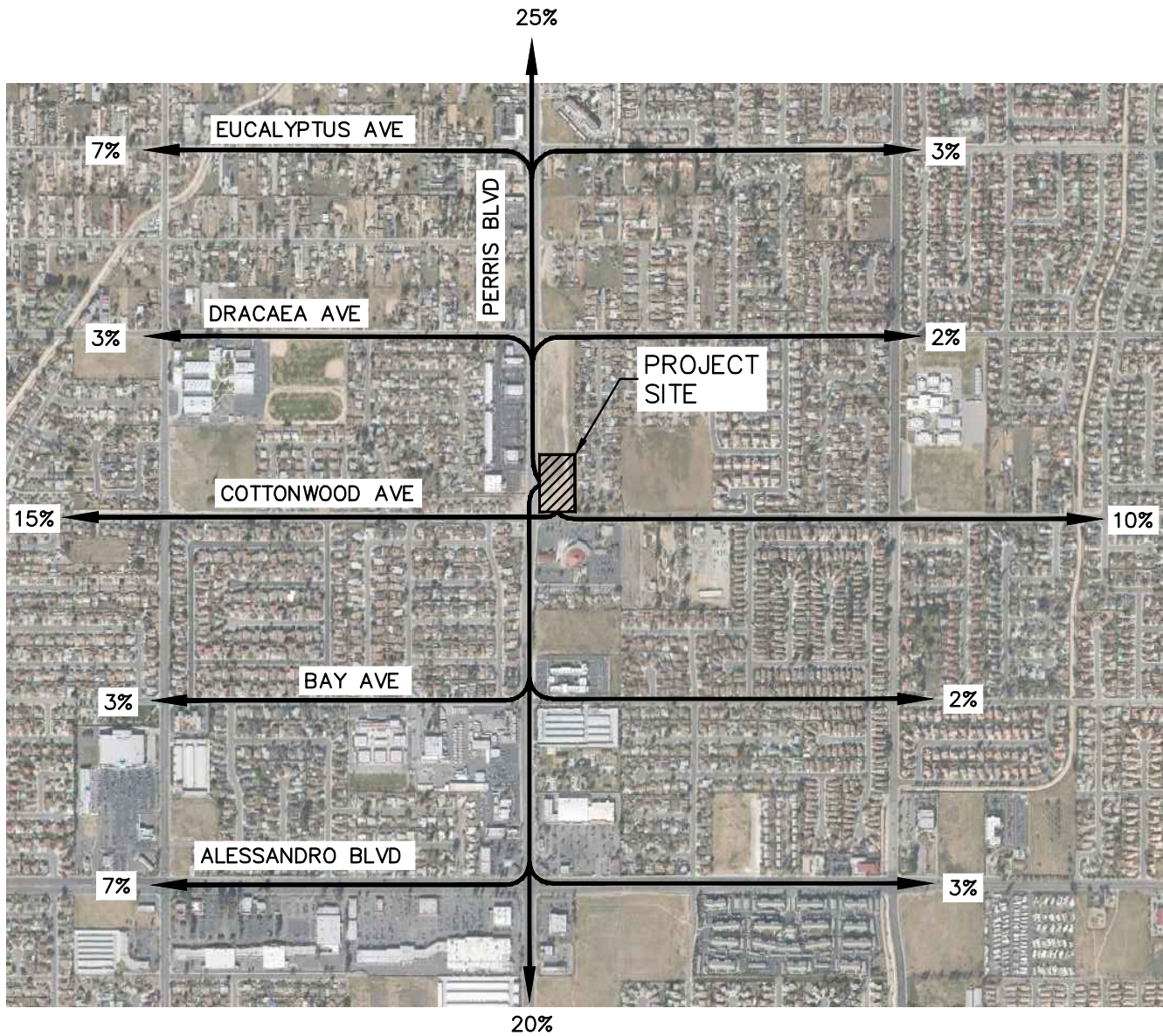
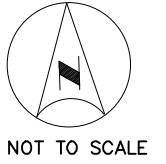
Project trip distribution and assignment assumptions for the proposed project were developed with approval from the City Traffic Engineering staff. The distribution and assignment assumptions took into account existing traffic patterns. Trip distribution assumptions are shown on Figure 9.

Based on the proposed project trip distribution, project trips were assigned through the study intersections. The resulting project-related traffic weekday and Sunday volumes at each study intersection and roadway are shown on Figure 10 and Figure 11, respectively. The volumes provided on Figure 10 and Figure 11 account for pass-by trips, which would typically be added to project driveways but not to non-adjacent study intersections; pass-by trips are assumed to be part of the existing flow of traffic until reaching the project site. A breakdown of non pass-by and pass-by trips can be found in *Appendix D*.

The trip assignment in this section is based on the existing roadway geometry. Additional access alternatives to account for the potential construction of raised medians on Perris Boulevard and Cottonwood Avenue are discussed in the *Project Access Alternatives* section of this report.

TABLE 3 SUMMARY OF PROJECT TRIP GENERATION												
Land Use	ITE Code	Unit	Trip Generation Rates ¹									
			Daily	AM Peak Hour			PM Peak Hour			Sunday Noon ³		
				In	Out	Total	In	Out	Total	In	Out	Total
Gasoline Station w/ Conv. Mkt. & Car Wash	946	Fueling Position	152.84	6.04	5.80	11.84	7.07	6.79	13.86	9.73	9.73	19.46
Land Use	Quantity	Unit	Trip Generation Estimates									
			Daily	AM Peak Hour			PM Peak Hour			Sunday Noon		
				In	Out	Total	In	Out	Total	In	Out	Total
Gasoline Station w/ Conv. Mkt. & Car Wash	16	Fueling Position	2,445	97	93	190	113	109	222	156	156	312
- Pass-by Trips (AM 62%, PM 56%) ²			-	-60	-58	-118	-63	-61	-124	-87	-87	-174
Total Project Trips			2,445	37	35	72	50	48	98	68	68	138
¹ Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition ² Source: ITE Trip Generation Manual - Volume 1: User's Guide and Handbook. A pass-by rate of 56% was used for Sunday trips. ³ Sunday Peak Hour trips were calculated based on ITE rates for the Saturday Peak Hour of Generator.												

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a

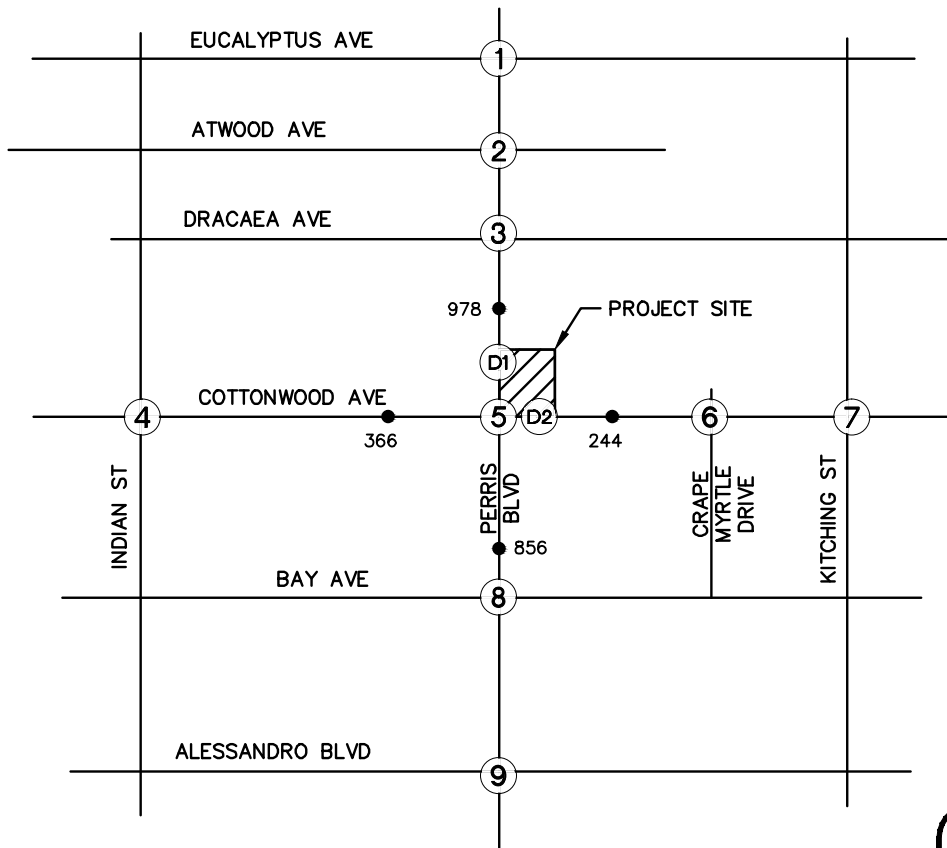


LEGEND:
 XX% TRIP PERCENTAGE

FIGURE 9
 TRIP DISTRIBUTION ASSUMPTIONS



NOT TO SCALE



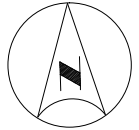
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

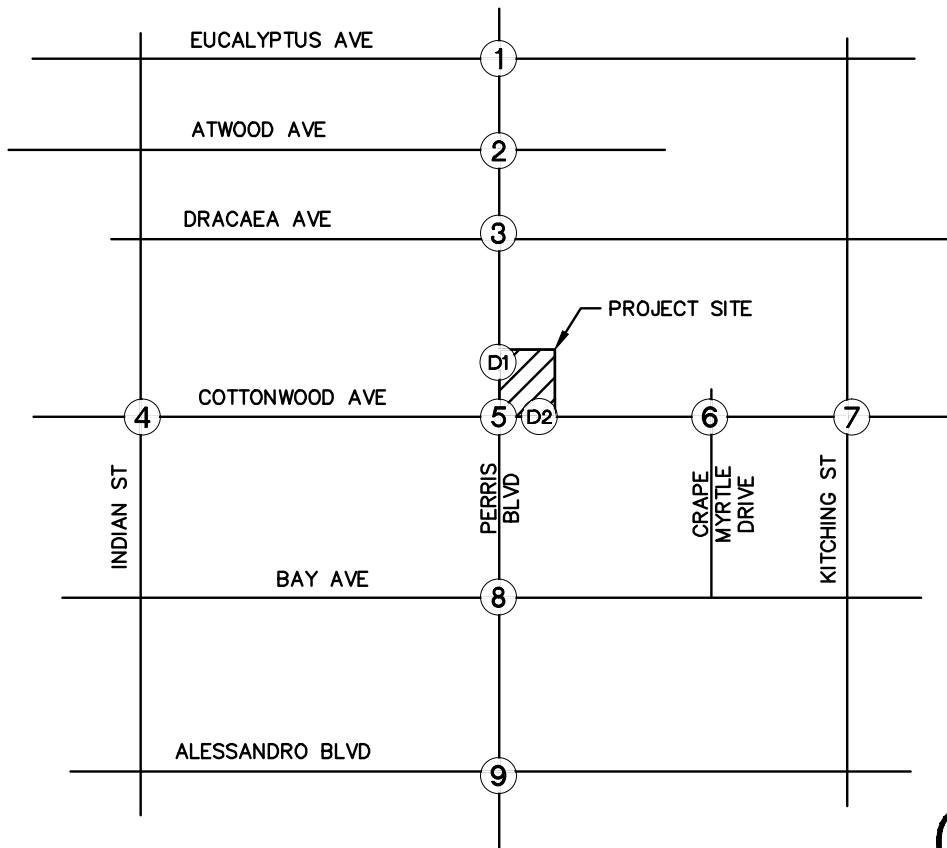
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume
- Average Daily Traffic Volume
- XXXX Volume

FIGURE 10
PROJECT TRAFFIC – WEEKDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 11
PROJECT TRAFFIC – SUNDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

EXISTING WITH PROJECT CONDITIONS

The Existing With Project analysis provides a summary of the impacts associated with adding project-related trips to existing traffic volumes. The Existing With Project scenario is a hypothetical scenario which assumes that the Project would be fully implemented at the present time and full absorption of Project traffic on the existing circulation system.

Intersection Analysis – Existing With Project

Existing With Project weekday and Sunday peak hour traffic volumes are shown on Figure 12 and Figure 13, respectively. The intersection analysis was conducted for the Existing With Project scenario, and the results are presented on Table 4. Intersection analysis worksheets are provided in *Appendix C*. Review of this table indicates that all study intersections will operate at acceptable Level of Service, with the exception of the following:

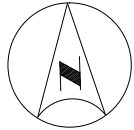
- Cottonwood Avenue at Crape Myrtle Drive (AM LOS E) – Southbound Approach
- Perris Boulevard Driveway (AM LOS F, PM LOS F, Sunday LOS F) – Westbound Approach

The intersection of Cottonwood Avenue at Crape Myrtle Drive is unsignalized and is shown to already operate deficiently in Existing Conditions. The deficiency is caused by the low volumes turning from the minor street approach.

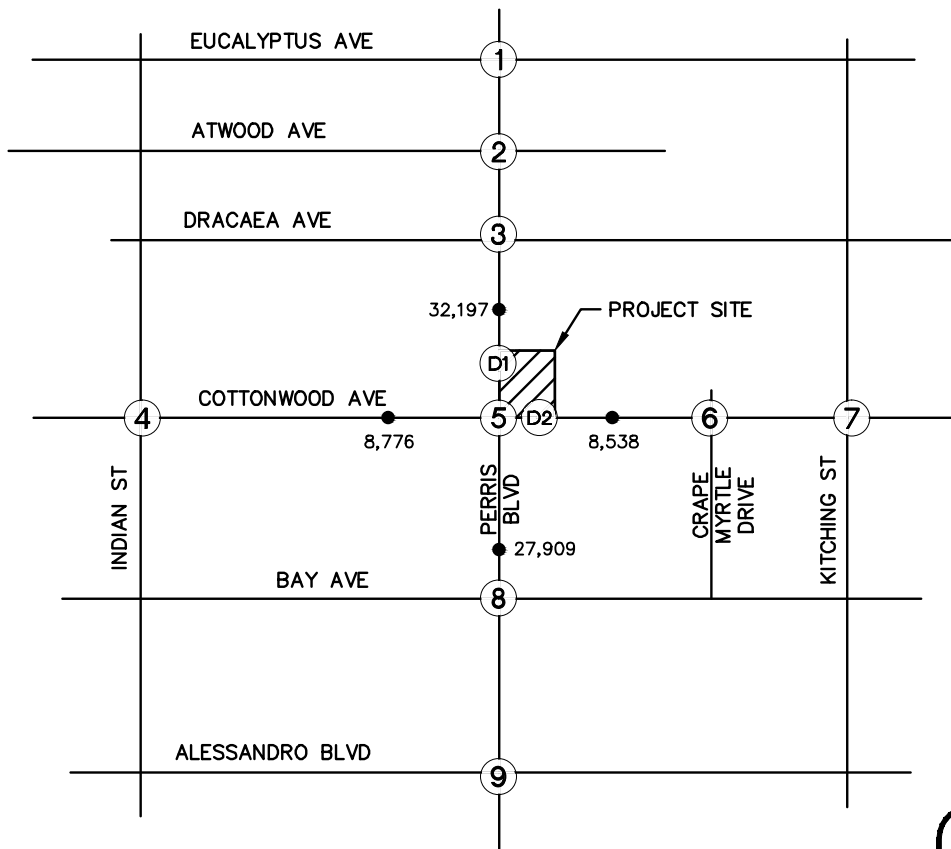
The Perris Boulevard Driveway is unsignalized. The LOS F delay would be experienced by vehicles making a westbound left-turn out of the driveway onto Perris Boulevard.

Roadway Segment Analysis – Existing With Project

Existing With Project daily roadway segment volumes are shown on Figure 12, shown previously. The daily roadway segment analysis was conducted for the Existing With Project scenario, and the results are presented in Table 5. Review of this table indicates that all study roadway segments will continue to operate at Level of Service D or better with the addition of project traffic.



NOT TO SCALE



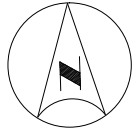
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

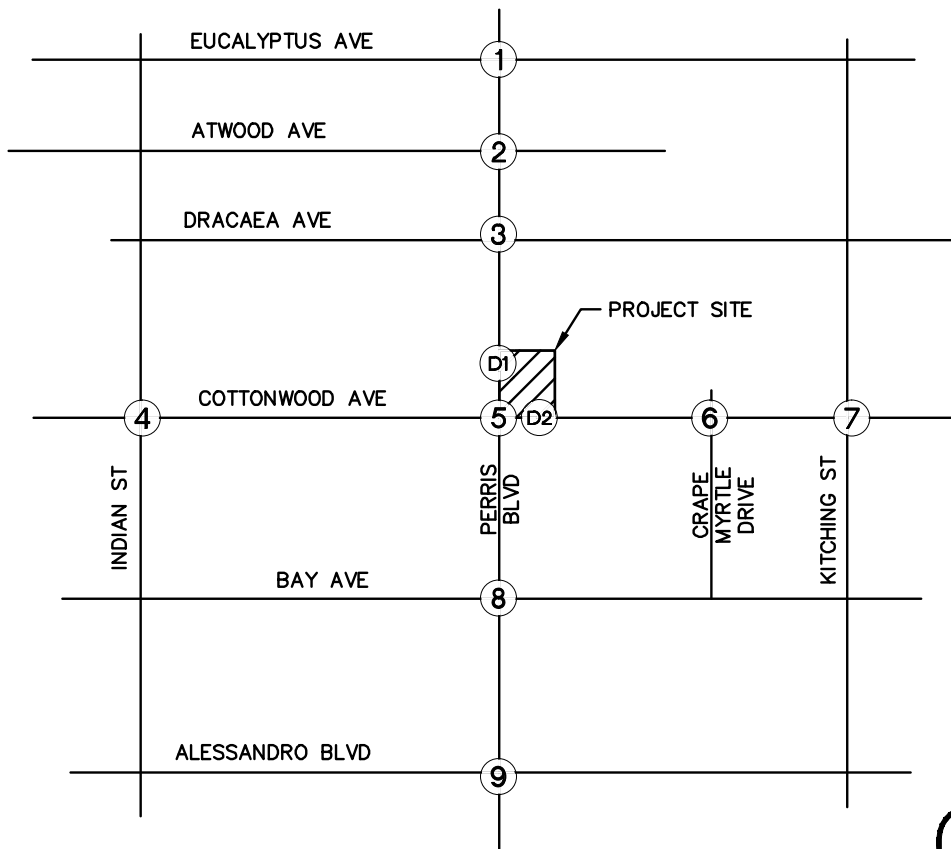
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume
- Average Daily Traffic Volume
- XXXX

FIGURE 12
EXISTING WITH PROJECT
TRAFFIC VOLUMES – WEEKDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 13
EXISTING WITH PROJECT
TRAFFIC VOLUMES – SUNDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

TABLE 4
SUMMARY OF INTERSECTION OPERATIONS
EXISTING WITH PROJECT CONDITIONS

Int. #	Intersection	Peak Hour	Existing Conditions		Existing With Project Conditions		Project Impact
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1	Perris Boulevard at Eucalyptus Avenue	AM	19.9	B	20.1	C	0.2
		PM	20.4	C	20.8	C	0.4
		SUN	16.6	B	16.9	B	0.3
2	Perris Boulevard at Atwood Avenue	AM	23.8	C	24.3	C	0.5
		PM	29.0	D	29.8	D	0.8
		SUN	27.4	D	28.5	D	1.1
3	Perris Boulevard at Dracaea Avenue	AM	26.5	C	27.0	C	0.5
		PM	18.0	B	18.2	B	0.2
		SUN	20.6	C	20.8	C	0.2
4	Cottonwood Avenue at Indian Street	AM	23.1	C	23.4	C	0.3
		PM	20.1	C	20.3	C	0.2
		SUN	18.1	B	18.2	B	0.1
5	Cottonwood Avenue at Perris Boulevard	AM	26.1	C	27.1	C	1.0
		PM	21.7	C	22.5	C	0.8
		SUN	23.1	C	24.6	C	1.5
6	Cottonwood Avenue at Crape Myrtle Drive	AM	39.5	E	40.5	E	1.0
		PM	15.2	C	15.4	C	0.2
		SUN	22.3	C	23.1	C	0.8
7	Cottonwood Avenue at Kitching Street	AM	25.3	C	25.6	C	0.3
		PM	16.1	B	16.2	B	0.1
		SUN	16.9	B	17.0	B	0.1
8	Perris Boulevard at Bay Ave	AM	22.2	C	22.5	C	0.3
		PM	16.4	B	16.7	B	0.3
		SUN	14.6	B	14.8	B	0.2
9	Perris Boulevard at Alessandro Boulevard	AM	30.1	C	30.2	C	0.1
		PM	35.3	D	35.6	D	0.3
		SUN	28.6	C	28.8	C	0.2
D1	Perris Boulevard Driveway	AM	13.2	B	224.4	F	211.2
		PM	34.8	D	260.0	F	225.2
		SUN	32.6	D	498.3	F	465.7
D2	Cottonwood Avenue Driveway	AM	17.5	C	22.3	C	4.8
		PM	13.0	B	14.8	B	1.8
		SUN	17.4	C	24.5	C	7.1

TABLE 5
SUMMARY OF ROADWAY OPERATIONS
EXISTING WITH PROJECT CONDITIONS

Roadway Segment	Roadway Classification	Roadway Capacity	ADT	V/C	LOS
Perris Boulevard: Eucalyptus Avenue to Cottonwood Avenue	4-Lane Divided Arterial	37,500	32,197	0.86	D
Perris Boulevard: Cottonwood Avenue to Alessandro Boulevard	4-Lane Divided Arterial	37,500	27,909	0.74	C
Cottonwood Avenue: Indian Street to Perris Boulevard	2-Lane Arterial	12,500	8,776	0.70	A
Cottonwood Avenue: Perris Boulevard to Kitching Street	2-Lane Arterial	12,500	8,538	0.68	A

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a

FUTURE CONDITIONS

Cumulative (Opening Year 2020) Without Project

Cumulative Without Project traffic forecasts were developed using the following “build-up” forecasting method:

- Existing traffic volumes, plus
- An annual ambient growth rate of 2% per year to Opening Year 2020, plus
- Cumulative projects traffic
 - Cumulative projects consist of projects that have been approved but are not yet built or fully occupied, as well as projects that are in various stages of the application and approval process, but have not yet been approved. These projects are considered to be “reasonably foreseeable,” and must therefore be included in the Cumulative Projects analysis.

Cumulative Project information was obtained from the City of Moreno Valley Planning and Economic Development Department at the start of the study process. Cumulative projects within a 3.5 mile radius of the project site were considered. For the purpose of this traffic study, the projects were assessed for their proximity to the project site and for their potential to generate traffic based on their approved or pending land uses. Therefore, not all projects are anticipated to affect the study area. A summary of the Cumulative Projects is provided on Table 6. The location of the Cumulative Projects in relation to the project site is shown on Figure 14. Cumulative weekday and Sunday project-related trips at study intersections and roadways are shown on Figure 15 and Figure 16, respectively.

As part of the Cumulative scenario, the St. Christopher’s Catholic Church on the southeast corner of the intersection of Perris Boulevard and Cottonwood Avenue will undergo an expansion. The existing driveway along Cottonwood Avenue will be eliminated as part of that expansion. The removal of the church’s driveway was taken into consideration in the analysis of future conditions.

Ambient growth and project-related trips for the Cumulative Projects were added to the study intersections and roadways. Cumulative Without Project weekday and Sunday traffic volumes are shown on Figure 17 and Figure 18, respectively.

Intersection Analysis – Cumulative (Opening Year 2020) Without Project

The study intersections were analyzed with the annual growth and traffic from the Cumulative Projects. Intersection Level of Service worksheets are provided in *Appendix D*. The Cumulative Without Project analysis results and Level of Service for the study intersections are presented in Table 7.

Review of this table shows that, with the addition Cumulative Projects traffic and an ambient traffic growth rate, the following intersections would operate at an unacceptable Level of Service:

TABLE 6
SUMMARY OF CUMULATIVE PROJECTS

Map #	Builder/Applicant	Quantity	Unit	Trip Generation Estimates ¹									
				Daily	AM Peak Hour			PM Peak Hour			Weekend		
					In	Out	Total	In	Out	Total	In	Out	Total
Single-Family Residential Development													
1	TR 34151 Moreno Valley Property Investment LLC	37	DU	352	7	21	28	23	14	37	17	15	32
2	TR 28860 Professor's Fund IV, LLC	9	DU	86	2	5	7	6	3	9	4	4	8
3	TR 36760 Mission Pacific Land Co.	189	DU	1,799	36	106	142	119	70	189	86	76	162
4	TR 31297 Randy McFarland	7	DU	67	1	4	5	4	3	7	3	3	6
5	TR 31305 Richland Communities, Inc.	87	DU	828	16	49	65	55	32	87	40	35	75
6	TR 34112 SKG Pacific Enterprises Inc.	63	DU	600	12	35	47	40	23	63	29	25	54
7	TR 31517 Professor Prop Six/Winchester Associates	83	DU	790	16	47	63	52	31	83	38	34	72
8	TR 31621 Skyline Homes	12	DU	114	2	7	9	8	4	12	5	5	10
9	TR 32126 Salvador Torres	35	DU	333	7	20	27	22	13	35	16	14	30
10	TR 32194 Arman Pezeshifar	32	DU	305	6	18	24	20	12	32	15	13	28
11	TR 32218 Granite Capital/Winchesters Associates, Inc.	63	DU	600	12	35	47	40	23	63	29	25	54
12	TR 32284 Joe Anderson	32	DU	305	6	18	24	20	12	32	15	13	28
13	TR 32408 Sandstone, Inc.	80	DU	762	15	45	60	50	30	80	36	32	68
14	TR 32505 DR Horton	72	DU	685	14	41	55	45	27	72	33	29	62
15	TR 32548 Gabel, Cook and Associates	107	DU	1,019	20	60	80	67	40	107	49	43	92
16	TR 32645 Winchester Associates	53	DU	505	10	30	40	33	20	53	24	21	45
17	TR 32716 Bob Rogers	57	DU	543	11	32	43	36	21	57	26	23	49
18	TR 32978 Focus Estates	19	DU	181	4	11	15	12	7	19	9	8	17
19	TR 33024 Adam Wislar	8	DU	76	2	5	7	5	3	8	4	3	7
20	TR 27251 RSI	156	DU	1,485	29	88	117	98	58	156	71	63	134
21	TR 33388 SCH Development, LLC	16	DU	152	3	9	12	10	6	16	7	6	13
22	TR 32844 Winchester Associates	105	DU	1,000	20	59	79	66	39	105	48	42	90
23	TR 33810 David Boyle Engineering	16	DU	152	3	9	12	10	6	16	7	6	13
24	TR 33963 Rance Garrett	31	DU	295	6	17	23	20	11	31	14	13	27
25	TR 34043 RM3 Building and Development	12	DU	114	2	7	9	8	4	12	5	5	10
26	TR 34748 Rados	135	DU	1,285	25	76	101	85	50	135	62	55	117
27	TR 35663 OFA	12	DU	114	2	7	9	8	4	12	5	5	10
28	TR 32835 Beazer Homes	274	DU	2,608	52	154	206	173	101	274	125	111	236
29	TR 30268 Pacific Communities	83	DU	790	16	47	63	52	31	83	38	34	72
30	TR 31618 Frontier Homes	56	DU	533	11	32	43	35	21	56	26	23	49
31	TR 31494 Winchester Associates	12	DU	114	2	7	9	8	4	12	5	5	10
32	TR 32715 GFR-Trinity	30	DU	286	6	17	23	19	11	30	14	12	26
33	TR 33256 Granite Homes	79	DU	752	15	44	59	50	29	79	36	32	68
34	TR 32711 Issac Genah	9	DU	86	2	5	7	6	3	9	4	4	8
35	TR 31789 GFR	24	DU	228	5	14	19	15	9	24	11	10	21
36	TR 35429 Ralph Liu	54	DU	514	10	30	40	34	20	54	25	22	47
37	TR 22180 MPLC Legacy 140 Partners, LP	543	DU	5,169	102	306	408	342	201	543	247	219	466
38	TR 36436 CV Communities	159	DU	1,514	30	90	120	100	59	159	72	64	136
39	TR 36401 Continental East Fund III, LLC	92	DU	876	17	52	69	58	34	92	42	37	79
40	TR 36598 Habitat for Humanity	8	DU	76	2	5	7	5	3	8	4	3	7
41	TR 36761 Right Solutions, LLC	8	DU	76	2	5	7	5	3	8	4	3	7
42	TR 31592 CV Communities	139	DU	1,323	26	78	104	88	51	139	63	56	119
43	TR 36708 Nova Homes	127	DU	1,209	24	72	96	80	47	127	58	51	109
44	TR 29920 MVR Properties, LLC	299	DU	2,846	56	168	224	188	111	299	136	121	257
45	TR 36882 Frontier Homes	40	DU	381	8	23	31	25	15	40	18	16	34
46	TR 36719 Kuo Ming Lee	34	DU	324	6	19	25	21	13	34	15	14	29

TABLE 6
SUMMARY OF CUMULATIVE PROJECTS (CONTINUED)

47	TR 29920 Pacific Communities	98	DU	933	18	55	73	62	36	98	45	40	85
Multi-Family Residential Development													
48	TR 31814 Jesse Huizar	60	DU	399	6	24	30	24	13	37	15	15	30
49	TR 32215 Winchester Associates "Scottish Village"	194	DU	1,290	20	79	99	78	42	120	49	49	98
50	TR 32756 Jimmy Lee	24	DU	160	2	10	12	10	5	15	6	6	12
51	TR 32917 Continental East Fund	227	DU	1,510	23	93	116	91	49	140	58	58	116
52	TR 33417 Jimmy Lee	60	DU	399	6	24	30	24	13	37	15	15	30
53	TR 33607 TL Group Corp.	52	DU	346	5	21	26	21	11	32	13	13	26
54	TR 33771 Jian Qiang Liu	12	DU	80	1	5	6	5	3	8	3	3	6
55	TR 34216 Creative Design Associates	39	DU	259	4	16	20	16	8	24	10	10	20
56	TR 34681 Perris Pacific Company	49	DU	326	5	20	25	20	11	31	12	12	24
57	TR 34988 Status Properties	271	DU	1,802	28	111	139	109	59	168	69	69	138
58	TR 35369 Tason Myers Property	12	DU	80	1	5	6	5	3	8	3	3	6
59	TR 35663 Jimmy Lee	12	DU	80	1	5	6	5	3	8	3	3	6
60	TR 35769 Michael Chen	16	DU	106	2	7	9	6	3	9	4	4	8
61	TR 34544 Cottonwood 939, LLC	84	DU	559	9	34	43	34	18	52	21	21	42
62	PA 09-0006 Jim Nydam	15	DU	100	2	6	8	6	3	9	4	4	8
63	PA 13-0006 Rancho Belago Developers, Inc.	141	DU	938	14	58	72	57	31	88	36	36	72
64	PA 14-0027 Tilak Chopra	40	DU	266	4	16	20	16	9	25	10	10	20
65	TR 35304 Jimmy Lee	12	DU	80	1	5	6	5	3	8	3	3	6
66	PA 14-0028 MV Bella Vista GP, LLC	220	DU	1,463	22	90	112	89	48	137	56	56	112
67	PA 14-0042 Latso SC Inc.	112	DU	745	11	46	57	45	24	69	29	29	58
68	TR 32142 GH A	66	DU	439	7	27	34	27	14	41	17	17	34
Medical/Office Development													
69	TownGate Square	170.000	KSF	1,875	233	32	265	43	210	253	44	51	95
70	Olivewood Plaza	22.758	KSF	251	31	4	35	6	28	34	6	7	13
71	Riverside County Office Building	52.000	KSF	574	71	10	81	13	64	77	13	16	29
72	Fresenius Medical Care	12.000	KSF	434	23	6	29	12	31	43	3	4	7
73	Riverside University Medical Center	34.749	KSF	1,255	66	17	83	35	89	124	9	11	20
74	Kaiser Permanente (Emergency room Exp.)	8.500	KSF	307	16	4	20	9	22	31	2	3	5
Commercial Development													
75	Alessandro & Lasselle	140.000	KSF	5,978	83	51	134	249	270	519	36	42	78
76	Rancho Belago Plaza	14.000	KSF	598	8	5	13	25	27	52	4	4	8
77	South Moreno Valley Walmart ²	-	-	9,625	218	170	388	411	423	834	543	543	1,086
81	St. Christopher Catholic Church Expansion ³	3.200	KSF	-	-	-	-	-	-	-	56	58	114
Industrial/Job Development													
78	Centerpointe Business Park	1,734.030	KSF	11,843	1,165	257	1,422	310	1,165	1,475	161	117	278
79	Moreno Valley Industrial Area	3,509.496	KSF	23,970	2,358	519	2,877	628	2,358	2,986	326	236	562
80	SR-60 Business Park	3,079.928	KSF	21,036	2,070	456	2,526	551	2,070	2,621	286	207	493

Note: ¹ Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition
² Source: Moreno Valley Walmart Traffic Impact Analysis, Urban Crossroads, Inc. March 2015 (Revised).
³ Source: St Christopher Catholic Church Master Plan Traffic Impact Study, Federhart & Associates, October 2012

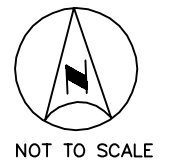
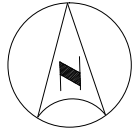
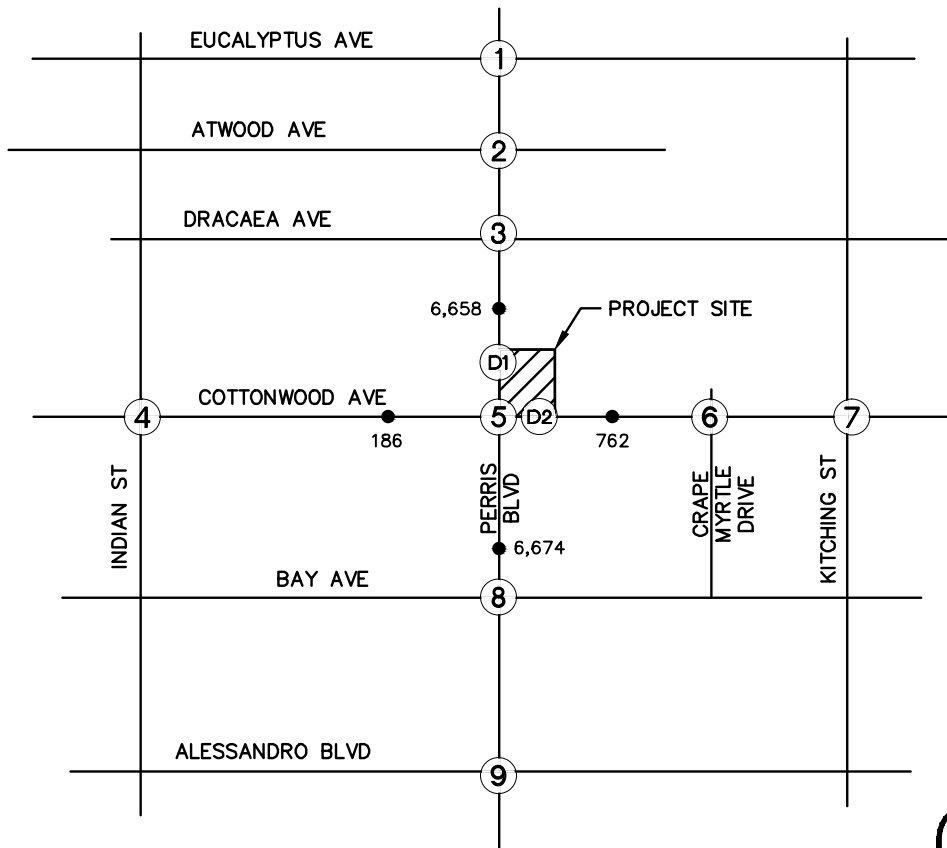


FIGURE 14
CUMULATIVE PROJECT LOCATIONS



NOT TO SCALE



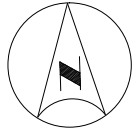
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

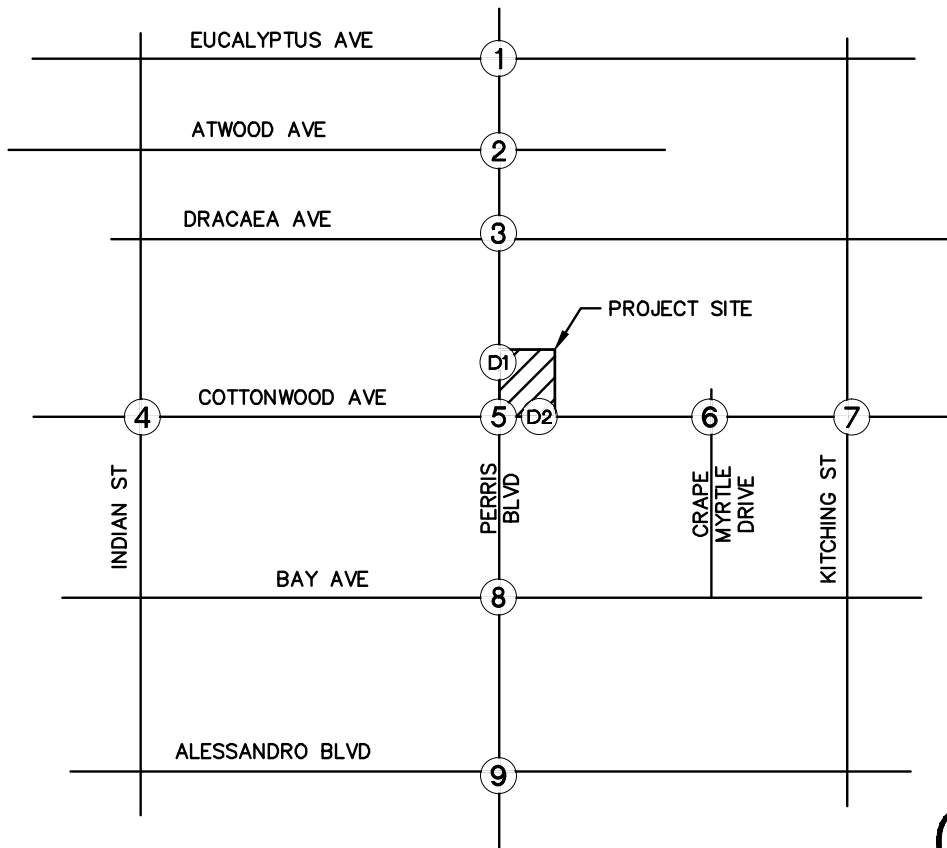
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume
- Average Daily Traffic Volume
- XXXX

FIGURE 15
CUMULATIVE PROJECT
TRAFFIC VOLUMES – WEEKDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



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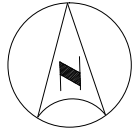
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
	D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway

LEGEND:

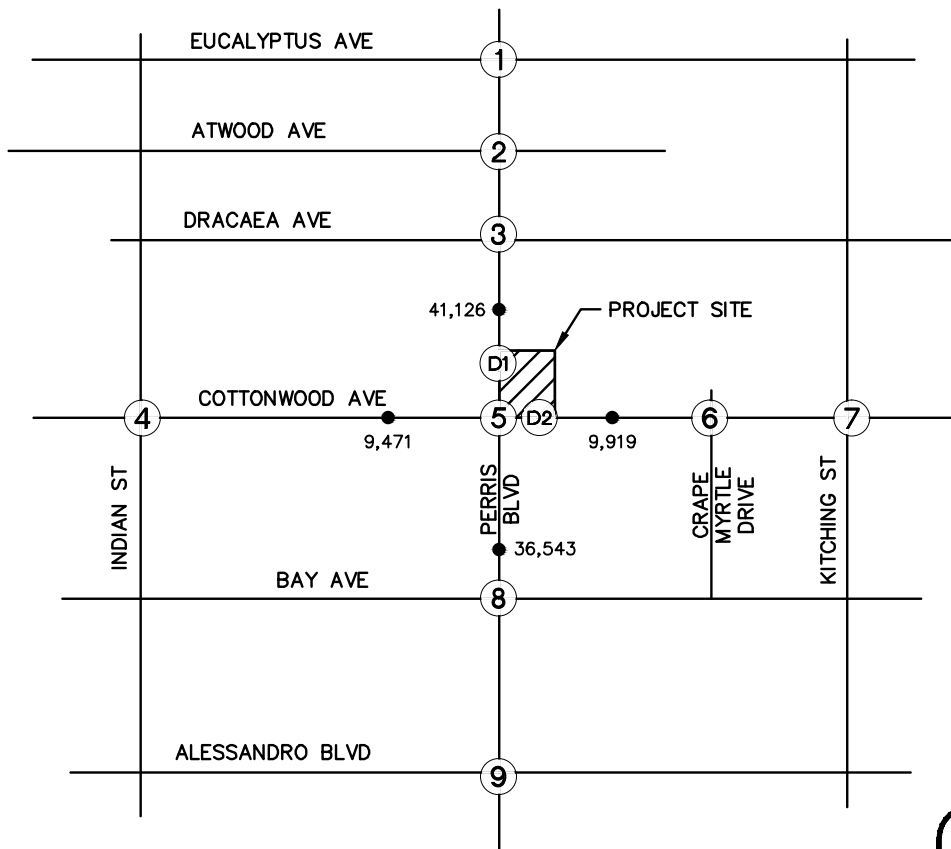
- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 16
CUMULATIVE PROJECT
TRAFFIC VOLUMES – SUNDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



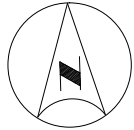
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4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

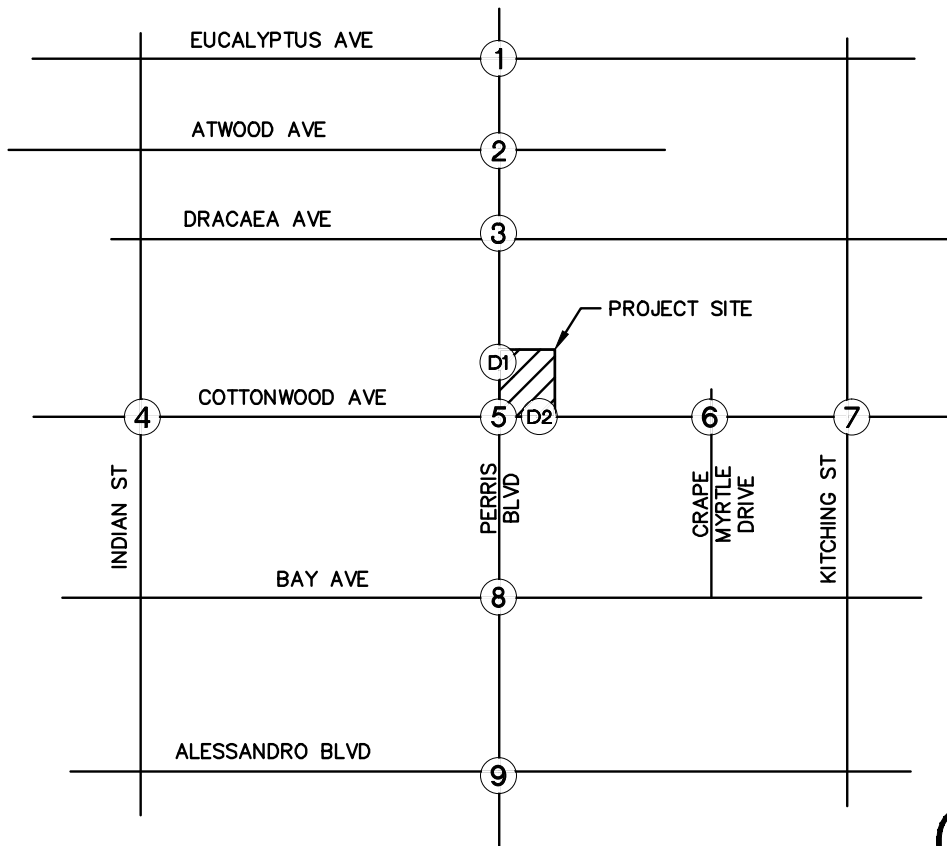
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume
- Average Daily Traffic Volume
- XXXX

FIGURE 17
CUMULATIVE WITHOUT PROJECT
TRAFFIC VOLUMES – WEEKDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 18
CUMULATIVE WITHOUT PROJECT
TRAFFIC VOLUMES – SUNDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

TABLE 7 SUMMARY OF INTERSECTION OPERATION CUMULATIVE WITHOUT PROJECT					
Int. #	Intersection	Intersection Control	Peak Hour	Cumulative Conditions	
				Delay (sec/veh)	LOS
1	Perris Boulevard at Eucalyptus Avenue	Signal	AM	27.7	C
			PM	28.9	C
			SUN	18.7	B
2	Perris Boulevard at Atwood Avenue	Unsignalized	AM	46.4	E
			PM	79.7	F
			SUN	65.2	F
3	Perris Boulevard at Dracaea Avenue	Signal	AM	44.3	D
			PM	26.0	C
			SUN	27.8	C
4	Cottonwood Avenue at Indian Street	Signal	AM	27.9	C
			PM	22.4	C
			SUN	19.9	B
5	Cottonwood Avenue at Perris Boulevard	Signal	AM	35.6	D
			PM	30.9	C
			SUN	34.4	C
6	Cottonwood Avenue at Crape Myrtle Drive	Unsignalized	AM	65.3	F
			PM	18.1	C
			SUN	34.2	D
7	Cottonwood Avenue at Kitching Street	Signal	AM	30.4	C
			PM	16.6	B
			SUN	17.8	B
8	Perris Boulevard at Bay Ave	Signal	AM	27.9	C
			PM	18.2	B
			SUN	17.2	B
9	Perris Boulevard at Alessandro Boulevard	Signal	AM	50.7	D
			PM	64.8	E
			SUN	38.3	D
D1	Perris Boulevard Driveway	Unsignalized	AM	16.2	C
			PM	626.3	F
			SUN	397.9	F
D2	Cottonwood Avenue Driveway	Unsignalized	Church Driveway Removed		
Unsignalized Intersection Delay is reported for the worst approach					

- Perris Boulevard at Atwood Avenue (AM LOS E, PM LOS F, Sunday LOS F)
- Cottonwood Avenue at Crape Myrtle Drive (AM LOS F)
- Perris Boulevard at Alessandro Boulevard (PM LOS E)
- Perris Boulevard Driveway (PM LOS F, Sunday LOS F)

With the exception of the Perris Boulevard at Alessandro Boulevard intersection, the deficient intersections are unsignalized. Due to the heavy traffic volumes anticipated in Opening Year 2020 as a result of growth and nearby projects, vehicles turning from minor streets onto Perris Boulevard are forecasted to encounter significant delays, regardless of their low volumes.

Roadway Segment Analysis – Cumulative (Opening Year 2020) Without Project

The study roadway segments were analyzed in accordance with the analysis methodology described earlier in this report. The Cumulative Without Project analysis results and Level of Service for the study roadway segments are presented in Table 8. As shown in this table, both roadway segments along Perris Boulevard are anticipated to operate deficiently in the Cumulative Without Project scenario.

Cumulative (Opening Year 2020) With Project

Project-related traffic was added to the Cumulative Without Project traffic volumes. Cumulative With Project traffic volumes are shown on Figure 19 and Figure 20.

Intersection Analysis – Cumulative (Opening Year 2020) With Project

Cumulative With Project peak hour intersection operations are summarized in Table 9. With the addition of project traffic, the following intersections would operate at an unacceptable Level of Service:

- Perris Boulevard at Atwood Avenue (AM LOS E, PM LOS F, Sunday LOS F)
- Cottonwood Avenue at Crape Myrtle Drive (AM LOS F, Sunday LOS E)
- Perris Boulevard at Alessandro Boulevard (PM LOS E)
- Perris Boulevard Driveway (AM LOS F, PM LOS F, Sunday LOS F)

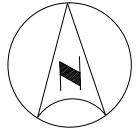
These intersections are forecasted to operate deficiently before the addition of project traffic. The deficiency at the Perris Boulevard Driveway in the Without Project scenario is caused by egress vehicles from the shopping center to the west. In the With Project scenario, the westbound approach at the driveway also operates deficiently. At the remaining intersections, the project alone does not trigger the deficiencies, but rather contributes to a less-than-significant cumulative impact.

Roadway Segment Analysis – Cumulative (Opening Year 2020) With Project

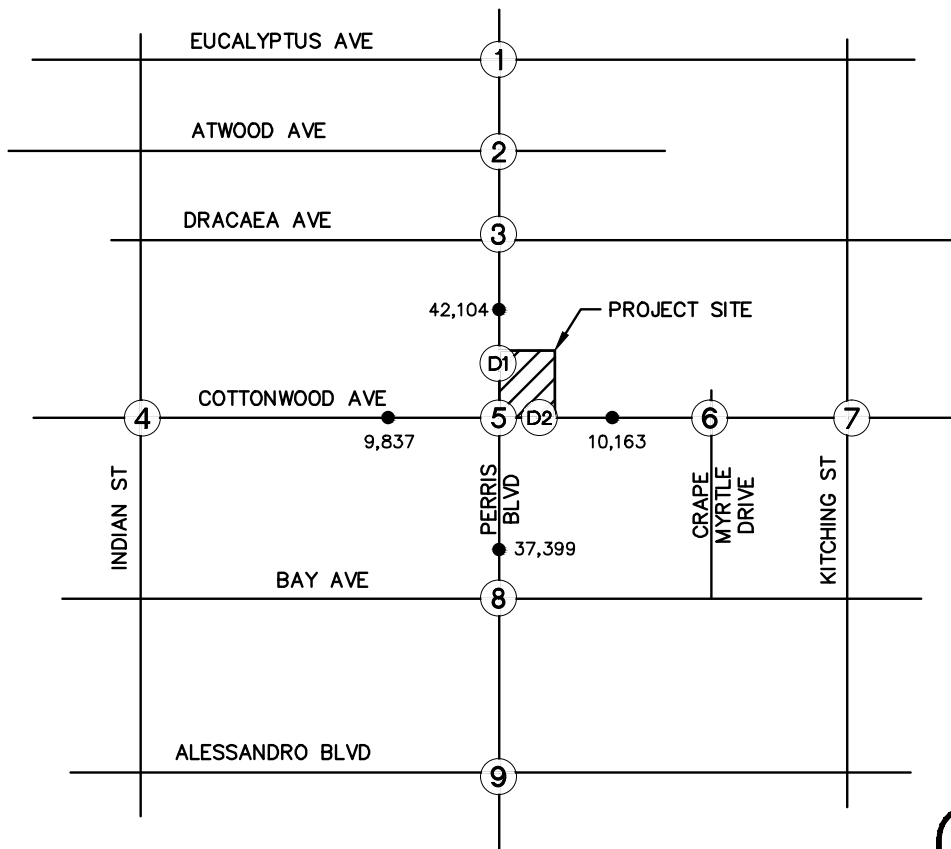
The study roadway segments were analyzed in accordance with the analysis methodology described earlier in this report. Cumulative With Project analysis results and Level of Service for the study roadway segments are presented in Table 10. As shown in this table, both roadway segments along Perris Boulevard would continue to operate deficiently with the addition of project traffic.

TABLE 8
SUMMARY OF ROADWAY OPERATIONS
CUMULATIVE (OPENING YEAR 2020) WITHOUT PROJECT

Roadway Segment	Roadway Classification	Roadway Capacity	ADT	V/C	LOS
Perris Boulevard: Eucalyptus Avenue to Cottonwood Avenue	4-Lane Divided Arterial	37,500	41,126	1.10	F
Perris Boulevard: Cottonwood Avenue to Alessandro Boulevard	4-Lane Divided Arterial	37,500	36,543	0.97	E
Cottonwood Avenue: Indian Street to Perris Boulevard	2-Lane Arterial	12,500	9,471	0.76	B
Cottonwood Avenue: Perris Boulevard to Kitching Street	2-Lane Arterial	12,500	9,919	0.79	B



NOT TO SCALE



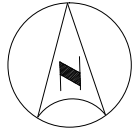
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

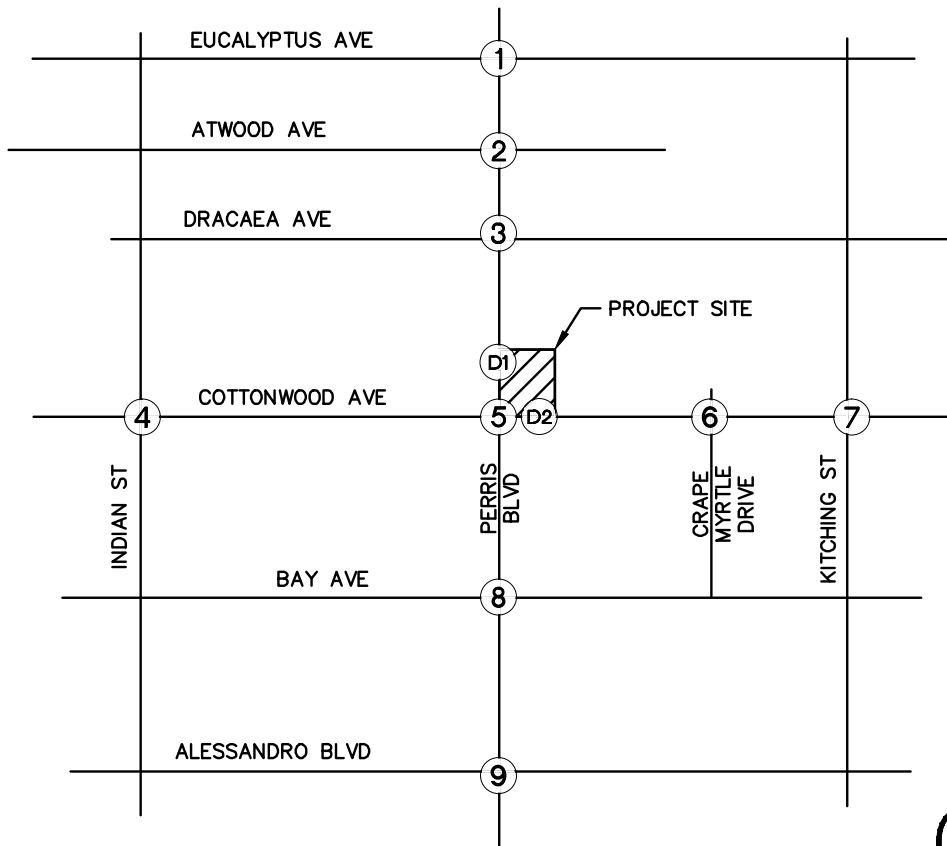
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume
- Average Daily Traffic Volume
- XXXX

FIGURE 19
CUMULATIVE WITH PROJECT
TRAFFIC VOLUMES – WEEKDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 20
CUMULATIVE WITH PROJECT
TRAFFIC VOLUMES – SUNDAY

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

TABLE 9
SUMMARY OF INTERSECTION OPERATIONS
CUMULATIVE WITH PROJECT

Int. #	Intersection	Peak Hour	Cumulative Without Project		Cumulative With Project		Project Impact
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1	Perris Boulevard at Eucalyptus Avenue	AM	27.7	C	28.0	C	0.3
		PM	28.9	C	29.5	C	0.6
		SUN	18.7	B	19.1	B	0.4
2	Perris Boulevard at Atwood Avenue	AM	46.4	E	47.8	E	1.4
		PM	79.7	F	85.3	F	5.6
		SUN	65.2	F	71.1	F	5.9
3	Perris Boulevard at Dracaea Avenue	AM	44.3	D	45.1	D	0.8
		PM	26.0	C	26.6	C	0.6
		SUN	27.8	C	28.7	C	0.9
4	Cottonwood Avenue at Indian Street	AM	27.9	C	28.4	C	0.5
		PM	22.4	C	22.8	C	0.4
		SUN	19.9	B	20.2	C	0.3
5	Cottonwood Avenue at Perris Boulevard	AM	35.6	D	37.0	D	1.4
		PM	30.9	C	32.7	C	1.8
		SUN	34.4	C	37.7	D	3.3
6	Cottonwood Avenue at Crape Myrtle Drive	AM	65.3	F	68.0	F	2.7
		PM	18.1	C	18.4	C	0.3
		SUN	34.2	D	35.9	E	1.7
7	Cottonwood Avenue at Kitching Street	AM	30.4	C	29.0	C	-1.4
		PM	16.6	B	16.7	B	0.1
		SUN	17.8	B	18.1	B	0.3
8	Perris Boulevard at Bay Ave	AM	27.9	C	28.6	C	0.7
		PM	18.2	B	18.7	B	0.5
		SUN	17.2	B	17.5	B	0.3
9	Perris Boulevard at Alessandro Boulevard	AM	50.7	D	51.1	D	0.4
		PM	64.8	E	65.4	E	0.6
		SUN	38.3	D	38.8	D	0.5
D1	Perris Boulevard Driveway	AM	16.2	C	1275.4	F	1259.2
		PM	626.3	F	2499.9	F	1873.6
		SUN	397.9	F	2664.0	F	2266.1
D2	Cottonwood Avenue Driveway	AM	Church Driveway Removed		18.4	C	
		PM			13.7	B	
		SUN			14.3	B	

TABLE 10
 SUMMARY OF ROADWAY OPERATIONS
 CUMULATIVE (OPENING YEAR 2020) WITH PROJECT

Roadway Segment	Roadway Classification	Roadway Capacity	ADT	V/C	LOS
Perris Boulevard: Eucalyptus Avenue to Cottonwood Avenue	4-Lane Divided Arterial	37,500	42,104	1.12	F
Perris Boulevard: Cottonwood Avenue to Alessandro Boulevard	4-Lane Divided Arterial	37,500	37,399	0.99	E
Cottonwood Avenue: Indian Street to Perris Boulevard	2-Lane Arterial	12,500	9,837	0.79	A
Cottonwood Avenue: Perris Boulevard to Kitching Street	2-Lane Arterial	12,500	10,163	0.81	C

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PROJECT ACCESS ALTERNATIVES

If the current roadway geometry is maintained on Perris Boulevard and Cottonwood Avenue along the project frontage, then each driveway can accommodate full ingress and egress movements. However, the potential for turn restrictions at each driveway has not yet been determined at this time. To assess the potential construction of a raised median along Perris Boulevard and/or Cottonwood Avenue, and the resulting turn restrictions caused by these medians, several project access alternatives were analyzed for the Cumulative (Opening Year 2020) With Project scenario. These alternatives are described below:

- Alternative 1 – Left-in/left-out movements restricted at both driveways. This alternative analyzes the potential for a raised median on both Perris Boulevard and Cottonwood Avenue. Only right-in/right-out movements would be allowed at both driveways.
- Alternative 2 – Left-out movements restricted at Perris Driveway and left-in/left-out movements are restricted at the Cottonwood Avenue driveway. This alternative allows southbound left turns into the driveway along Perris Boulevard, but assumes that only right-in/right-out movements are allowed along Cottonwood Avenue.
- Alternative 3 – Left-in/left-out movements are restricted at the Perris Driveway. Full movements allowed at the Cottonwood Driveway to maintain existing conditions.

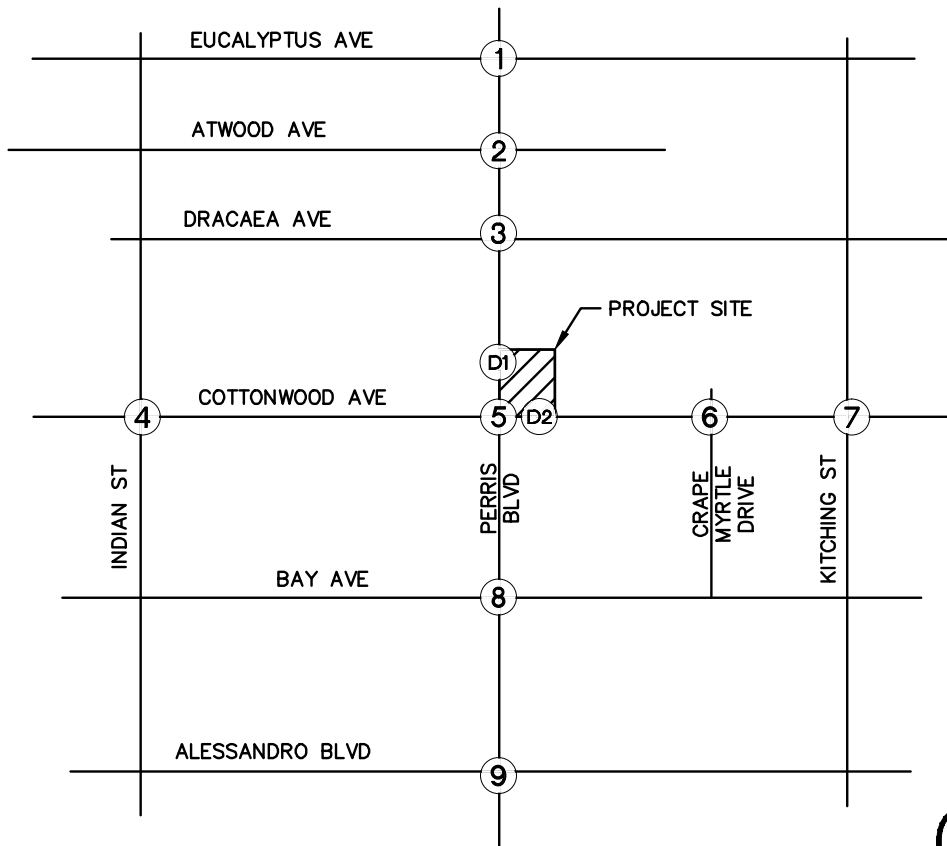
Each alternative is anticipated to cause variations in project trip assignment at immediately adjacent intersections. These variations result from additional U-turn movements required to maintain access to the site from each direction, as well as from differences in pass-by trip assignment. The resulting project trip assignments for each alternative are shown on Figures 21-26. A breakdown of pass-by trips can be found in *Appendix C*.

Intersection Analysis – Cumulative (Opening Year 2020) With Project

Cumulative With Project peak hour intersection operations for Alternative 1, Alternative 2, and Alternative 3 are summarized in Table 11. The project, regardless of access alternative, is not anticipated to contribute sufficient traffic to the transportation system to cause an additional deficiency compared to the Cumulative Without Project scenario. However, the intersections operating deficiently in the Cumulative Without Project scenario would continue to do so.



NOT TO SCALE



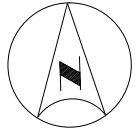
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

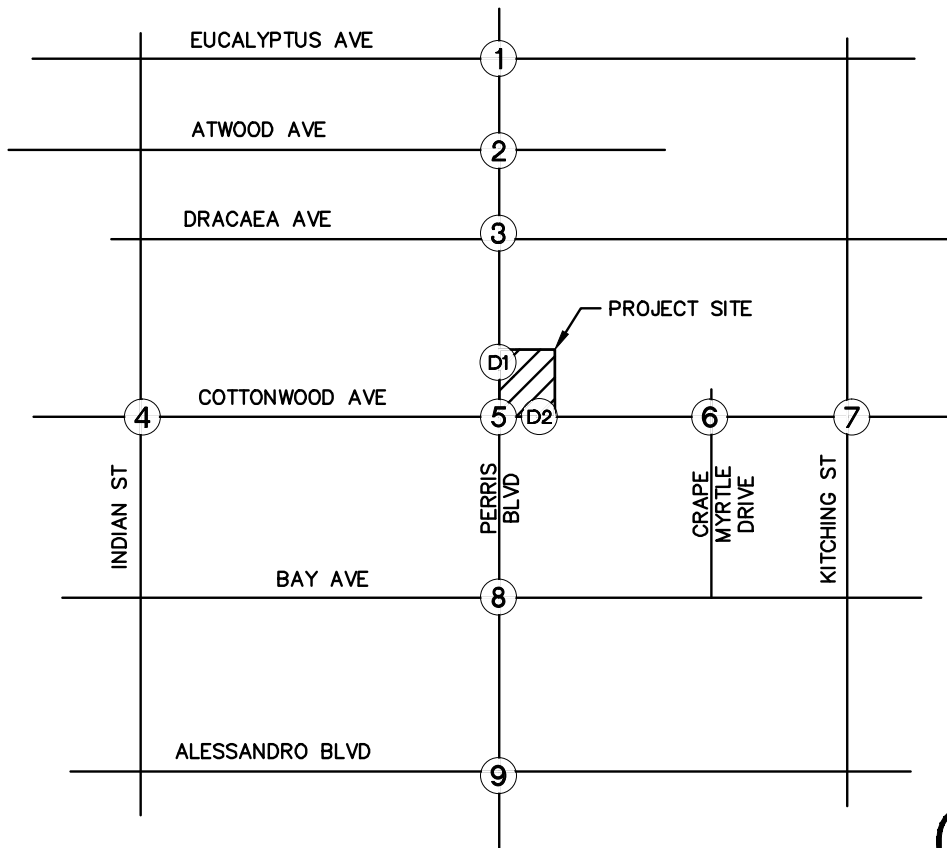
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume

FIGURE 21
PROJECT TRAFFIC – ALTERNATIVE 1 WEEKDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



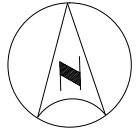
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

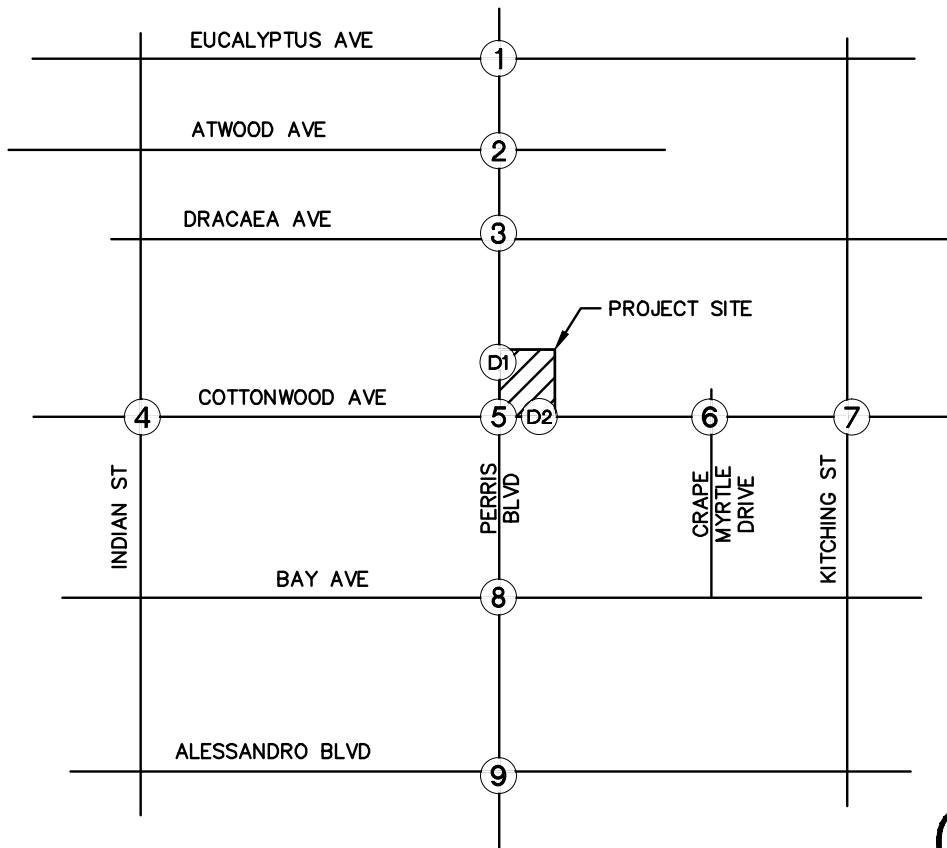
- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 22
PROJECT TRAFFIC – ALTERNATIVE 1 SUNDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

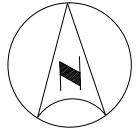
LEGEND:

(X) Study Intersection

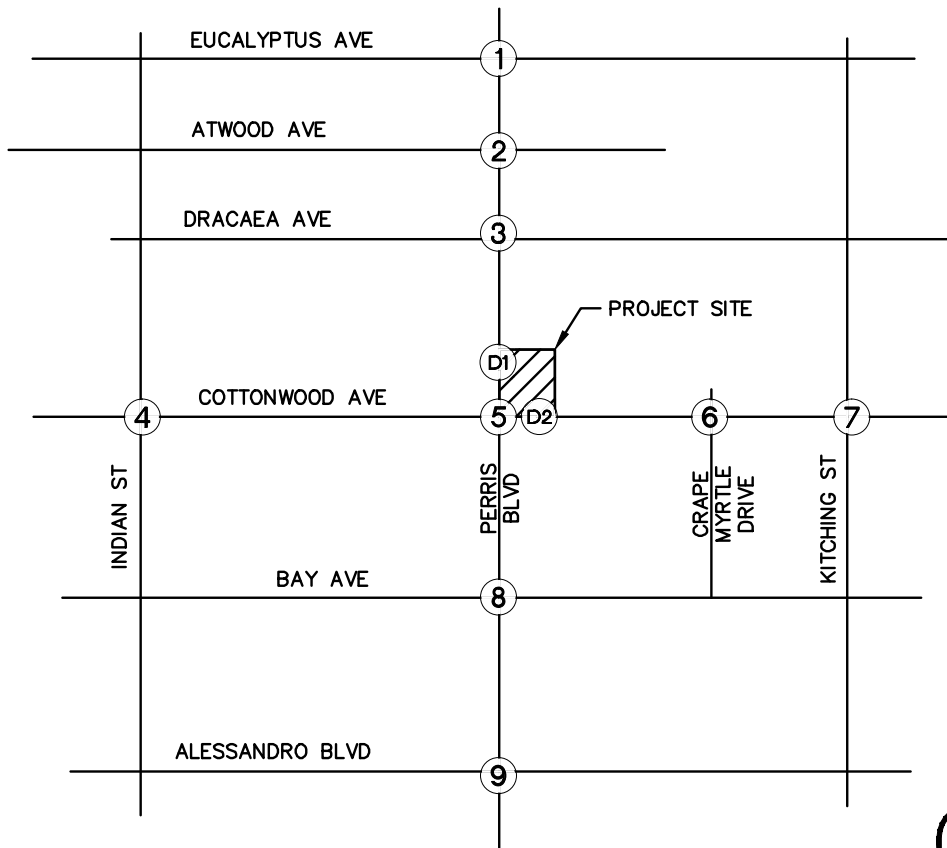
XX/YY AM/PM Turning Movement Volume

FIGURE 23
PROJECT TRAFFIC – ALTERNATIVE 2 WEEKDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



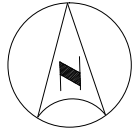
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

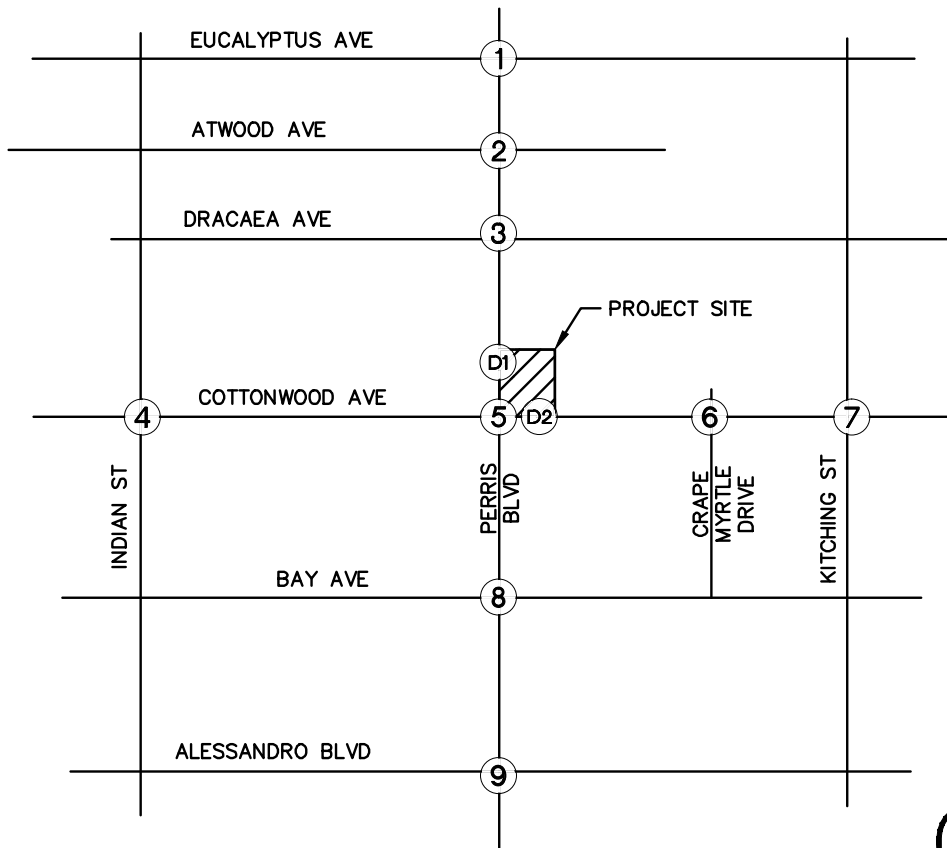
- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 24
PROJECT TRAFFIC – ALTERNATIVE 2 SUNDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



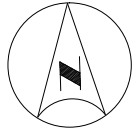
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

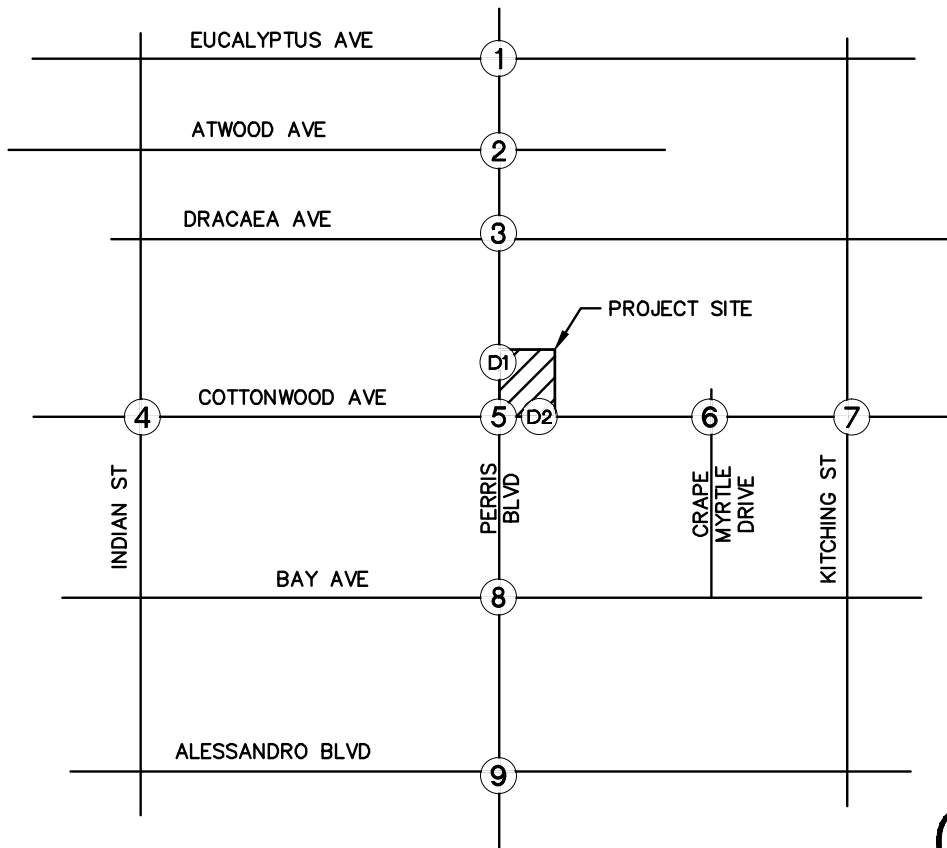
- (X) Study Intersection
- XX/YY AM/PM Turning Movement Volume

FIGURE 25
PROJECT TRAFFIC – ALTERNATIVE 3 WEEKDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

FIGURE 26
PROJECT TRAFFIC – ALTERNATIVE 3 SUNDAY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a

TABLE 11
SUMMARY OF INTERSECTION OPERATIONS
CUMULATIVE WITHOUT AND WITH PROJECT ALTERNATIVES

Int. #	Intersection	Peak Hour	Cumulative Without Project		Cumulative With Alternative 1		Project Impact	Cumulative With Alternative 2		Project Impact	Cumulative With Alternative 3		Project Impact
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	Delay (sec/veh)	LOS	Delay (sec/veh)	Delay (sec/veh)	LOS	Delay (sec/veh)
1	Perris Boulevard at Eucalyptus Avenue	AM	27.7	C	28.0	C	0.3	28.0	C	0.3	28.0	C	0.3
		PM	28.9	C	29.5	C	0.6	29.5	C	0.6	29.5	C	0.6
		SUN	18.7	B	19.1	B	0.4	19.1	B	0.4	19.1	B	0.4
2	Perris Boulevard at Atwood Avenue	AM	46.4	E	47.8	E	1.4	47.8	E	1.4	47.8	E	1.4
		PM	79.7	F	85.3	F	5.6	85.3	F	5.6	85.3	F	5.6
		SUN	65.2	F	71.1	F	5.9	71.1	F	5.9	71.1	F	5.9
3	Perris Boulevard at Dracaea Avenue	AM	44.3	D	46.1	D	1.8	46.1	D	1.8	45.1	D	0.8
		PM	26.0	C	27.9	C	1.9	27.9	C	1.9	26.6	C	0.6
		SUN	27.8	C	29.2	C	1.4	29.2	C	1.4	28.7	C	0.9
4	Cottonwood Avenue at Indian Street	AM	27.9	C	28.4	C	0.5	28.4	C	0.5	28.4	C	0.5
		PM	22.4	C	22.8	C	0.4	22.8	C	0.4	22.8	C	0.4
		SUN	19.9	B	20.2	C	0.3	20.2	C	0.3	20.2	C	0.3
5	Cottonwood Avenue at Perris Boulevard	AM	35.6	D	42.6	D	7.0	39.3	D	3.7	40.9	D	5.3
		PM	30.9	C	35.6	D	4.7	33.4	C	2.5	34.9	C	4.0
		SUN	34.4	C	45.4	D	11.0	40.2	D	5.8	40.5	D	6.1
6	Cottonwood Avenue at Crape Myrtle Drive	AM	65.3	F	68.0	F	2.7	68.0	F	2.7	68.0	F	2.7
		PM	18.1	C	18.4	C	0.3	18.4	C	0.3	18.4	C	0.3
		SUN	34.2	D	35.9	E	1.7	35.9	E	1.7	35.9	E	1.7
7	Cottonwood Avenue at Kitching Street	AM	30.4	C	29.0	C	-1.4	29.0	C	-1.4	29.0	C	-1.4
		PM	16.6	B	16.7	B	0.1	16.7	B	0.1	16.7	B	0.1
		SUN	17.8	B	18.1	B	0.3	18.1	B	0.3	18.1	B	0.3
8	Perris Boulevard at Bay Ave	AM	27.9	C	28.6	C	0.7	28.6	C	0.7	28.6	C	0.7
		PM	18.2	B	18.7	B	0.5	18.7	B	0.5	18.7	B	0.5
		SUN	17.2	B	17.5	B	0.3	17.5	B	0.3	17.5	B	0.3
9	Perris Boulevard at Alessandro Boulevard	AM	50.7	D	51.1	D	0.4	51.1	D	0.4	51.1	D	0.4
		PM	64.8	E	65.6	E	0.8	65.4	E	0.6	65.4	E	0.6
		SUN	38.3	D	38.8	D	0.5	38.8	D	0.5	38.8	D	0.5
D1	Perris Boulevard Driveway	AM	16.2	C	20.2	C	4.0	19.6	C	3.4	19.2	C	3.0
		PM	626.3	F	17.6	C	-608.7	17.1	C	-609.2	16.8	C	-609.5
		SUN	397.9	F	20.0	C	-377.9	19.1	C	-378.8	18.4	C	-379.5
D2	Cottonwood Avenue Driveway	AM	Church Driveway Removed		14.1	B		14.1	B		17.8	C	
		PM	Church Driveway Removed		11.1	B		11.1	B		13.2	B	
		SUN	Church Driveway Removed		12.1	B		12.1	B		14.5	B	

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Queuing Analysis

The queues associated with ingress and egress movements at the Perris Boulevard driveway and at the Cottonwood Driveway were evaluated via the Simtraffic Software for the Cumulative With Project scenario. This evaluation was conducted for all driveway variations.

The Perris Boulevard driveway has been designed to align with an existing shopping center driveway on the west side of Perris Boulevard. Therefore, any potential conflicts between northbound left-turn and southbound left-turn traffic would not exist. Vehicles would be able to store in an existing two-way-left-turn lane. For other driveway alternatives, a potential raised median along Perris Boulevard and/or Cottonwood Avenue would impose limitations on queueing.

Cottonwood Avenue at the Cottonwood Avenue driveway currently has one through lane (24') striped in the eastbound direction. It is assumed that vehicles entering the project site in this direction will share the lane with through traffic, although the wide lane width provides adequate clearance for through-movement vehicles to maneuver around a turning vehicle. Furthermore, the St. Christopher Church driveway on the south side of the intersection is anticipated to be removed in future conditions as part of the church's plans for expansion.

Results of the analysis are presented in the following tables. Analysis worksheets can be found in *Appendix C*.

Summary of Queueing Analysis Existing Geometry			
	Queue Length (ft)		
	AM Peak	PM Peak	Sunday
Perris Boulevard Driveway (Southbound Left)			
Average Queue	25	20	27
95 th Percentile Queue	95	54	65
Perris Boulevard Driveway (Northbound Right)			
Average Queue	1	1	8
95 th Percentile Queue	7	11	78
Cottonwood Avenue Driveway (Eastbound Left)			
Average Queue	7	14	30
95 th Percentile Queue	30	74	98
Cottonwood Avenue Driveway (Westbound Right)			
Average Queue	39	1	7
95 th Percentile Queue	179	11	38

Summary of Queueing Analysis Alternative 1			
	Queue Length (ft)		
	AM Peak	PM Peak	Sunday
Perris Boulevard Driveway (Southbound Left)			
Average Queue	N/A	N/A	N/A
95 th Percentile Queue	N/A	N/A	N/A
Perris Boulevard Driveway (Northbound Right)			
Average Queue	3	7	Nom.
95 th Percentile Queue	26	62	Nom.
Cottonwood Avenue Driveway (Eastbound Left)			
Average Queue	N/A	N/A	N/A
95 th Percentile Queue	N/A	N/A	N/A
Cottonwood Avenue Driveway (Westbound Right)			
Average Queue	93	37	57
95 th Percentile Queue	347	65	237

Summary of Queueing Analysis Alternative 2			
	Queue Length (ft)		
	AM Peak	PM Peak	Sunday
Perris Boulevard Driveway (Southbound Left)			
Average Queue	17	32	36
95 th Percentile Queue	44	97	74
Perris Boulevard Driveway (Northbound Right)			
Average Queue	Nom.	Nom.	1
95 th Percentile Queue	Nom.	Nom.	10
Cottonwood Avenue Driveway (Eastbound Left)			
Average Queue	N/A	N/A	N/A
95 th Percentile Queue	N/A	N/A	N/A
Cottonwood Avenue Driveway (Westbound Right)			
Average Queue	73	14	32
95 th Percentile Queue	274	65	149

Summary of Queueing Analysis Alternative 3			
	Queue Length (ft)		
	AM Peak	PM Peak	Sunday
Perris Boulevard Driveway (Southbound Left)			
Average Queue	N/A	N/A	N/A
95 th Percentile Queue	N/A	N/A	N/A
Perris Boulevard Driveway (Northbound Right)			
Average Queue	Nom.	Nom.	Nom.
95 th Percentile Queue	Nom.	Nom.	Nom.
Cottonwood Avenue Driveway (Eastbound Left)			
Average Queue	26	23	29
95 th Percentile Queue	103	80	102
Cottonwood Avenue Driveway (Westbound Right)			
Average Queue	22	4	21
95 th Percentile Queue	128	34	113

The results indicate that the forecasted queues can be accommodated by the existing roadway geometry within the vicinity of the site.

SITE CIRCULATION RECOMMENDATIONS

Based on the proposed site plan, shown previously on Figure 2, the project features two driveways. Currently, potential access restrictions into and out of these driveways have not yet been determined. The following discussion assesses the circulation of trucks to and from the site.

Fuel trucks and supply trucks could originate from the SR-60 Freeway and travel on Perris Boulevard, which is a designated truck route, or originate from the I-215 Freeway and travel along Alessandro Boulevard, which is a designated truck route. In both instances, Perris Boulevard would be used from either the northbound or southbound direction to approach the proposed site.

To accommodate truck access into the site from the north on Perris Boulevard, there are two options with the existing roadway geometry – a truck can make a southbound left turn into the Perris Boulevard Driveway or turn onto Cottonwood Avenue before making an eastbound left turn into the Cottonwood Avenue Driveway. However, construction of a raised median along either street will restrict truck access. These turn restrictions have been studied as Alternatives 1-3. The truck access capabilities for all study scenarios are shown on Figure 27-30.

In the Alternative 1 scenario, right-in/right-out movements would be restricted on Perris Boulevard and on Cottonwood Avenue. As a result, a truck approaching from the north can only access the site via a U-Turn at the intersection. However, a U-Turn movement for a truck would not be feasible based on the turning radius. A truck from the south would be able to access the Perris Driveway in the northbound direction via a right-in movement, but would need to return to its origin by using the Cottonwood Avenue driveway to exit.

In the Alternative 2 scenario, southbound left-turn movements along Perris Boulevard would be allowed. However, eastbound left-turn movements into the site from Cottonwood Avenue would be prohibited. This access scenario would allow trucks from north on Perris Boulevard to access the site uninhibited, and return to Perris Boulevard via a westbound right-turn movement out of the driveway. Also, trucks from the south would be able to access the site via the Perris Boulevard Driveway. However, egress trucks destined for the south would need to use the Cottonwood Avenue driveway to return to Perris Boulevard.

In Alternative 3, the Perris Boulevard is restricted to right-in/right-out movements and full movements are allowed at the Cottonwood Driveway. Like Alternative 1, a truck would not be able to access the Perris Boulevard driveway from the north. A truck from the north would be able to turn onto Cottonwood Avenue and make an eastbound left-turn into the site. A vehicle from the south can access the Perris Boulevard driveway, but would need to return to Perris Boulevard using the Cottonwood Avenue driveway.

A summary table highlighting truck access capabilities at each driveway is shown on the following page.

	Truck Access Capability			
	Existing	Alternative 1	Alternative 2	Alternative 3
Perris Driveway	Yes - Trucks from North and South	Yes - Only Trucks from South	Yes - Trucks from North and South	Yes - Only Trucks from South
Cottonwood Driveway	Yes - Trucks from North and South	No	No	Yes - Trucks from North and South

Per Level of Service analysis, the cause of deficiency at the Perris Driveway is the westbound left-turn movement. The delay at the westbound left-turn, regardless of low volume, is reported as the worst-case movement. The Cottonwood Avenue driveway, however, does not experience any excessive delays, either inbound or outbound. The delay at the Perris Driveway can be reduced by restricting left-turn movements out of the driveway during the peak hours.

From a queueing perspective, none of the alternatives experience significant queues that would cause spillback or conflicts. There is adequate room for queueing that does not inhibit other accesses from adjacent properties. Furthermore, the Church site on the south side of Cottonwood Avenue will remove its driveway as part of its envisioned expansion. As a result, conflicts between ingress/egress vehicles at the church and at the proposed project site will be inconsequential.

From an access perspective, a southbound left-turn into the site from Perris Boulevard is needed to accommodate fuel trucks from the north. Prohibiting the southbound left would require trucks to turn onto Cottonwood Avenue and use the Cottonwood Avenue driveway, given that left turns are allowed at that driveway. With a median along Perris Boulevard, a southbound truck would be forced to make a U-Turn, which is a movement that is not feasible due to physical constraints.

Based on the results of the traffic analyses and review of the truck turning templates, a recommendation can be made regarding turn restrictions at each driveway. The presence of a raised median would prevent left-turn movements exiting the site onto Perris Boulevard, which is beneficial to peak hour operations. However, a raised median with an opening would allow preserve the southbound left-turn into the site. Nevertheless, trucks would be unable to make the southbound left-turn into the site due to geometric constraints. A truck would need to turn from Perris Boulevard onto Cottonwood Avenue before entering via the Cottonwood Driveway. Therefore, an eastbound left-turn movement must be maintained along Cottonwood Avenue to maintain truck access from the north.

The driveway on Perris Boulevard is consistent with Section 9.11.080 of the Moreno Valley Municipal Code for design parameters. The distance from the driveway to the intersection of Perris Boulevard and Cottonwood Avenue exceeds 350' when measured from the centerline of Cottonwood. The driveway is located at the far northern portion of the site, and aligns with the existing driveway on the west side of Perris Boulevard. The driveway on Cottonwood Avenue has been placed as far from the intersection as possible and is within 250 feet of the intersection, per Section 9.11.080.

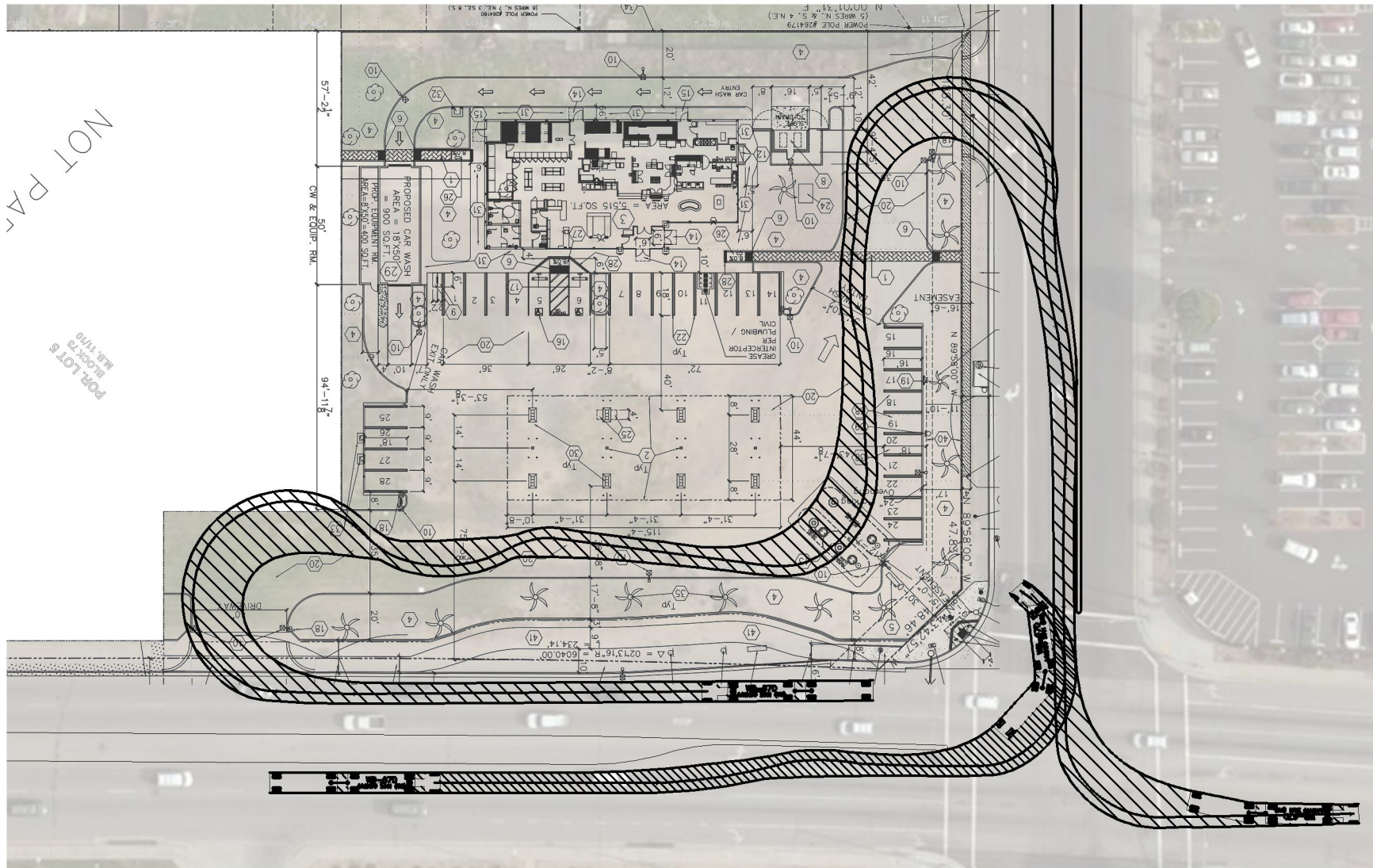
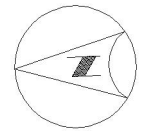
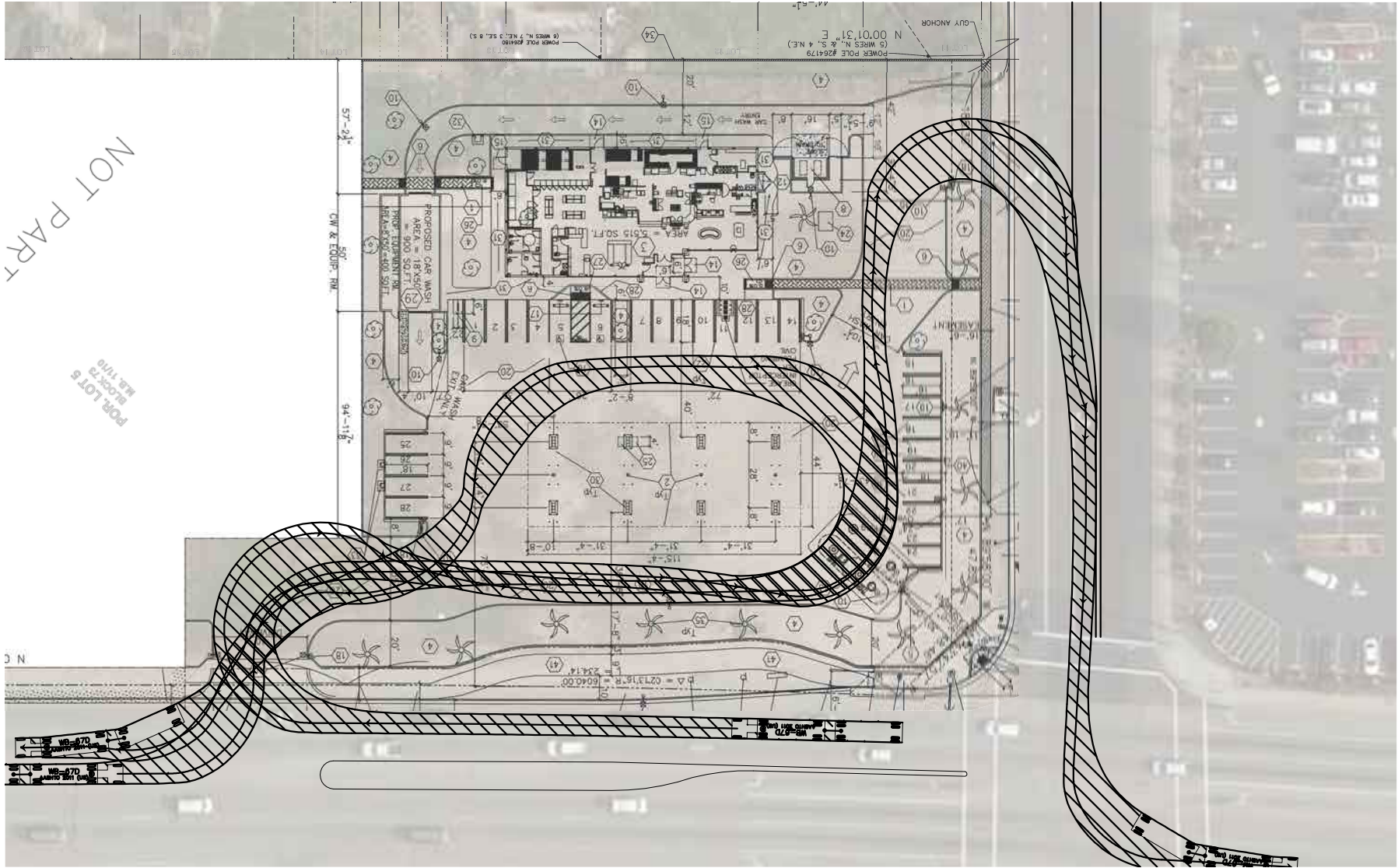


FIGURE 28
 PROPOSED TRUCK TURNING TEMPLATE –
 ALTERNATIVE 1



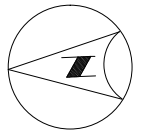
NOT TO SCALE

NOT PART
 OF LOT 5
 MAP 1110



NOT PART
 PROP. LOTS 5
 BLOCKS
 MAP 1110

FIGURE 29
 PROPOSED TRUCK TURNING TEMPLATE –
 ALTERNATIVE 2



NOT TO SCALE

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a

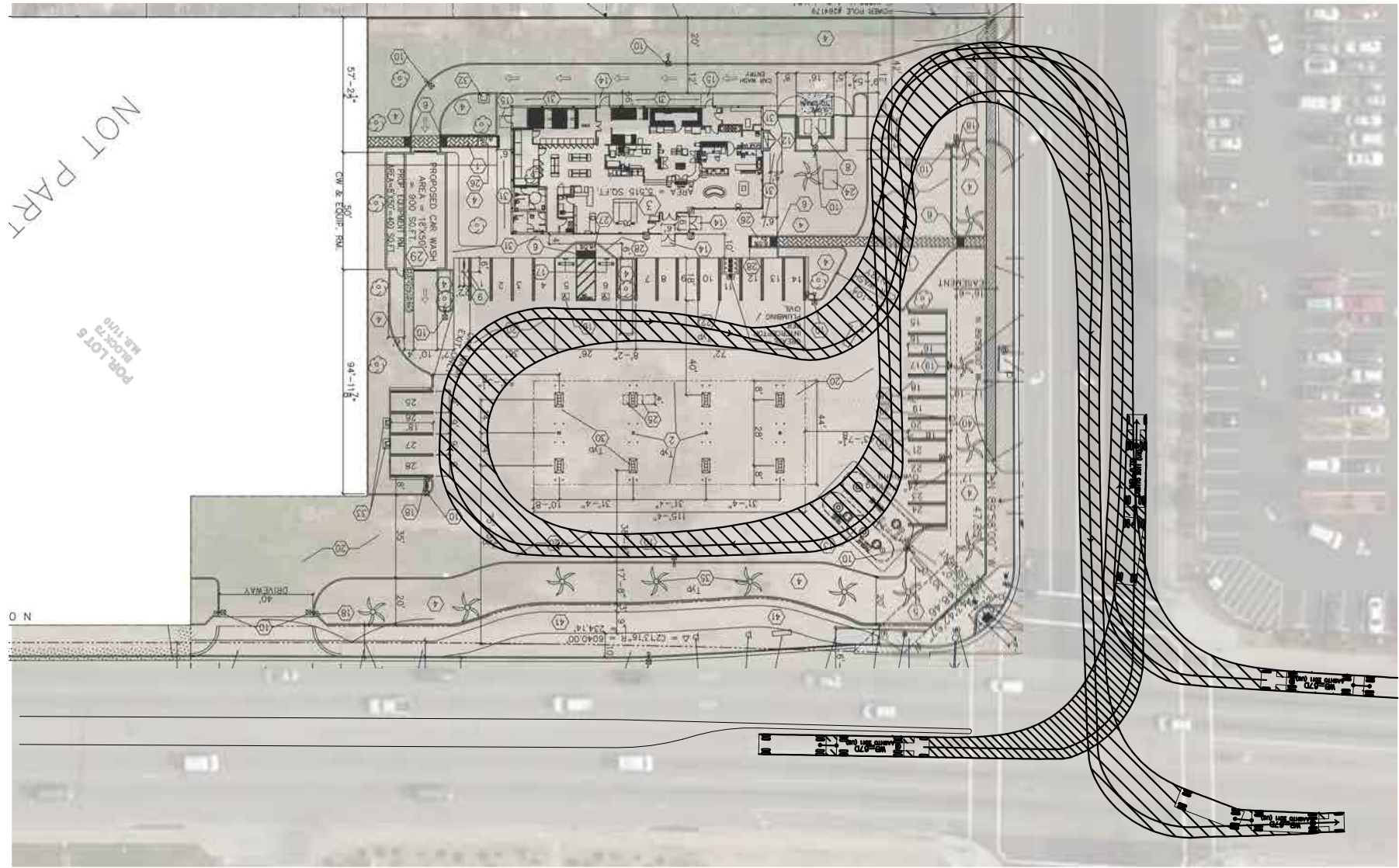


FIGURE 30
 PROPOSED TRUCK TURNING TEMPLATE –
 ALTERNATIVE 3



NOT TO SCALE

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a

TRAFFIC SIGNAL WARRANTS

Traffic signal warrants, based on the California Manual on Uniform Traffic Control Devices (MUTCD), are used to determine whether or not traffic volumes on minor streets are great enough to warrant the installation of a traffic signal at an unsignalized intersection. There are two unsignalized intersections, excluding the project driveways, within the study area:

1. Perris Boulevard at Atwood Avenue
2. Cottonwood Avenue at Crape Myrtle Drive

Traffic signal warrants for the project driveways along Perris Boulevard and Cottonwood Avenue were not conducted due to the close proximity to the existing traffic signal at Perris Boulevard and Cottonwood Avenue.

The intersection of Cottonwood Avenue and Crape Myrtle Drive operates deficiently in Existing Conditions, and would continue to do so in all subsequent analysis scenarios. The intersection of Perris Boulevard and Atwood Avenue would operate deficiently in the Cumulative Without Project scenario, and would continue to do so with the addition of project traffic. The results of the traffic signal warrants indicate that minor street volumes are too low to warrant installation of a traffic signal at either intersection. Traffic signal warrant worksheets can be found in *Appendix E*.

NON-MOTORIZED SITE ACCESS

Pedestrian and bicycle counts were conducted at the intersection of Perris Boulevard and Cottonwood Avenue in September, 2015. Count sheets can be found in Appendix B. The counts indicate that low volume of pedestrian and bicycle traffic travels through the intersection on a weekday and weekend basis. The maximum number of bikes observed during any peak hour was four along Perris Boulevard. Furthermore, a maximum of thirteen pedestrians were observed along any one approach during the Sunday peak hour. Because the gas station and car wash components of the proposed project occupy a large part of the site, a heavy traffic volume from pedestrians and from bicycles is not likely. The project's donut shop component may attract pedestrians from the St. Christopher's Church at the southeast corner of Perris Boulevard and Cottonwood Avenue.

Currently, a Class II bike lane is striped along Cottonwood Avenue to the east and west of the project frontage. However, a Class II bike lane is not present in the immediate frontage. The bike lane runs along a parking lane.

The Riverside Transit Agency provides transit lines that run along the project frontage:

Riverside Transit Agency Route 18 is a bus route that operates along Cottonwood Avenue within the project vicinity. Route 18 operates seven days a week and provides transportation services between Sunnymead Ranch and Moreno Valley College.

Riverside Transit Agency Route 19 is a bus route that currently operates along Perris Boulevard within the project vicinity. Route 19 operates seven days a week and provides transportation between the Moreno Valley Mall and the Perris Station Transit Center to the south of the project site.

A far-side bus stop for Route 19 is located on the east side of Perris Boulevard, along the project frontage.

PROJECT IMPROVEMENTS AND MITIGATION

Based on the Cumulative With Project scenarios, four intersections were shown to operate deficiently, as well as both roadway segments along Perris Boulevard. The deficient intersections include:

- Perris Boulevard at Atwood Avenue
- Cottonwood Avenue at Crape Myrtle Drive
- Perris Boulevard at Alessandro Boulevard
- Perris Boulevard Driveway

While these intersections are deficient, the project only contributes to their existing deficiencies. The project would contribute to any improvement not included in an existing fee program on a fair-share basis. The following mitigation measures are recommended:

- Perris Boulevard at Atwood Avenue - The deficiency is a result of a small number of vehicles turning left into heavy peak hour traffic along Perris Boulevard. The intersection does not warrant a traffic signal. No mitigation measure is recommended.
- Cottonwood Avenue at Crape Myrtle Drive - The deficiency is a result of a small number of vehicles exiting a residential tract. The intersection does not warrant a traffic signal. No mitigation measure is recommended.
- Perris Boulevard at Alessandro Boulevard – Construct an additional southbound left-turn lane and an additional northbound left-turn lane.
- Perris Boulevard Driveway – The delay is a result of vehicles exiting the site. Since any queueing is restricted to the project site and delays are experienced onsite rather than on a public roadway, no offsite mitigation measures are recommended. Implementation of a westbound left-turn restriction would also reduce this delay.

On Perris Boulevard, the street is currently striped as a four-lane divided roadway with 86' of curb-to-curb width. Per the City of Moreno General Plan Roadway Network, Perris Boulevard will eventually be widened to add one lane in each direction, which will increase the daily roadway capacity to 56,300 vehicles. This lane addition can be accomplished in the 86' width, as shown on the roadway cross sections on Figure 5. With the construction of additional turn lanes at the Alessandro Boulevard intersection, the delay will improve to 48 seconds in the evening peak hour, which indicates a LOS D.

Moreover, intersections that operate at acceptable Level of Service, but experience individual lane groups (i.e. westbound left or southbound through movements) that become LOS E or LOS F with the addition of project traffic, are identified below:

- Perris Boulevard and Eucalyptus Avenue WBL (PM LOS E)
- Perris Boulevard and Alessandro Boulevard NBT (PM LOS E)
- Perris and Cottonwood Avenue EBL, WBL, WBR, SBL (Sunday LOS E-F)

Despite these intersections experiencing acceptable overall Level of Service, the following mitigation measures would help improve these lane groups:

- Perris Boulevard and Eucalyptus Avenue WBL – Perris Boulevard is planned to be widened one lane in each direction based on the General Plan Roadway Network, converting it from a 4-lane arterial to a 6-lane arterial. The additional roadway capacity would improve all lane group operations at the intersection.
- Perris Boulevard and Alessandro Boulevard NBT – Construct an additional southbound left-turn lane and an additional northbound left-turn lane. This measure was identified in the previous section, and is included in an existing fee program.
- Perris and Cottonwood Avenue EBL, WBL, WBR, SBL – Perris Boulevard is planned to be widened one lane in each direction based on the General Plan Roadway Network, converting it from a 4-lane arterial to a 6-lane arterial. The additional roadway capacity would improve all lane group operations at the intersection.

As previously mentioned, the project would contribute to improvements not found in an existing fee program on a fair-share basis.

FUNDING MECHANISMS

The Transportation Uniform Mitigation Fee (TUMF) Program, which has been developed by the Western Riverside Council of Governments (WRCOG), provides a means of funding improvement projects throughout the County of Riverside. The TUMF levies a fee on new developments in the region to contribute to the construction of transportation projects throughout the region. Fees are calculated on a per unit basis for residential uses, and on a per square foot basis for commercial and industrial uses. The fees and improvements are based on the TUMF Nexus Study, adopted by the WRCOG in 2009.

Additionally, the City of Moreno Valley's Development Impact Fee Program (DIF) provides a mechanism for funding the development of the City's General Plan circulation system. The DIF program, like the TUMF program, collects fees from developers for residential, commercial, and industrial development. A determination of the exact project contribution to the fee program should be made between the developer and the City of Moreno Valley.

FINDINGS AND CONCLUSIONS

This traffic impact study has been prepared to evaluate the project-related traffic impacts associated with the proposed development of a Yum Yum Donut Shop and Gas Station on a vacant parcel located at the northeast corner of Perris Boulevard and Cottonwood Avenue in the City of Moreno Valley, California. The project is estimated to generate 2,445 daily trips, 190 morning peak hour trips, 222 evening peak hour trips, and 312 Sunday peak trips. After applying pass-by reductions, the development is projected to generate a net of 2,445 daily trips, 72 morning peak hour trips, 98 evening peak hour trips, and 138 Sunday trips.

Existing traffic volumes for study intersections and roadways were collected in September 2015. Existing volumes, along with existing lane geometrics and traffic control at each intersection and roadway, were used in conducting peak hour Level of Service (LOS) analyses. Under Existing Conditions, all of the study intersections and roadways are currently operating at LOS D or better, with the exception of the unsignalized intersection of Cottonwood Avenue at Crape Myrtle Drive.

Project traffic was added to the Existing traffic volumes in the Existing With Project scenario. In the Existing With Project scenario, all study intersections would operate at acceptable Level of Service with the exception of the following:

- Cottonwood Avenue at Crape Myrtle Drive (AM LOS E)
- Perris Boulevard Driveway (AM LOS F, PM LOS F, Sunday LOS F)

The intersection of Cottonwood Avenue at Crape Myrtle Drive is unsignalized and is shown to already operate deficiently in Existing Conditions. The deficiency is caused by the low volumes turning from the minor street approach.

The Perris Boulevard Driveway is unsignalized. The LOS F delay would be experienced by vehicles making a westbound left-turn out of the driveway onto Perris Boulevard. All study roadway segments would continue to operate at LOS D or better in the Existing With Project scenario.

Traffic from cumulative projects and an ambient growth of 2% per year over 5 years was added to Existing volumes to determine traffic conditions for the Cumulative Without Project scenario. The following intersections operate deficiently in the Cumulative Without Project scenario:

- Perris Boulevard at Atwood Avenue (AM LOS E, PM LOS F, Sunday LOS F)
- Cottonwood Avenue at Crape Myrtle Drive (AM LOS F)
- Perris Boulevard at Alessandro Boulevard (PM LOS E)
- Perris Boulevard Driveway (PM LOS F, Sunday LOS F)

With the exception of the Perris Boulevard at Alessandro Boulevard intersection, the deficient intersections are unsignalized. Due to the heavy traffic volumes anticipated in Opening Year 2020 as a result of growth and nearby projects, vehicles turning from minor streets onto Perris Boulevard are forecasted to encounter significant delays, regardless of their low volumes.

Moreover, both study roadway segments along Perris Boulevard are anticipated to operate deficiently in the Cumulative Without Project scenario.

With the addition of project traffic to the Cumulative Without Project scenario, the following intersections would operate at an unacceptable Level of Service:

- Perris Boulevard at Atwood Avenue (AM LOS E, PM LOS F, Sunday LOS F)
- Cottonwood Avenue at Crape Myrtle Drive (AM LOS F, Sunday LOS E)
- Perris Boulevard at Alessandro Boulevard (PM LOS E)
- Perris Boulevard Driveway (AM LOS F, PM LOS F, Sunday LOS F)

These intersections are forecasted to operate deficiently before the addition of project traffic. The deficiency at the Perris Boulevard Driveway in the Without Project scenario is caused by egress vehicles from the shopping center to the west. In the With Project scenario, the westbound approach at the driveway also operates deficiently. At the remaining intersections, the project alone does not trigger the deficiencies, but rather contributes to a less-than-significant cumulative impact.

Furthermore, the two study roadway segments along Perris Boulevard will continue to operate deficiently with the addition of project traffic.

While these intersections and roadways are deficient, the project only contributes to their existing deficiencies. The project would contribute to any improvement not included in an existing fee program on a fair-share basis. The following mitigation measures are recommended:

- Perris Boulevard at Atwood Avenue - The deficiency is a result of a small number of vehicles turning left into heavy peak hour traffic along Perris Boulevard. The intersection does not warrant a traffic signal. No mitigation measure is recommended.
- Cottonwood Avenue at Crape Myrtle Drive - The deficiency is a result of a small number of vehicles exiting a residential tract. The intersection does not warrant a traffic signal. No mitigation measure is recommended.
- Perris Boulevard at Alessandro Boulevard – Construct an additional southbound left-turn lane and an additional northbound left-turn lane.
- Perris Boulevard Driveway – The delay is a result of vehicles exiting the site. Since any queueing is restricted to the project site and delays are experienced onsite rather than on a public roadway, no offsite mitigation measures are recommended.

On Perris Boulevard, the street is currently striped as a four-lane divided roadway with 86' of curb-to-curb width. Per the City of Moreno General Plan Roadway Network, Perris Boulevard will eventually be widened to add one lane in each direction, which will increase the daily roadway capacity to 56,300 vehicles. This lane addition can be accomplished in the 86' width, and will improve roadway operations to acceptable levels. With the construction of additional turn lanes at the Alessandro Boulevard intersection, the delay will improve to 48 seconds in the evening peak hour, which indicates a LOS D.

Moreover, intersections that operate at acceptable Level of Service, but experience individual lane groups that become LOS E or LOS F with the addition of project traffic, are identified below:

- Perris Boulevard and Eucalyptus Avenue WBL (PM LOS E)
- Perris Boulevard and Alessandro Boulevard NBT (PM LOS E)
- Perris and Cottonwood Avenue EBL, WBL, WBR, SBL (Sunday LOS E-F)

Despite these intersections experiencing acceptable overall Level of Service, the following mitigation measures would help improve these lane groups:

- Perris Boulevard and Eucalyptus Avenue WBL – Perris Boulevard is planned to be widened one lane in each direction based on the General Plan Roadway Network, converting it from a 4-lane arterial to a 6-lane arterial. The additional roadway capacity would improve all lane group operations at the intersection.
- Perris Boulevard and Alessandro Boulevard NBT – Construct an additional southbound left-turn lane and an additional northbound left-turn lane. This measure was identified in the previous section, and is included in an existing fee program.
- Perris and Cottonwood Avenue EBL, WBL, WBR, SBL – Perris Boulevard is planned to be widened one lane in each direction based on the General Plan Roadway Network, converting it from a 4-lane arterial to a 6-lane arterial. The additional roadway capacity would improve all lane group operations at the intersection.

APPENDIX A

APPROVED SCOPING
AGREEMENT



SCOPING AGREEMENT
FOR TRAFFIC ANALYSIS STUDY

Date: August 14, 2015

This letter acknowledges the City of Moreno Valley Transportation Engineering Division requirements for the traffic impact analysis of the following project.

Case No. P15-018
 Project Name: Moreno Valley Yum Yum Donut Shop and Gas Station
 Project Address: Northeast Corner of Perris Blvd and Cottonwood Ave
 Project Description: Gas Station w/ 16 Pumps and Convenience Market/Donut Shop/Car Wash
 Related Cases:

	<u>Consultant</u>	<u>Developer</u>
Name:	Kimley-Horn and Associates, Inc.	A & S Engineering
Address:	765 The City Drive, Suite 200 Orange, CA 92868	28405 Sand Canyon Rd., Suite B Canyon Country, CA 91387
Telephone:	714-705-1362	661-250-9300

I. Background

The proposed project is located on the northeast corner of Perris Boulevard and Cottonwood Avenue. The project consists of a Gas Station w/ 5,515 SF building (Convenience Store and Donut Shop) & Car Wash. The project is anticipated to be completed in 2016. Per the City's guidelines, the opening year scenario for analysis will be 2020. The site plan is shown on **Figure 1**.

II. Trip Geographic Distribution and Assignment*

N: 40% S: 35% E: 10% W: 15%

*See Figure 2 for trip distribution diagram

III. Site Trip Generation Forecast

- A. ITE Trip Generation Manual (latest edition)
- B. AM Peak: 7:00-9:00 AM
- C. PM Peak: 4:00-6:00 PM
- D. Sunday Noon: 11:00-2:00 PM
- E. 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 - latest edition - operations procedures; parameters per County of Riverside Traffic Impact Analysis Guidelines.)

Proposed Use Rates

*Gasoline Station w/
Convenience Market &
Car Wash (Fueling Position)* Daily: 152.84 AM: 11.84 PM: 13.86 Weekend: 19.46

Internal Trip
Allowance: Yes _____ No X Percentage _____

Pass-by Trip
Allowance: Yes X No _____ Percentage See Attached Table 1

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.
- C. Sunday traffic conditions will be analyzed to address the additional weekend traffic on the street system due to the church at the southeast corner of Perris Boulevard and Cottonwood Avenue.
- D. Different site access alternatives will be analyzed to assess the construction of a raised median on Perris Boulevard and/or Cottonwood Avenue. These alternatives include:
 - A. Full movements at both driveways
 - B. Left in/Left out restricted at both driveways
 - C. Left out restricted at Perris Driveway, Left in/Left out restricted at Cottonwood Driveway
 - D. Left in/Left out restricted at Perris Driveway, Full movement at Cottonwood Driveway
- E. Queuing analysis will be conducted at the two site driveways. Queuing analysis for SBL movement into driveway will take into account NBL movements into adjacent shopping center.
- F. Assess non-motorized (i.e. peds, bicycles, ex.) access, document available transit/bus routes

- G. Truck turning exhibits will be prepared to show potential conflicts with raised medians.

V. **Study of Horizon Years**

- A. Existing (2015)
 B. Existing (2015) Plus Project
 C. Cumulative (Opening Year 2020) Without Project (2% annual growth and cumulative project traffic) – See **Figure 3** for Cumulative Projects within a 3.5-mile radius
 D. Cumulative (Opening Year 2020) With Project

VI. **Facilities to be Studied (See Figure 4 for Study Area)**

A. **Intersections**

1. Perris Boulevard at Eucalyptus Avenue
2. Perris Boulevard and Atwood Avenue
3. Perris Boulevard and Dracaea Avenue
4. Cottonwood Avenue at Indian Street
5. Cottonwood Avenue at Perris Boulevard (Will include ped/bike counts)
6. Cottonwood Avenue at Crape Myrtle Drive
7. Cottonwood Avenue at Kitching Street
8. Perris Boulevard and Bay Ave
9. Perris Boulevard at Alessandro Boulevard
10. Cottonwood Avenue Driveway
11. Perris Boulevard Driveway

B. **Roadway Segments**

1. Perris Boulevard between Eucalyptus Avenue and Cottonwood Avenue
2. Perris Boulevard between Cottonwood Avenue and Alessandro Boulevard
3. Cottonwood Avenue between Indian Street and Perris Boulevard
4. Cottonwood Avenue between Perris Boulevard and Kitching Street

VII. Deliverables

- A. Draft traffic impact study (2 copies)
- B. Final traffic impact study (4 copies)

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, 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.

If you have any questions regarding this *Scoping Agreement*, please contact Michael Lloyd at (951) 413-3146.

Recommended By:



Tim Chan
Kimley-Horn and Associates, Inc.

Approved By:



Michael Lloyd, P.E.
Senior Traffic Engineer

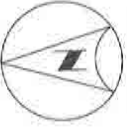
**TABLE 1
SUMMARY OF PROJECT TRIP GENERATION**

Land Use	ITE Code	Unit	Trip Generation Rates ¹											
			Daily	AM Peak Hour			PM Peak Hour			Sunday Noon ³				
				In	Out	Total	In	Out	Total	In	Out	Total		
Gasoline Station w/ Conv. Mkt. & Car Wash	946	Fueling Position	152.84	6.04	5.80	11.84	7.07	6.79	13.86	9.73	9.73	19.46		
Land Use	Quantity	Unit	Trip Generation Estimates											
			Daily	AM Peak Hour			PM Peak Hour			Sunday Noon				
				In	Out	Total	In	Out	Total	In	Out	Total		
Gasoline Station w/ Conv. Mkt. & Car Wash	16	Fueling Position	2,445	97	93	190	113	109	222	156	156	311		
- Pass-by Trips (AM 62%, PM 56%) ²			-	-60	-58	-118	-63	-61	-124	-87	-87	-174		
Total Project Trips			2,445	37	35	72	50	48	98	68	68	137		

¹ Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition

² Source: ITE Trip Generation Manual - Volume 1: User's Guide and Handbook. A pass-by rate of 56% was used for Sunday trips.

³ Sunday Peak Hour trips were calculated based on ITE rates for the Saturday Peak Hour of Generator.



NOT TO SCALE

LEGEND:

XX% TRIP PERCENTAGE

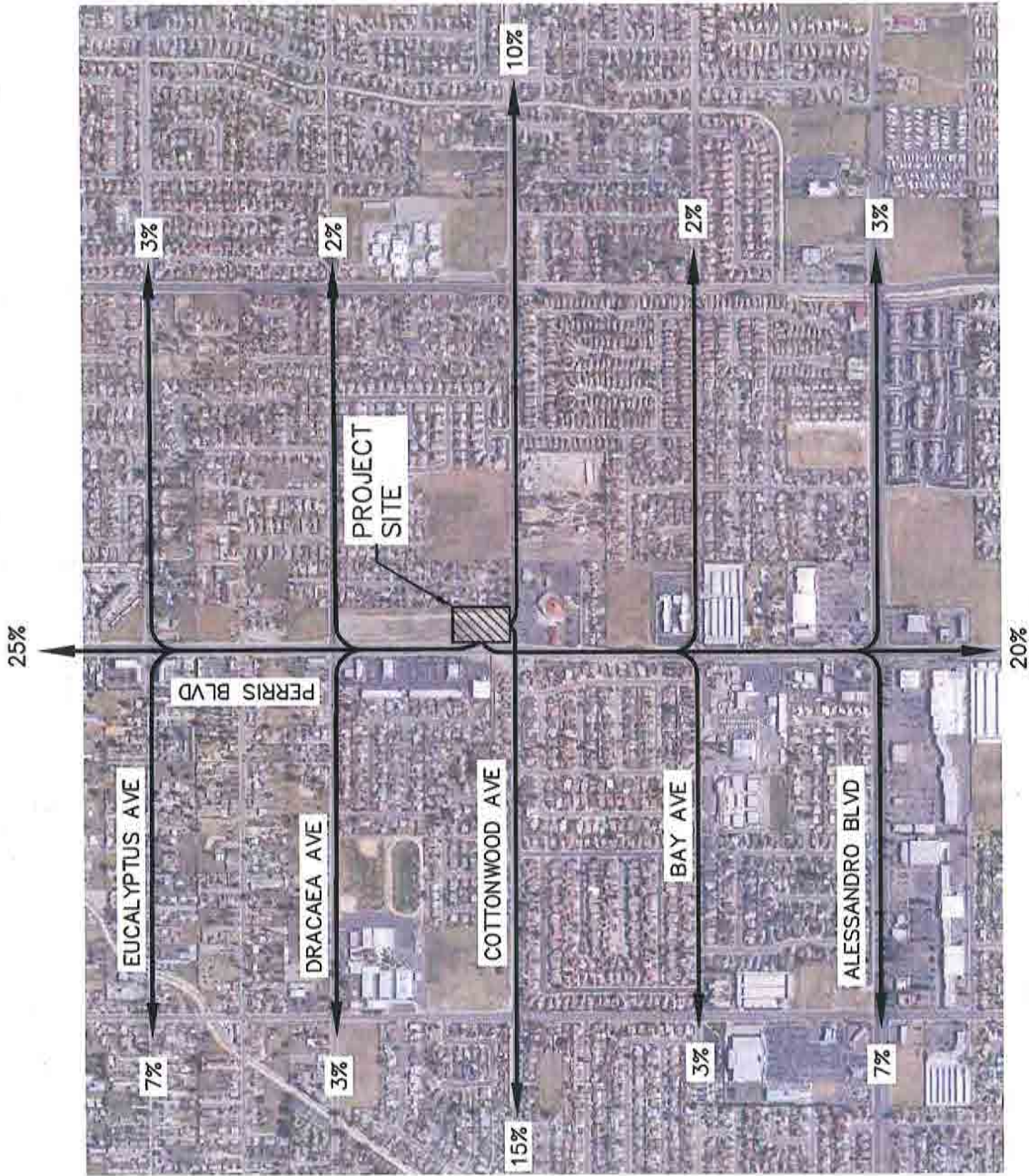
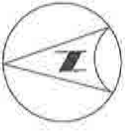


FIGURE 2
TRIP DISTRIBUTION ASSUMPTIONS



NOT TO SCALE

LEGEND:

- (X) Study Intersection
- Study Roadway



FIGURE 4
STUDY INTERSECTIONS AND ROADWAYS



Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

APPENDIX B

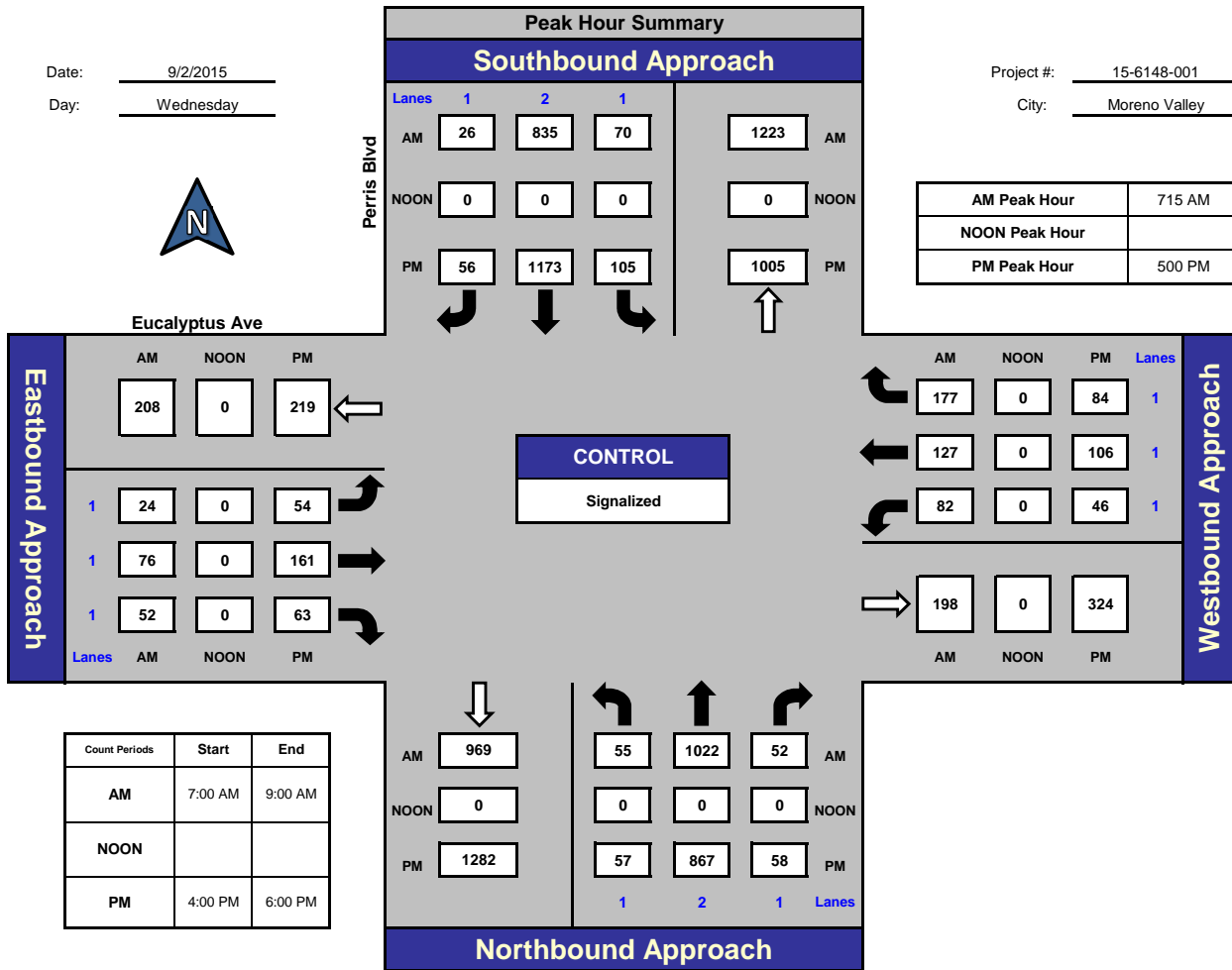
TRAFFIC DATA COLLECTION SHEETS

ITM Peak Hour Summary

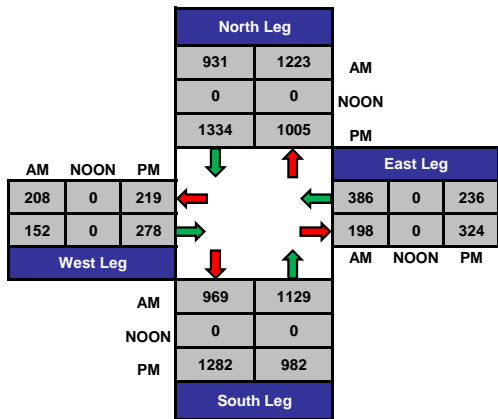


Prepared by:
National Data & Surveying Services

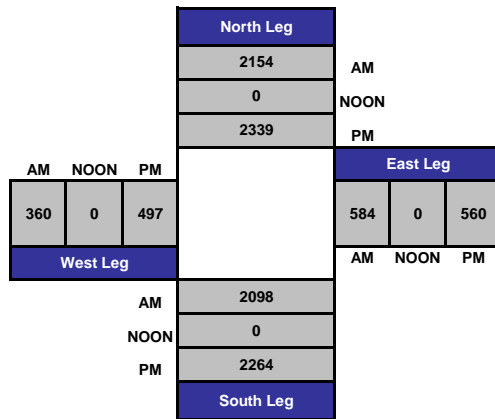
Perris Blvd and Eucalyptus Ave, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



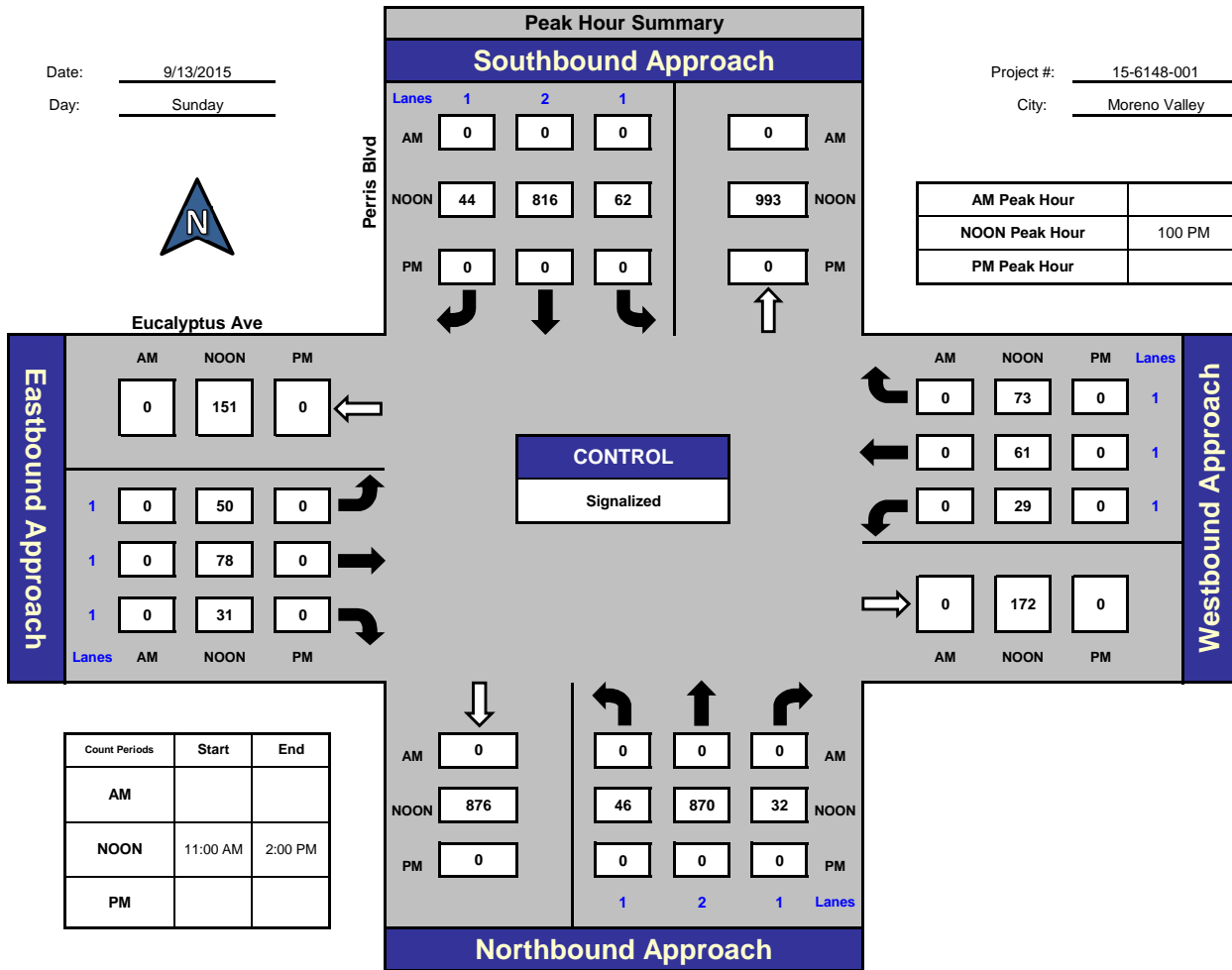
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

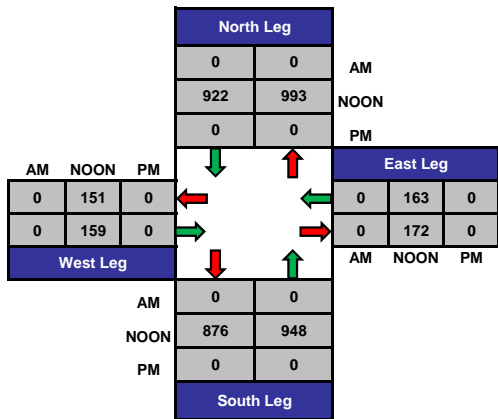


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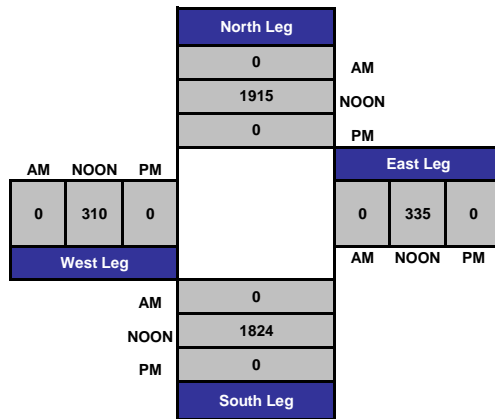
Perris Blvd and Eucalyptus Ave, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



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ITM Peak Hour Summary

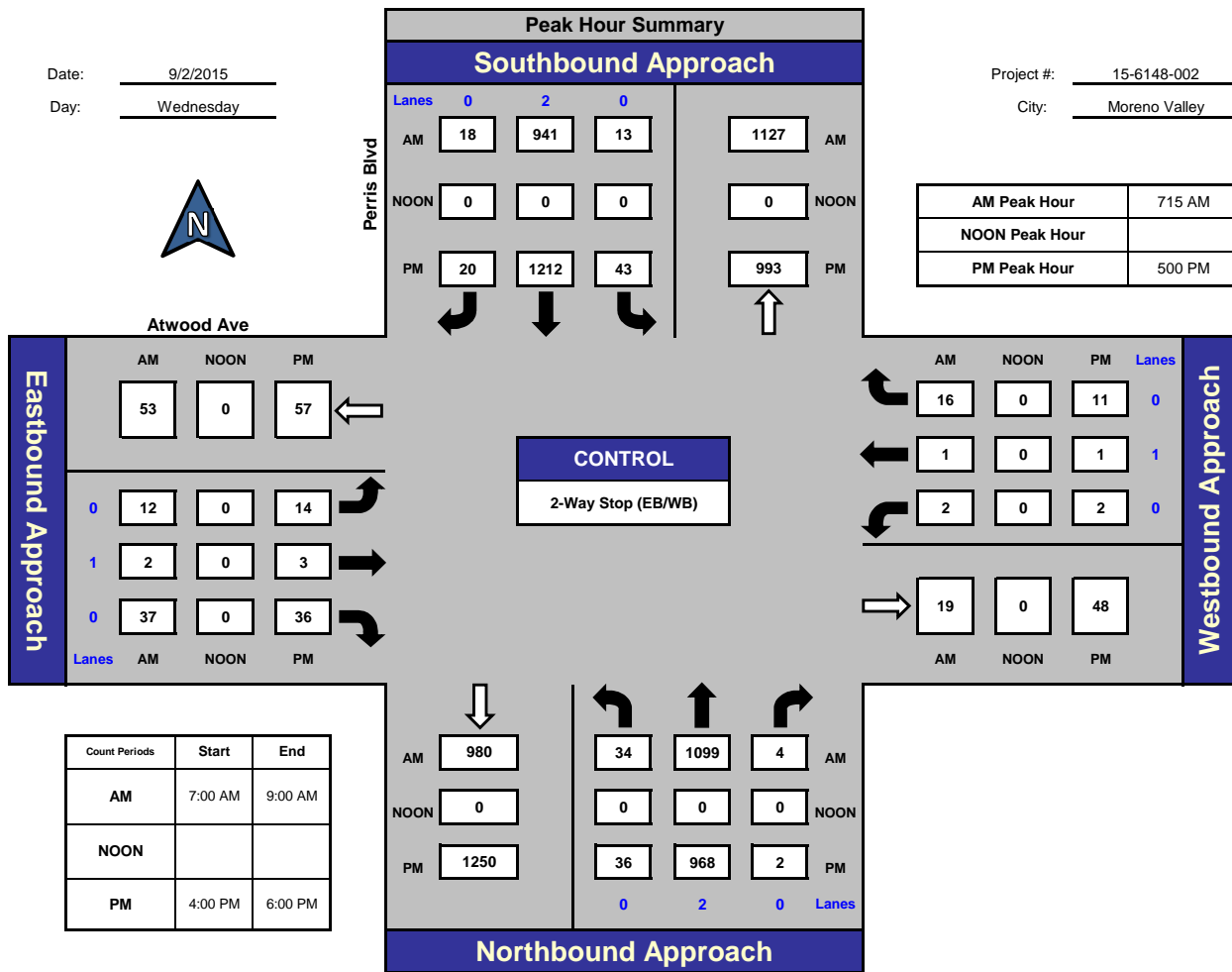


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National Data & Surveying Services

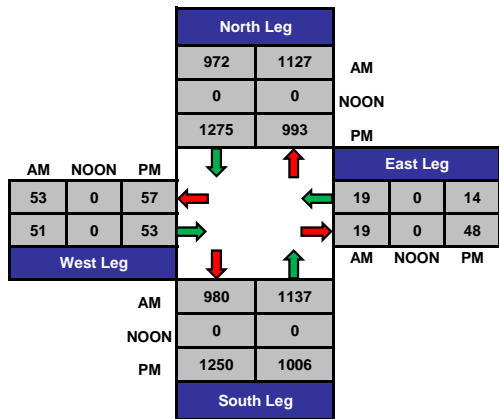
Perris Blvd and Atwood Ave, Moreno Valley

Date: 9/2/2015
Day: Wednesday

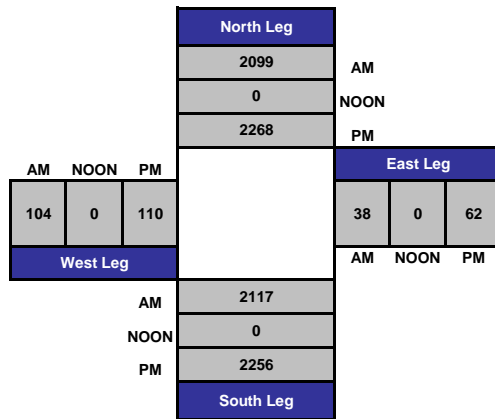
Project #: 15-6148-002
City: Moreno Valley



Total Ins & Outs



Total Volume Per Leg



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ITM Peak Hour Summary

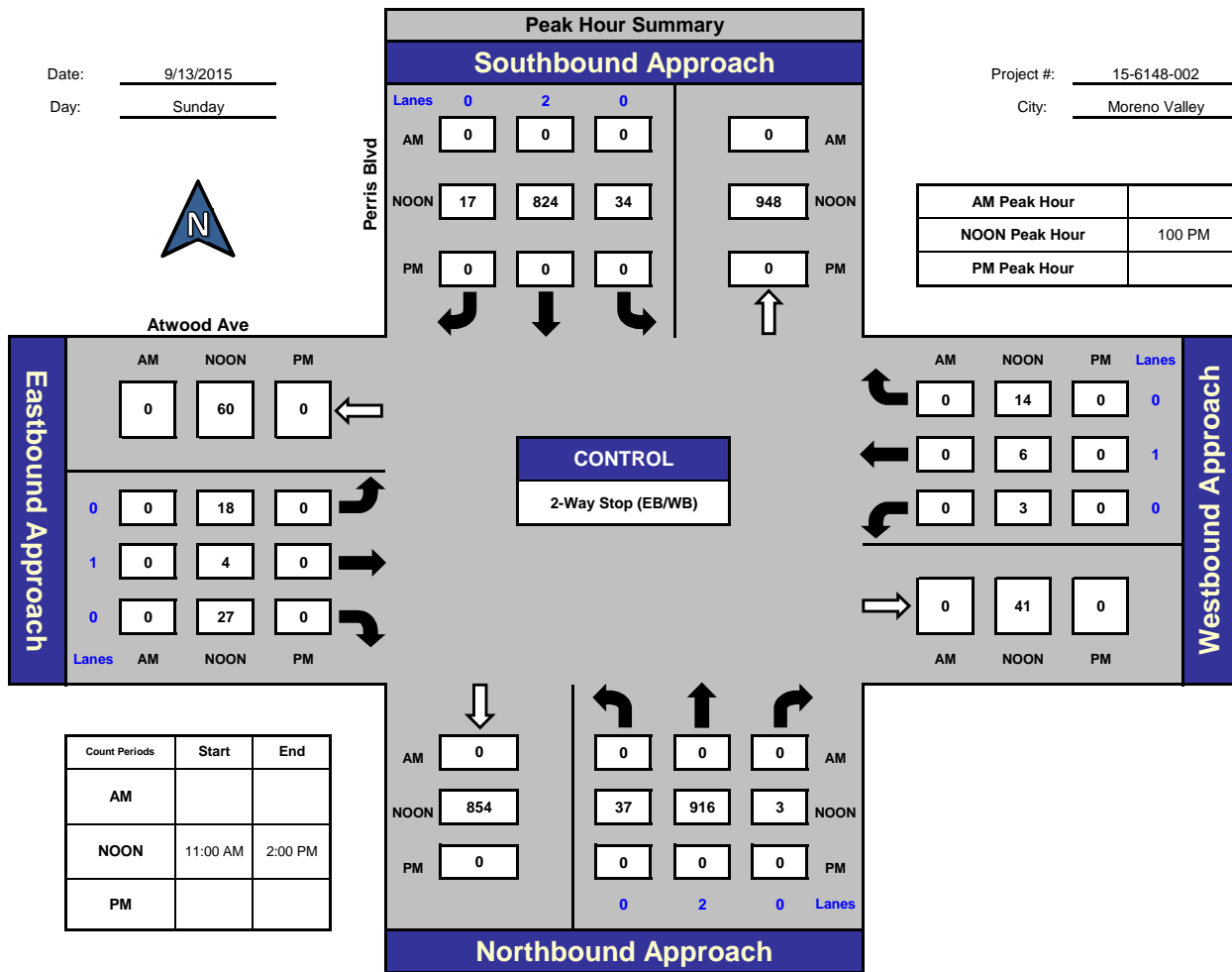


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National Data & Surveying Services

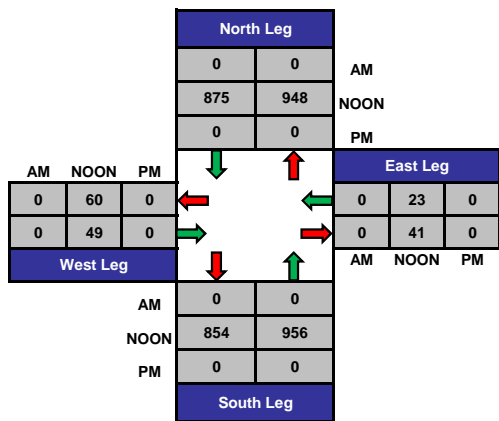
Perris Blvd and Atwood Ave, Moreno Valley

Date: 9/13/2015
Day: Sunday

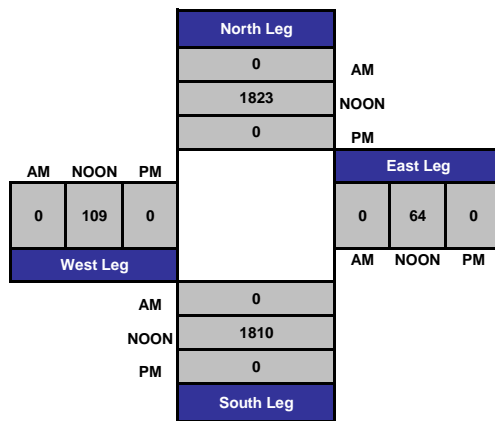
Project #: 15-6148-002
City: Moreno Valley



Total Ins & Outs



Total Volume Per Leg



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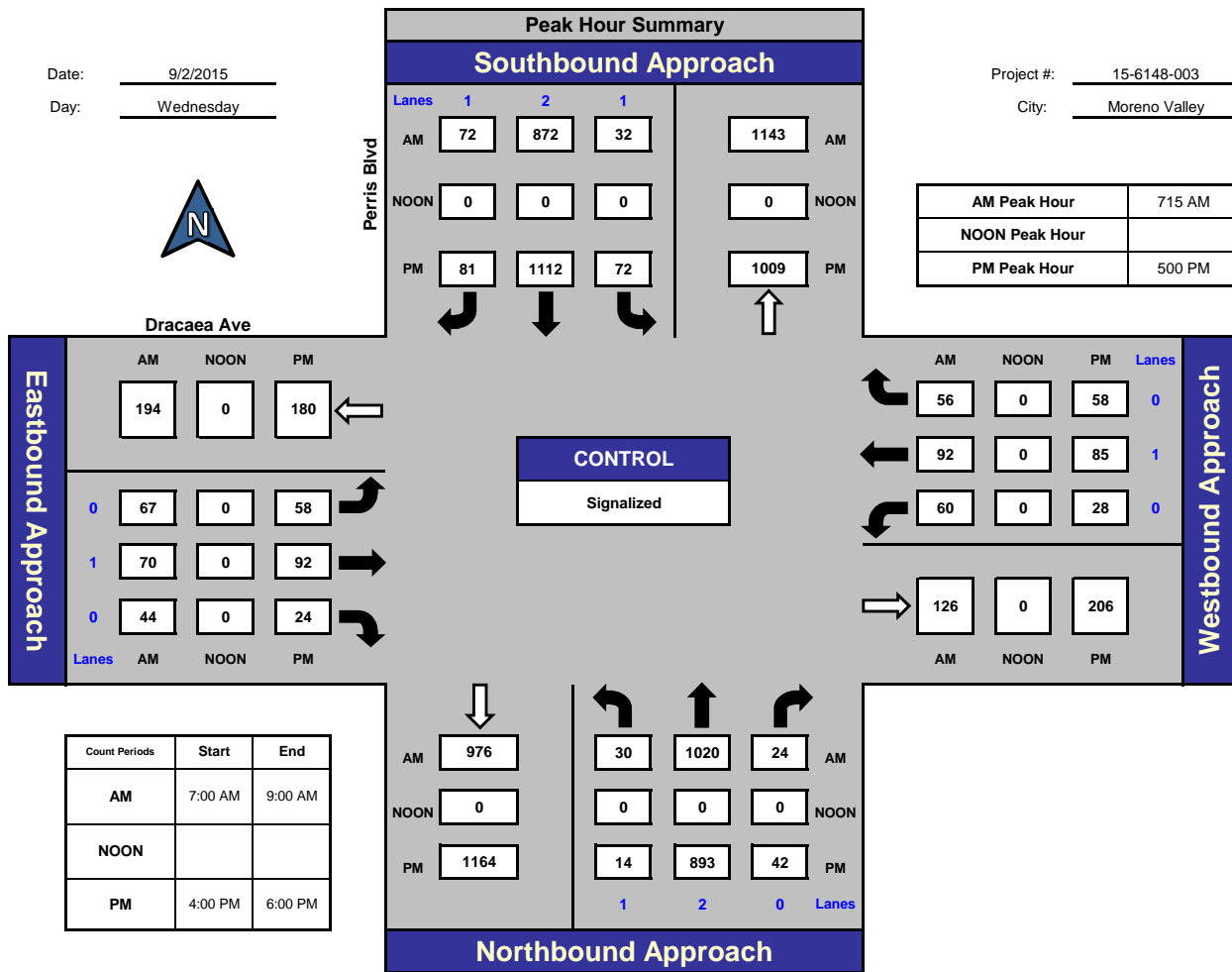


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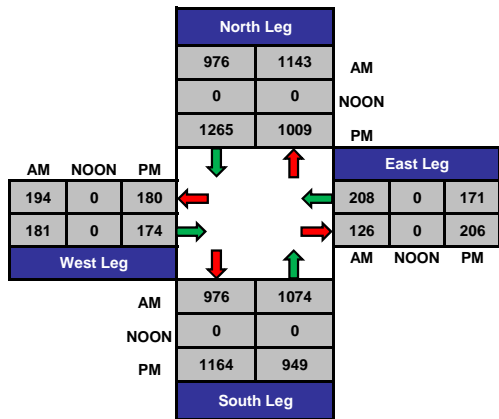
Perris Blvd and Dracaea Ave., Moreno Valley

Date: 9/2/2015
Day: Wednesday

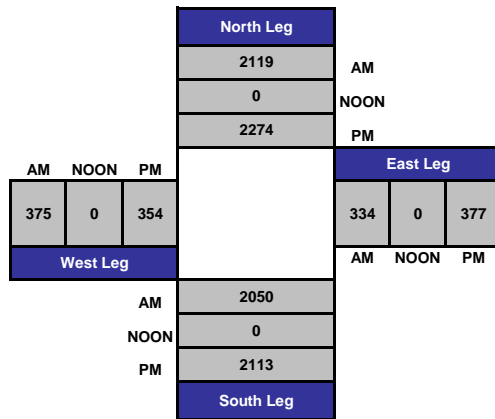
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City: Moreno Valley



Total Ins & Outs



Total Volume Per Leg



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ITM Peak Hour Summary

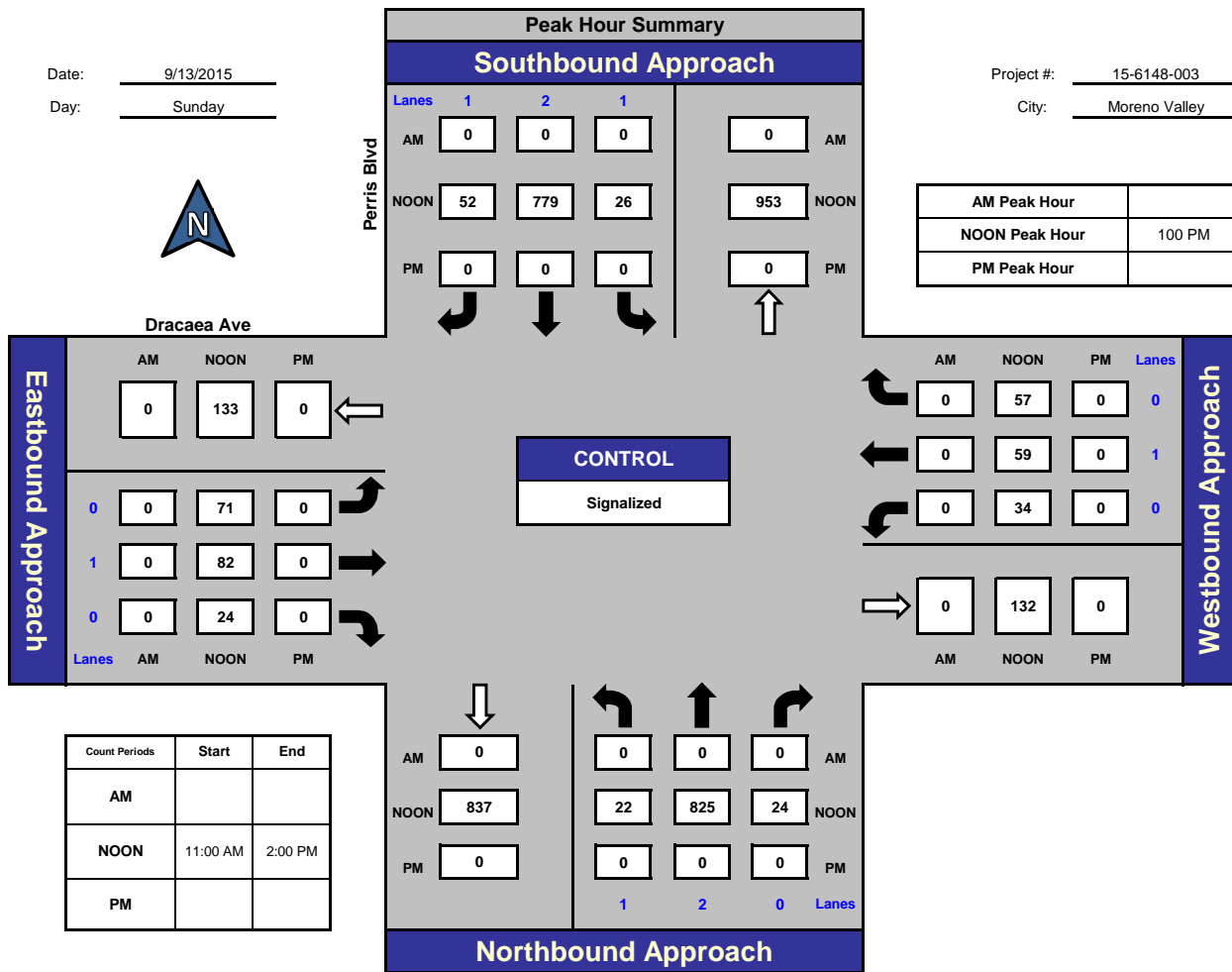


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National Data & Surveying Services

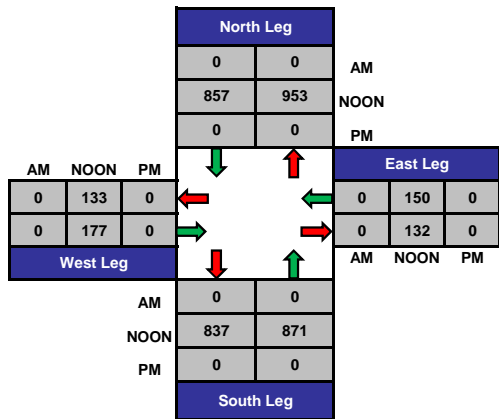
Perris Blvd and Dracaea Ave., Moreno Valley

Date: 9/13/2015
Day: Sunday

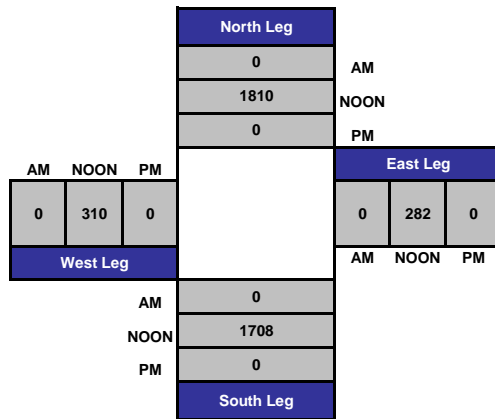
Project #: 15-6148-003
City: Moreno Valley



Total Ins & Outs



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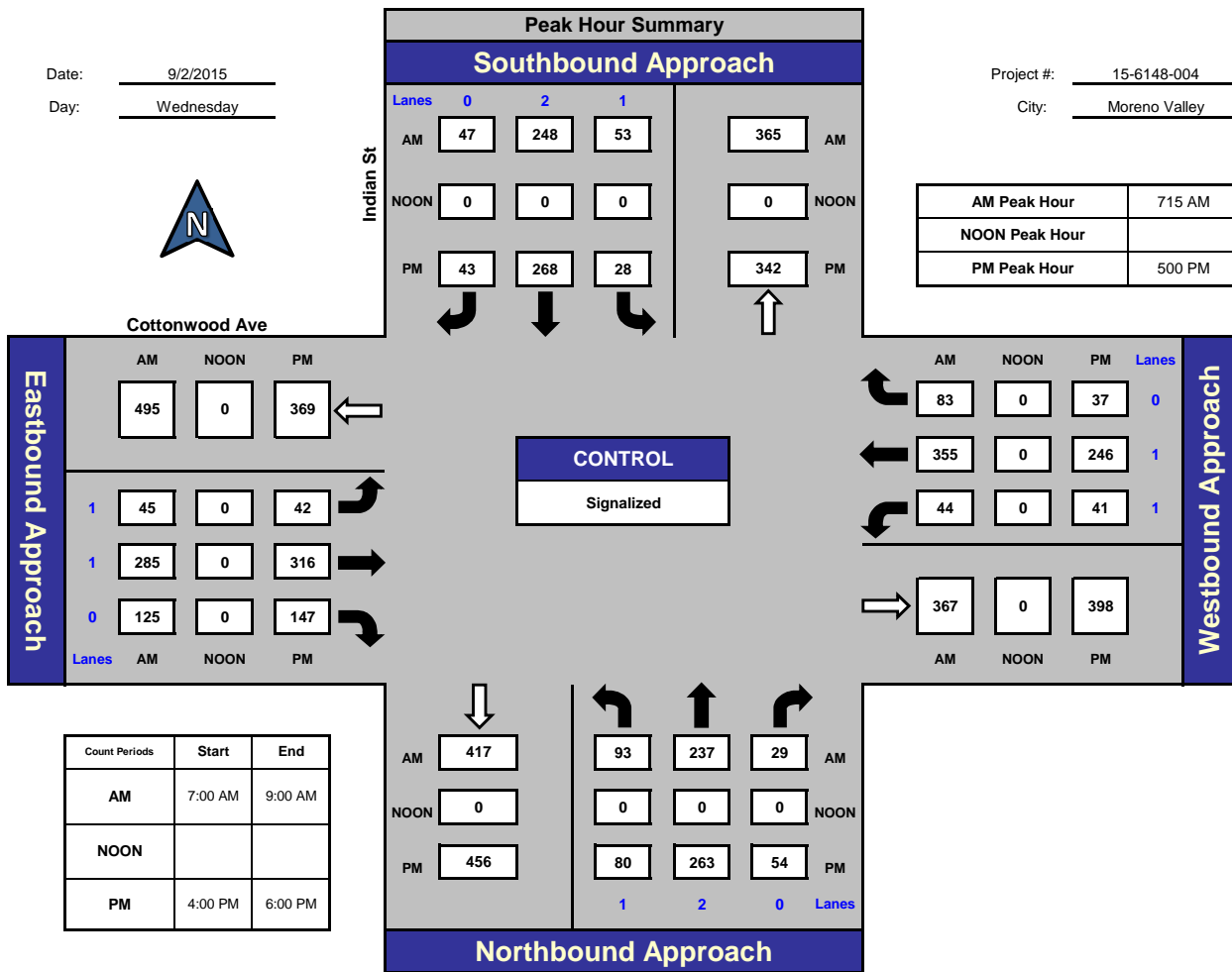
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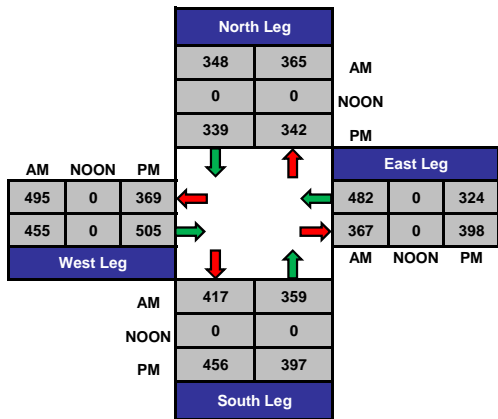


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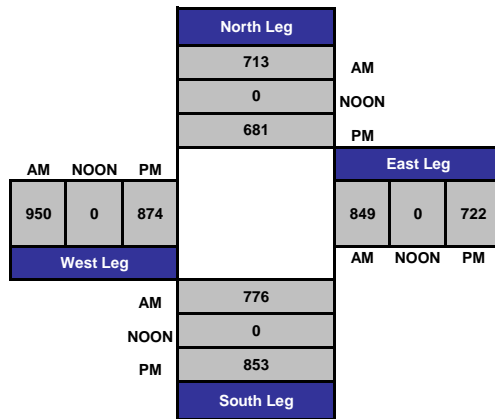
Indian St and Cottonwood Ave, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



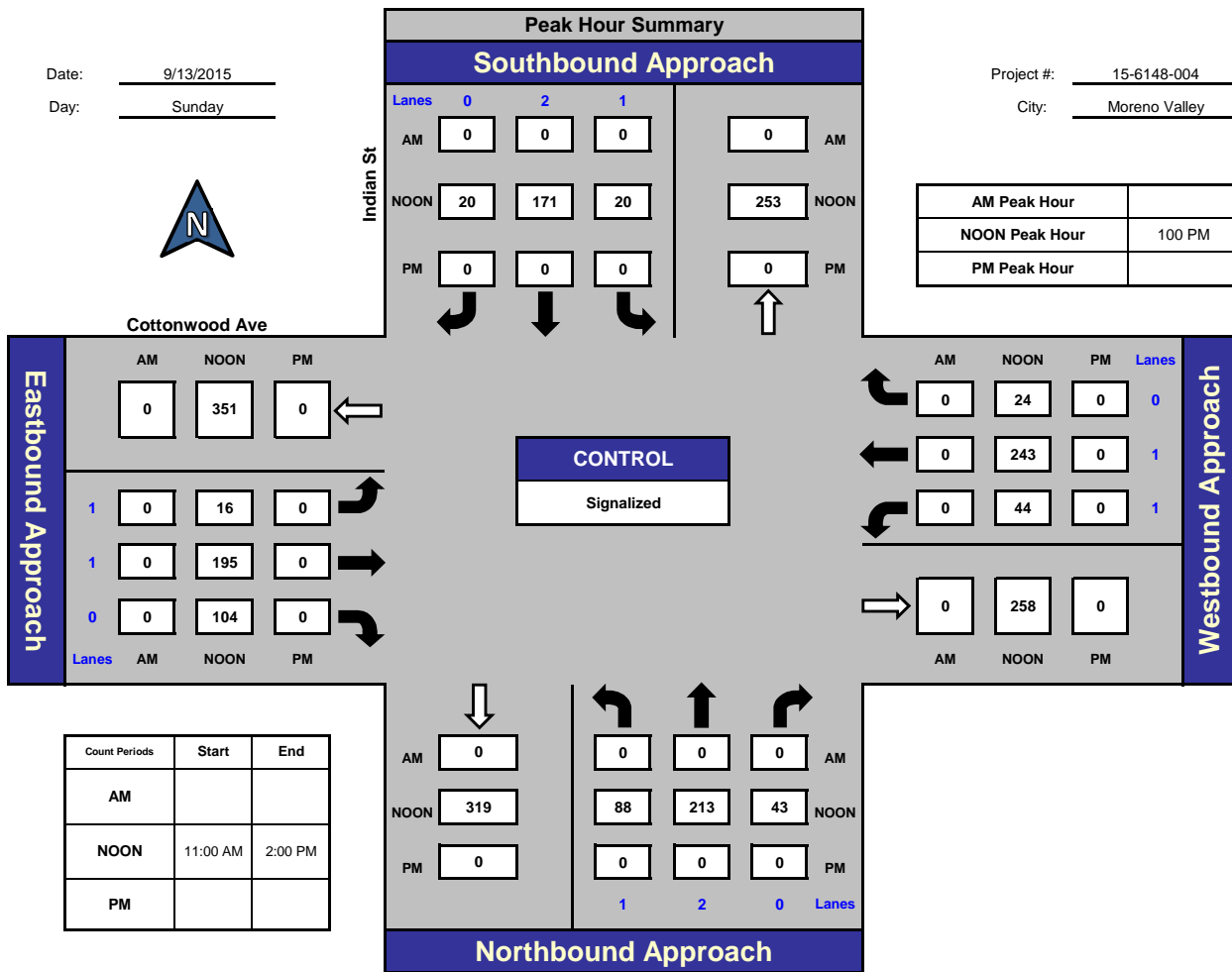
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

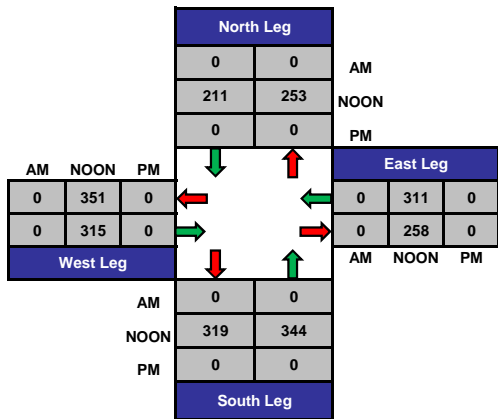


Prepared by:
National Data & Surveying Services

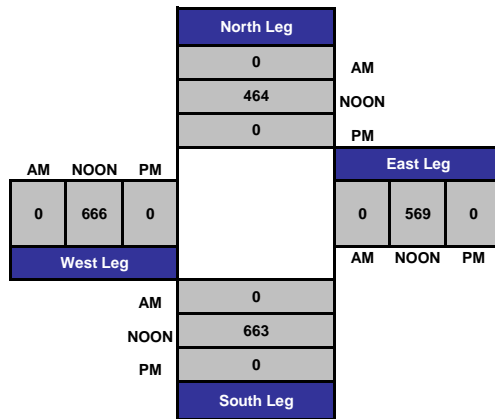
Indian St and Cottonwood Ave, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

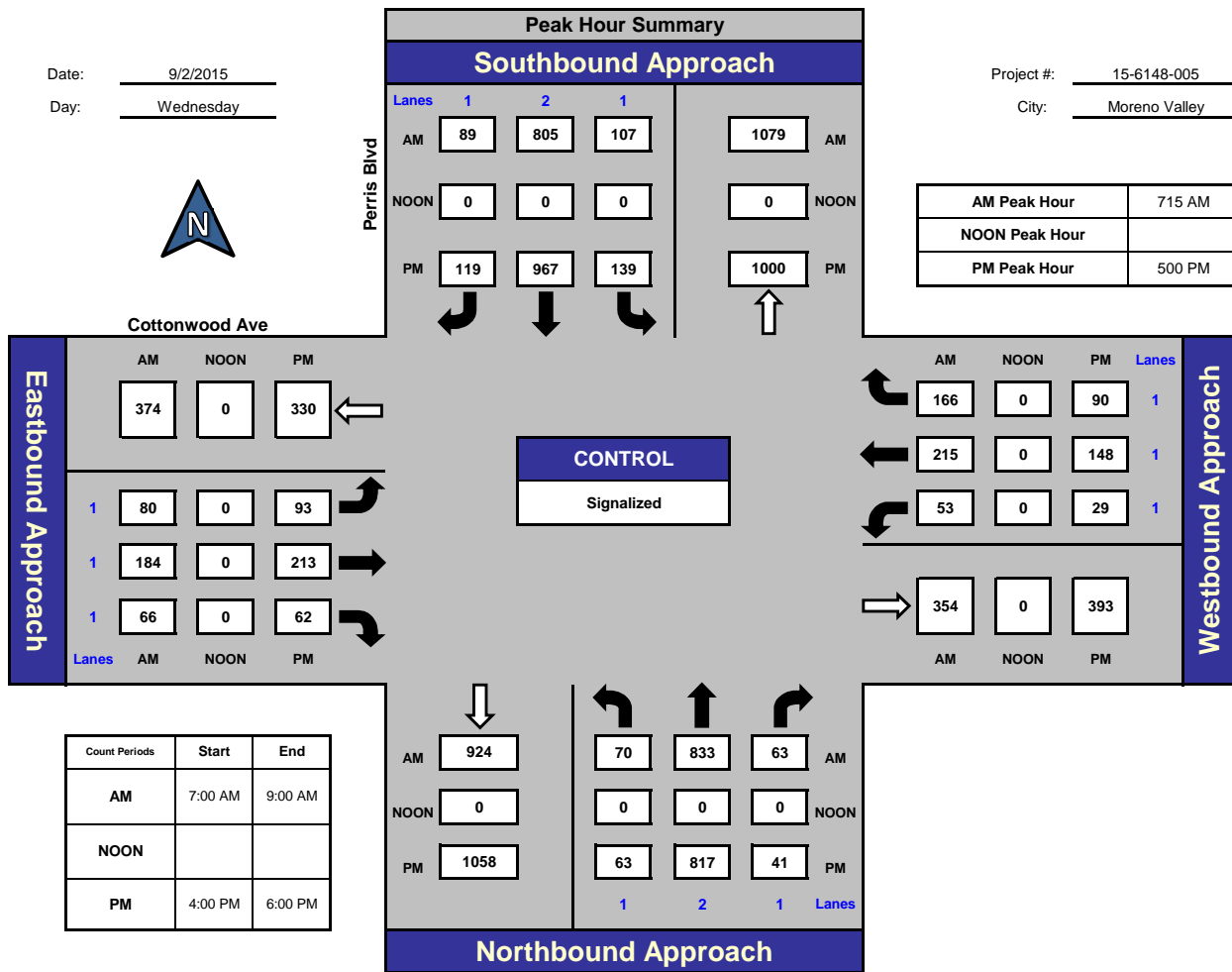


Prepared by:
National Data & Surveying Services

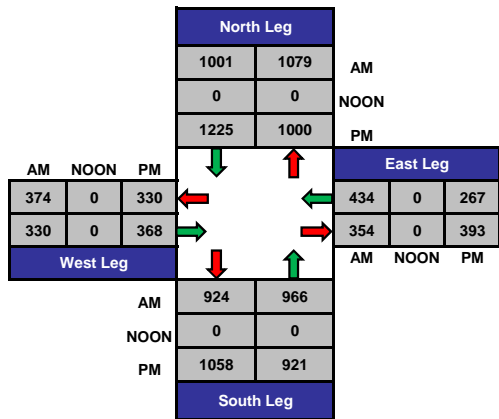
Perris Blvd and Cottonwood Ave, Moreno Valley

Date: 9/2/2015
Day: Wednesday

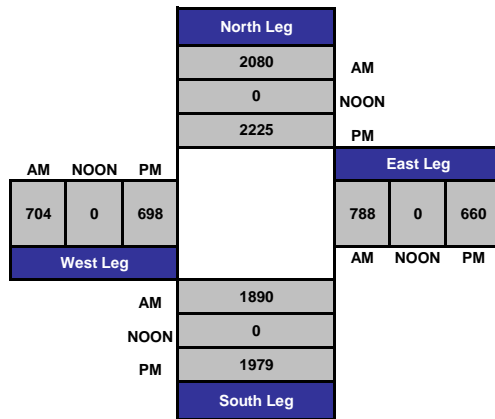
Project #: 15-6148-005
City: Moreno Valley



Total Ins & Outs



Total Volume Per Leg



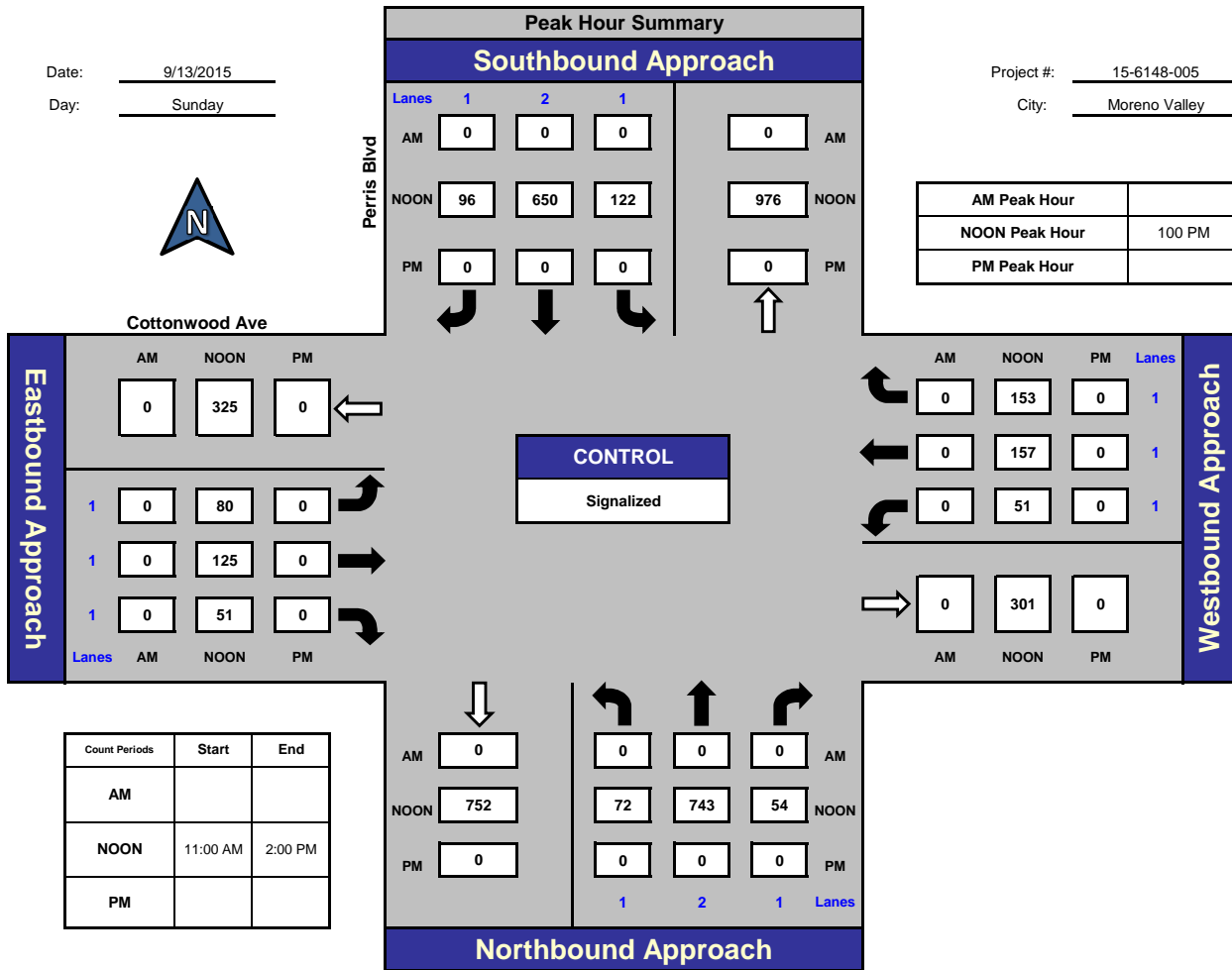
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

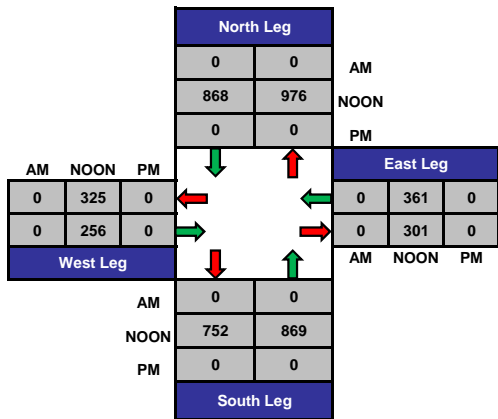


Prepared by:
National Data & Surveying Services

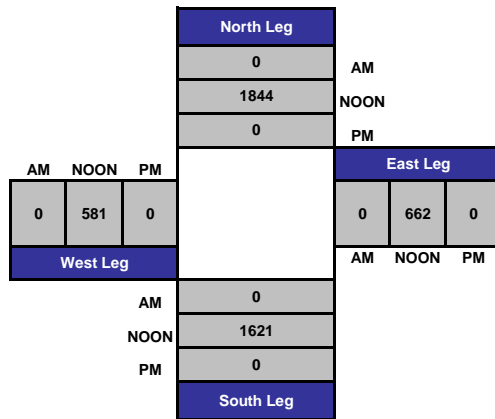
Perris Blvd and Cottonwood Ave, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



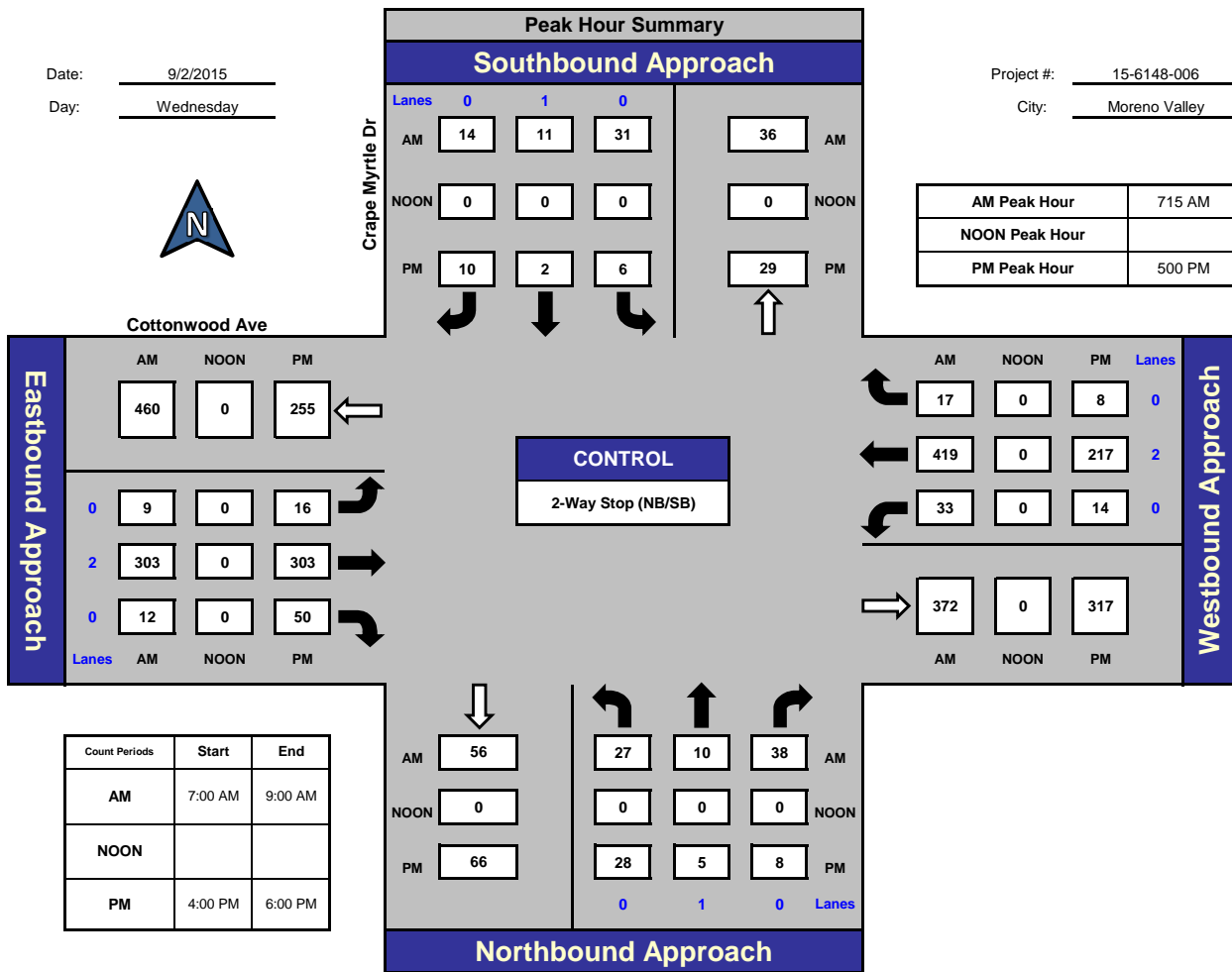
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

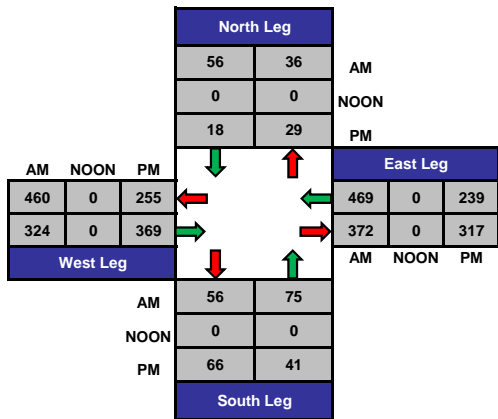


Prepared by:
National Data & Surveying Services

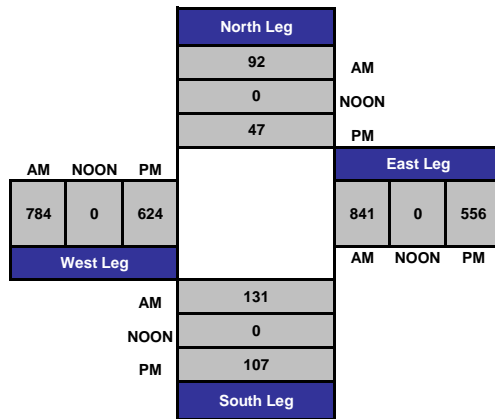
Crape Myrtle Dr and Cottonwood Ave., Moreno Valley



Total Ins & Outs



Total Volume Per Leg



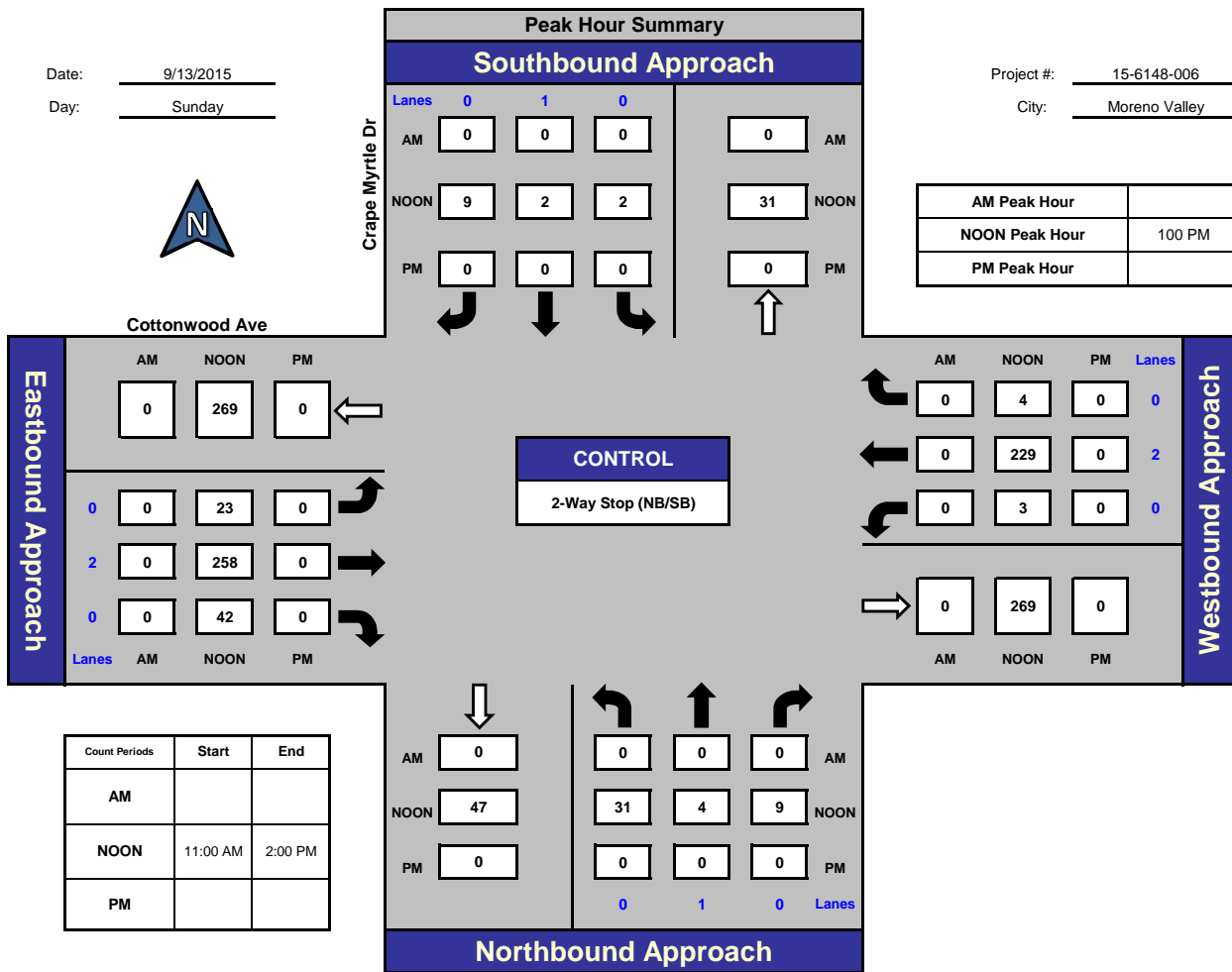
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

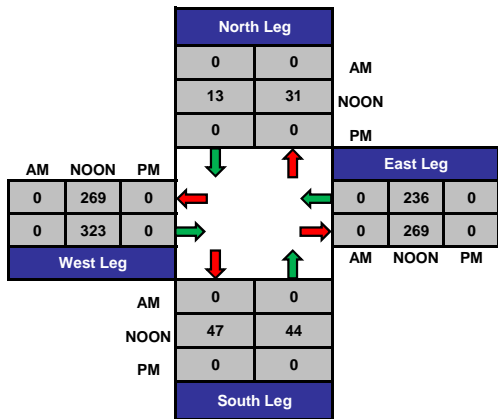


Prepared by:
National Data & Surveying Services

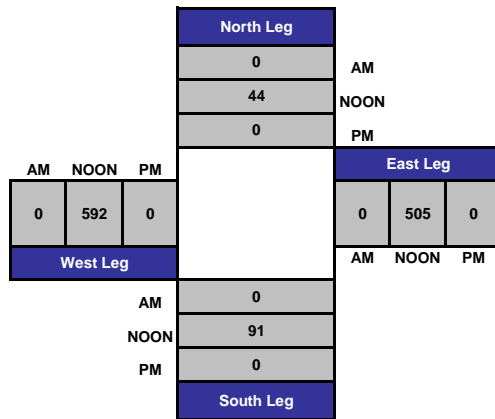
Crape Myrtle Dr and Cottonwood Ave., Moreno Valley



Total Ins & Outs



Total Volume Per Leg



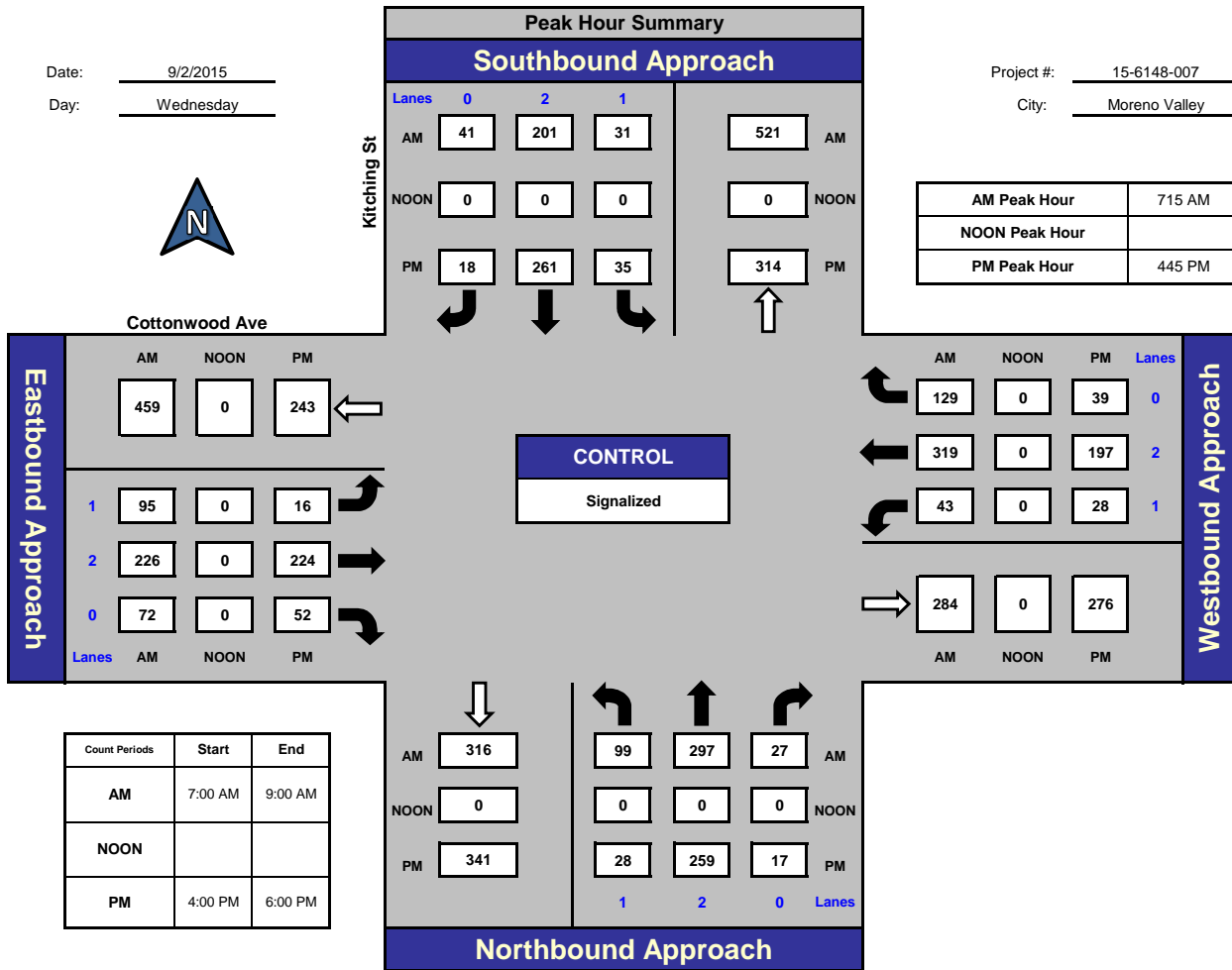
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

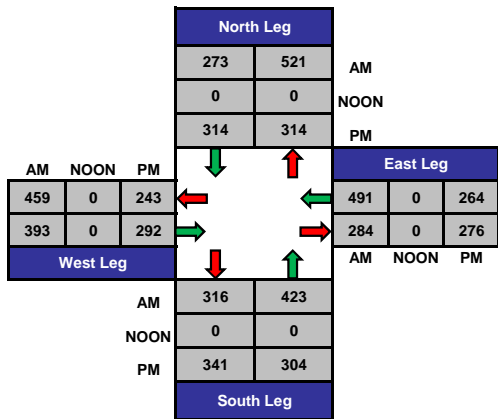


Prepared by:
National Data & Surveying Services

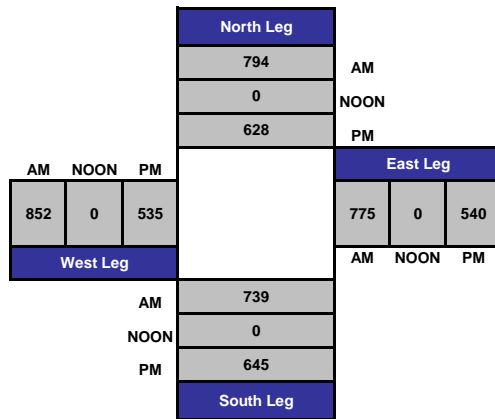
Kitching St and Cottonwood Ave, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



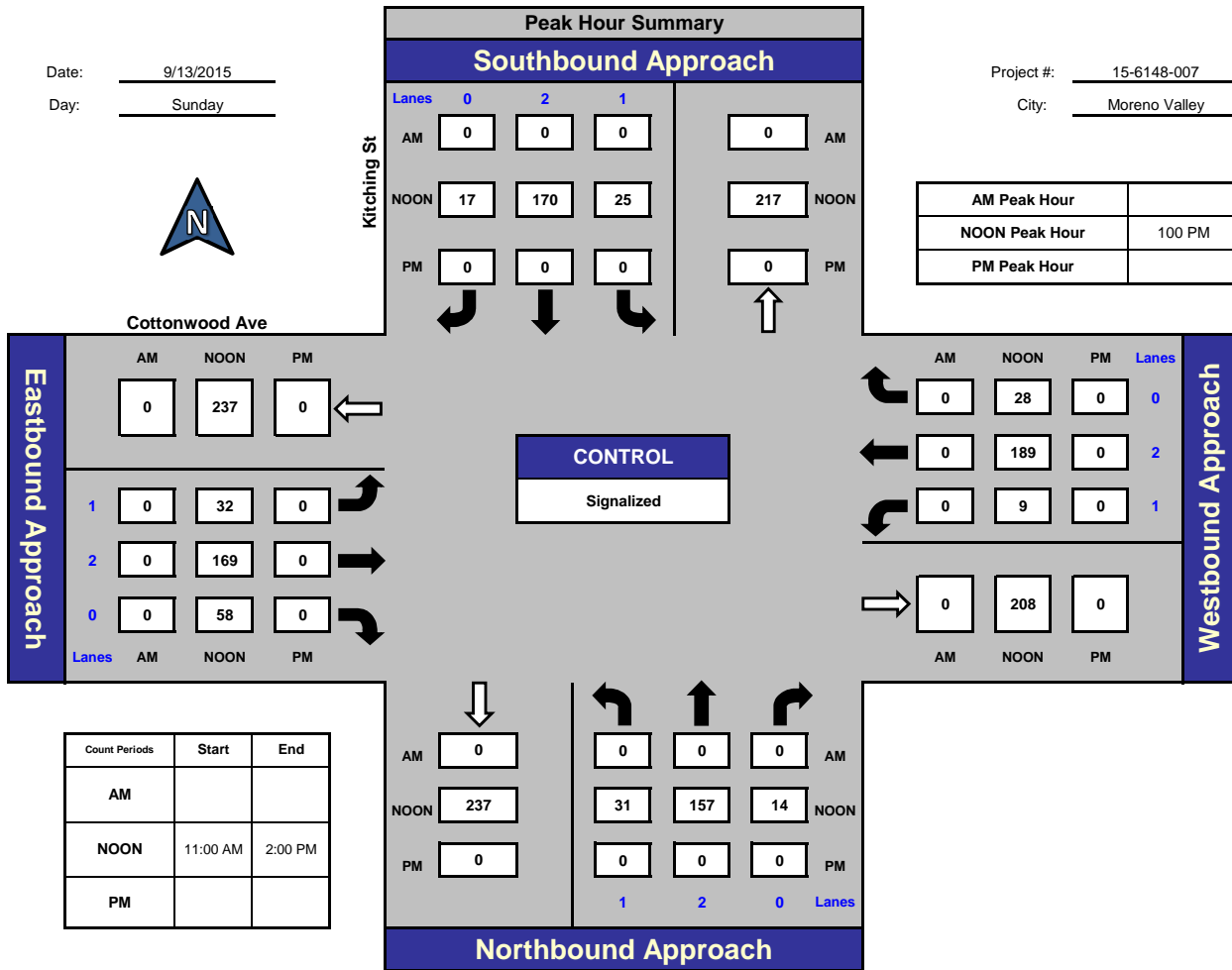
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

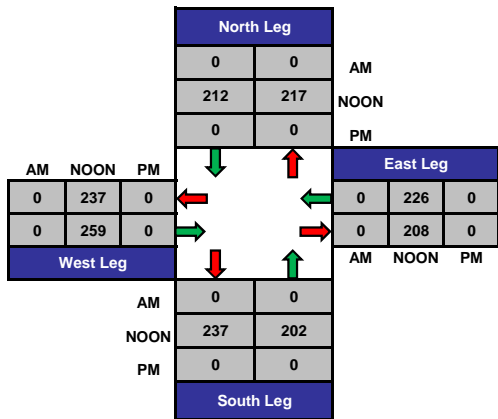


Prepared by:
National Data & Surveying Services

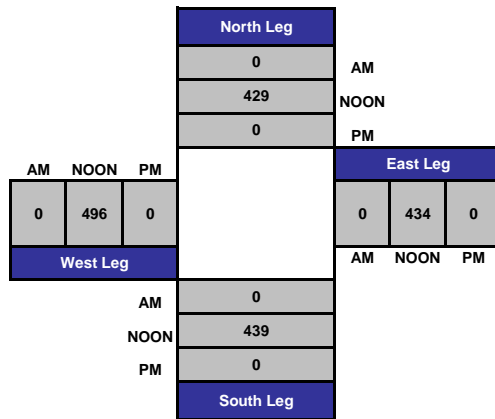
Kitching St and Cottonwood Ave , Moreno Valley



Total Ins & Outs



Total Volume Per Leg



Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

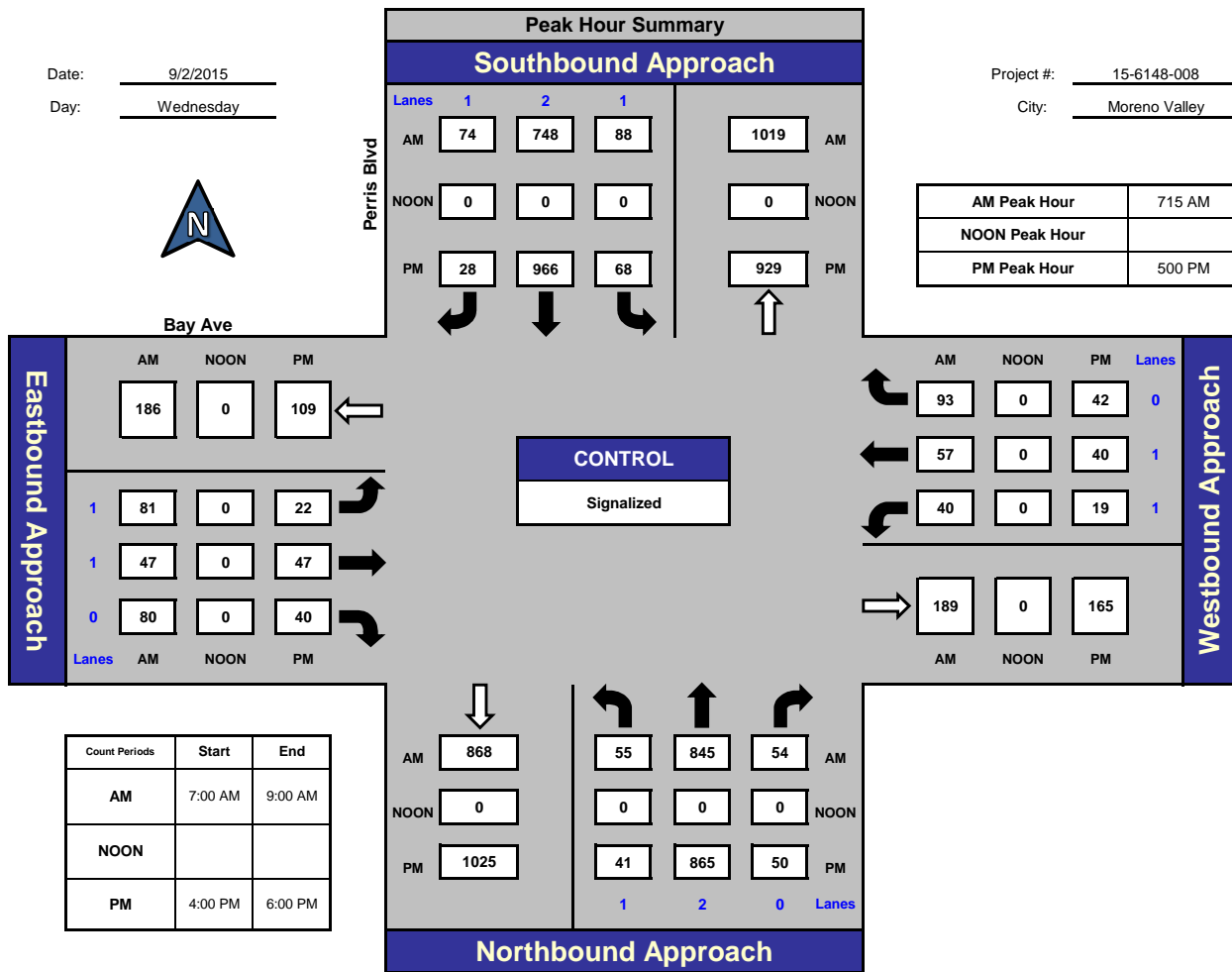


Prepared by:
National Data & Surveying Services

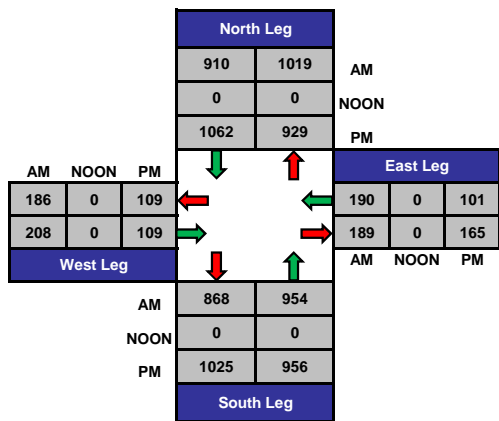
Perris Blvd and Bay Ave, Moreno Valley

Date: 9/2/2015
Day: Wednesday

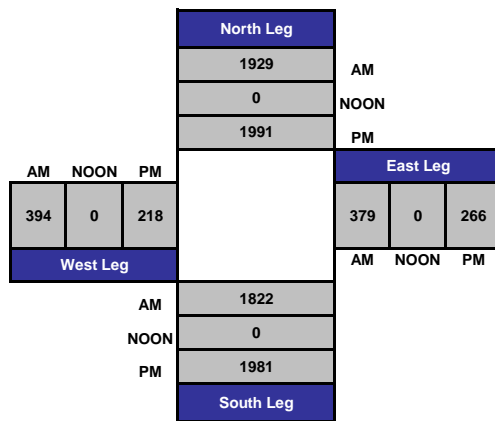
Project #: 15-6148-008
City: Moreno Valley



Total Ins & Outs



Total Volume Per Leg



Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

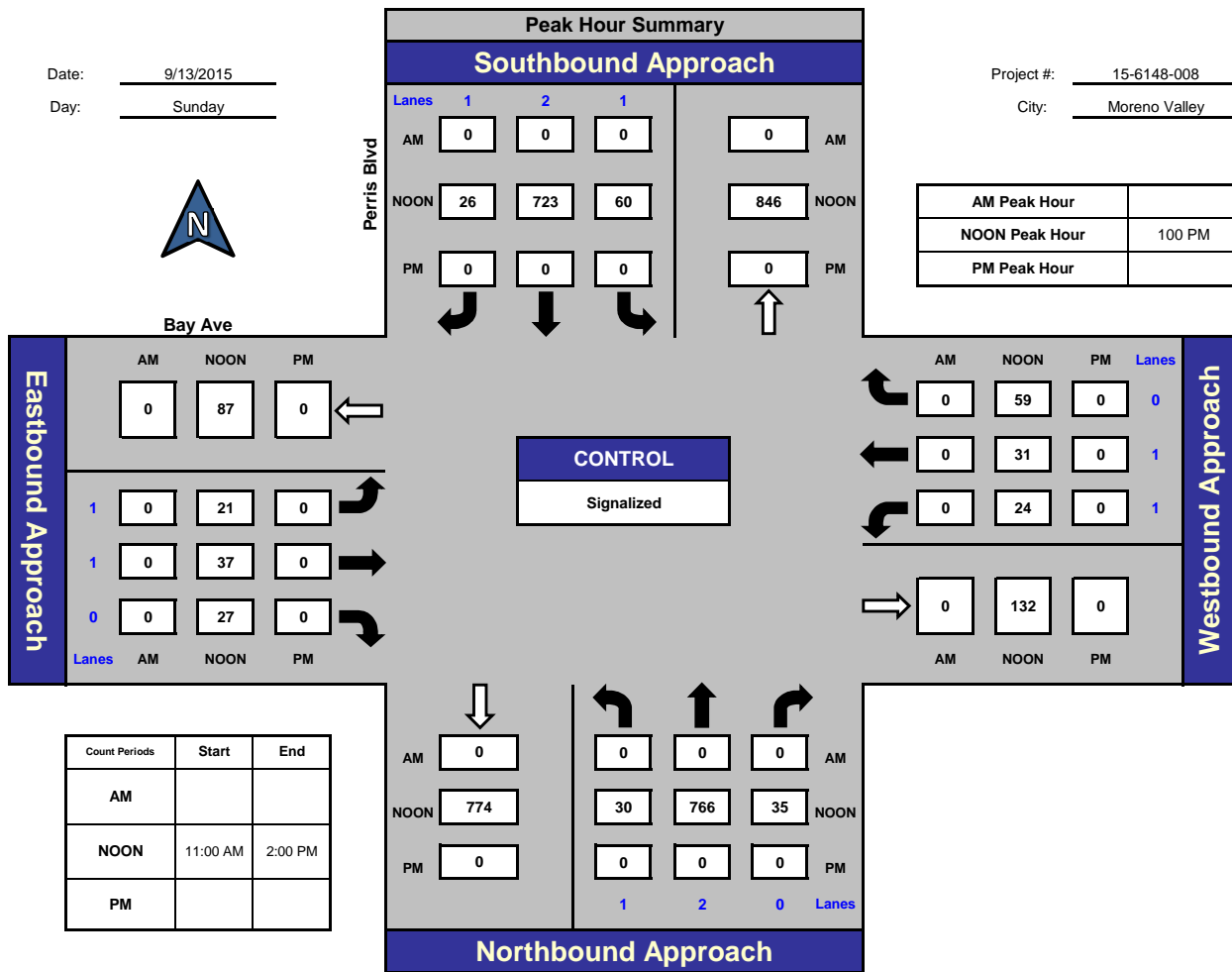


Prepared by:
National Data & Surveying Services

Perris Blvd and Bay Ave, Moreno Valley

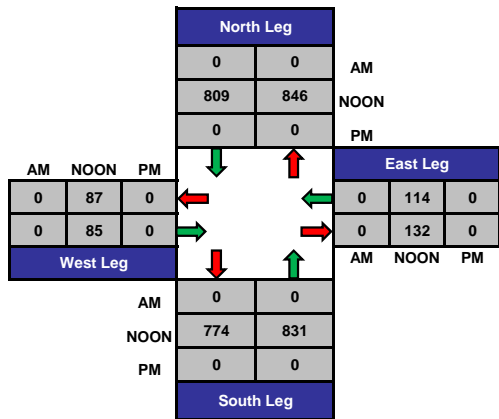
Date: 9/13/2015
Day: Sunday

Project #: 15-6148-008
City: Moreno Valley

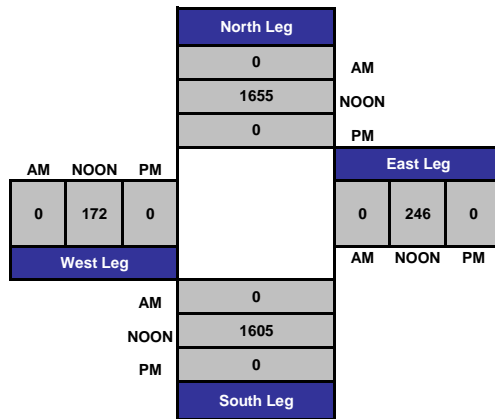


Count Periods	Start	End
AM		
NOON	11:00 AM	2:00 PM
PM		

Total Ins & Outs



Total Volume Per Leg



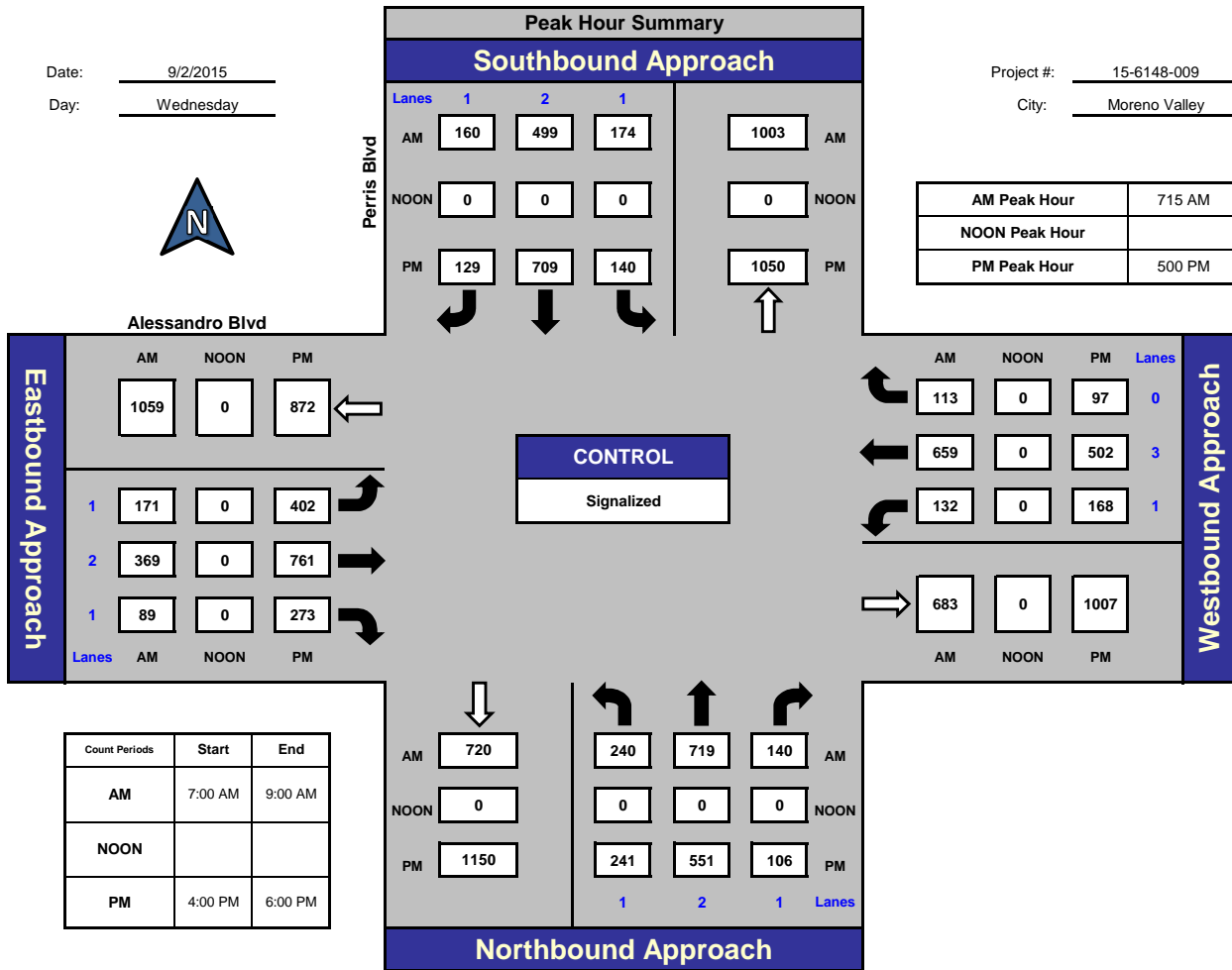
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

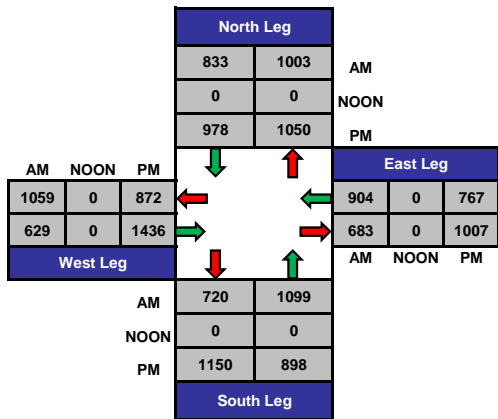


Prepared by:
National Data & Surveying Services

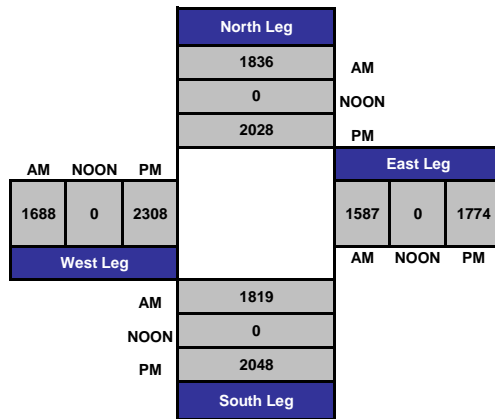
Perris Blvd and Alessandro Blvd, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



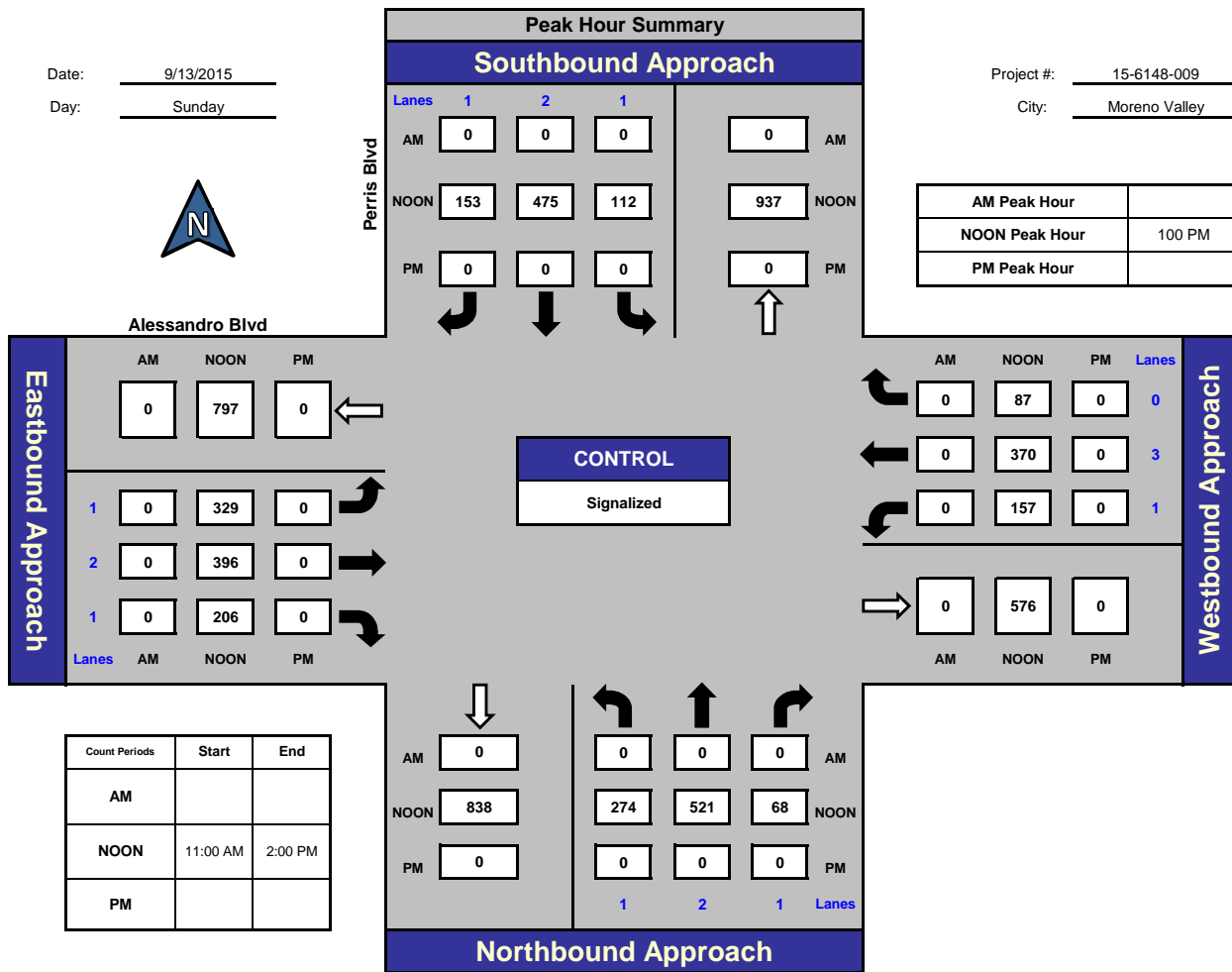
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

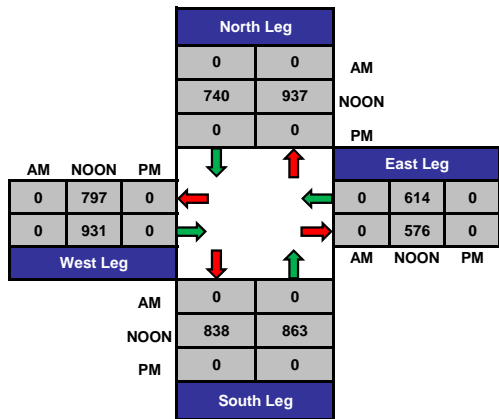


Prepared by:
National Data & Surveying Services

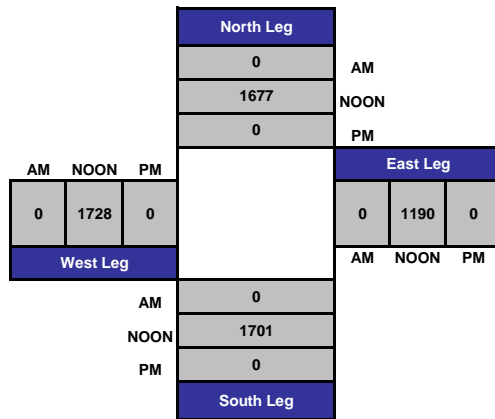
Perris Blvd and Alessandro Blvd, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



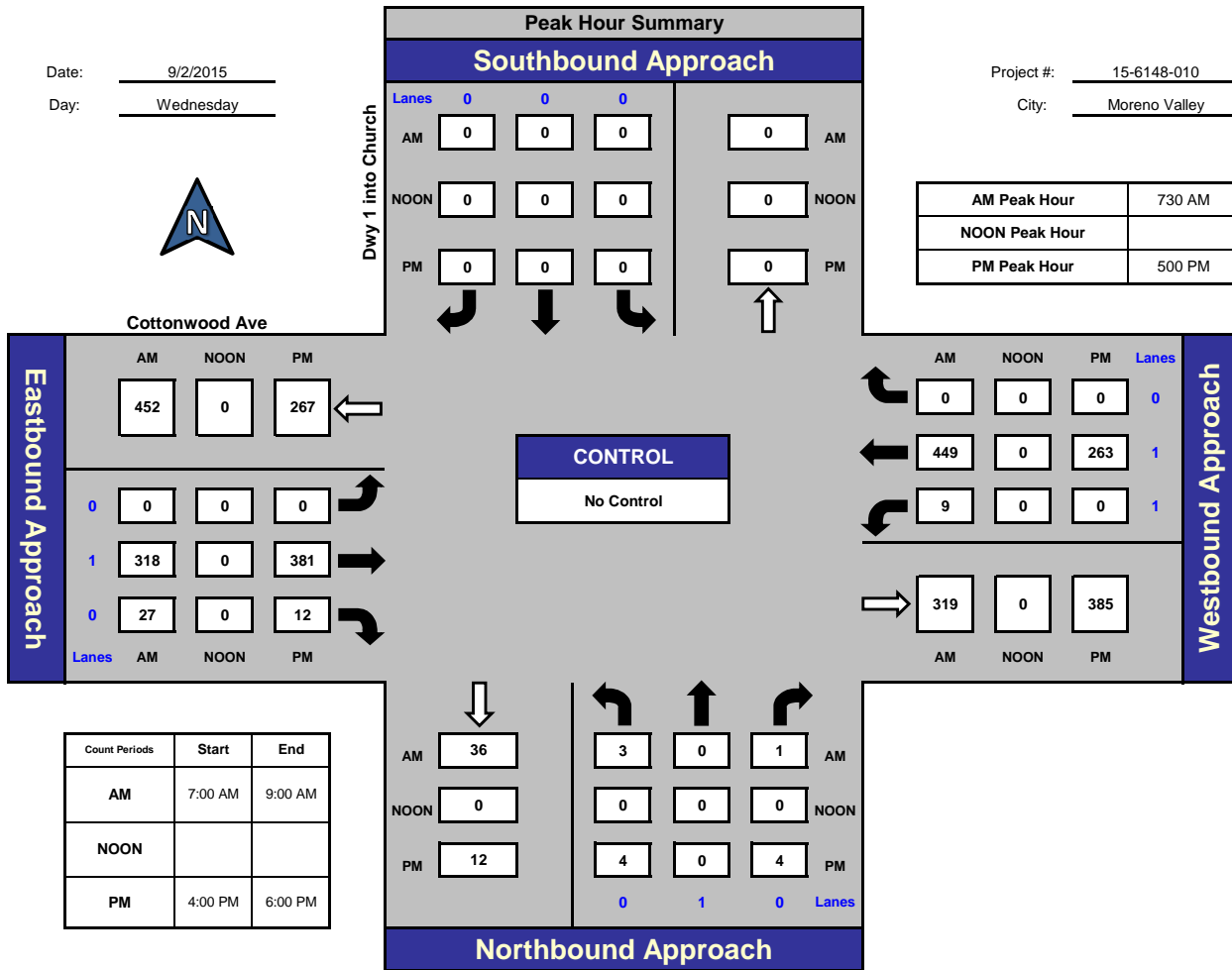
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

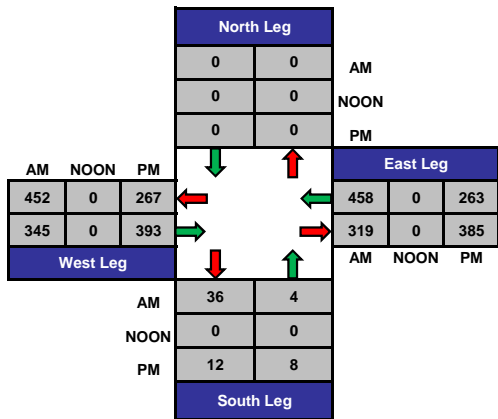


Prepared by:
National Data & Surveying Services

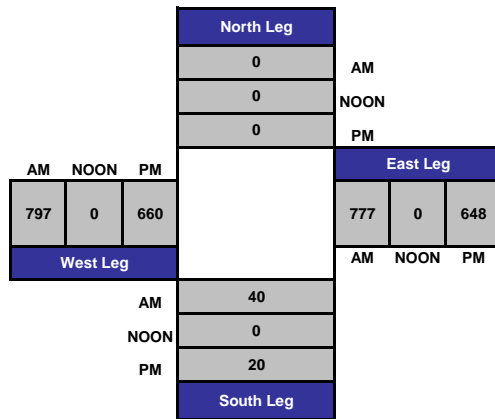
Dwy 1 into Church and Cottonwood Ave., Moreno Valley



Total Ins & Outs



Total Volume Per Leg



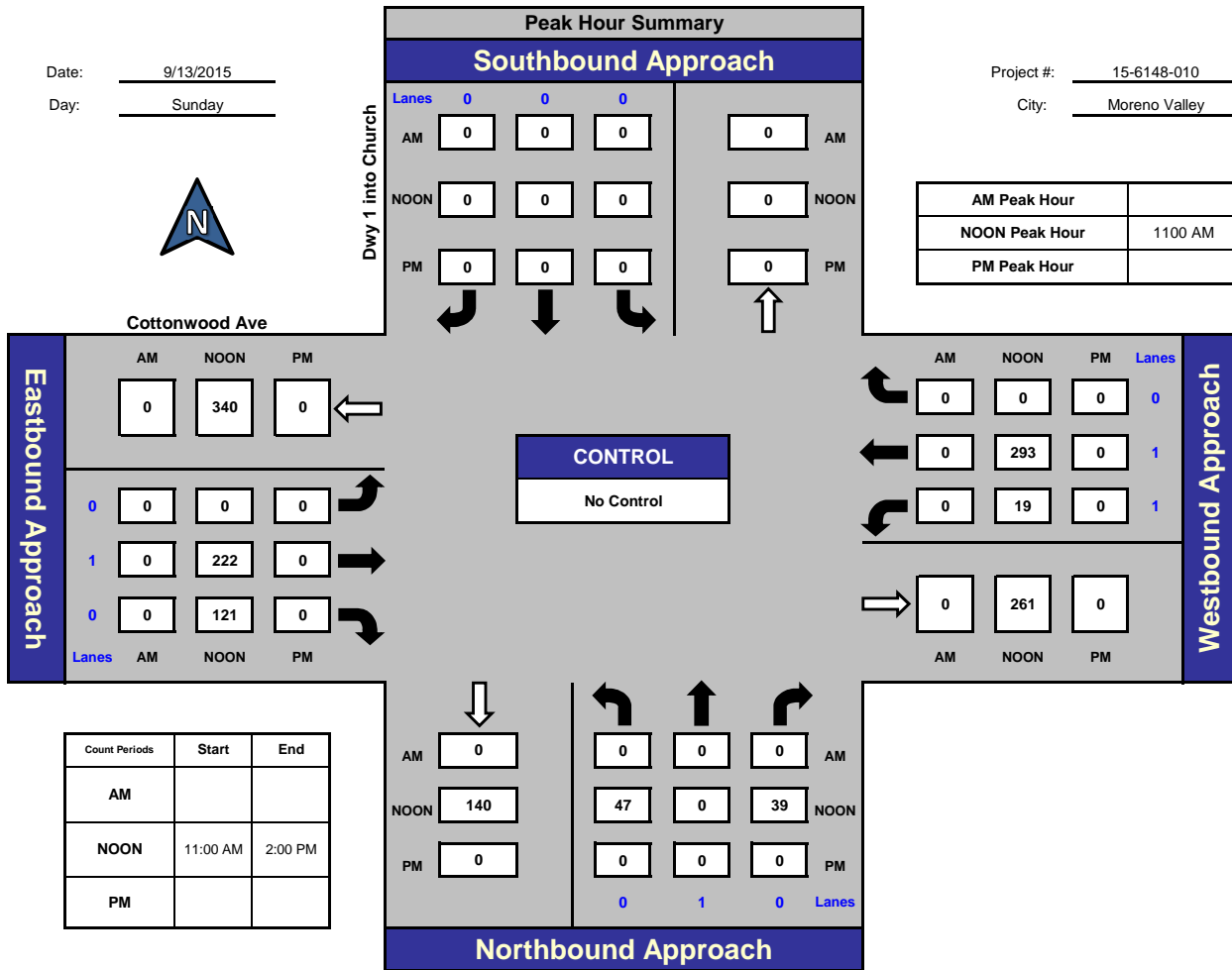
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

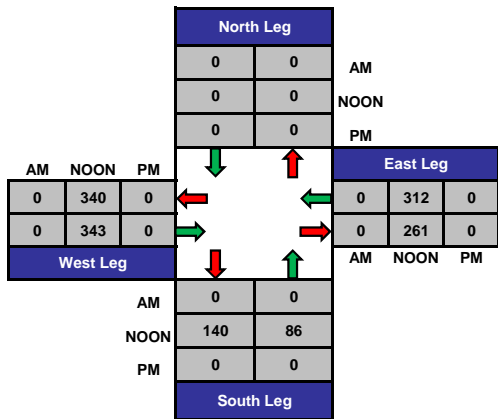


Prepared by:
National Data & Surveying Services

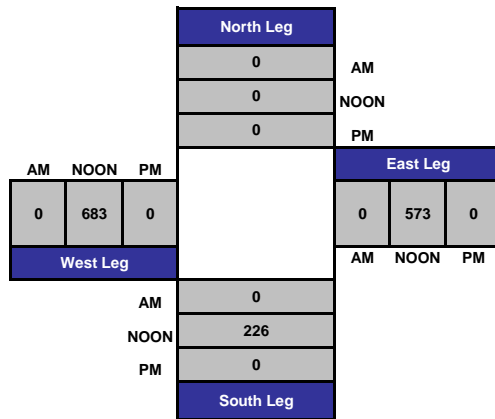
Dwy 1 into Church and Cottonwood Ave., Moreno Valley



Total Ins & Outs



Total Volume Per Leg



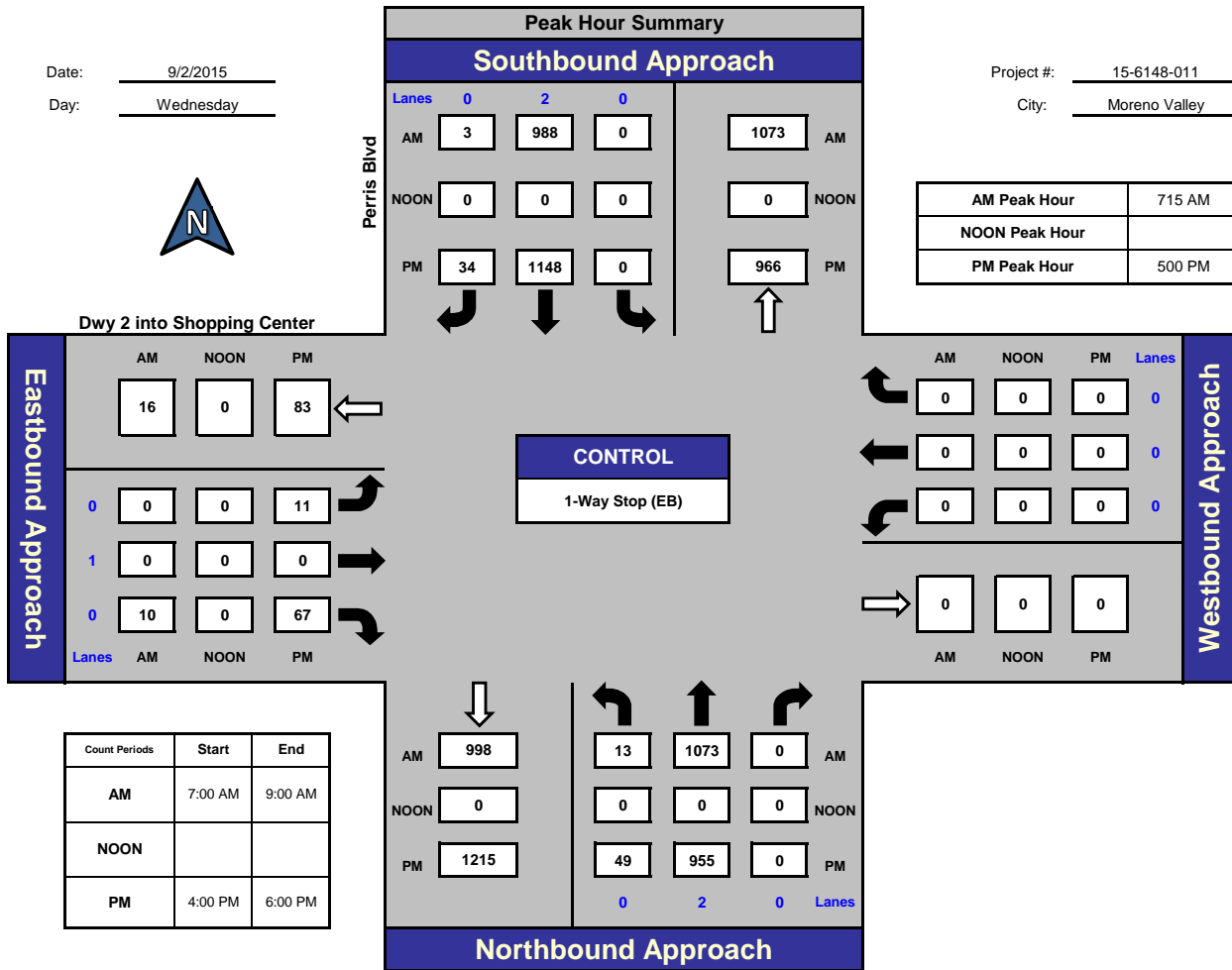
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

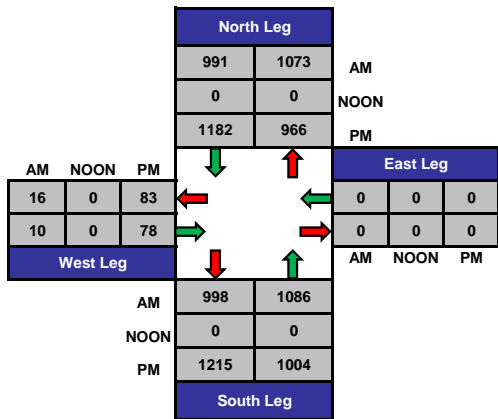


Prepared by:
National Data & Surveying Services

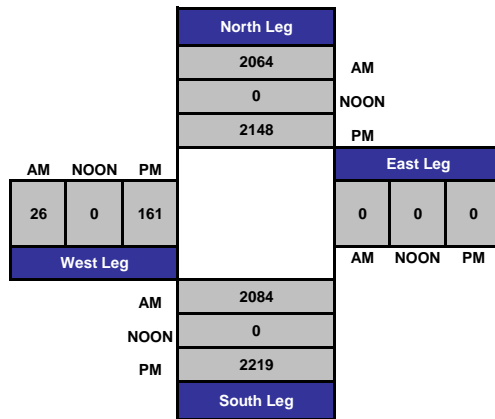
Perris Blvd and Dwy 2 into Shopping Center, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



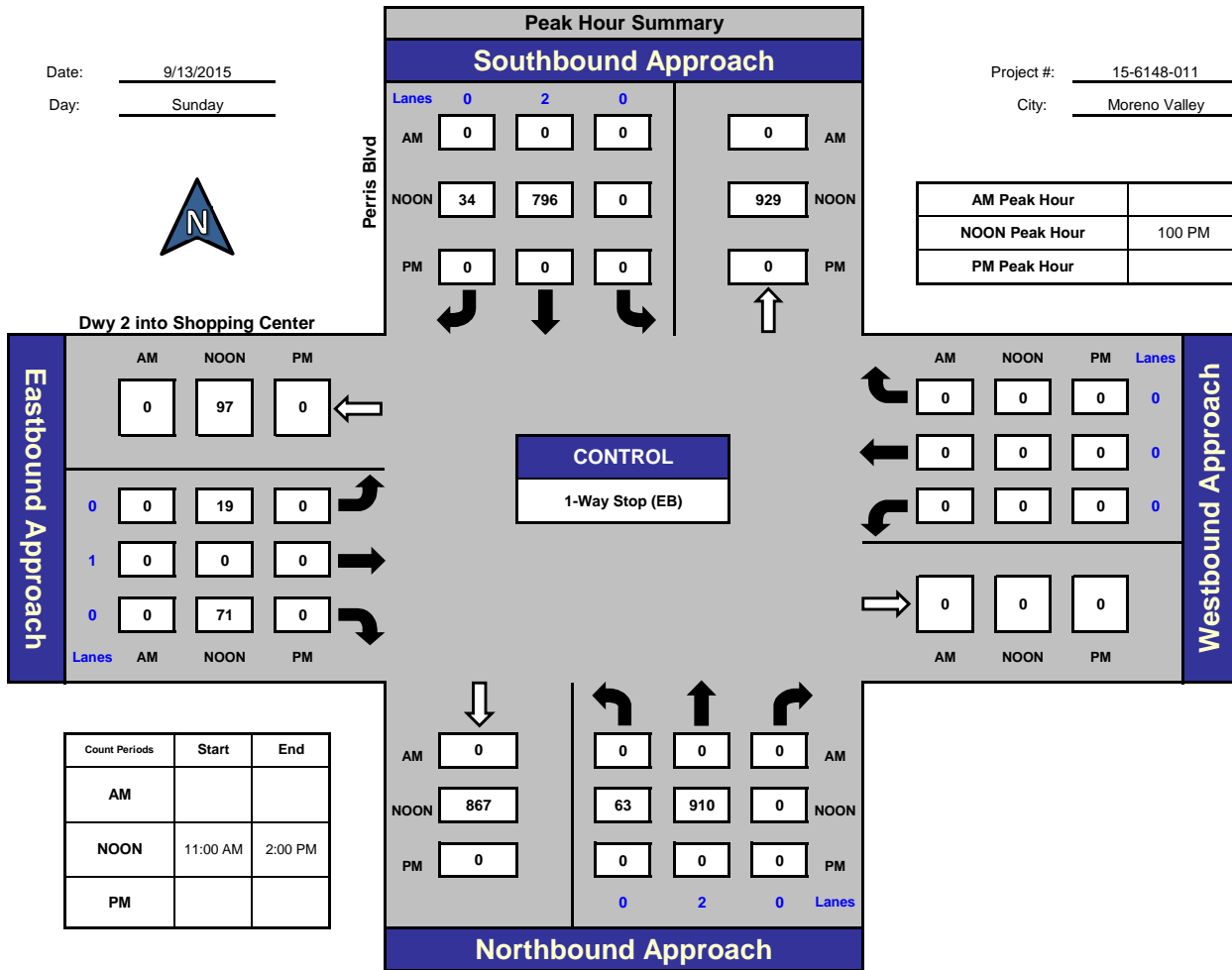
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

ITM Peak Hour Summary

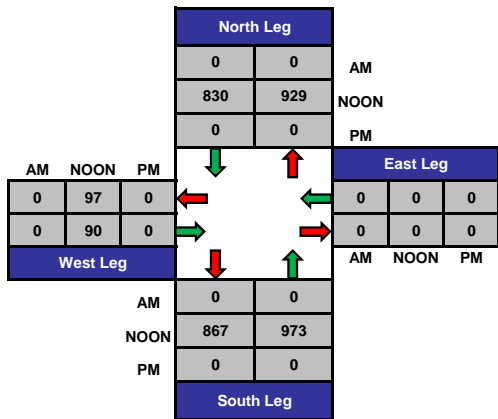


Prepared by:
National Data & Surveying Services

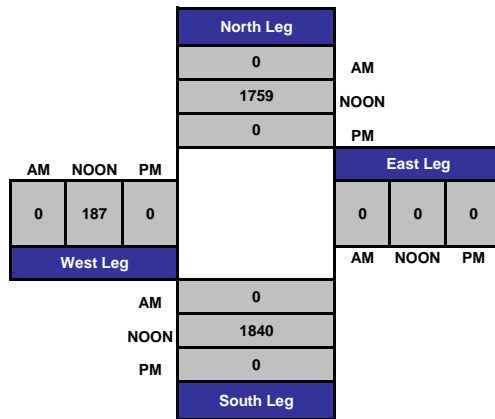
Perris Blvd and Dwy 2 into Shopping Center, Moreno Valley



Total Ins & Outs



Total Volume Per Leg



Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

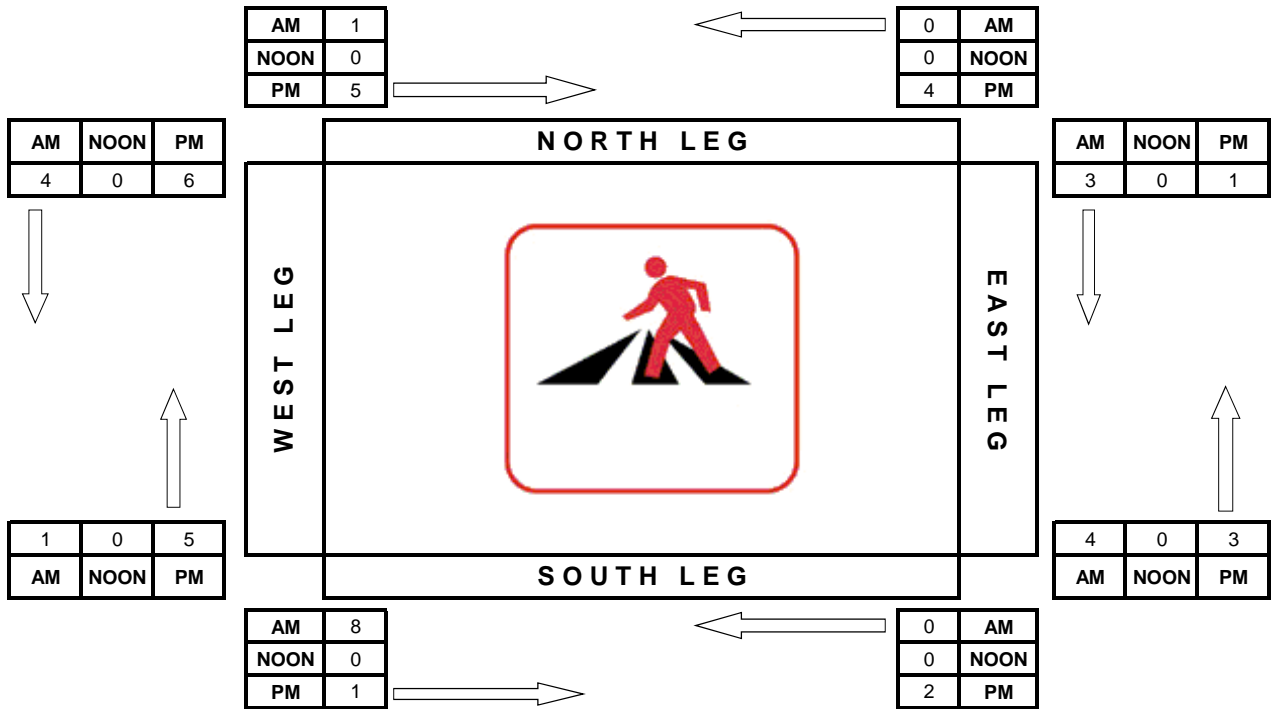
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count Peak Hour

PROJECT#: 15-6148-005
 N/S Street: Perris Blvd
 E/W Street: Cottonwood Ave
 DATE: 9/2/2015
 CITY: Moreno Valley

DAY: Wednesday

	Start:	End:
AM	7:00	9:00
NOON		
PM	16:00	18:00



Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count Peak Hour

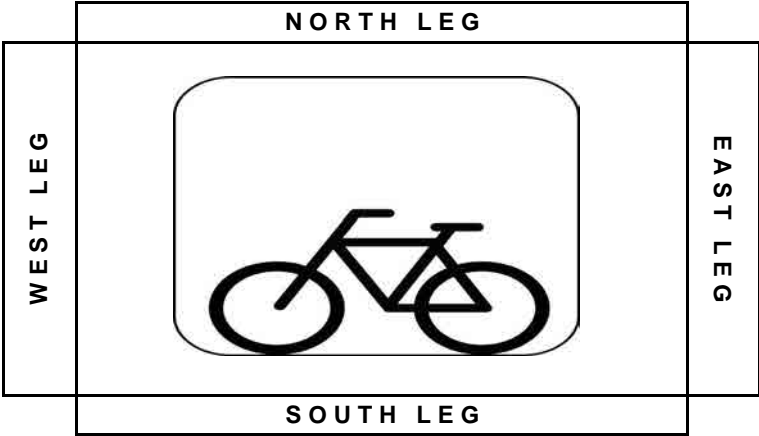
PROJECT#: 15-6148-005
 N/S Street: Perris Blvd
 E/W Street: Cottonwood Ave
 DATE: 9/2/2015
 CITY: Moreno Valley

DAY: Wednesday

	Start:	End:
AM	7:00	9:00
NOON		
PM	16:00	18:00

AM	0	1	0
NOON	0	0	0
PM	0	3	0

AM	NOON	PM
0	0	0
0	0	3
0	0	0



AM	NOON	PM
0	0	0
1	0	0
0	0	0

AM	0	2	0
NOON	0	0	0
PM	0	2	0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-6148-005
 N/S Street: Perris Blvd
 E/W Street: Cottonwood Ave
 DATE: 9/2/2015
 CITY: Moreno Valley

DAY: Wednesday

A M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	2	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1
7:30 AM	0	0	3	0	0	0	0	0
7:45 AM	0	0	4	0	1	2	0	1
8:00 AM	0	0	0	0	0	0	0	1
8:15 AM	0	0	2	0	0	0	1	2
8:30 AM	1	0	2	0	3	1	0	0
8:45 AM	0	1	1	0	1	2	0	0
TOTALS	1	1	14	0	5	5	1	5

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	0	1	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	2	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	2	0	0	1	0	0	0	0	0	3	0

P M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	0	1	0	0	0	0	0
4:15 PM	2	1	0	0	1	0	1	0
4:30 PM	1	3	0	0	2	0	1	0
4:45 PM	1	0	1	1	0	1	2	3
5:00 PM	1	0	0	1	0	0	1	3
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	0	0	0	3	0
5:45 PM	1	0	0	0	1	1	0	0
TOTALS	6	6	2	2	4	2	8	6

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
4:00 PM	0	1	0	0	1	0	0	2	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	2	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	3	0	0	0	0
TOTALS	0	2	0	0	7	0	0	6	0	0	0	0

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

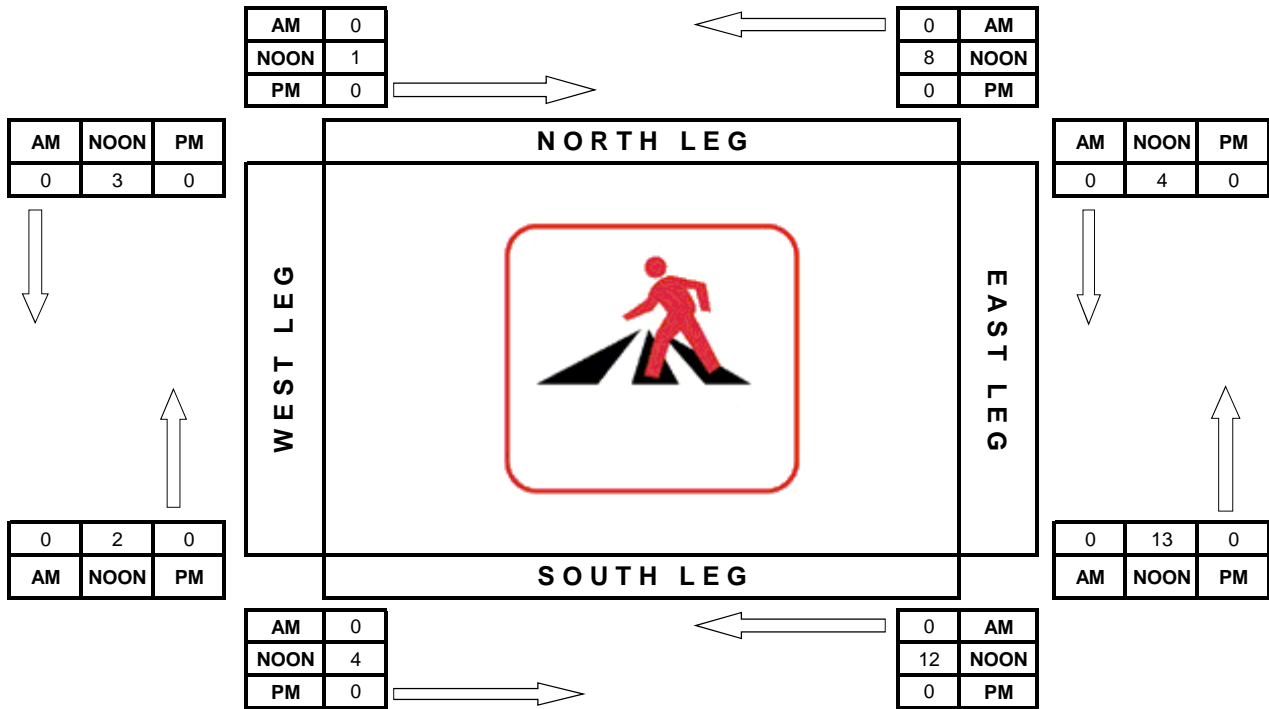
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count Peak Hour

PROJECT#: 15-6148-005
 N/S Street: Perris Blvd
 E/W Street: Cottonwood Ave
 DATE: 9/13/2015
 CITY: Moreno Valley

DAY: Sunday

	Start:	End:
AM		
NOON	11:00	14:00
PM		



Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

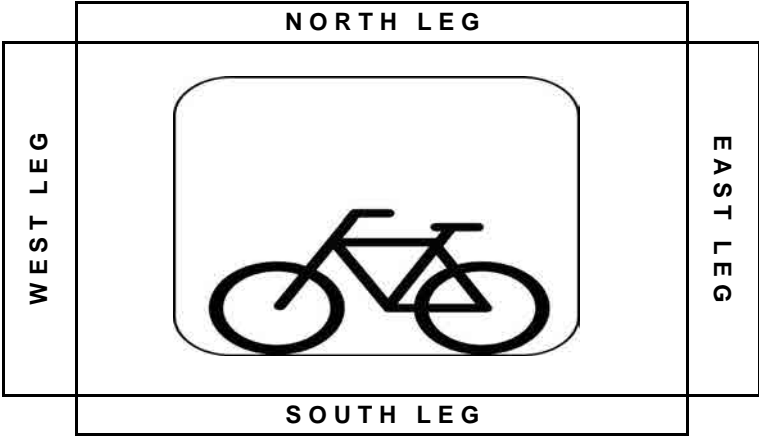
Bicycle Count Peak Hour

PROJECT#: 15-6148-005
 N/S Street: Perris Blvd
 E/W Street: Cottonwood Ave
 DATE: 9/13/2015
 CITY: Moreno Valley

DAY: Sunday

	Start:	End:
AM		
NOON	11:00	14:00
PM		

AM	0	0	0
NOON	0	4	0
PM	0	0	0



AM	NOON	PM
0	0	0
0	0	0
0	0	0

AM	NOON	PM
0	0	0
0	0	0
0	1	0

AM	0	0	0
NOON	0	1	0
PM	0	0	0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-6148-005
 N/S Street: Perris Blvd
 E/W Street: Cottonwood Ave
 DATE: 9/13/2015
 CITY: Moreno Valley

DAY: Sunday

N O O N

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	1	5	0	0	1	1
11:15 AM	1	0	5	1	0	1	1	1
11:30 AM	0	0	5	0	0	3	0	0
11:45 AM	2	1	0	0	0	1	0	0
12:00 PM	1	0	1	0	0	0	0	0
12:15 PM	0	0	0	0	1	0	0	0
12:30 PM	0	0	0	3	1	0	0	0
12:45 PM	0	0	0	0	1	0	0	0
1:00 PM	0	2	1	0	4	1	0	0
1:15 PM	0	5	1	12	6	0	2	0
1:30 PM	1	0	2	0	0	3	0	3
1:45 PM	0	1	0	0	3	0	0	0
TOTALS	5	9	16	21	16	9	4	5

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
11:00 AM	0	1	0	1	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	1	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	1	0	0	0	0	1	0	0
1:15 PM	0	1	0	0	1	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
TOTALS	0	2	0	1	6	0	0	0	0	1	0	0

Prepared by NDS/ATD

VOLUME

Perris Blvd Bet. Eucalyptus Ave & Cottonwood Ave

Day: Wednesday
Date: 9/2/2015

City: Moreno Valley
Project #: CA15_6149_001

DAILY TOTALS					NB	SB	EB	WB	Total
					15,554	15,665	0	0	31,219

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	31	47			78	12:00	210	226			436
00:15	17	44			61	12:15	261	239			500
00:30	24	31			55	12:30	239	226			465
00:45	21	93	23	145	44	12:45	226	936	221	912	447
01:00	14	33			47	13:00	254	234			488
01:15	15	30			45	13:15	233	231			464
01:30	25	23			48	13:30	229	248			477
01:45	21	75	24	110	45	13:45	268	984	209	922	477
02:00	15	25			40	14:00	215	283			498
02:15	20	23			43	14:15	271	282			553
02:30	23	26			49	14:30	220	268			488
02:45	33	91	25	99	58	14:45	257	963	288	1121	545
03:00	45	19			64	15:00	267	257			524
03:15	31	23			54	15:15	248	278			526
03:30	50	25			75	15:30	238	239			477
03:45	56	182	40	107	96	15:45	232	985	243	1017	475
04:00	89	51			140	16:00	239	300			539
04:15	92	72			164	16:15	242	267			509
04:30	124	52			176	16:30	257	249			506
04:45	134	439	42	217	176	16:45	251	989	264	1080	515
05:00	142	63			205	17:00	262	317			579
05:15	154	86			240	17:15	226	328			554
05:30	116	112			228	17:30	229	309			538
05:45	145	557	81	342	226	17:45	264	981	296	1250	560
06:00	183	76			259	18:00	229	293			522
06:15	176	129			305	18:15	197	250			447
06:30	197	160			357	18:30	215	235			450
06:45	221	777	147	512	368	18:45	208	849	251	1029	459
07:00	213	207			420	19:00	200	243			443
07:15	278	231			509	19:15	166	226			392
07:30	251	321			572	19:30	149	231			380
07:45	347	1089	220	979	567	19:45	131	646	184	884	315
08:00	249	199			448	20:00	156	200			356
08:15	182	147			329	20:15	142	219			361
08:30	229	186			415	20:30	150	164			314
08:45	211	871	139	671	350	20:45	111	559	145	728	256
09:00	168	193			361	21:00	147	149			296
09:15	197	188			385	21:15	113	157			270
09:30	194	206			400	21:30	98	134			232
09:45	189	748	168	755	357	21:45	102	460	114	554	216
10:00	204	182			386	22:00	79	114			193
10:15	229	173			402	22:15	73	109			182
10:30	212	173			385	22:30	101	103			204
10:45	223	868	188	716	411	22:45	84	337	67	393	151
11:00	230	175			405	23:00	57	81			138
11:15	196	227			423	23:15	40	72			112
11:30	220	218			438	23:30	53	66			119
11:45	248	894	224	844	472	23:45	31	181	59	278	90
TOTALS	6684	5497			12181	TOTALS	8870	10168			19038
SPLIT %	54.9%	45.1%			39.0%	SPLIT %	46.6%	53.4%			61.0%

DAILY TOTALS					NB	SB	EB	WB	Total
					15,554	15,665	0	0	31,219

AM Peak Hour	07:15	07:00		07:15	PM Peak Hour	14:15	17:00		17:00		
AM Pk Volume	1125	979		2096	PM Pk Volume	1015	1250		2231		
PK Hr Factor	0.811	0.762		0.916	PK Hr Factor	0.936	0.953		0.963		
7 - 9 Volume	1960	1650	0	0	3610	4 - 6 Volume	1970	2330	0	0	4300
7 - 9 Peak Hour	07:15	07:00		07:15	4 - 6 Peak Hour	16:15	17:00		17:00		
7 - 9 Pk Volume	1125	979	0	0	2096	Volume	1012	1250	0	0	2231
PK Hr Factor	0.811	0.762	0.000	0.000	0.916	PK Hr Factor	0.966	0.953	0.000	0.000	0.963

Prepared by NDS/ATD

VOLUME

Perris Blvd Bet. Cottonwood Ave & Alessandro Blvd

Day: Wednesday
Date: 9/2/2015City: Moreno Valley
Project #: CA15_6149_002

DAILY TOTALS											NB	SB	EB	WB	Total		
											13,784	13,269	0	0	27,053		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL						
00:00	28	41			69	12:00	208	206			414						
00:15	12	34			46	12:15	218	210			428						
00:30	21	22			43	12:30	217	206			423						
00:45	17	78	23	120	40	198	12:45	172	815	237	859	409	1674				
01:00	13	28			41	13:00	245	215			460						
01:15	17	23			40	13:15	208	195			403						
01:30	25	17			42	13:30	202	218			420						
01:45	15	70	15	83	30	153	13:45	230	885	183	811	413	1696				
02:00	12	16			28	14:00	196	215			411						
02:15	15	25			40	14:15	219	240			459						
02:30	21	19			40	14:30	185	212			397						
02:45	25	73	24	84	49	157	14:45	286	886	241	908	527	1794				
03:00	32	17			49	15:00	249	236			485						
03:15	22	18			40	15:15	219	222			441						
03:30	42	23			65	15:30	208	212			420						
03:45	47	143	37	95	84	238	15:45	225	901	210	880	435	1781				
04:00	64	43			107	16:00	222	226			448						
04:15	67	62			129	16:15	233	229			462						
04:30	100	46			146	16:30	202	233			435						
04:45	101	332	36	187	137	519	16:45	238	895	211	899	449	1794				
05:00	114	58			172	17:00	246	262			508						
05:15	114	84			198	17:15	226	262			488						
05:30	84	102			186	17:30	214	254			468						
05:45	117	429	77	321	194	750	17:45	254	940	243	1021	497	1961				
06:00	153	77			230	18:00	218	254			472						
06:15	139	109			248	18:15	189	210			399						
06:30	153	122			275	18:30	203	187			390						
06:45	171	616	144	452	315	1068	18:45	203	813	175	826	378	1639				
07:00	186	172			358	19:00	181	200			381						
07:15	244	195			439	19:15	148	183			331						
07:30	247	254			501	19:30	139	189			328						
07:45	312	989	197	818	509	1807	19:45	127	595	156	728	283	1323				
08:00	222	175			397	20:00	126	151			277						
08:15	163	150			313	20:15	128	167			295						
08:30	217	170			387	20:30	129	139			268						
08:45	173	775	127	622	300	1397	20:45	92	475	113	570	205	1045				
09:00	170	159			329	21:00	114	127			241						
09:15	152	140			292	21:15	86	130			216						
09:30	170	174			344	21:30	85	103			188						
09:45	154	646	134	607	288	1253	21:45	86	371	87	447	173	818				
10:00	195	158			353	22:00	74	100			174						
10:15	200	159			359	22:15	57	97			154						
10:30	194	151			345	22:30	92	80			172						
10:45	183	772	176	644	359	1416	22:45	80	303	54	331	134	634				
11:00	222	178			400	23:00	55	59			114						
11:15	175	192			367	23:15	34	62			96						
11:30	223	187			410	23:30	46	53			99						
11:45	204	824	180	737	384	1561	23:45	23	158	45	219	68	377				
TOTALS	5747	4770			10517	TOTALS	8037	8499			16536						
SPLIT %	54.6%	45.4%			38.9%	SPLIT %	48.6%	51.4%			61.1%						

DAILY TOTALS											NB	SB	EB	WB	Total
											13,784	13,269	0	0	27,053
AM Peak Hour	07:15	07:15			07:15	PM Peak Hour	14:45	17:00			17:00				
AM Pk Volume	1025	821			1846	PM Pk Volume	962	1021			1961				
PK Hr Factor	0.821	0.808			0.907	PK Hr Factor	0.841	0.974			0.965				
7 - 9 Volume	1764	1440	0	0	3204	4 - 6 Volume	1835	1920	0	0	3755				
7 - 9 Peak Hour	07:15	07:15			07:15	4 - 6 Peak Hour	17:00	17:00			17:00				
7 - 9 Pk Volume	1025	821	0	0	1846	Volume	940	1021	0	0	1961				
PK Hr Factor	0.821	0.808	0.000	0.000	0.907	PK Hr Factor	0.925	0.974	0.000	0.000	0.965				

Prepared by NDS/ATD

VOLUME

Cottonwood Ave Bet. Indian St & Perris Blvd

Day: Wednesday
Date: 9/2/2015

City: Moreno Valley
Project #: CA15_6149_003

DAILY TOTALS						NB	SB	EB	WB	Total
						0	0	4,166	4,244	8,410

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			6	7	13	12:00			57	58	115			
00:15			8	4	12	12:15			66	83	149			
00:30			4	6	10	12:30			70	80	150			
00:45			10	28	3	12:45			80	273	96	317	176	590
01:00			8	4	12	13:00			61	70	131			
01:15			3	2	5	13:15			69	55	124			
01:30			3	6	9	13:30			61	60	121			
01:45			3	17	4	13:45			83	274	61	246	144	520
02:00			2	5	7	14:00			82	73	155			
02:15			2	4	6	14:15			97	104	201			
02:30			1	1	2	14:30			81	79	160			
02:45			7	12	3	14:45			61	321	85	341	146	662
03:00			2	2	4	15:00			62	95	157			
03:15			3	3	6	15:15			47	70	117			
03:30			5	5	10	15:30			77	56	133			
03:45			6	16	4	15:45			61	247	56	277	117	524
04:00			7	10	17	16:00			77	64	141			
04:15			14	12	26	16:15			68	59	127			
04:30			12	15	27	16:30			82	49	131			
04:45			10	43	16	16:45			75	302	71	243	146	545
05:00			12	10	22	17:00			96	89	185			
05:15			17	8	25	17:15			92	70	162			
05:30			17	11	28	17:30			100	83	183			
05:45			19	65	17	17:45			87	375	84	326	171	701
06:00			27	16	43	18:00			91	61	152			
06:15			18	21	39	18:15			72	62	134			
06:30			35	32	67	18:30			84	75	159			
06:45			39	119	34	18:45			93	340	69	267	162	607
07:00			39	45	84	19:00			72	64	136			
07:15			63	62	125	19:15			56	60	116			
07:30			103	90	193	19:30			64	63	127			
07:45			70	275	103	19:45			58	250	52	239	110	489
08:00			42	75	117	20:00			49	52	101			
08:15			43	46	89	20:15			38	49	87			
08:30			43	55	98	20:30			43	43	86			
08:45			65	193	57	20:45			44	174	52	196	96	370
09:00			51	45	96	21:00			28	51	79			
09:15			42	49	91	21:15			36	38	74			
09:30			45	54	99	21:30			29	32	61			
09:45			44	182	40	21:45			21	114	22	143	43	257
10:00			49	53	102	22:00			31	30	61			
10:15			52	40	92	22:15			23	16	39			
10:30			49	56	105	22:30			18	17	35			
10:45			47	197	114	22:45			25	97	20	83	45	180
11:00			41	75	116	23:00			13	26	39			
11:15			60	79	139	23:15			8	17	25			
11:30			51	55	106	23:30			9	8	17			
11:45			57	209	49	23:45			13	43	8	59	21	102
TOTALS			1356	1507	2863	TOTALS			2810	2737	5547			
SPLIT %			47.4%	52.6%	34.0%	SPLIT %			50.7%	49.3%	66.0%			

DAILY TOTALS						NB	SB	EB	WB	Total
						0	0	4,166	4,244	8,410

AM Peak Hour			07:15	07:15	07:15	PM Peak Hour			17:00	14:15	17:00
AM Pk Volume			278	330	608	PM Pk Volume			375	363	701
PK Hr Factor			0.675	0.801	0.788	PK Hr Factor			0.938	0.873	0.947
7 - 9 Volume	0	0	468	533	1001	4 - 6 Volume	0	0	677	569	1246
7 - 9 Peak Hour			07:15	07:15	07:15	4 - 6 Peak Hour			17:00	17:00	17:00
7 - 9 Pk Volume	0	0	278	330	608	4 - 6 Pk Volume	0	0	375	326	701
PK Hr Factor	0.000	0.000	0.675	0.801	0.788	PK Hr Factor	0.000	0.000	0.938	0.916	0.947

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

Prepared by NDS/ATD

VOLUME

Cottonwood Ave Bet. Perris Blvd & Kitching St

Day: Wednesday
Date: 9/2/2015

City: Moreno Valley
Project #: CA15_6149_004

DAILY TOTALS						NB	SB					Total
						0	0	EB	WB			8,294
								4,283	4,011			
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			7	6	13	12:00			62	60	122	
00:15			11	4	15	12:15			56	74	130	
00:30			7	3	10	12:30			61	52	113	
00:45			4	29	7	12:45			86	265	145	
01:00			8	4	12	13:00			65	44	109	
01:15			2	1	3	13:15			55	40	95	
01:30			5	4	9	13:30			77	63	140	
01:45			5	20	8	13:45			73	270	139	
02:00			5	3	8	14:00			82	54	136	
02:15			2	10	12	14:15			81	89	170	
02:30			2	2	4	14:30			80	63	143	
02:45			5	14	8	14:45			75	318	144	
03:00			2	5	7	15:00			70	72	142	
03:15			1	8	9	15:15			68	55	123	
03:30			4	5	9	15:30			71	46	117	
03:45			5	12	15	15:45			57	266	107	
04:00			1	21	22	16:00			78	68	146	
04:15			11	20	31	16:15			68	55	123	
04:30			8	16	24	16:30			67	73	140	
04:45			6	26	32	16:45			86	299	149	
05:00			10	27	37	17:00			97	64	161	
05:15			3	24	27	17:15			80	47	127	
05:30			10	28	38	17:30			95	66	161	
05:45			13	36	34	17:45			105	377	172	
06:00			13	33	46	18:00			87	47	134	
06:15			18	46	64	18:15			85	59	144	
06:30			33	50	83	18:30			74	57	131	
06:45			31	95	88	18:45			85	331	133	
07:00			41	79	120	19:00			81	46	127	
07:15			71	84	155	19:15			58	48	106	
07:30			113	107	220	19:30			56	47	103	
07:45			70	295	214	19:45			70	265	115	
08:00			48	98	146	20:00			60	45	105	
08:15			40	47	87	20:15			63	46	109	
08:30			51	67	118	20:30			52	32	84	
08:45			45	184	119	20:45			58	233	86	
09:00			43	51	94	21:00			71	30	101	
09:15			35	55	90	21:15			47	36	83	
09:30			34	60	94	21:30			39	23	62	
09:45			47	159	96	21:45			30	187	46	
10:00			39	51	90	22:00			38	20	58	
10:15			50	43	93	22:15			26	16	42	
10:30			54	59	113	22:30			17	12	29	
10:45			55	198	117	22:45			37	118	57	
11:00			59	56	115	23:00			14	11	25	
11:15			51	60	111	23:15			11	10	21	
11:30			53	57	110	23:30			11	4	15	
11:45			73	236	126	23:45			14	50	21	
TOTALS			1304	1799	3103	TOTALS			2979	2212	5191	
SPLIT %			42.0%	58.0%	37.4%	SPLIT %			57.4%	42.6%	62.6%	

DAILY TOTALS						NB	SB					Total
						0	0	EB	WB			8,294
								4,283	4,011			
AM Peak Hour			07:15	07:15	07:15	PM Peak Hour			17:00	14:15	17:00	
AM Pk Volume			302	433	735	PM Pk Volume			377	293	621	
PK Hr Factor			0.668	0.752	0.835	PK Hr Factor			0.898	0.823	0.903	
7 - 9 Volume	0	0	479	700	1179	4 - 6 Volume	0	0	676	503	1179	
7 - 9 Peak Hour			07:15	07:15	07:15	4 - 6 Peak Hour			17:00	16:00	17:00	
7 - 9 Pk Volume	0	0	302	433	735	4 - 6 Pk Volume	0	0	377	259	621	
PK Hr Factor	0.000	0.000	0.668	0.752	0.835	PK Hr Factor	0.000	0.000	0.898	0.887	0.903	

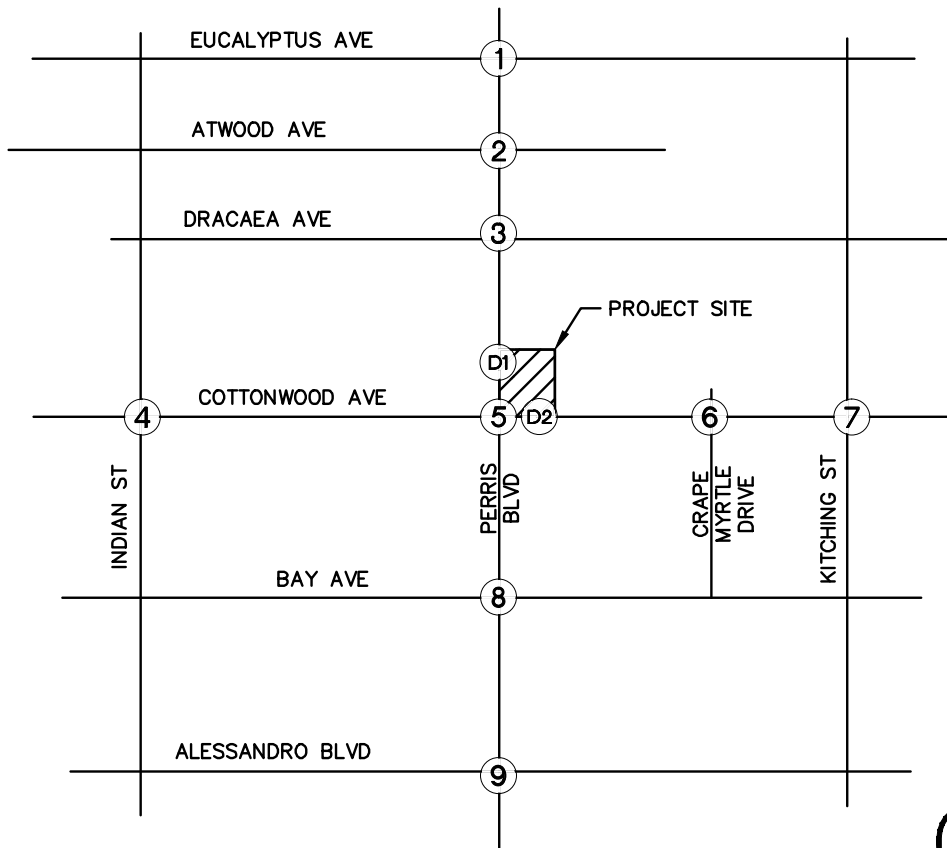
Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

APPENDIX C

TRIP ASSIGNMENT DATA



NOT TO SCALE



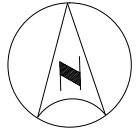
PROJECT TRAFFIC – WEEKDAY NEW TRIPS

1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway		D2. Cottonwood Ave at Driveway

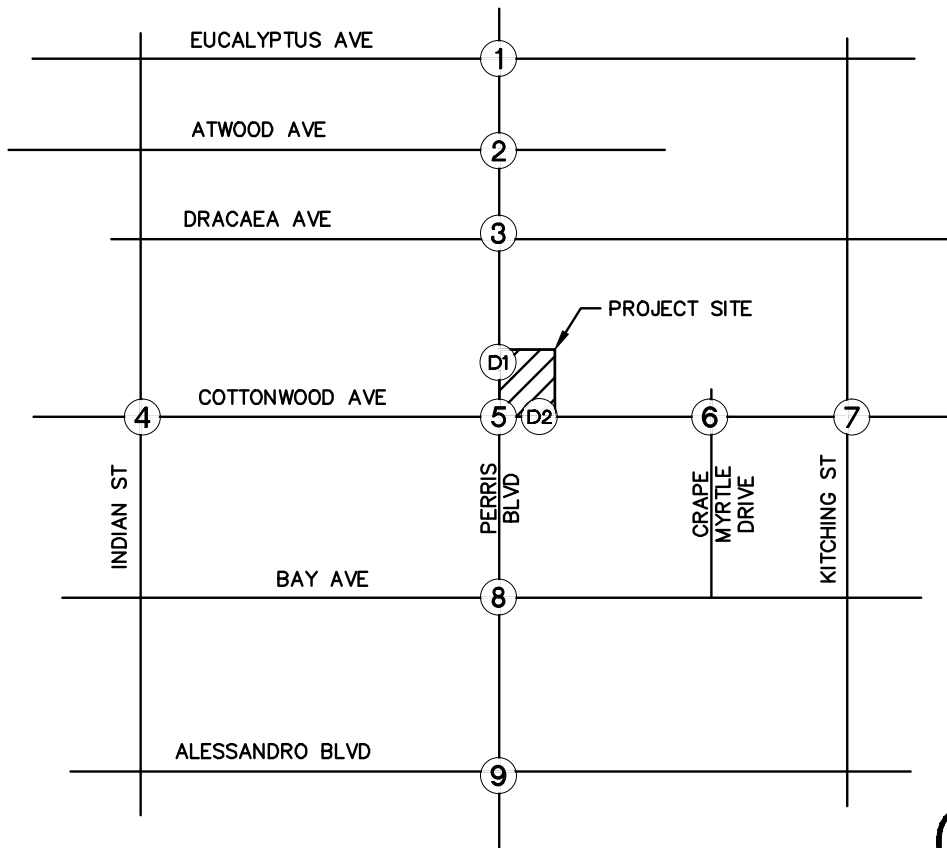
LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



PROJECT TRAFFIC – SUNDAY NEW TRIPS

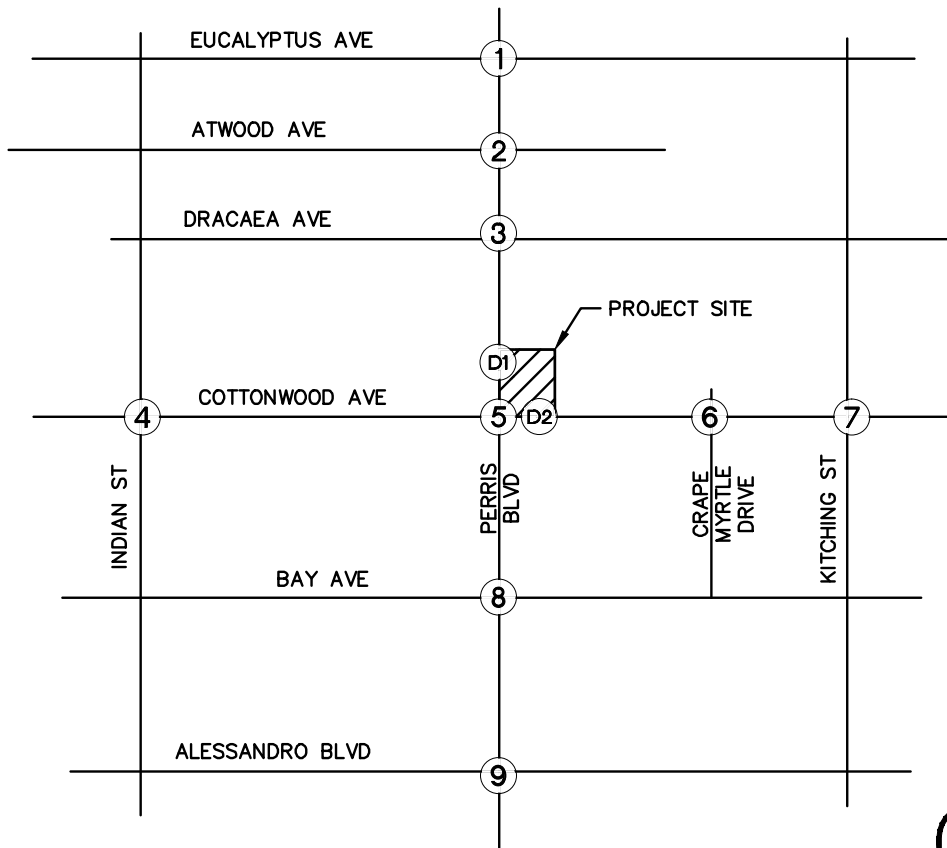
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd

D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway

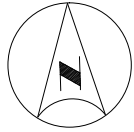
LEGEND:

(X) Study Intersection

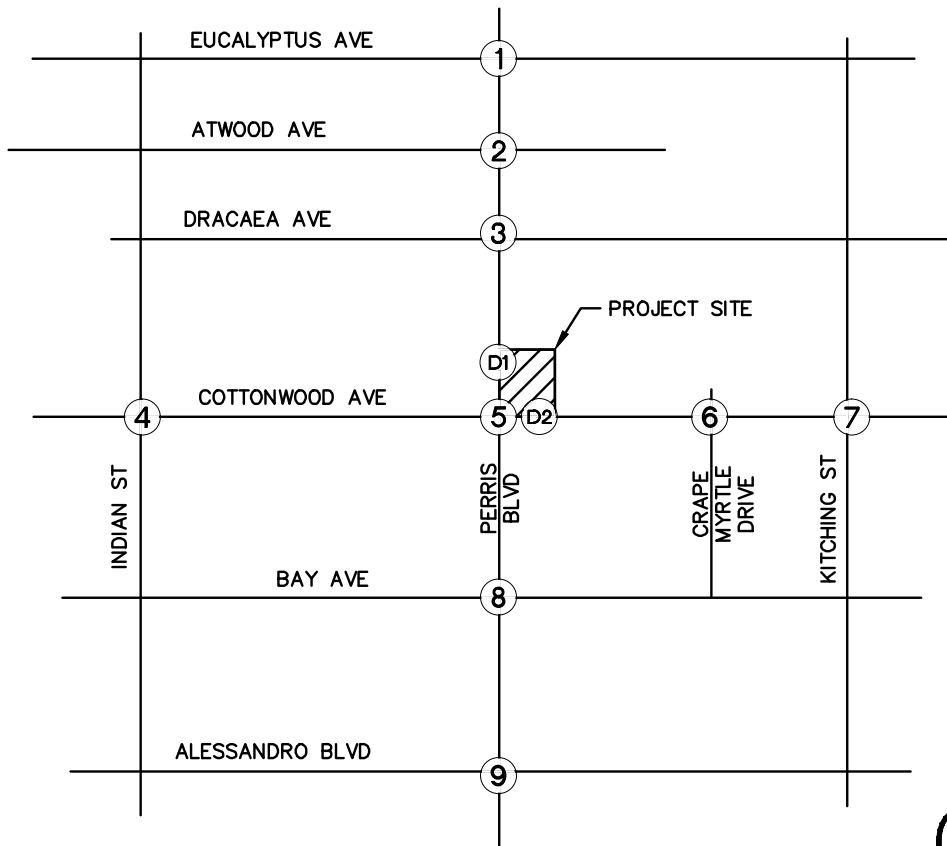
XX/YY AM/PM Turning Movement Volume

PROJECT TRAFFIC – WEEKDAY PASS-BY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a



NOT TO SCALE

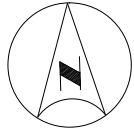


1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway		D2. Cottonwood Ave at Driveway

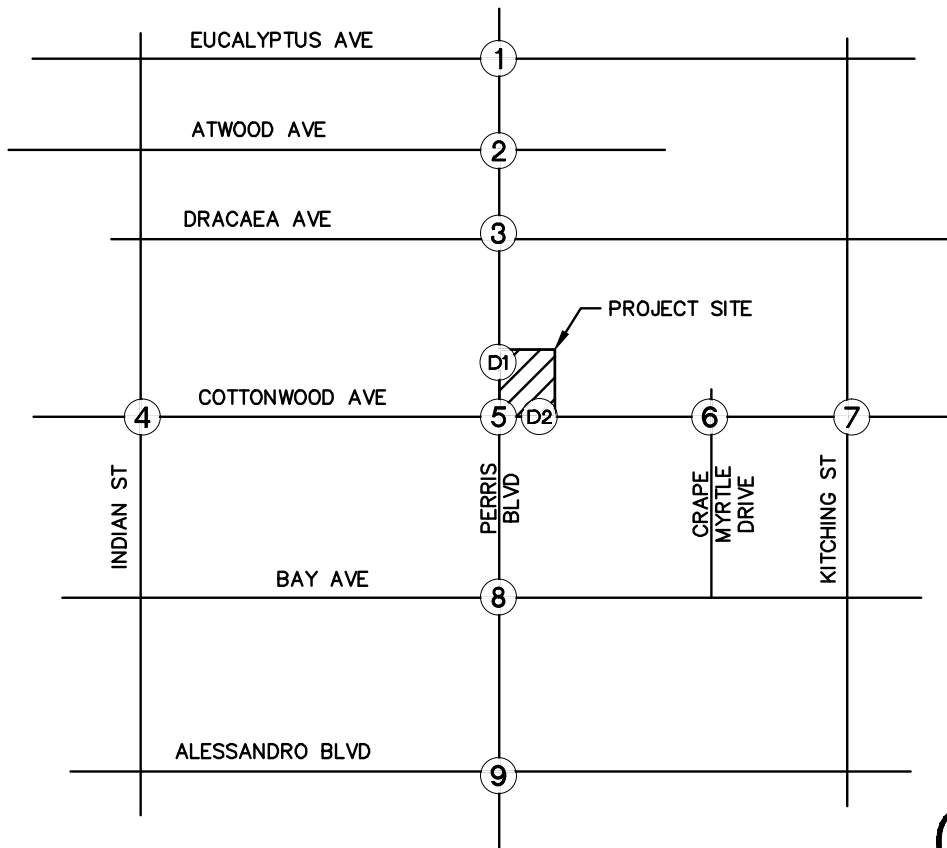
LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

PROJECT TRAFFIC – SUNDAY PASS-BY TRIPS



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

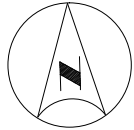
LEGEND:

(X) Study Intersection

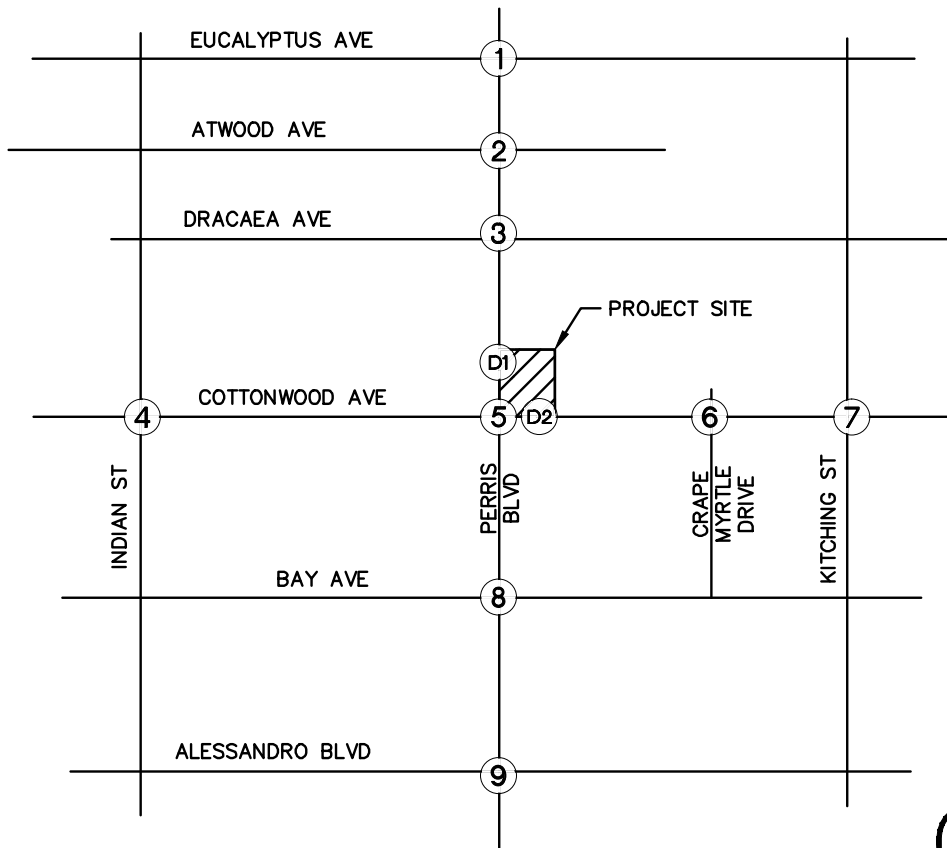
XX/YY AM/PM Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 1 WEEKDAY
NEW TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



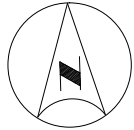
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

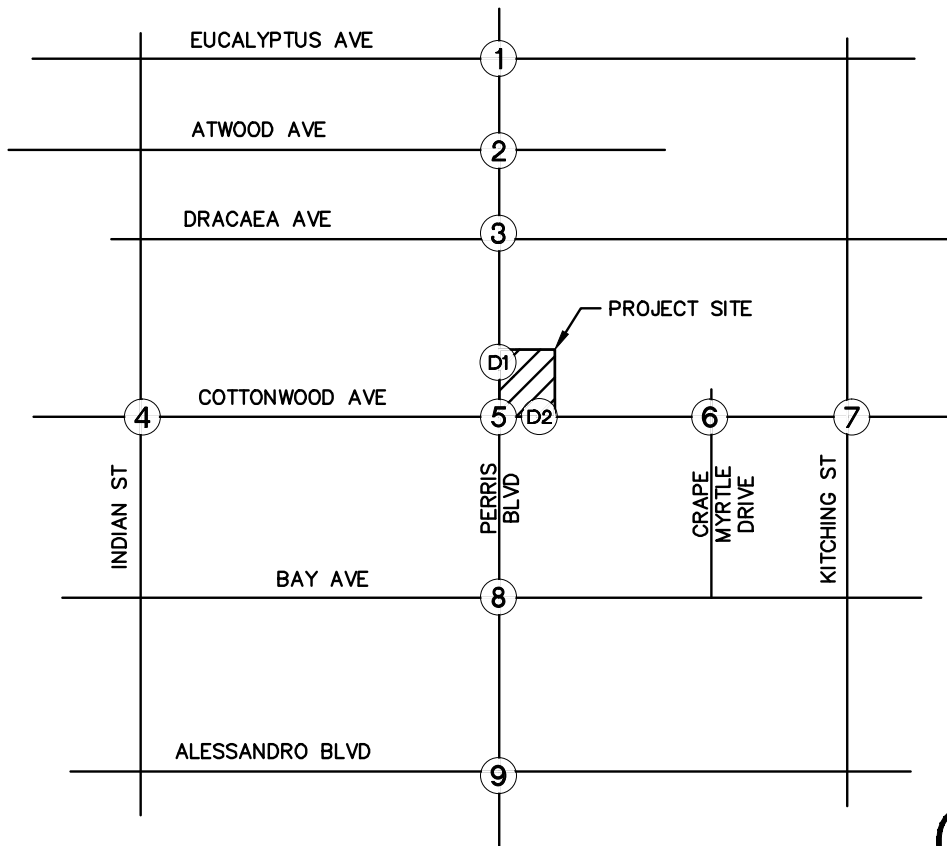
- (X) Study Intersection
- XX Sunday Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 1 SUNDAY NEW TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
		9/9
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
	24/-25 33/34 23/24 9/9 -9/-9	
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	
	29/31 -21/-22 54/57	29/31 6/6 6/-6

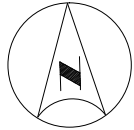
LEGEND:

(X) Study Intersection

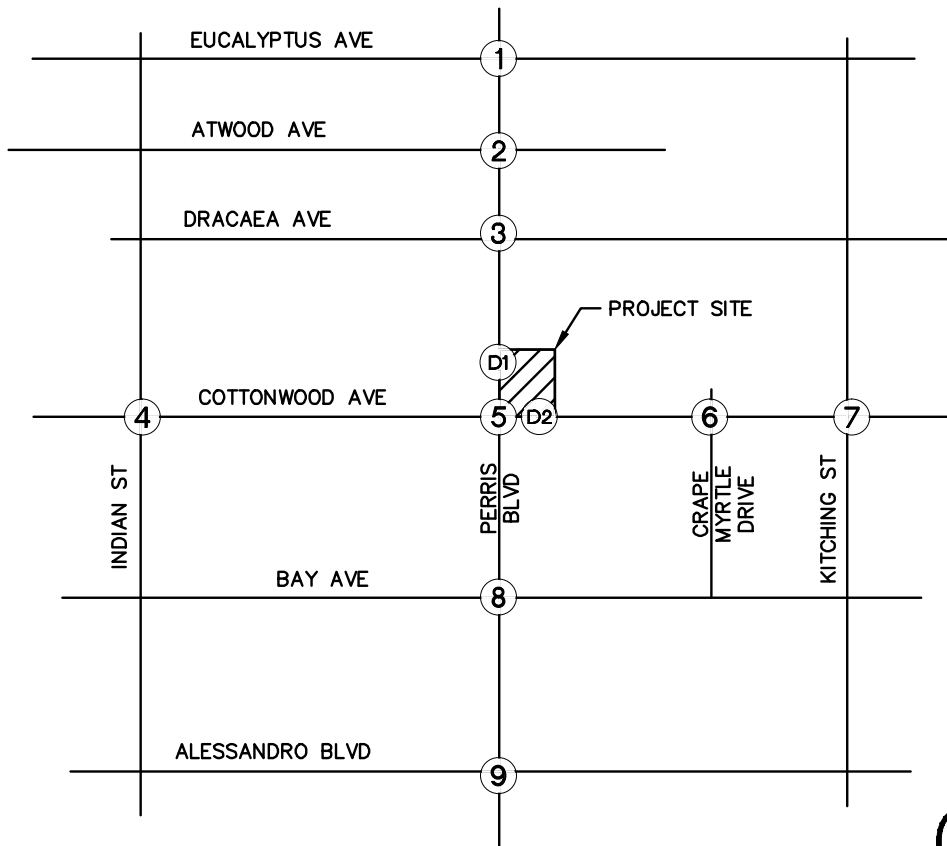
XX/YY AM/PM Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 1 WEEKDAY PASS-BY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a



NOT TO SCALE



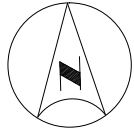
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
		13
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
	35, 48, 13, -13	
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	
44, -30, 78	44, 9	

LEGEND:

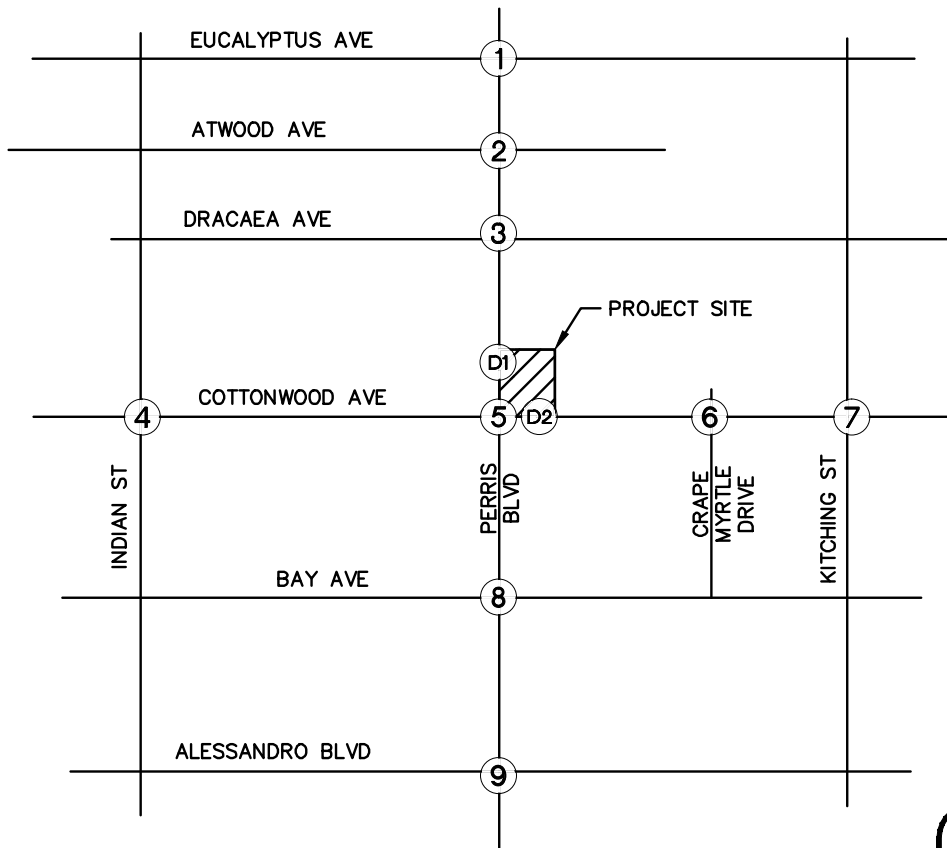
- (X) Study Intersection
- XX Sunday Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 1 SUNDAY PASS-BY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a



NOT TO SCALE

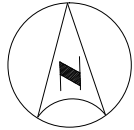


1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

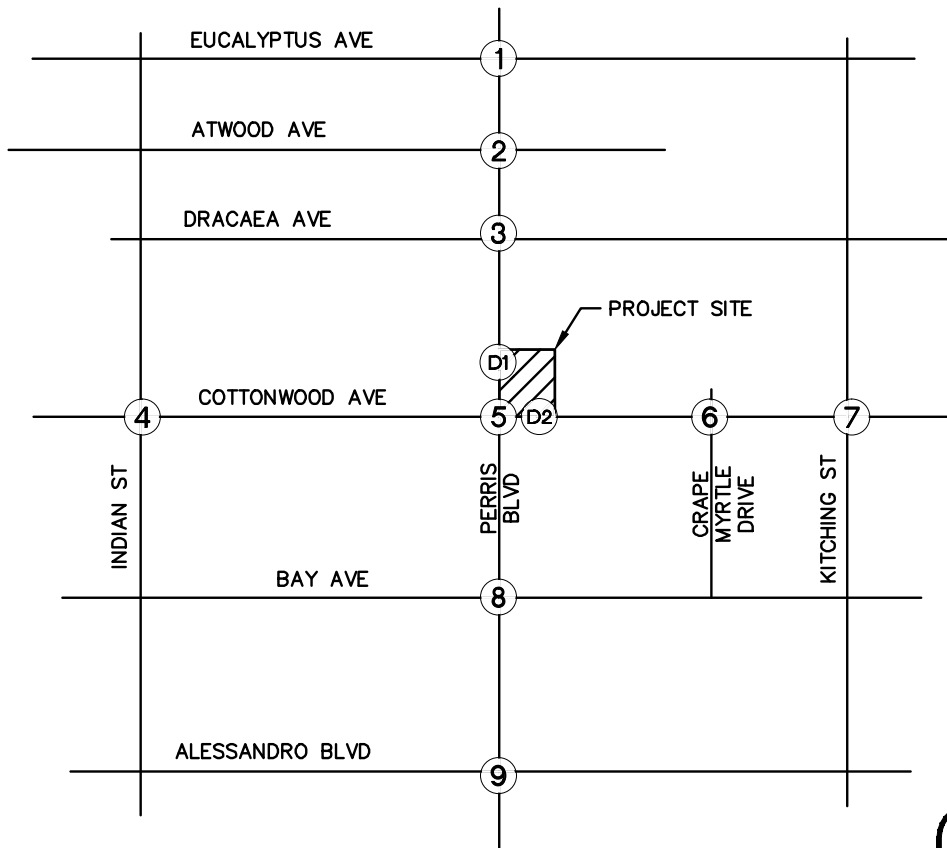
LEGEND:

- Study Intersection
- XX/YY AM/PM Turning Movement Volume
- Average Daily Traffic Volume
- XXXX

PROJECT TRAFFIC – ALTERNATIVE 2 WEEKDAY NEW TRIPS



NOT TO SCALE



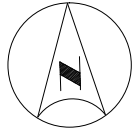
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

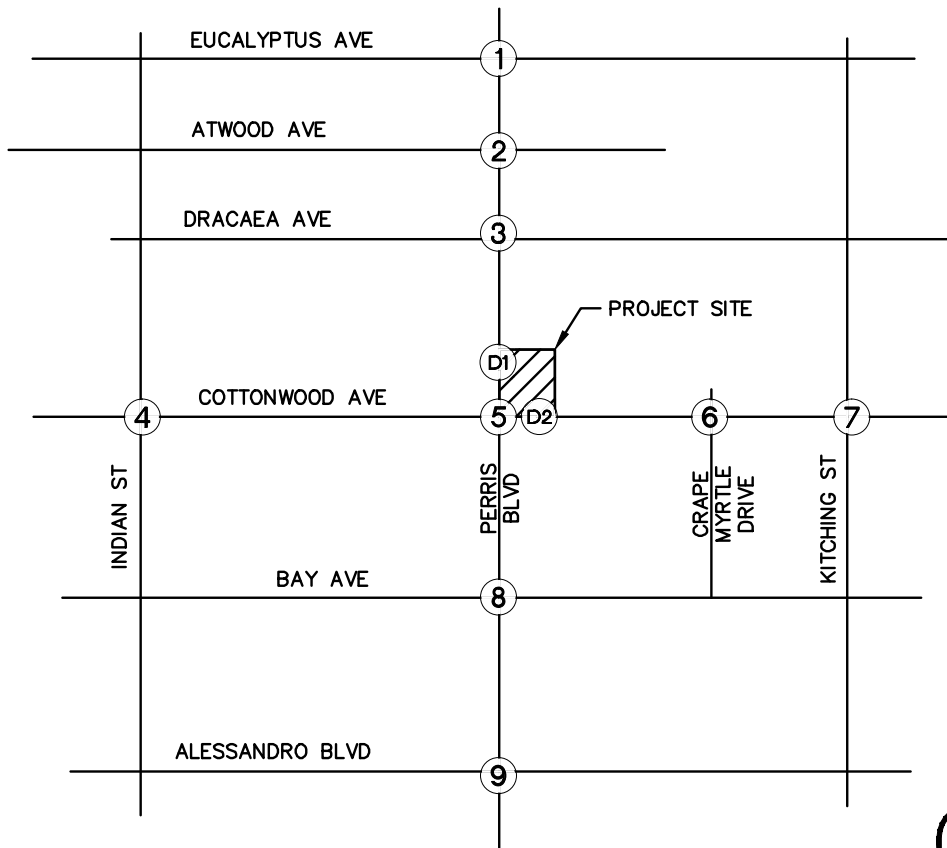
- (X) Study Intersection
- XX Sunday Turning Movement Volume
- Average Daily Traffic Volume
- XXXX

PROJECT TRAFFIC – ALTERNATIVE 2 SUNDAY NEW TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
		9/9
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
	9/9 -9/-9 23/24	
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway		D2. Cottonwood Ave at Driveway
-24/-25 24/25 29/31 -21/-22 30/32		29/31 6/6 6/-6

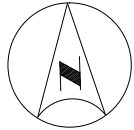
LEGEND:

(X) Study Intersection

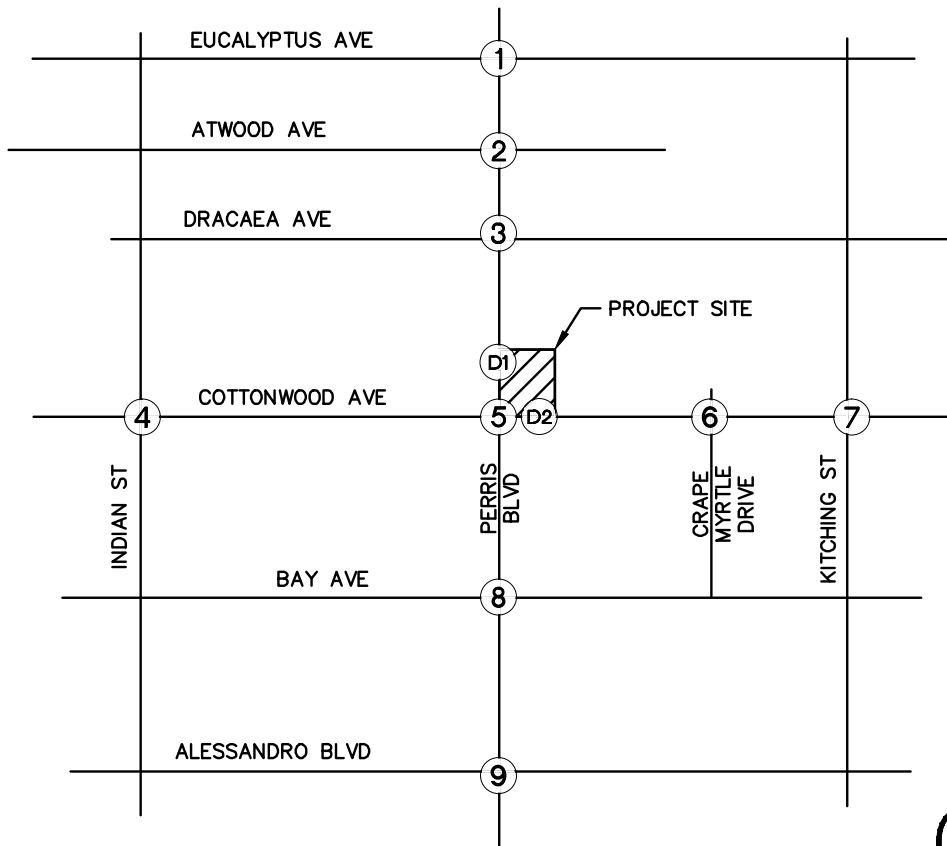
XX/YY AM/PM Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 2 WEEKDAY PASS-BY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a



NOT TO SCALE



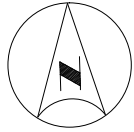
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
		13
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Crape Myrtle Dr
	13, -13, 35	
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway		D2. Cottonwood Ave at Driveway
35, -35, 44, -30, 44		44, 9

LEGEND:

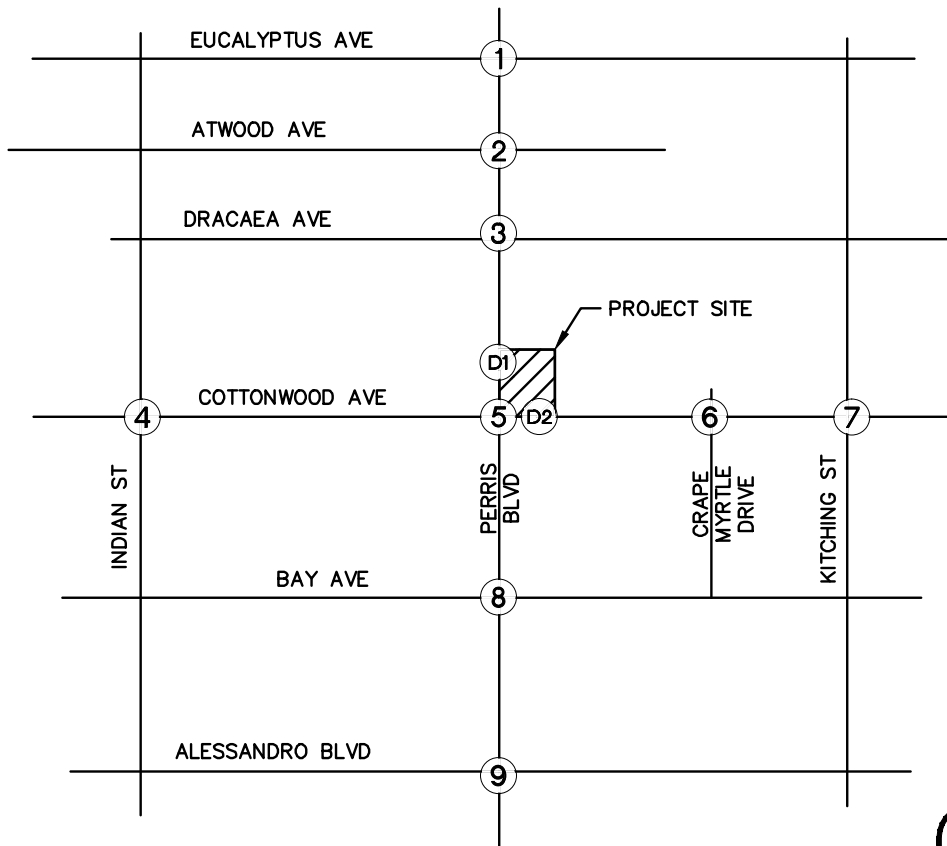
- (X) Study Intersection
- XX Sunday Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 2 SUNDAY PASS-BY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway		D2. Cottonwood Ave at Driveway

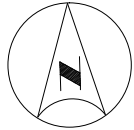
LEGEND:

(X) Study Intersection

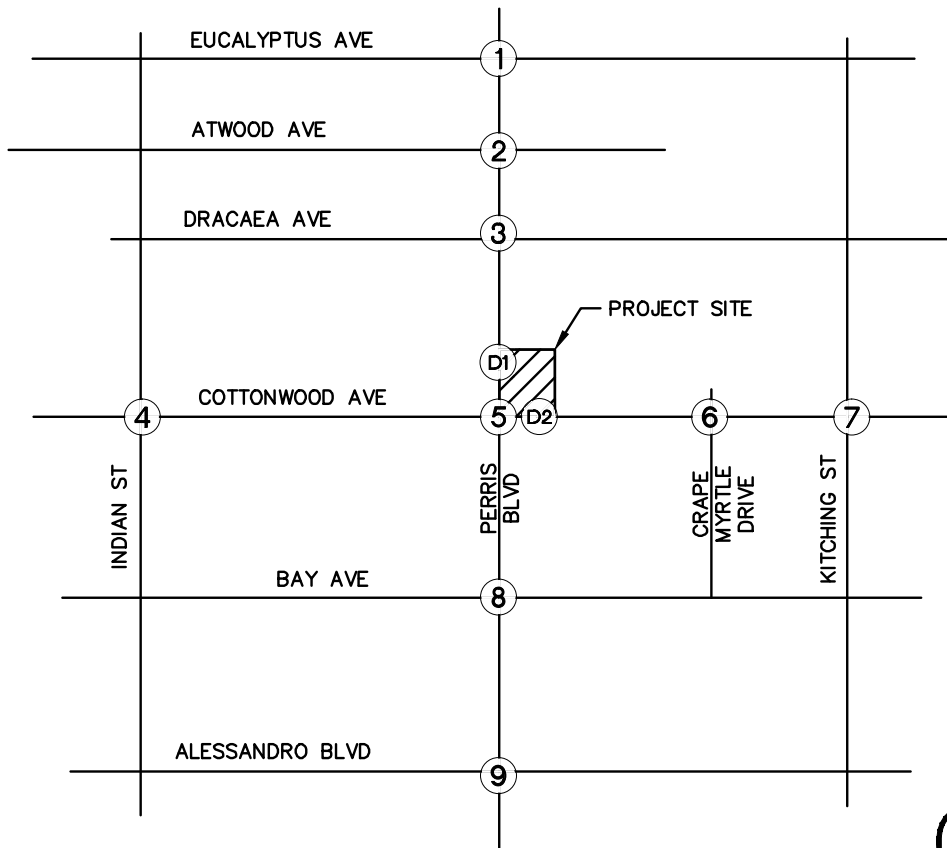
XX/YY AM/PM Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 3 WEEKDAY
NEW TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway		D2. Cottonwood Ave at Driveway

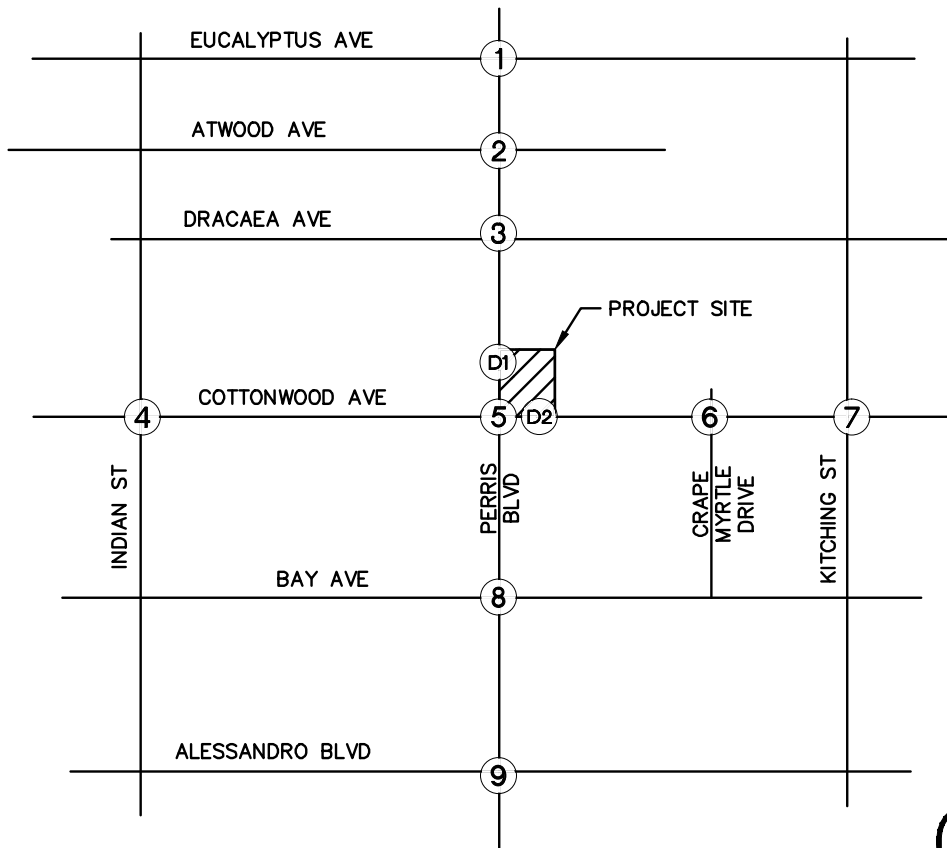
LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 3 SUNDAY NEW TRIPS



NOT TO SCALE



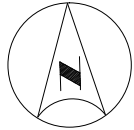
1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway		D2. Cottonwood Ave at Driveway

LEGEND:

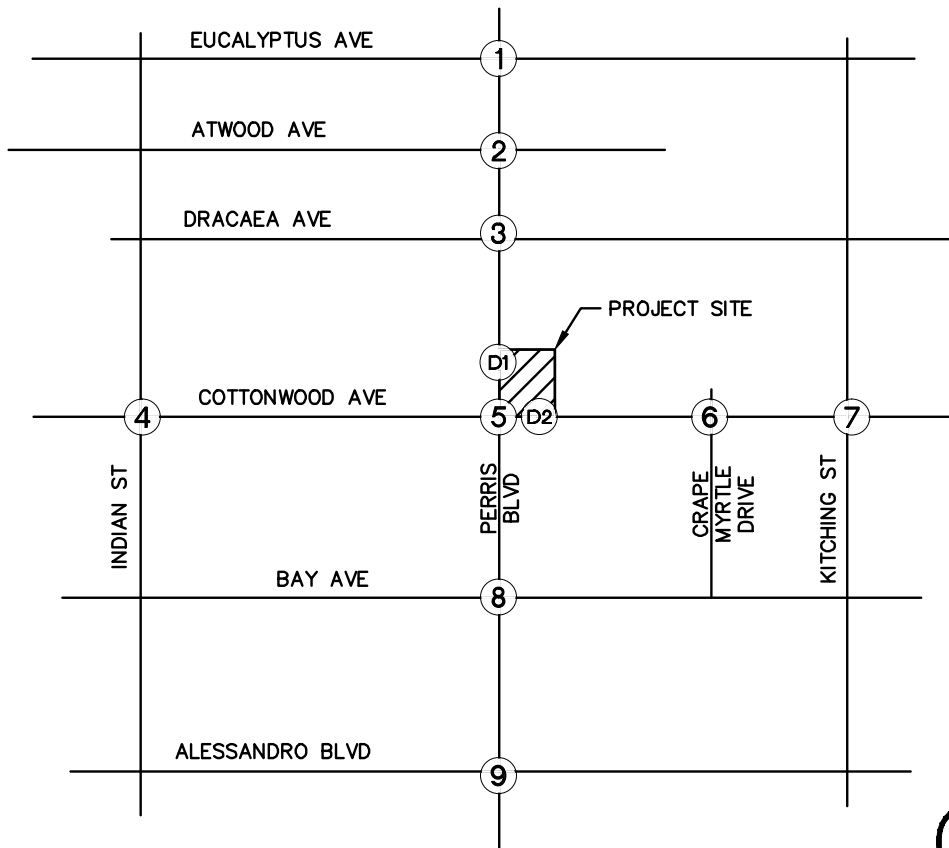
(X) Study Intersection

XX/YY AM/PM Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 3 WEEKDAY PASS-BY TRIPS



NOT TO SCALE



1. Perris Blvd at Eucalyptus Ave	2. Perris Blvd at Atwood Ave	3. Perris Blvd at Dracaea Ave
4. Cottonwood Ave at Indian St	5. Perris Blvd at Cottonwood Ave	6. Cottonwood Ave at Grape Myrtle Dr
7. Cottonwood Ave at Kitching St	8. Perris Blvd at Bay Ave	9. Perris Blvd at Alessandro Blvd
D1. Perris Blvd at Driveway	D2. Cottonwood Ave at Driveway	

LEGEND:

- (X) Study Intersection
- XX Sunday Turning Movement Volume

PROJECT TRAFFIC – ALTERNATIVE 3 SUNDAY PASS-BY TRIPS

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a

APPENDIX D























INTERSECTION ANALYSIS WORKSHEETS

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	76	52	82	127	177	55	1022	52	70	835	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	35	110	75	93	144	201	63	1175	60	80	949	30
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.88	0.88	0.88	0.87	0.87	0.87	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	252	215	165	329	280	136	1453	650	154	1490	666
Arrive On Green	0.05	0.14	0.14	0.09	0.18	0.18	0.08	0.41	0.41	0.09	0.42	0.42
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	35	110	75	93	144	201	63	1175	60	80	949	30
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	1.1	3.2	2.5	2.9	4.0	7.0	2.0	17.1	1.4	2.5	12.4	0.7
Cycle Q Clear(g_c), s	1.1	3.2	2.5	2.9	4.0	7.0	2.0	17.1	1.4	2.5	12.4	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	252	215	165	329	280	136	1453	650	154	1490	666
V/C Ratio(X)	0.38	0.44	0.35	0.56	0.44	0.72	0.46	0.81	0.09	0.52	0.64	0.05
Avail Cap(c_a), veh/h	212	510	433	212	510	433	212	1453	650	212	1490	666
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	23.2	22.9	25.4	21.5	22.7	25.8	15.2	10.6	25.5	13.4	10.0
Incr Delay (d2), s/veh	2.6	1.2	1.0	3.0	0.9	3.4	2.4	5.0	0.3	2.7	2.1	0.1
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	0.6	1.7	1.2	1.6	2.2	3.3	1.1	9.3	0.6	1.3	6.4	0.3
LnGrp Delay(d),s/veh	29.4	24.4	23.9	28.3	22.4	26.1	28.3	20.2	10.8	28.2	15.5	10.1
LnGrp LOS	C	C	C	C	C	C	C	C	B	C	B	B
Approach Vol, veh/h		220			438			1298			1059	
Approach Delay, s/veh		25.0			25.4			20.1			16.3	
Approach LOS		C			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	28.0	9.5	11.9	8.5	28.6	7.0	14.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	4.5	19.1	4.9	5.2	4.0	14.4	3.1	9.0				
Green Ext Time (p_c), s	0.0	4.3	0.0	1.7	0.0	7.9	0.0	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			19.9									
HCM 2010 LOS			B									

























HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	67	70	44	60	92	56	30	1020	24	32	872	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	77	80	51	80	123	75	35	1186	28	38	1038	86
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	69	451	89	100	451	93	1574	37	99	1588	710
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.45	0.45	0.06	0.45	0.45
Sat Flow, veh/h	0	241	1583	0	351	1583	1774	3534	83	1774	3539	1583
Grp Volume(v), veh/h	157	0	51	203	0	75	35	594	620	38	1038	86
Grp Sat Flow(s),veh/h/ln	241	0	1583	351	0	1583	1774	1770	1848	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	1.3	0.0	0.0	2.0	1.1	15.7	15.7	1.2	12.8	1.8
Cycle Q Clear(g_c), s	16.0	0.0	1.3	16.0	0.0	2.0	1.1	15.7	15.7	1.2	12.8	1.8
Prop In Lane	0.49		1.00	0.39		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	164	0	451	190	0	451	93	788	823	99	1588	710
V/C Ratio(X)	0.96	0.00	0.11	1.07	0.00	0.17	0.38	0.75	0.75	0.38	0.65	0.12
Avail Cap(c_a), veh/h	164	0	451	190	0	451	221	788	823	221	1588	710
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	14.8	20.4	0.0	15.1	25.7	13.0	13.0	25.6	12.1	9.0
Incr Delay (d2), s/veh	57.1	0.0	0.1	85.4	0.0	0.2	2.5	6.6	6.3	2.4	2.1	0.3
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	5.0	0.0	0.6	7.4	0.0	0.9	0.6	9.0	9.4	0.6	6.7	0.8
LnGrp Delay(d),s/veh	78.6	0.0	14.9	105.8	0.0	15.2	28.2	19.6	19.3	28.0	14.2	9.4
LnGrp LOS	E		B	F		B	C	B	B	C	B	A
Approach Vol, veh/h		208			278			1249			1162	
Approach Delay, s/veh		63.0			81.3			19.7			14.3	
Approach LOS		E			F			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	29.0		20.0	6.9	29.2		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	3.2	17.7		18.0	3.1	14.8		18.0				
Green Ext Time (p_c), s	0.0	6.2		0.0	0.0	8.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			26.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	285	125	44	355	83	93	237	29	53	248	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	335	147	58	467	109	118	300	37	61	285	54
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	543	462	128	550	468	178	933	114	132	797	149
Arrive On Green	0.07	0.29	0.29	0.07	0.30	0.30	0.10	0.29	0.29	0.07	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3176	388	1774	2977	557
Grp Volume(v), veh/h	53	335	147	58	467	109	118	166	171	61	168	171
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1794	1774	1770	1765
Q Serve(g_s), s	1.7	9.3	4.3	1.9	14.1	3.1	3.8	4.4	4.4	2.0	4.6	4.7
Cycle Q Clear(g_c), s	1.7	9.3	4.3	1.9	14.1	3.1	3.8	4.4	4.4	2.0	4.6	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.32
Lane Grp Cap(c), veh/h	122	543	462	128	550	468	178	520	527	132	474	472
V/C Ratio(X)	0.44	0.62	0.32	0.45	0.85	0.23	0.66	0.32	0.32	0.46	0.35	0.36
Avail Cap(c_a), veh/h	208	592	503	208	592	503	208	520	527	208	474	472
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	18.3	16.5	26.6	19.8	15.9	25.9	16.4	16.5	26.5	17.7	17.7
Incr Delay (d2), s/veh	2.4	1.7	0.4	2.5	10.6	0.3	6.1	1.6	1.6	2.5	2.1	2.1
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	0.9	5.0	1.9	1.0	8.8	1.4	2.2	2.4	2.4	1.1	2.5	2.6
LnGrp Delay(d),s/veh	29.2	20.0	16.9	29.0	30.4	16.2	32.0	18.1	18.1	29.0	19.8	19.9
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		535			634			455			400	
Approach Delay, s/veh		20.0			27.8			21.7			21.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	21.6	8.3	21.4	10.0	20.0	8.1	21.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	4.0	6.4	3.9	11.3	5.8	6.7	3.7	16.1				
Green Ext Time (p_c), s	0.0	2.7	0.0	3.4	0.0	2.7	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			23.1									
HCM 2010 LOS			C									






















HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	184	66	53	215	166	70	833	63	107	805	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	100	230	82	72	291	224	85	1016	77	127	958	106
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.74	0.74	0.74	0.82	0.82	0.82	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	419	356	145	394	335	158	1133	507	183	1185	530
Arrive On Green	0.10	0.22	0.22	0.08	0.21	0.21	0.09	0.32	0.32	0.10	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	100	230	82	72	291	224	85	1016	77	127	958	106
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.2	6.5	2.5	2.3	8.7	7.7	2.7	16.2	2.1	4.1	14.7	2.8
Cycle Q Clear(g_c), s	3.2	6.5	2.5	2.3	8.7	7.7	2.7	16.2	2.1	4.1	14.7	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	169	419	356	145	394	335	158	1133	507	183	1185	530
V/C Ratio(X)	0.59	0.55	0.23	0.50	0.74	0.67	0.54	0.90	0.15	0.69	0.81	0.20
Avail Cap(c_a), veh/h	209	502	427	209	502	427	209	1133	507	209	1185	530
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	20.3	18.8	26.1	21.9	21.5	25.9	19.2	14.4	25.7	18.0	14.1
Incr Delay (d2), s/veh	3.3	1.1	0.3	2.6	4.2	2.7	2.8	11.1	0.6	8.0	6.0	0.8
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	1.7	3.5	1.1	1.2	4.9	3.6	1.4	9.7	1.0	2.4	8.0	1.3
LnGrp Delay(d),s/veh	29.0	21.5	19.1	28.7	26.1	24.2	28.7	30.3	15.0	33.7	24.0	14.9
LnGrp LOS	C	C	B	C	C	C	C	C	B	C	C	B
Approach Vol, veh/h		412			587			1178			1191	
Approach Delay, s/veh		22.8			25.7			29.2			24.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	23.0	8.9	17.3	9.3	23.9	9.7	16.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.1	18.2	4.3	8.5	4.7	16.7	5.2	10.7				
Green Ext Time (p_c), s	0.0	0.7	0.0	2.4	0.0	2.1	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			26.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	95	226	72	43	319	129	99	297	27	31	201	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	134	318	101	63	469	190	115	345	31	42	275	56
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.71	0.71	0.71	0.68	0.68	0.68	0.86	0.86	0.86	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	583	496	132	533	453	172	975	87	103	757	152
Arrive On Green	0.10	0.31	0.31	0.07	0.29	0.29	0.10	0.30	0.30	0.06	0.26	0.26
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3287	294	1774	2939	590
Grp Volume(v), veh/h	134	318	101	63	469	190	115	185	191	42	164	167
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1811	1774	1770	1759
Q Serve(g_s), s	4.6	8.8	2.9	2.1	14.9	6.0	3.9	5.1	5.2	1.4	4.7	4.8
Cycle Q Clear(g_c), s	4.6	8.8	2.9	2.1	14.9	6.0	3.9	5.1	5.2	1.4	4.7	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.34
Lane Grp Cap(c), veh/h	180	583	496	132	533	453	172	525	537	103	456	453
V/C Ratio(X)	0.74	0.55	0.20	0.48	0.88	0.42	0.67	0.35	0.36	0.41	0.36	0.37
Avail Cap(c_a), veh/h	200	583	496	200	570	484	200	525	537	200	456	453
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	17.7	15.7	27.6	21.1	18.0	27.1	17.2	17.2	28.2	18.9	18.9
Incr Delay (d2), s/veh	12.7	1.1	0.2	2.6	14.1	0.6	6.7	1.9	1.8	2.6	2.2	2.3
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	2.9	4.7	1.3	1.1	9.8	2.7	2.2	2.7	2.8	0.8	2.6	2.6
LnGrp Delay(d),s/veh	39.8	18.7	15.9	30.2	35.3	18.6	33.8	19.0	19.0	30.8	21.1	21.2
LnGrp LOS	D	B	B	C	D	B	C	B	B	C	C	C
Approach Vol, veh/h		553			722			491			373	
Approach Delay, s/veh		23.3			30.4			22.5			22.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	22.4	8.6	23.5	10.0	20.0	10.3	21.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.4	7.2	4.1	10.8	5.9	6.8	6.6	16.9				
Green Ext Time (p_c), s	0.0	2.6	0.0	3.5	0.0	2.7	0.0	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			25.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	81	47	80	40	57	93	55	845	54	88	748	74
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	109	64	108	47	67	109	59	909	58	109	923	91
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.74	0.74	0.74	0.85	0.85	0.85	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	122	206	116	101	164	134	1166	74	183	1319	590
Arrive On Green	0.10	0.20	0.20	0.07	0.16	0.16	0.08	0.35	0.35	0.10	0.37	0.37
Sat Flow, veh/h	1774	624	1053	1774	639	1040	1774	3379	216	1774	3539	1583
Grp Volume(v), veh/h	109	0	172	47	0	176	59	476	491	109	923	91
Grp Sat Flow(s),veh/h/ln	1774	0	1677	1774	0	1679	1774	1770	1825	1774	1770	1583
Q Serve(g_s), s	3.2	0.0	5.1	1.4	0.0	5.4	1.8	13.3	13.3	3.2	12.2	2.1
Cycle Q Clear(g_c), s	3.2	0.0	5.1	1.4	0.0	5.4	1.8	13.3	13.3	3.2	12.2	2.1
Prop In Lane	1.00		0.63	1.00		0.62	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	183	0	329	116	0	265	134	611	630	183	1319	590
V/C Ratio(X)	0.60	0.00	0.52	0.41	0.00	0.66	0.44	0.78	0.78	0.60	0.70	0.15
Avail Cap(c_a), veh/h	226	0	487	226	0	488	226	611	630	226	1319	590
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	19.8	24.7	0.0	21.8	24.3	16.1	16.1	23.6	14.7	11.5
Incr Delay (d2), s/veh	3.1	0.0	1.3	2.3	0.0	2.8	2.3	9.5	9.2	3.1	3.1	0.6
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	1.7	0.0	2.5	0.8	0.0	2.7	0.9	8.1	8.3	1.7	6.5	1.0
LnGrp Delay(d),s/veh	26.7	0.0	21.1	27.0	0.0	24.6	26.6	25.7	25.4	26.7	17.8	12.0
LnGrp LOS	C		C	C		C	C	C	C	C	B	B
Approach Vol, veh/h		281			223			1026			1123	
Approach Delay, s/veh		23.3			25.1			25.6			18.2	
Approach LOS		C			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	23.0	7.6	14.8	8.2	24.5	9.7	12.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	5.2	15.3	3.4	7.1	3.8	14.2	5.2	7.4				
Green Ext Time (p_c), s	0.0	3.1	0.0	1.3	0.0	3.9	0.0	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			22.2									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	171	369	89	132	659	113	240	719	140	174	499	160
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	209	450	109	155	775	133	255	765	149	207	594	190
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	847	379	353	1028	175	278	998	447	222	887	397
Arrive On Green	0.11	0.24	0.24	0.10	0.23	0.23	0.16	0.28	0.28	0.13	0.25	0.25
Sat Flow, veh/h	3442	3539	1583	3442	4376	745	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	209	450	109	155	599	309	255	765	149	207	594	190
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1731	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.7	7.1	3.6	2.7	10.5	10.6	9.0	12.6	4.8	7.4	9.6	6.5
Cycle Q Clear(g_c), s	3.7	7.1	3.6	2.7	10.5	10.6	9.0	12.6	4.8	7.4	9.6	6.5
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	847	379	353	797	407	278	998	447	222	887	397
V/C Ratio(X)	0.57	0.53	0.29	0.44	0.75	0.76	0.92	0.77	0.33	0.93	0.67	0.48
Avail Cap(c_a), veh/h	377	887	397	377	850	434	278	998	447	222	887	397
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	21.2	19.8	26.9	22.7	22.7	26.5	21.0	18.2	27.6	21.5	20.4
Incr Delay (d2), s/veh	1.9	0.5	0.4	0.9	3.6	7.2	33.1	5.6	2.0	41.6	4.0	4.1
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	1.8	3.5	1.6	1.3	5.3	5.9	6.9	6.9	2.3	6.1	5.2	3.3
LnGrp Delay(d),s/veh	29.0	21.7	20.2	27.8	26.2	29.9	59.6	26.6	20.2	69.2	25.5	24.5
LnGrp LOS	C	C	C	C	C	C	E	C	C	E	C	C
Approach Vol, veh/h		768			1063			1169			991	
Approach Delay, s/veh		23.5			27.5			33.0			34.5	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	22.0	10.6	19.3	14.0	20.0	10.8	19.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	18.0	7.0	16.0	10.0	16.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	9.4	14.6	4.7	9.1	11.0	11.6	5.7	12.6				
Green Ext Time (p_c), s	0.0	2.6	0.1	4.4	0.0	3.3	0.1	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			30.1									
HCM 2010 LOS			C									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	2	37	2	1	16	34	1099	4	13	941	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	68	68	68	87	87	87	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	3	55	3	1	24	43	1390	5	15	1069	20
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1890	2590	545	2044	2597	697	1090	0	0	1395	0	0
Stage 1	1109	1109	-	1478	1478	-	-	-	-	-	-	-
Stage 2	781	1481	-	566	1119	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	43	25	482	33	25	383	636	-	-	486	-	-
Stage 1	223	283	-	132	188	-	-	-	-	-	-	-
Stage 2	354	187	-	476	280	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	37	23	482	26	23	383	636	-	-	486	-	-
Mov Cap-2 Maneuver	127	102	-	92	101	-	-	-	-	-	-	-
Stage 1	208	274	-	123	175	-	-	-	-	-	-	-
Stage 2	307	174	-	404	271	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	23.8			20.6			0.3			0.2		
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	636	-	-	267	259	486	-	-				
HCM Lane V/C Ratio	0.068	-	-	0.285	0.108	0.03	-	-				
HCM Control Delay (s)	11.1	-	-	23.8	20.6	12.6	-	-				
HCM Lane LOS	B	-	-	C	C	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.1	0.4	0.1	-	-				

Existing AM

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection

Int Delay, s/veh 5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	9	303	12	33	419	17	27	10	38	31	11	14
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	70	70	70	67	67	67	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	394	16	47	599	24	40	15	57	48	17	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	599	0	0	394	0	0	1129	1110	394	1146	1110	599
Stage 1	-	-	-	-	-	-	417	417	-	693	693	-
Stage 2	-	-	-	-	-	-	712	693	-	453	417	-
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	978	-	-	1165	-	-	181	209	655	176	209	502
Stage 1	-	-	-	-	-	-	613	591	-	434	445	-
Stage 2	-	-	-	-	-	-	423	445	-	586	591	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	978	-	-	1165	-	-	155	198	655	146	198	502
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	198	-	146	198	-
Stage 1	-	-	-	-	-	-	605	584	-	429	427	-
Stage 2	-	-	-	-	-	-	373	427	-	515	584	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	28.2	39.5
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	265	978	-	-	1165	-	-	189
HCM Lane V/C Ratio	0.422	0.012	-	-	0.04	-	-	0.463
HCM Control Delay (s)	28.2	8.7	-	-	8.2	-	-	39.5
HCM Lane LOS	D	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2	0	-	-	0.1	-	-	2.2

Existing AM

Synchro 8 Report

HCM 2010 TWSC
10: Driveway & Cottonwood Ave

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	318	27	9	449	0	3	0	1	0	0	0
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	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	78	78	78	50	50	50	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	424	36	12	576	0	6	0	2	0	0	0

Major/Minor	Major1	Major2	Minor1						
Conflicting Flow All	576	0	0	460	0	0	1041	1041	442
Stage 1	-	-	-	-	-	-	442	442	-
Stage 2	-	-	-	-	-	-	599	599	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	997	-	-	1101	-	-	255	230	615
Stage 1	-	-	-	-	-	-	648	576	-
Stage 2	-	-	-	-	-	-	549	490	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	997	-	-	1101	-	-	252	0	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	252	0	-
Stage 1	-	-	-	-	-	-	648	0	-
Stage 2	-	-	-	-	-	-	543	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	296	997	-	-	1101	-	-
HCM Lane V/C Ratio	0.027	-	-	-	0.01	-	-
HCM Control Delay (s)	17.5	0	-	-	8.3	-	-
HCM Lane LOS	C	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-

Existing AM

Synchro 8 Report

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	10	0	0	0	13	1073	0	0	988	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	25	25	25	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	16	0	0	0	15	1262	0	0	1162	4

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1826	2457	583	1166	0	0	1262	0	0
Stage 1	1164	1164	-	-	-	-	-	-	-
Stage 2	662	1293	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	68	30	456	595	-	-	547	-	-
Stage 1	259	267	-	-	-	-	-	-	-
Stage 2	475	231	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	66	0	456	595	-	-	547	-	-
Mov Cap-2 Maneuver	66	0	-	-	-	-	-	-	-
Stage 1	259	0	-	-	-	-	-	-	-
Stage 2	463	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0.1	0
HCM LOS	B		

























Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	595	-	-	456	547	-	-
HCM Lane V/C Ratio	0.026	-	-	0.035	-	-	-
HCM Control Delay (s)	11.2	-	-	13.2	0	-	-
HCM Lane LOS	B	-	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	-	-

Existing AM

Synchro 8 Report

HCM 2010 Signalized Intersection Summary

























1: Perris Blvd & Eucalyptus Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	161	63	46	106	84	57	867	58	105	1173	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	64	189	74	66	151	120	59	903	60	109	1222	58
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.70	0.70	0.70	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	136	290	246	138	292	248	130	1420	635	174	1507	674
Arrive On Green	0.08	0.16	0.16	0.08	0.16	0.16	0.07	0.40	0.40	0.10	0.43	0.43
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	64	189	74	66	151	120	59	903	60	109	1222	58
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.1	5.7	2.5	2.1	4.4	4.1	1.9	12.3	1.4	3.5	18.1	1.3
Cycle Q Clear(g_c), s	2.1	5.7	2.5	2.1	4.4	4.1	1.9	12.3	1.4	3.5	18.1	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	290	246	138	292	248	130	1420	635	174	1507	674
V/C Ratio(X)	0.47	0.65	0.30	0.48	0.52	0.48	0.45	0.64	0.09	0.63	0.81	0.09
Avail Cap(c_a), veh/h	208	498	423	208	498	423	208	1420	635	208	1507	674
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	23.7	22.4	26.4	23.1	23.0	26.6	14.4	11.1	25.9	15.1	10.2
Incr Delay (d2), s/veh	2.5	2.5	0.7	2.5	1.4	1.5	2.5	2.2	0.3	4.4	4.8	0.3
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	3.1	1.1	1.1	2.4	1.9	1.0	6.3	0.7	1.9	9.8	0.6
LnGrp Delay(d),s/veh	29.0	26.2	23.1	29.0	24.6	24.5	29.1	16.6	11.4	30.3	19.9	10.5
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		327			337			1022			1389	
Approach Delay, s/veh		26.0			25.4			17.0			20.3	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	28.0	8.7	13.3	8.4	29.5	8.6	13.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	5.5	14.3	4.1	7.7	3.9	20.1	4.1	6.4				
Green Ext Time (p_c), s	0.0	8.0	0.0	1.6	0.0	3.5	0.0	1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			20.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	58	92	24	28	85	58	14	893	42	72	1112	81	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
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	
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863	
Adj Flow Rate, veh/h	65	103	27	31	96	65	15	930	44	74	1146	84	
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	86	100	438	77	178	438	46	1486	70	149	1735	776	
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.03	0.43	0.43	0.08	0.49	0.49	
Sat Flow, veh/h	0	362	1583	0	644	1583	1774	3441	163	1774	3539	1583	
Grp Volume(v), veh/h	168	0	27	127	0	65	15	478	496	74	1146	84	
Grp Sat Flow(s),veh/h/ln	362	0	1583	644	0	1583	1774	1770	1834	1774	1770	1583	
Q Serve(g_s), s	0.0	0.0	0.7	0.0	0.0	1.8	0.5	12.2	12.2	2.3	14.1	1.7	
Cycle Q Clear(g_c), s	16.0	0.0	0.7	16.0	0.0	1.8	0.5	12.2	12.2	2.3	14.1	1.7	
Prop In Lane	0.39		1.00	0.24		1.00	1.00		0.09	1.00		1.00	
Lane Grp Cap(c), veh/h	186	0	438	256	0	438	46	764	792	149	1735	776	
V/C Ratio(X)	0.90	0.00	0.06	0.50	0.00	0.15	0.33	0.63	0.63	0.50	0.66	0.11	
Avail Cap(c_a), veh/h	186	0	438	256	0	438	215	764	792	215	1735	776	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	20.3	0.0	15.4	17.2	0.0	15.8	27.7	12.8	12.8	25.3	11.1	7.9	
Incr Delay (d2), s/veh	39.6	0.0	0.1	1.5	0.0	0.2	4.0	3.8	3.7	2.5	2.0	0.3	
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	4.7	0.0	0.3	1.7	0.0	0.8	0.3	6.7	6.9	1.2	7.3	0.8	
LnGrp Delay(d),s/veh	60.0	0.0	15.5	18.7	0.0	15.9	31.7	16.6	16.5	27.9	13.1	8.2	
LnGrp LOS	E		B	B		B	C	B	B	C	B	A	
Approach Vol, veh/h		195			192			989			1304		
Approach Delay, s/veh		53.8			17.8			16.8			13.6		
Approach LOS		D			B			B			B		
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	8.9	29.0		20.0	5.5	32.4		20.0					
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0					
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0					
Max Q Clear Time (g_c+1), s	4.3	14.2		18.0	2.5	16.1		18.0					
Green Ext Time (p_c), s	0.0	8.6		0.0	0.0	7.2		0.0					
Intersection Summary													
HCM 2010 Ctrl Delay			18.0										
HCM 2010 LOS			B										

























HCM 2010 Signalized Intersection Summary 4: Indian St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	316	147	41	246	37	80	263	54	28	268	43
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	49	372	173	50	300	45	96	317	65	29	282	45
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.82	0.82	0.82	0.83	0.83	0.83	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	482	410	119	484	411	170	1022	207	80	913	144
Arrive On Green	0.07	0.26	0.26	0.07	0.26	0.26	0.10	0.35	0.35	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2934	594	1774	3064	483
Grp Volume(v), veh/h	49	372	173	50	300	45	96	190	192	29	161	166
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1758	1774	1770	1777
Q Serve(g_s), s	1.5	10.6	5.2	1.5	8.1	1.2	3.0	4.5	4.6	0.9	4.0	4.1
Cycle Q Clear(g_c), s	1.5	10.6	5.2	1.5	8.1	1.2	3.0	4.5	4.6	0.9	4.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		0.27
Lane Grp Cap(c), veh/h	118	482	410	119	484	411	170	617	613	80	527	529
V/C Ratio(X)	0.42	0.77	0.42	0.42	0.62	0.11	0.56	0.31	0.31	0.36	0.31	0.31
Avail Cap(c_a), veh/h	218	587	499	218	587	499	218	617	613	218	527	529
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	19.6	17.6	25.6	18.6	16.1	24.7	13.6	13.6	26.4	15.5	15.5
Incr Delay (d2), s/veh	2.3	5.1	0.7	2.3	1.4	0.1	2.9	1.3	1.3	2.7	1.5	1.5
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	6.1	2.4	0.8	4.4	0.6	1.6	2.4	2.4	0.5	2.2	2.2
LnGrp Delay(d),s/veh	27.9	24.7	18.3	27.9	20.0	16.2	27.6	14.9	14.9	29.2	17.0	17.1
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		594			395			478			356	
Approach Delay, s/veh		23.1			20.6			17.4			18.0	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	23.9	7.8	18.8	9.5	21.0	7.8	18.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	2.9	6.6	3.5	12.6	5.0	6.1	3.5	10.1				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.2	0.0	3.1	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			20.1									
HCM 2010 LOS			C									






















HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	93	213	62	29	148	90	63	817	41	139	967	119
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	109	251	73	37	190	115	67	869	44	148	1029	127
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.78	0.78	0.78	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	396	336	97	308	262	143	1193	534	199	1304	583
Arrive On Green	0.10	0.21	0.21	0.05	0.17	0.17	0.08	0.34	0.34	0.11	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	109	251	73	37	190	115	67	869	44	148	1029	127
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.3	6.9	2.1	1.1	5.3	3.7	2.0	12.2	1.1	4.6	14.6	3.1
Cycle Q Clear(g_c), s	3.3	6.9	2.1	1.1	5.3	3.7	2.0	12.2	1.1	4.6	14.6	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	180	396	336	97	308	262	143	1193	534	199	1304	583
V/C Ratio(X)	0.60	0.63	0.22	0.38	0.62	0.44	0.47	0.73	0.08	0.75	0.79	0.22
Avail Cap(c_a), veh/h	220	529	450	220	529	450	220	1193	534	220	1304	583
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	20.2	18.3	25.7	21.9	21.2	24.7	16.4	12.7	24.2	15.8	12.2
Incr Delay (d2), s/veh	3.2	1.7	0.3	2.5	2.0	1.2	2.4	3.9	0.3	11.7	4.9	0.9
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	1.8	3.7	1.0	0.6	2.9	1.7	1.1	6.6	0.5	2.9	7.9	1.5
LnGrp Delay(d),s/veh	27.5	21.9	18.6	28.2	23.9	22.3	27.1	20.3	13.0	35.9	20.8	13.1
LnGrp LOS	C	C	B	C	C	C	C	C	B	D	C	B
Approach Vol, veh/h		433			342			980			1304	
Approach Delay, s/veh		22.7			23.8			20.5			21.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	23.0	7.1	16.0	8.5	24.8	9.7	13.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.6	14.2	3.1	8.9	4.0	16.6	5.3	7.3				
Green Ext Time (p_c), s	0.0	4.1	0.0	1.7	0.0	2.1	0.0	2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			21.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	224	52	28	197	39	28	259	17	35	261	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	20	277	64	30	214	42	32	294	19	37	275	19
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.92	0.92	0.92	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	401	341	85	426	362	89	1217	78	100	1232	85
Arrive On Green	0.03	0.22	0.22	0.05	0.23	0.23	0.05	0.36	0.36	0.06	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3377	217	1774	3361	231
Grp Volume(v), veh/h	20	277	64	30	214	42	32	153	160	37	144	150
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1824	1774	1770	1822
Q Serve(g_s), s	0.5	6.8	1.7	0.8	5.0	1.0	0.9	3.0	3.1	1.0	2.8	2.8
Cycle Q Clear(g_c), s	0.5	6.8	1.7	0.8	5.0	1.0	0.9	3.0	3.1	1.0	2.8	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.13
Lane Grp Cap(c), veh/h	60	401	341	85	426	362	89	638	658	100	649	668
V/C Ratio(X)	0.33	0.69	0.19	0.35	0.50	0.12	0.36	0.24	0.24	0.37	0.22	0.22
Avail Cap(c_a), veh/h	249	634	539	249	634	539	249	638	658	249	649	668
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	18.1	16.0	23.0	16.8	15.3	22.9	11.2	11.2	22.7	10.9	10.9
Incr Delay (d2), s/veh	3.2	2.1	0.3	2.5	0.9	0.1	2.4	0.9	0.9	2.3	0.8	0.8
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	0.3	3.7	0.7	0.5	2.7	0.5	0.5	1.6	1.7	0.6	1.5	1.6
LnGrp Delay(d),s/veh	26.7	20.2	16.3	25.5	17.7	15.4	25.4	12.1	12.1	25.0	11.7	11.7
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		361			286			345			331	
Approach Delay, s/veh		19.9			18.2			13.3			13.2	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	22.0	6.4	14.7	6.5	22.3	5.7	15.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	18.0	7.0	17.0	7.0	18.0	7.0	17.0				
Max Q Clear Time (g_c+l1), s	3.0	5.1	2.8	8.8	2.9	4.8	2.5	7.0				
Green Ext Time (p_c), s	0.0	2.7	0.0	1.9	0.0	2.7	0.0	2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			16.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	47	40	19	40	42	41	865	50	68	966	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	25	53	45	23	48	50	44	920	53	73	1039	30
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	131	111	68	116	120	115	1348	78	161	1494	669
Arrive On Green	0.04	0.14	0.14	0.04	0.14	0.14	0.06	0.40	0.40	0.09	0.42	0.42
Sat Flow, veh/h	1774	932	791	1774	837	872	1774	3402	196	1774	3539	1583
Grp Volume(v), veh/h	25	0	98	23	0	98	44	479	494	73	1039	30
Grp Sat Flow(s),veh/h/ln	1774	0	1723	1774	0	1709	1774	1770	1828	1774	1770	1583
Q Serve(g_s), s	0.7	0.0	2.5	0.6	0.0	2.5	1.1	10.7	10.7	1.9	11.5	0.5
Cycle Q Clear(g_c), s	0.7	0.0	2.5	0.6	0.0	2.5	1.1	10.7	10.7	1.9	11.5	0.5
Prop In Lane	1.00		0.46	1.00		0.51	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	73	0	243	68	0	236	115	701	724	161	1494	669
V/C Ratio(X)	0.34	0.00	0.40	0.34	0.00	0.42	0.38	0.68	0.68	0.45	0.70	0.04
Avail Cap(c_a), veh/h	259	0	575	259	0	570	259	701	724	259	1494	669
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	0.0	18.8	22.5	0.0	18.9	21.5	12.0	12.0	20.7	11.3	8.2
Incr Delay (d2), s/veh	2.7	0.0	1.1	2.9	0.0	1.2	2.1	5.3	5.2	2.0	2.7	0.1
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	0.4	0.0	1.2	0.3	0.0	1.2	0.6	6.2	6.4	1.0	6.0	0.3
LnGrp Delay(d),s/veh	25.1	0.0	19.8	25.3	0.0	20.1	23.6	17.3	17.1	22.7	14.0	8.3
LnGrp LOS	C		B	C		C	C	B	B	C	B	A
Approach Vol, veh/h		123			121			1017			1142	
Approach Delay, s/veh		20.9			21.1			17.5			14.4	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	23.0	5.8	10.8	7.1	24.2	6.0	10.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	3.9	12.7	2.6	4.5	3.1	13.5	2.7	4.5				
Green Ext Time (p_c), s	0.0	5.1	0.0	0.7	0.0	4.5	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.4									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	402	761	273	168	502	97	241	551	106	140	709	129
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	428	810	290	195	584	113	265	605	116	154	779	142
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	898	402	317	909	173	305	1172	524	193	949	424
Arrive On Green	0.13	0.25	0.25	0.09	0.21	0.21	0.17	0.33	0.33	0.11	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	4292	817	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	428	810	290	195	459	238	265	605	116	154	779	142
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1719	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.2	16.5	12.5	4.1	9.2	9.4	10.9	10.3	3.9	6.3	15.4	5.4
Cycle Q Clear(g_c), s	9.2	16.5	12.5	4.1	9.2	9.4	10.9	10.3	3.9	6.3	15.4	5.4
Prop In Lane	1.00		1.00	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	461	898	402	317	718	364	305	1172	524	193	949	424
V/C Ratio(X)	0.93	0.90	0.72	0.61	0.64	0.65	0.87	0.52	0.22	0.80	0.82	0.33
Avail Cap(c_a), veh/h	461	901	403	323	727	369	309	1172	524	285	949	424
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	27.0	25.4	32.6	26.8	26.9	30.1	20.1	18.0	32.5	25.6	22.0
Incr Delay (d2), s/veh	25.1	12.2	6.2	3.4	1.9	4.0	22.2	1.6	1.0	9.4	7.9	2.1
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	5.9	9.5	6.1	2.1	4.5	4.9	7.2	5.3	1.8	3.6	8.5	2.6
LnGrp Delay(d),s/veh	57.1	39.1	31.7	36.0	28.7	30.9	52.3	21.8	19.0	41.9	33.6	24.1
LnGrp LOS	E	D	C	D	C	C	D	C	B	D	C	C
Approach Vol, veh/h		1528			892			986			1075	
Approach Delay, s/veh		42.7			30.9			29.6			33.5	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	28.7	10.9	22.9	16.8	24.0	14.0	19.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	21.0	7.0	19.0	13.0	20.0	10.0	16.0				
Max Q Clear Time (g_c+1), s	8.3	12.3	6.1	18.5	12.9	17.4	11.2	11.4				
Green Ext Time (p_c), s	0.1	5.8	0.1	0.4	0.0	2.0	0.0	3.5				
Intersection Summary												
HCM 2010 Ctrl Delay			35.3									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	3	36	2	1	11	36	968	2	43	1212	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	97	97	97	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	4	46	3	2	19	41	1098	2	44	1237	20
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1966	2517	629	1889	2526	550	1257	0	0	1100	0	0
Stage 1	1335	1335	-	1181	1181	-	-	-	-	-	-	-
Stage 2	631	1182	-	708	1345	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	37	28	425	43	27	479	549	-	-	630	-	-
Stage 1	162	221	-	202	262	-	-	-	-	-	-	-
Stage 2	436	262	-	392	218	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	31	24	425	33	23	479	549	-	-	630	-	-
Mov Cap-2 Maneuver	107	103	-	116	99	-	-	-	-	-	-	-
Stage 1	150	206	-	187	242	-	-	-	-	-	-	-
Stage 2	385	242	-	319	203	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	29			19.2			0.4			0.4		
HCM LOS	D			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	549	-	-	217	278	630	-	-				
HCM Lane V/C Ratio	0.074	-	-	0.313	0.087	0.07	-	-				
HCM Control Delay (s)	12.1	-	-	29	19.2	11.1	-	-				
HCM Lane LOS	B	-	-	D	C	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.3	0.3	0.2	-	-				

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	303	50	14	217	8	28	5	8	6	2	10
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	88	88	88	60	60	60	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	309	51	16	247	9	47	8	13	8	3	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	247	0	0	309	0	0	628	620	309	631	620	247
Stage 1	-	-	-	-	-	-	342	342	-	278	278	-
Stage 2	-	-	-	-	-	-	286	278	-	353	342	-
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	1319	-	-	1252	-	-	395	404	731	394	404	792
Stage 1	-	-	-	-	-	-	673	638	-	728	680	-
Stage 2	-	-	-	-	-	-	721	680	-	664	638	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1319	-	-	1252	-	-	379	394	731	373	394	792
Mov Cap-2 Maneuver	-	-	-	-	-	-	379	394	-	373	394	-
Stage 1	-	-	-	-	-	-	665	630	-	719	671	-
Stage 2	-	-	-	-	-	-	697	671	-	635	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	15.2	12.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	420	1319	-	-	1252	-	-	533
HCM Lane V/C Ratio	0.163	0.012	-	-	0.013	-	-	0.045
HCM Control Delay (s)	15.2	7.8	-	-	7.9	-	-	12.1
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Existing PM

Synchro 8 Report

HCM 2010 TWSC
10: Driveway & Cottonwood Ave

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	381	12	0	263	0	4	0	4	0	0	0
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	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	81	81	81	33	33	33	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	419	13	0	325	0	12	0	12	0	0	0

Major/Minor	Major1	Major2	Minor1						
Conflicting Flow All	325	0	0	432	0	0	750	750	425
Stage 1	-	-	-	-	-	-	425	425	-
Stage 2	-	-	-	-	-	-	325	325	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1235	-	-	1128	-	-	379	340	629
Stage 1	-	-	-	-	-	-	659	586	-
Stage 2	-	-	-	-	-	-	732	649	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1235	-	-	1128	-	-	379	0	629
Mov Cap-2 Maneuver	-	-	-	-	-	-	379	0	-
Stage 1	-	-	-	-	-	-	659	0	-
Stage 2	-	-	-	-	-	-	732	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	473	1235	-	-	1128	-	-
HCM Lane V/C Ratio	0.051	-	-	-	-	-	-
HCM Control Delay (s)	13	0	-	-	0	-	-
HCM Lane LOS	B	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-

Existing PM

Synchro 8 Report

HCM 2010 TWSC
11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	11	0	67	0	0	0	49	955	0	0	1148	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	25	25	25	95	95	95	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	93	0	0	0	52	1005	0	0	1234	37

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1859	2361	635	1271	0	0	1005	0	0
Stage 1	1253	1253	-	-	-	-	-	-	-
Stage 2	606	1108	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	65	35	421	542	-	-	685	-	-
Stage 1	232	242	-	-	-	-	-	-	-
Stage 2	507	284	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	59	0	421	542	-	-	685	-	-
Mov Cap-2 Maneuver	59	0	-	-	-	-	-	-	-
Stage 1	232	0	-	-	-	-	-	-	-
Stage 2	458	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.8	0.6	0
HCM LOS	D		

























Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	542	-	-	226	685	-	-
HCM Lane V/C Ratio	0.095	-	-	0.479	-	-	-
HCM Control Delay (s)	12.3	-	-	34.8	0	-	-
HCM Lane LOS	B	-	-	D	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	2.4	0	-	-

Existing PM























Synchro 8 Report

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	78	31	29	61	73	46	870	32	62	816	44
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	56	87	34	35	73	88	51	956	35	69	907	49
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	298	253	96	258	219	126	1344	601	153	1398	626
Arrive On Green	0.08	0.16	0.16	0.05	0.14	0.14	0.07	0.38	0.38	0.09	0.40	0.40
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	56	87	34	35	73	88	51	956	35	69	907	49
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	1.5	2.1	0.9	1.0	1.8	2.5	1.4	11.5	0.7	1.8	10.4	1.0
Cycle Q Clear(g_c), s	1.5	2.1	0.9	1.0	1.8	2.5	1.4	11.5	0.7	1.8	10.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	298	253	96	258	219	126	1344	601	153	1398	626
V/C Ratio(X)	0.42	0.29	0.13	0.37	0.28	0.40	0.40	0.71	0.06	0.45	0.65	0.08
Avail Cap(c_a), veh/h	248	596	507	248	596	507	248	1344	601	248	1398	626
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	18.5	18.0	22.8	19.3	19.7	22.2	13.2	9.8	21.7	12.3	9.4
Incr Delay (d2), s/veh	2.1	0.5	0.2	2.3	0.6	1.2	2.1	3.2	0.2	2.1	2.3	0.2
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	0.8	1.1	0.4	0.5	0.9	1.2	0.7	6.2	0.3	1.0	5.5	0.5
LnGrp Delay(d),s/veh	24.1	19.0	18.3	25.2	19.9	20.9	24.3	16.4	10.0	23.8	14.6	9.7
LnGrp LOS	C	B	B	C	B	C	C	B	B	C	B	A
Approach Vol, veh/h		177			196			1042			1025	
Approach Delay, s/veh		20.5			21.3			16.6			15.0	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	23.0	6.7	12.0	7.6	23.8	7.8	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	3.8	13.5	3.0	4.1	3.4	12.4	3.5	4.5				
Green Ext Time (p_c), s	0.0	4.5	0.0	0.9	0.0	5.3	0.0	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			16.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	82	24	34	59	57	22	825	24	26	779	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	82	94	28	39	68	66	26	982	29	30	906	60
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	76	456	88	114	456	74	1579	47	83	1609	720
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	0	265	1583	0	395	1583	1774	3510	104	1774	3539	1583
Grp Volume(v), veh/h	176	0	28	107	0	66	26	495	516	30	906	60
Grp Sat Flow(s),veh/h/ln	265	0	1583	395	0	1583	1774	1770	1844	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.7	0.0	0.0	1.7	0.8	11.9	11.9	0.9	10.4	1.2
Cycle Q Clear(g_c), s	16.0	0.0	0.7	16.0	0.0	1.7	0.8	11.9	11.9	0.9	10.4	1.2
Prop In Lane	0.47		1.00	0.36		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	456	202	0	456	74	796	829	83	1609	720
V/C Ratio(X)	1.03	0.00	0.06	0.53	0.00	0.14	0.35	0.62	0.62	0.36	0.56	0.08
Avail Cap(c_a), veh/h	171	0	456	202	0	456	223	796	829	223	1609	720
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	14.4	16.4	0.0	14.7	25.9	11.7	11.7	25.7	11.1	8.6
Incr Delay (d2), s/veh	76.3	0.0	0.1	2.6	0.0	0.1	2.8	3.6	3.5	2.6	1.4	0.2
Initial Q Delay(d3),s/veh	0.3	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	6.2	0.0	0.3	1.4	0.0	0.8	0.4	6.6	6.8	0.5	5.4	0.6
LnGrp Delay(d),s/veh	97.7	0.0	14.4	19.0	0.0	14.9	28.7	15.3	15.2	28.3	12.5	8.8
LnGrp LOS	F		B	B		B	C	B	B	C	B	A
Approach Vol, veh/h		204			173			1037			996	
Approach Delay, s/veh		86.3			17.4			15.6			12.8	
Approach LOS		F			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	29.0		20.0	6.3	29.3		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	2.9	13.9		18.0	2.8	12.4		18.0				
Green Ext Time (p_c), s	0.0	8.1		0.0	0.0	9.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			20.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	195	104	44	243	24	88	213	43	20	171	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	21	250	133	52	289	29	91	220	44	22	184	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	383	325	126	449	382	173	1132	222	65	1028	121
Arrive On Green	0.04	0.21	0.21	0.07	0.24	0.24	0.10	0.38	0.38	0.04	0.32	0.32
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2950	580	1774	3189	377
Grp Volume(v), veh/h	21	250	133	52	289	29	91	130	134	22	101	105
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1760	1774	1770	1796
Q Serve(g_s), s	0.6	6.5	3.8	1.5	7.3	0.7	2.6	2.6	2.7	0.6	2.2	2.2
Cycle Q Clear(g_c), s	0.6	6.5	3.8	1.5	7.3	0.7	2.6	2.6	2.7	0.6	2.2	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.21
Lane Grp Cap(c), veh/h	62	383	325	126	449	382	173	679	675	65	571	579
V/C Ratio(X)	0.34	0.65	0.41	0.41	0.64	0.08	0.52	0.19	0.20	0.34	0.18	0.18
Avail Cap(c_a), veh/h	236	601	511	236	601	511	269	679	675	236	571	579
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	19.2	18.2	23.4	18.0	15.5	22.6	10.8	10.8	24.8	12.8	12.9
Incr Delay (d2), s/veh	3.1	1.9	0.8	2.2	1.5	0.1	2.4	0.6	0.7	3.0	0.7	0.7
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	0.4	3.5	1.7	0.8	4.0	0.3	1.4	1.4	1.4	0.4	1.1	1.2
LnGrp Delay(d),s/veh	28.0	21.1	19.0	25.6	19.5	15.5	25.1	11.4	11.5	27.8	13.5	13.5
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		404			370			355			228	
Approach Delay, s/veh		20.8			20.1			15.0			14.9	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	24.2	7.7	14.8	9.2	21.0	5.9	16.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	18.0	7.0	17.0	8.0	17.0	7.0	17.0				
Max Q Clear Time (g_c+l1), s	2.6	4.7	3.5	8.5	4.6	4.2	2.6	9.3				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.3	0.1	2.1	0.0	2.2				
Intersection Summary												
HCM 2010 Ctrl Delay			18.1									
HCM 2010 LOS			B									

Existing Sunday

























Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store






















HCM 2010 Signalized Intersection Summary 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	125	51	51	157	153	72	743	54	122	650	96
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	101	158	65	89	275	268	79	816	59	140	747	110
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	418	355	162	408	347	153	1083	484	190	1156	517
Arrive On Green	0.10	0.22	0.22	0.09	0.22	0.22	0.09	0.31	0.31	0.11	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	101	158	65	89	275	268	79	816	59	140	747	110
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.2	4.2	2.0	2.8	8.0	9.4	2.5	12.2	1.6	4.5	10.6	3.0
Cycle Q Clear(g_c), s	3.2	4.2	2.0	2.8	8.0	9.4	2.5	12.2	1.6	4.5	10.6	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	418	355	162	408	347	153	1083	484	190	1156	517
V/C Ratio(X)	0.59	0.38	0.18	0.55	0.67	0.77	0.52	0.75	0.12	0.74	0.65	0.21
Avail Cap(c_a), veh/h	211	506	431	211	506	431	211	1083	484	241	1156	517
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	19.4	18.5	25.6	21.0	21.6	25.7	18.4	14.7	25.5	16.9	14.3
Incr Delay (d2), s/veh	3.3	0.6	0.2	2.9	2.5	6.7	2.7	4.9	0.5	8.5	2.8	0.9
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	1.7	2.2	0.9	1.5	4.3	4.7	1.3	6.6	0.8	2.7	5.6	1.4
LnGrp Delay(d),s/veh	28.7	19.9	18.7	28.5	23.6	28.3	28.4	23.3	15.2	34.0	19.7	15.3
LnGrp LOS	C	B	B	C	C	C	C	C	B	C	B	B
Approach Vol, veh/h		324			632			954			997	
Approach Delay, s/veh		22.4			26.3			23.2			21.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	22.0	9.4	17.2	9.1	23.2	9.7	16.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	18.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	6.5	14.2	4.8	6.2	4.5	12.6	5.2	11.4				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.5	0.0	4.7	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			23.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	169	58	9	189	28	31	157	14	25	170	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	57	302	104	13	278	41	37	187	17	29	195	20
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	515	438	41	416	354	99	1123	101	82	1077	109
Arrive On Green	0.08	0.28	0.28	0.02	0.22	0.22	0.06	0.34	0.34	0.05	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3284	296	1774	3245	329
Grp Volume(v), veh/h	57	302	104	13	278	41	37	100	104	29	105	110
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1811	1774	1770	1805
Q Serve(g_s), s	1.6	7.2	2.6	0.4	7.0	1.1	1.0	2.0	2.1	0.8	2.2	2.2
Cycle Q Clear(g_c), s	1.6	7.2	2.6	0.4	7.0	1.1	1.0	2.0	2.1	0.8	2.2	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.18
Lane Grp Cap(c), veh/h	135	515	438	41	416	354	99	605	619	82	588	599
V/C Ratio(X)	0.42	0.59	0.24	0.32	0.67	0.12	0.37	0.17	0.17	0.35	0.18	0.18
Avail Cap(c_a), veh/h	243	655	557	243	655	557	243	605	619	243	588	599
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	16.0	14.3	24.6	18.1	15.8	23.3	11.8	11.8	23.7	12.1	12.2
Incr Delay (d2), s/veh	2.1	1.1	0.3	4.4	1.9	0.1	2.3	0.6	0.6	2.6	0.7	0.7
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	0.8	3.8	1.2	0.2	3.8	0.5	0.6	1.1	1.1	0.5	1.2	1.2
LnGrp Delay(d),s/veh	24.7	17.1	14.6	29.0	20.0	16.0	25.6	12.3	12.4	26.2	12.8	12.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		463			332			241			244	
Approach Delay, s/veh		17.5			19.8			14.4			14.4	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	21.5	5.2	18.2	6.9	21.0	7.9	15.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+l1), s	2.8	4.1	2.4	9.2	3.0	4.2	3.6	9.0				
Green Ext Time (p_c), s	0.0	1.8	0.0	2.4	0.0	1.8	0.0	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay			16.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	37	27	24	31	59	30	766	35	60	723	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	25	44	32	31	40	77	31	798	36	67	812	29
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	138	100	88	83	160	88	1361	61	153	1527	683
Arrive On Green	0.04	0.14	0.14	0.05	0.15	0.15	0.05	0.39	0.39	0.09	0.43	0.43
Sat Flow, veh/h	1774	1004	730	1774	571	1098	1774	3449	156	1774	3539	1583
Grp Volume(v), veh/h	25	0	76	31	0	117	31	409	425	67	812	29
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1669	1774	1770	1835	1774	1770	1583
Q Serve(g_s), s	0.7	0.0	1.9	0.8	0.0	3.1	0.8	8.8	8.8	1.7	8.1	0.5
Cycle Q Clear(g_c), s	0.7	0.0	1.9	0.8	0.0	3.1	0.8	8.8	8.8	1.7	8.1	0.5
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	73	0	238	88	0	243	88	698	724	153	1527	683
V/C Ratio(X)	0.34	0.00	0.32	0.35	0.00	0.48	0.35	0.59	0.59	0.44	0.53	0.04
Avail Cap(c_a), veh/h	258	0	576	258	0	555	258	698	724	258	1527	683
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	0.0	18.7	22.1	0.0	18.9	22.1	11.5	11.5	20.9	10.1	7.9
Incr Delay (d2), s/veh	2.7	0.0	0.8	2.4	0.0	1.5	2.4	3.6	3.5	2.0	1.3	0.1
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	0.4	0.0	1.0	0.5	0.0	1.5	0.5	4.9	5.1	0.9	4.2	0.2
LnGrp Delay(d),s/veh	25.2	0.0	19.5	24.6	0.0	20.4	24.6	15.1	14.9	22.9	11.4	8.0
LnGrp LOS	C		B	C		C	C	B	B	C	B	A
Approach Vol, veh/h		101			148			865			908	
Approach Delay, s/veh		20.9			21.3			15.3			12.2	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	23.0	6.4	10.6	6.4	24.8	6.0	11.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	3.7	10.8	2.8	3.9	2.8	10.1	2.7	5.1				
Green Ext Time (p_c), s	0.0	5.7	0.0	0.8	0.0	6.0	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			14.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	329	396	206	157	370	87	274	521	68	112	475	153
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	366	440	229	183	430	101	301	573	75	122	516	166
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	732	328	350	780	178	344	1260	564	167	906	405
Arrive On Green	0.12	0.21	0.21	0.10	0.19	0.19	0.19	0.36	0.36	0.09	0.26	0.26
Sat Flow, veh/h	3442	3539	1583	3442	4142	944	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	366	440	229	183	350	181	301	573	75	122	516	166
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1696	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.9	7.5	8.9	3.3	6.2	6.5	10.9	8.3	2.1	4.4	8.4	5.8
Cycle Q Clear(g_c), s	6.9	7.5	8.9	3.3	6.2	6.5	10.9	8.3	2.1	4.4	8.4	5.8
Prop In Lane	1.00		1.00	1.00		0.56	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	732	328	350	638	319	344	1260	564	167	906	405
V/C Ratio(X)	0.88	0.60	0.70	0.52	0.55	0.57	0.87	0.45	0.13	0.73	0.57	0.41
Avail Cap(c_a), veh/h	415	853	382	415	817	409	347	1260	564	267	906	405
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	23.8	24.4	28.3	24.4	24.5	26.0	16.4	14.5	29.2	21.5	20.5
Incr Delay (d2), s/veh	19.4	0.9	4.6	1.2	0.7	1.6	20.9	1.2	0.5	6.0	2.6	3.0
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	4.4	3.8	4.3	1.6	2.9	3.2	7.4	4.2	1.0	2.4	4.4	2.9
LnGrp Delay(d),s/veh	48.2	24.7	29.0	29.5	25.1	26.1	46.9	17.6	14.9	35.2	24.1	23.6
LnGrp LOS	D	C	C	C	C	C	D	B	B	D	C	C
Approach Vol, veh/h		1035			714			949			804	
Approach Delay, s/veh		34.0			26.5			26.7			25.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	27.6	10.8	17.7	16.9	21.0	12.0	16.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	10.0	20.0	8.0	16.0	13.0	17.0	8.0	16.0				
Max Q Clear Time (g_c+1), s	6.4	10.3	5.3	10.9	12.9	10.4	8.9	8.5				
Green Ext Time (p_c), s	0.1	5.2	0.1	2.8	0.0	3.9	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									

Existing Sunday

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC
2: Perris Blvd & Atwood Ave

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	4	27	3	6	14	37	916	3	34	824	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	72	72	72	89	89	89	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	6	42	4	8	19	46	1132	4	39	947	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1697	2262	483	1780	2270	568	967	0	0	1136	0	0
Stage 1	1035	1035	-	1225	1225	-	-	-	-	-	-	-
Stage 2	662	1227	-	555	1045	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	60	40	530	52	40	466	708	-	-	611	-	-
Stage 1	248	307	-	190	249	-	-	-	-	-	-	-
Stage 2	417	249	-	484	304	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	49	35	530	42	35	466	708	-	-	611	-	-
Mov Cap-2 Maneuver	145	121	-	126	124	-	-	-	-	-	-	-
Stage 1	232	287	-	178	233	-	-	-	-	-	-	-
Stage 2	360	233	-	409	285	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.4	23.6	0.4	0.4
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	708	-	-	235	225	611	-
HCM Lane V/C Ratio	0.065	-	-	0.321	0.142	0.064	-
HCM Control Delay (s)	10.4	-	-	27.4	23.6	11.3	-
HCM Lane LOS	B	-	-	D	C	B	-
HCM 95th %tile Q(veh)	0.2	-	-	1.3	0.5	0.2	-

Existing Sunday

Synchro 8 Report

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	258	42	3	229	4	31	4	9	2	2	9
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	58	58	58	79	79	79	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	453	74	5	395	7	39	5	11	3	3	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	395	0	0	453	0	0	947	938	453	947	938	395
Stage 1	-	-	-	-	-	-	533	533	-	405	405	-
Stage 2	-	-	-	-	-	-	414	405	-	542	533	-
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	1164	-	-	1108	-	-	241	264	607	241	264	654
Stage 1	-	-	-	-	-	-	531	525	-	622	598	-
Stage 2	-	-	-	-	-	-	616	598	-	525	525	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1164	-	-	1108	-	-	227	254	607	226	254	654
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	254	-	226	254	-
Stage 1	-	-	-	-	-	-	513	507	-	601	595	-
Stage 2	-	-	-	-	-	-	597	595	-	492	507	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.1			22.3			13.9		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	263	1164	-	-	1108	-	-	426				
HCM Lane V/C Ratio	0.212	0.035	-	-	0.005	-	-	0.047				
HCM Control Delay (s)	22.3	8.2	-	-	8.3	-	-	13.9				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0	-	-	0.1				

Existing Sunday

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC
10: Driveway & Cottonwood Ave

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	222	121	19	293	0	47	0	39	0	0	0
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	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	81	81	81	52	52	52	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	288	157	23	362	0	90	0	75	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	362	0	0	445	0	0	776	776	367
Stage 1	-	-	-	-	-	-	367	367	-
Stage 2	-	-	-	-	-	-	409	409	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1197	-	-	1115	-	-	366	328	678
Stage 1	-	-	-	-	-	-	701	622	-
Stage 2	-	-	-	-	-	-	671	596	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1197	-	-	1115	-	-	358	0	678
Mov Cap-2 Maneuver	-	-	-	-	-	-	358	0	-
Stage 1	-	-	-	-	-	-	701	0	-
Stage 2	-	-	-	-	-	-	657	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	17.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	455	1197	-	-	1115	-	-
HCM Lane V/C Ratio	0.363	-	-	-	0.021	-	-
HCM Control Delay (s)	17.4	0	-	-	8.3	-	-
HCM Lane LOS	C	A	-	-	A	-	-
HCM 95th %tile Q(veh)	1.6	0	-	-	0.1	-	-

Existing Sunday

Synchro 8 Report

HCM 2010 TWSC
11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	19	0	71	0	0	0	63	910	0	0	796	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	25	25	25	82	82	82	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	89	0	0	0	77	1110	0	0	926	40

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1654	2208	483	965	0	0	1110	0	0
Stage 1	945	945	-	-	-	-	-	-	-
Stage 2	709	1263	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	89	44	530	709	-	-	625	-	-
Stage 1	338	339	-	-	-	-	-	-	-
Stage 2	449	239	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	79	0	530	709	-	-	625	-	-
Mov Cap-2 Maneuver	79	0	-	-	-	-	-	-	-
Stage 1	338	0	-	-	-	-	-	-	-
Stage 2	400	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.6	0.7	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	709	-	-	240	625	-	-
HCM Lane V/C Ratio	0.108	-	-	0.469	-	-	-
HCM Control Delay (s)	10.7	-	-	32.6	0	-	-
HCM Lane LOS	B	-	-	D	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	2.3	0	-	-

Existing Sunday

Synchro 8 Report

HCM 2010 Signalized Intersection Summary
 1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	76	55	83	127	177	57	1031	53	70	844	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	35	110	80	94	144	201	66	1185	61	80	959	30
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.88	0.88	0.88	0.87	0.87	0.87	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	252	214	166	330	280	140	1452	650	154	1482	663
Arrive On Green	0.05	0.14	0.14	0.09	0.18	0.18	0.08	0.41	0.41	0.09	0.42	0.42
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	35	110	80	94	144	201	66	1185	61	80	959	30
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	1.1	3.2	2.7	3.0	4.0	7.0	2.1	17.4	1.4	2.5	12.6	0.7
Cycle Q Clear(g_c), s	1.1	3.2	2.7	3.0	4.0	7.0	2.1	17.4	1.4	2.5	12.6	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	252	214	166	330	280	140	1452	650	154	1482	663
V/C Ratio(X)	0.38	0.44	0.37	0.57	0.44	0.72	0.47	0.82	0.09	0.52	0.65	0.05
Avail Cap(c_a), veh/h	212	510	433	212	510	433	212	1452	650	212	1482	663
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	23.2	23.0	25.4	21.5	22.7	25.8	15.3	10.6	25.5	13.6	10.1
Incr Delay (d2), s/veh	2.6	1.2	1.1	3.0	0.9	3.4	2.5	5.2	0.3	2.7	2.2	0.1
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	0.6	1.7	1.2	1.6	2.2	3.3	1.1	9.4	0.7	1.3	6.6	0.3
LnGrp Delay(d),s/veh	29.4	24.4	24.1	28.4	22.4	26.1	28.2	20.5	10.9	28.2	15.7	10.2
LnGrp LOS	C	C	C	C	C	C	C	C	B	C	B	B
Approach Vol, veh/h		225			439			1312			1069	
Approach Delay, s/veh		25.1			25.4			20.4			16.5	
Approach LOS		C			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	28.0	9.5	11.9	8.6	28.5	7.0	14.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.5	19.4	5.0	5.2	4.1	14.6	3.1	9.0				
Green Ext Time (p_c), s	0.0	4.1	0.0	1.7	0.0	7.8	0.0	1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			20.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	67	70	45	61	92	56	31	1032	25	32	885	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	77	80	52	81	123	75	36	1200	29	38	1054	86
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	69	451	90	99	451	95	1573	38	99	1584	709
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.45	0.45	0.06	0.45	0.45
Sat Flow, veh/h	0	241	1583	0	347	1583	1774	3532	85	1774	3539	1583
Grp Volume(v), veh/h	157	0	52	204	0	75	36	601	628	38	1054	86
Grp Sat Flow(s),veh/h/ln	241	0	1583	347	0	1583	1774	1770	1848	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	1.4	0.0	0.0	2.0	1.1	16.0	16.0	1.2	13.2	1.8
Cycle Q Clear(g_c), s	16.0	0.0	1.4	16.0	0.0	2.0	1.1	16.0	16.0	1.2	13.2	1.8
Prop In Lane	0.49		1.00	0.40		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	164	0	451	189	0	451	95	788	823	99	1584	709
V/C Ratio(X)	0.96	0.00	0.12	1.08	0.00	0.17	0.38	0.76	0.76	0.38	0.67	0.12
Avail Cap(c_a), veh/h	164	0	451	189	0	451	221	788	823	221	1584	709
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	14.8	20.4	0.0	15.1	25.7	13.1	13.1	25.6	12.2	9.1
Incr Delay (d2), s/veh	57.1	0.0	0.1	88.9	0.0	0.2	2.5	6.9	6.6	2.4	2.2	0.4
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	5.0	0.0	0.6	7.5	0.0	0.9	0.6	9.2	9.5	0.6	6.8	0.8
LnGrp Delay(d),s/veh	78.6	0.0	14.9	109.3	0.0	15.2	28.1	20.0	19.7	28.0	14.4	9.4
LnGrp LOS	E		B	F		B	C	B	B	C	B	A
Approach Vol, veh/h		209			279			1265			1178	
Approach Delay, s/veh		62.8			84.0			20.1			14.5	
Approach LOS		E			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	29.0		20.0	7.0	29.1		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+l1), s	3.2	18.0		18.0	3.1	15.2		18.0				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	8.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	291	125	44	360	83	93	237	29	53	248	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	342	147	58	474	109	118	300	37	61	285	54
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	547	465	128	554	471	178	930	114	132	795	149
Arrive On Green	0.07	0.29	0.29	0.07	0.30	0.30	0.10	0.29	0.29	0.07	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3176	388	1774	2977	557
Grp Volume(v), veh/h	53	342	147	58	474	109	118	166	171	61	168	171
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1794	1774	1770	1765
Q Serve(g_s), s	1.7	9.5	4.3	1.9	14.4	3.1	3.8	4.4	4.5	2.0	4.6	4.7
Cycle Q Clear(g_c), s	1.7	9.5	4.3	1.9	14.4	3.1	3.8	4.4	4.5	2.0	4.6	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.32
Lane Grp Cap(c), veh/h	121	547	465	128	554	471	178	518	525	132	472	471
V/C Ratio(X)	0.44	0.63	0.32	0.45	0.86	0.23	0.66	0.32	0.33	0.46	0.36	0.36
Avail Cap(c_a), veh/h	207	590	502	207	590	502	207	518	525	207	472	471
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	18.3	16.5	26.7	19.8	15.9	26.0	16.5	16.6	26.6	17.8	17.8
Incr Delay (d2), s/veh	2.5	1.9	0.4	2.5	11.3	0.2	6.2	1.6	1.6	2.5	2.1	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	0.9	5.1	1.9	1.0	9.1	1.4	2.2	2.4	2.4	1.1	2.5	2.6
LnGrp Delay(d),s/veh	29.3	20.2	16.9	29.1	31.2	16.1	32.2	18.2	18.2	29.1	19.9	20.0
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	C
Approach Vol, veh/h		542			641			455			400	
Approach Delay, s/veh		20.2			28.4			21.8			21.3	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	21.6	8.3	21.6	10.0	20.0	8.1	21.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+11), s	4.0	6.5	3.9	11.5	5.8	6.7	3.7	16.4				
Green Ext Time (p_c), s	0.0	2.7	0.0	3.4	0.0	2.7	0.0	1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			23.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	83	187	66	59	220	170	70	843	66	112	811	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	104	234	82	80	297	230	85	1028	80	133	965	106
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.74	0.74	0.74	0.82	0.82	0.82	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	417	354	153	398	338	157	1125	503	185	1181	528
Arrive On Green	0.10	0.22	0.22	0.09	0.21	0.21	0.09	0.32	0.32	0.10	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	104	234	82	80	297	230	85	1028	80	133	965	106
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.4	6.7	2.5	2.6	8.9	8.0	2.7	16.7	2.2	4.3	14.9	2.9
Cycle Q Clear(g_c), s	3.4	6.7	2.5	2.6	8.9	8.0	2.7	16.7	2.2	4.3	14.9	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	417	354	153	398	338	157	1125	503	185	1181	528
V/C Ratio(X)	0.61	0.56	0.23	0.52	0.75	0.68	0.54	0.91	0.16	0.72	0.82	0.20
Avail Cap(c_a), veh/h	208	499	424	208	499	424	208	1125	503	208	1181	528
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	20.6	19.0	26.1	22.0	21.6	26.1	19.6	14.6	25.9	18.2	14.2
Incr Delay (d2), s/veh	3.5	1.2	0.3	2.8	4.7	3.1	2.9	12.7	0.7	10.0	6.3	0.9
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	1.8	3.5	1.1	1.4	5.1	3.7	1.5	10.1	1.0	2.6	8.3	1.4
LnGrp Delay(d),s/veh	29.4	21.8	19.3	28.9	26.6	24.7	28.9	32.3	15.3	36.0	24.6	15.1
LnGrp LOS	C	C	B	C	C	C	C	C	B	D	C	B
Approach Vol, veh/h		420			607			1193			1204	
Approach Delay, s/veh		23.2			26.2			30.9			25.0	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	23.0	9.1	17.4	9.3	23.9	9.8	16.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	6.3	18.7	4.6	8.7	4.7	16.9	5.4	10.9				
Green Ext Time (p_c), s	0.0	0.3	0.0	2.4	0.0	1.9	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			27.1									
HCM 2010 LOS			C									

Existing With Project AM

Synchro 8 Report

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	95	230	72	43	323	129	99	297	27	31	201	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	134	324	101	63	475	190	115	345	31	42	275	56
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.71	0.71	0.71	0.68	0.68	0.68	0.86	0.86	0.86	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	585	497	132	535	455	172	973	87	103	756	152
Arrive On Green	0.10	0.31	0.31	0.07	0.29	0.29	0.10	0.30	0.30	0.06	0.26	0.26
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3287	294	1774	2939	590
Grp Volume(v), veh/h	134	324	101	63	475	190	115	185	191	42	164	167
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1811	1774	1770	1759
Q Serve(g_s), s	4.6	9.0	2.9	2.1	15.2	6.0	3.9	5.1	5.2	1.4	4.7	4.9
Cycle Q Clear(g_c), s	4.6	9.0	2.9	2.1	15.2	6.0	3.9	5.1	5.2	1.4	4.7	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.34
Lane Grp Cap(c), veh/h	180	585	497	132	535	455	172	524	536	103	455	452
V/C Ratio(X)	0.74	0.55	0.20	0.48	0.89	0.42	0.67	0.35	0.36	0.41	0.36	0.37
Avail Cap(c_a), veh/h	200	585	497	200	569	483	200	524	536	200	455	452
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	17.7	15.6	27.6	21.2	18.0	27.1	17.2	17.2	28.3	18.9	19.0
Incr Delay (d2), s/veh	12.8	1.1	0.2	2.6	15.2	0.6	6.7	1.9	1.8	2.6	2.2	2.3
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	2.9	4.8	1.3	1.1	10.0	2.7	2.2	2.7	2.8	0.8	2.6	2.7
LnGrp Delay(d),s/veh	39.9	18.9	15.8	30.3	36.4	18.6	33.9	19.1	19.1	30.8	21.1	21.3
LnGrp LOS	D	B	B	C	D	B	C	B	B	C	C	C
Approach Vol, veh/h		559			728			491			373	
Approach Delay, s/veh		23.4			31.2			22.5			22.3	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	22.4	8.6	23.5	10.0	20.0	10.3	21.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+l1), s	3.4	7.2	4.1	11.0	5.9	6.9	6.6	17.2				
Green Ext Time (p_c), s	0.0	2.6	0.0	3.4	0.0	2.7	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			25.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	82	47	80	40	57	94	55	856	54	89	759	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	111	64	108	47	67	111	59	920	58	110	937	93
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.74	0.74	0.74	0.85	0.85	0.85	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	123	208	116	100	166	134	1164	73	183	1317	589
Arrive On Green	0.10	0.20	0.20	0.07	0.16	0.16	0.08	0.34	0.34	0.10	0.37	0.37
Sat Flow, veh/h	1774	624	1053	1774	632	1046	1774	3382	213	1774	3539	1583
Grp Volume(v), veh/h	111	0	172	47	0	178	59	481	497	110	937	93
Grp Sat Flow(s),veh/h/ln	1774	0	1677	1774	0	1678	1774	1770	1825	1774	1770	1583
Q Serve(g_s), s	3.3	0.0	5.1	1.4	0.0	5.5	1.8	13.5	13.5	3.3	12.5	2.2
Cycle Q Clear(g_c), s	3.3	0.0	5.1	1.4	0.0	5.5	1.8	13.5	13.5	3.3	12.5	2.2
Prop In Lane	1.00		0.63	1.00		0.62	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	184	0	331	116	0	267	134	609	628	183	1317	589
V/C Ratio(X)	0.60	0.00	0.52	0.41	0.00	0.67	0.44	0.79	0.79	0.60	0.71	0.16
Avail Cap(c_a), veh/h	225	0	486	225	0	486	225	609	628	225	1317	589
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	0.0	19.8	24.8	0.0	21.8	24.4	16.3	16.3	23.7	14.8	11.6
Incr Delay (d2), s/veh	3.2	0.0	1.3	2.3	0.0	2.9	2.3	10.1	9.8	3.1	3.3	0.6
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	1.8	0.0	2.5	0.8	0.0	2.7	0.9	8.3	8.5	1.7	6.6	1.0
LnGrp Delay(d),s/veh	26.8	0.0	21.1	27.1	0.0	24.7	26.7	26.4	26.1	26.8	18.1	12.1
LnGrp LOS	C		C	C		C	C	C	C	C	B	B
Approach Vol, veh/h		283			225			1037			1140	
Approach Delay, s/veh		23.3			25.2			26.3			18.5	
Approach LOS		C			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	23.0	7.6	14.9	8.2	24.5	9.7	12.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	5.3	15.5	3.4	7.1	3.8	14.5	5.3	7.5				
Green Ext Time (p_c), s	0.0	2.9	0.0	1.3	0.0	3.7	0.0	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			22.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	174	369	89	132	659	114	240	726	140	175	506	162
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	212	450	109	155	775	134	255	772	149	208	602	193
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	369	848	379	353	1027	176	278	998	446	222	887	397
Arrive On Green	0.11	0.24	0.24	0.10	0.24	0.24	0.16	0.28	0.28	0.13	0.25	0.25
Sat Flow, veh/h	3442	3539	1583	3442	4371	750	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	212	450	109	155	600	309	255	772	149	208	602	193
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1730	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.7	7.1	3.6	2.7	10.5	10.6	9.0	12.8	4.8	7.4	9.8	6.6
Cycle Q Clear(g_c), s	3.7	7.1	3.6	2.7	10.5	10.6	9.0	12.8	4.8	7.4	9.8	6.6
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	848	379	353	797	407	278	998	446	222	887	397
V/C Ratio(X)	0.58	0.53	0.29	0.44	0.75	0.76	0.92	0.77	0.33	0.94	0.68	0.49
Avail Cap(c_a), veh/h	377	887	397	377	850	434	278	998	446	222	887	397
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	21.2	19.8	26.9	22.7	22.7	26.5	21.1	18.2	27.7	21.6	20.4
Incr Delay (d2), s/veh	2.0	0.5	0.4	0.9	3.6	7.2	33.2	5.8	2.0	42.8	4.2	4.2
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	3.5	1.6	1.3	5.3	5.9	7.0	7.0	2.3	6.2	5.3	3.4
LnGrp Delay(d),s/veh	29.2	21.7	20.2	27.8	26.3	30.0	59.7	26.9	20.2	70.4	25.8	24.6
LnGrp LOS	C	C	C	C	C	C	E	C	C	E	C	C
Approach Vol, veh/h		771			1064			1176			1003	
Approach Delay, s/veh		23.5			27.6			33.1			34.8	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	22.0	10.6	19.3	14.0	20.0	10.8	19.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	18.0	7.0	16.0	10.0	16.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	9.4	14.8	4.7	9.1	11.0	11.8	5.7	12.6				
Green Ext Time (p_c), s	0.0	2.5	0.1	4.4	0.0	3.2	0.1	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			30.2									
HCM 2010 LOS			C									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	2	37	2	1	16	34	1111	4	13	954	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	68	68	68	87	87	87	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	3	55	3	1	24	43	1405	5	15	1084	20
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1913	2620	552	2066	2627	705	1105	0	0	1410	0	0
Stage 1	1124	1124	-	1493	1493	-	-	-	-	-	-	-
Stage 2	789	1496	-	573	1134	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	41	24	477	31	23	379	628	-	-	480	-	-
Stage 1	219	279	-	129	185	-	-	-	-	-	-	-
Stage 2	350	184	-	472	276	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	35	22	477	25	21	379	628	-	-	480	-	-
Mov Cap-2 Maneuver	124	99	-	90	98	-	-	-	-	-	-	-
Stage 1	204	270	-	120	172	-	-	-	-	-	-	-
Stage 2	303	171	-	400	267	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	24.3			20.8			0.3			0.2		
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	628	-	-	262	255	480	-	-				
HCM Lane V/C Ratio	0.068	-	-	0.291	0.11	0.031	-	-				
HCM Control Delay (s)	11.2	-	-	24.3	20.8	12.7	-	-				
HCM Lane LOS	B	-	-	C	C	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.2	0.4	0.1	-	-				

Existing With Project AM

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	9	307	12	33	423	17	27	10	38	31	11	14
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	70	70	70	67	67	67	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	399	16	47	604	24	40	15	57	48	17	22
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	604	0	0	399	0	0	1140	1121	399	1157	1121	604
Stage 1	-	-	-	-	-	-	422	422	-	699	699	-
Stage 2	-	-	-	-	-	-	718	699	-	458	422	-
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	974	-	-	1160	-	-	178	206	651	173	206	498
Stage 1	-	-	-	-	-	-	609	588	-	430	442	-
Stage 2	-	-	-	-	-	-	420	442	-	583	588	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	974	-	-	1160	-	-	152	195	651	143	195	498
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	195	-	143	195	-
Stage 1	-	-	-	-	-	-	601	581	-	425	424	-
Stage 2	-	-	-	-	-	-	370	424	-	512	581	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			28.8			40.5		
HCM LOS							D			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	261	974	-	-	1160	-	-	186				
HCM Lane V/C Ratio	0.429	0.012	-	-	0.041	-	-	0.47				
HCM Control Delay (s)	28.8	8.7	-	-	8.2	-	-	40.5				
HCM Lane LOS	D	A	-	-	A	-	-	E				
HCM 95th %tile Q(veh)	2	0	-	-	0.1	-	-	2.3				

HCM 2010 TWSC
10: Driveway & Cottonwood Ave

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	19	310	27	9	444	9	3	0	1	12	0	21
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	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	78	78	78	50	50	50	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	413	36	12	569	12	6	0	2	13	0	23

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	581	0	0	449	0	0	1091	1086	431	1081	1098	575
Stage 1	-	-	-	-	-	-	482	482	-	598	598	-
Stage 2	-	-	-	-	-	-	609	604	-	483	500	-
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	993	-	-	1111	-	-	192	216	624	195	213	518
Stage 1	-	-	-	-	-	-	565	553	-	489	491	-
Stage 2	-	-	-	-	-	-	482	488	-	565	543	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	993	-	-	1111	-	-	177	206	624	188	204	518
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	206	-	188	204	-
Stage 1	-	-	-	-	-	-	546	534	-	472	486	-
Stage 2	-	-	-	-	-	-	456	483	-	544	525	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	22.3	17.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	216	993	-	-	1111	-	-	316
HCM Lane V/C Ratio	0.037	0.026	-	-	0.01	-	-	0.114
HCM Control Delay (s)	22.3	8.7	0	-	8.3	-	-	17.8
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.4

Existing With Project AM

Synchro 8 Report

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	10	30	0	31	13	1056	34	35	968	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	16	33	0	34	15	1242	40	41	1139	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1875	2536	571	1945	2518	641	1142	0	0	1282	0	0
Stage 1	1223	1223	-	1293	1293	-	-	-	-	-	-	-
Stage 2	652	1313	-	652	1225	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	44	27	464	39	28	417	608	-	-	537	-	-
Stage 1	190	250	-	172	231	-	-	-	-	-	-	-
Stage 2	423	226	-	423	249	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	37	24	464	35	25	417	608	-	-	537	-	-
Mov Cap-2 Maneuver	37	24	-	35	25	-	-	-	-	-	-	-
Stage 1	185	231	-	168	225	-	-	-	-	-	-	-
Stage 2	379	220	-	377	230	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	13			224.4			0.1			0.4		
HCM LOS	B			F								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	608	-	-	464	65	537	-	-				
HCM Lane V/C Ratio	0.025	-	-	0.035	1.02	0.077	-	-				
HCM Control Delay (s)	11.1	-	-	13	224.4	12.3	-	-				
HCM Lane LOS	B	-	-	B	F	B	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	5.1	0.2	-	-				

HCM 2010 Signalized Intersection Summary
 1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	161	67	48	106	84	60	879	59	105	1186	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	64	189	79	69	151	120	62	916	61	109	1235	58
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.70	0.70	0.70	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	136	290	246	141	296	251	133	1416	634	173	1496	669
Arrive On Green	0.08	0.16	0.16	0.08	0.16	0.16	0.08	0.40	0.40	0.10	0.42	0.42
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	64	189	79	69	151	120	62	916	61	109	1235	58
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.1	5.7	2.7	2.2	4.5	4.1	2.0	12.6	1.4	3.5	18.6	1.3
Cycle Q Clear(g_c), s	2.1	5.7	2.7	2.2	4.5	4.1	2.0	12.6	1.4	3.5	18.6	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	290	246	141	296	251	133	1416	634	173	1496	669
V/C Ratio(X)	0.47	0.65	0.32	0.49	0.51	0.48	0.46	0.65	0.10	0.63	0.83	0.09
Avail Cap(c_a), veh/h	207	497	422	207	497	422	207	1416	634	207	1496	669
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	23.8	22.5	26.4	23.1	23.0	26.6	14.6	11.2	26.0	15.4	10.4
Incr Delay (d2), s/veh	2.5	2.5	0.7	2.6	1.4	1.4	2.5	2.3	0.3	4.4	5.3	0.3
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	3.1	1.2	1.2	2.4	1.9	1.1	6.6	0.7	1.9	10.0	0.6
LnGrp Delay(d),s/veh	29.1	26.3	23.2	29.0	24.5	24.4	29.1	16.9	11.5	30.4	20.7	10.6
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	C	B
Approach Vol, veh/h		332			340			1039			1402	
Approach Delay, s/veh		26.1			25.3			17.3			21.0	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	28.0	8.8	13.3	8.5	29.4	8.6	13.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	5.5	14.6	4.2	7.7	4.0	20.6	4.1	6.5				
Green Ext Time (p_c), s	0.0	7.9	0.0	1.6	0.0	3.1	0.0	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			20.8									
HCM 2010 LOS			C									

Existing With Project PM

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 Signalized Intersection Summary

3: Perris Blvd & Dracaea Ave

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	92	26	29	85	58	15	910	43	72	1130	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	65	103	29	33	96	65	16	948	45	74	1165	84
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	100	438	78	170	438	49	1486	71	149	1730	774
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.03	0.43	0.43	0.08	0.49	0.49
Sat Flow, veh/h	0	362	1583	0	614	1583	1774	3440	163	1774	3539	1583
Grp Volume(v), veh/h	168	0	29	129	0	65	16	488	505	74	1165	84
Grp Sat Flow(s),veh/h/ln	362	0	1583	614	0	1583	1774	1770	1834	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	1.8	0.5	12.5	12.5	2.3	14.5	1.7
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	1.8	0.5	12.5	12.5	2.3	14.5	1.7
Prop In Lane	0.39		1.00	0.26		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	186	0	438	248	0	438	49	764	792	149	1730	774
V/C Ratio(X)	0.90	0.00	0.07	0.52	0.00	0.15	0.33	0.64	0.64	0.50	0.67	0.11
Avail Cap(c_a), veh/h	186	0	438	248	0	438	215	764	792	215	1730	774
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	15.4	17.3	0.0	15.8	27.6	12.9	12.9	25.3	11.3	8.0
Incr Delay (d2), s/veh	39.6	0.0	0.1	1.9	0.0	0.2	3.9	4.0	3.9	2.5	2.1	0.3
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	4.7	0.0	0.3	1.7	0.0	0.8	0.3	7.0	7.2	1.2	7.5	0.8
LnGrp Delay(d),s/veh	60.0	0.0	15.5	19.2	0.0	15.9	31.5	16.9	16.8	27.9	13.4	8.3
LnGrp LOS	E		B	B		B	C	B	B	C	B	A
Approach Vol, veh/h		197			194			1009			1323	
Approach Delay, s/veh		53.4			18.1			17.1			13.9	
Approach LOS		D			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	29.0		20.0	5.6	32.3		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	4.3	14.5		18.0	2.5	16.5		18.0				
Green Ext Time (p_c), s	0.0	8.4		0.0	0.0	7.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			18.2									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

























4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	324	147	41	253	37	80	263	54	28	268	43
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	49	381	173	50	309	45	96	317	65	29	282	45
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.82	0.82	0.82	0.83	0.83	0.83	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	488	415	119	490	417	170	1017	206	80	908	143
Arrive On Green	0.07	0.26	0.26	0.07	0.26	0.26	0.10	0.35	0.35	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2934	594	1774	3064	483
Grp Volume(v), veh/h	49	381	173	50	309	45	96	190	192	29	161	166
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1758	1774	1770	1777
Q Serve(g_s), s	1.5	10.9	5.2	1.6	8.4	1.2	3.0	4.5	4.6	0.9	4.1	4.1
Cycle Q Clear(g_c), s	1.5	10.9	5.2	1.6	8.4	1.2	3.0	4.5	4.6	0.9	4.1	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		0.27
Lane Grp Cap(c), veh/h	117	488	415	119	490	417	170	614	610	80	524	527
V/C Ratio(X)	0.42	0.78	0.42	0.42	0.63	0.11	0.57	0.31	0.32	0.36	0.31	0.31
Avail Cap(c_a), veh/h	216	584	497	216	584	497	216	614	610	216	524	527
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	19.6	17.5	25.7	18.7	16.0	24.8	13.7	13.7	26.6	15.6	15.7
Incr Delay (d2), s/veh	2.4	5.6	0.7	2.4	1.6	0.1	2.9	1.3	1.4	2.7	1.5	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	0.8	6.4	2.4	0.8	4.5	0.6	1.6	2.4	2.4	0.5	2.2	2.3
LnGrp Delay(d),s/veh	28.1	25.2	18.2	28.0	20.3	16.1	27.8	15.0	15.1	29.3	17.2	17.2
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		603			404			478			356	
Approach Delay, s/veh		23.5			20.8			17.6			18.2	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	23.9	7.8	19.0	9.5	21.0	7.8	19.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	2.9	6.6	3.6	12.9	5.0	6.1	3.5	10.4				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.2	0.0	3.1	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			20.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	97	217	62	37	155	96	63	830	45	145	975	119
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	114	255	73	47	199	123	67	883	48	154	1037	127
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.78	0.78	0.78	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	387	329	114	316	269	143	1182	529	199	1295	579
Arrive On Green	0.10	0.21	0.21	0.06	0.17	0.17	0.08	0.33	0.33	0.11	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	114	255	73	47	199	123	67	883	48	154	1037	127
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.5	7.1	2.2	1.4	5.6	4.0	2.1	12.6	1.2	4.8	14.9	3.1
Cycle Q Clear(g_c), s	3.5	7.1	2.2	1.4	5.6	4.0	2.1	12.6	1.2	4.8	14.9	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	387	329	114	316	269	143	1182	529	199	1295	579
V/C Ratio(X)	0.63	0.66	0.22	0.41	0.63	0.46	0.47	0.75	0.09	0.77	0.80	0.22
Avail Cap(c_a), veh/h	218	524	445	218	524	445	218	1182	529	218	1295	579
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	20.7	18.7	25.6	22.0	21.3	25.0	16.8	13.0	24.5	16.2	12.4
Incr Delay (d2), s/veh	4.0	1.9	0.3	2.3	2.1	1.2	2.4	4.3	0.3	14.5	5.3	0.9
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	1.9	3.9	1.0	0.8	3.1	1.8	1.1	6.8	0.6	3.2	8.2	1.5
LnGrp Delay(d),s/veh	28.5	22.6	19.0	27.9	24.0	22.5	27.4	21.1	13.3	39.1	21.4	13.3
LnGrp LOS	C	C	B	C	C	C	C	C	B	D	C	B
Approach Vol, veh/h		442			369			998			1318	
Approach Delay, s/veh		23.5			24.0			21.2			22.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	23.0	7.7	15.8	8.6	24.8	9.8	13.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	6.8	14.6	3.4	9.1	4.1	16.9	5.5	7.6				
Green Ext Time (p_c), s	0.0	3.8	0.0	1.8	0.0	1.8	0.0	2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			22.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	229	52	28	202	39	28	259	17	35	261	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	20	283	64	30	220	42	32	294	19	37	275	19
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.92	0.92	0.92	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	406	345	85	432	367	89	1212	78	100	1227	84
Arrive On Green	0.03	0.22	0.22	0.05	0.23	0.23	0.05	0.36	0.36	0.06	0.36	0.36
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3377	217	1774	3361	231
Grp Volume(v), veh/h	20	283	64	30	220	42	32	153	160	37	144	150
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1824	1774	1770	1822
Q Serve(g_s), s	0.6	7.0	1.7	0.8	5.2	1.0	0.9	3.1	3.1	1.0	2.8	2.9
Cycle Q Clear(g_c), s	0.6	7.0	1.7	0.8	5.2	1.0	0.9	3.1	3.1	1.0	2.8	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.13
Lane Grp Cap(c), veh/h	60	406	345	85	432	367	89	635	655	100	646	665
V/C Ratio(X)	0.33	0.70	0.19	0.35	0.51	0.11	0.36	0.24	0.24	0.37	0.22	0.23
Avail Cap(c_a), veh/h	248	631	537	248	631	537	248	635	655	248	646	665
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	18.1	16.0	23.1	16.8	15.2	23.0	11.3	11.3	22.8	11.0	11.0
Incr Delay (d2), s/veh	3.2	2.2	0.3	2.5	0.9	0.1	2.4	0.9	0.9	2.3	0.8	0.8
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	0.3	3.9	0.7	0.5	2.7	0.5	0.5	1.6	1.7	0.6	1.5	1.6
LnGrp Delay(d),s/veh	26.8	20.2	16.2	25.6	17.7	15.3	25.5	12.2	12.2	25.1	11.8	11.8
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		367			292			345			331	
Approach Delay, s/veh		19.9			18.2			13.4			13.3	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	22.0	6.4	14.9	6.5	22.3	5.7	15.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	18.0	7.0	17.0	7.0	18.0	7.0	17.0				
Max Q Clear Time (g_c+l1), s	3.0	5.1	2.8	9.0	2.9	4.9	2.6	7.2				
Green Ext Time (p_c), s	0.0	2.7	0.0	1.9	0.0	2.7	0.0	2.2				
Intersection Summary												
HCM 2010 Ctrl Delay			16.2									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	47	40	19	40	43	41	880	50	69	980	29
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	27	53	45	23	48	51	44	936	53	74	1054	31
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	134	113	68	114	121	115	1344	76	162	1491	667
Arrive On Green	0.04	0.14	0.14	0.04	0.14	0.14	0.06	0.39	0.39	0.09	0.42	0.42
Sat Flow, veh/h	1774	932	791	1774	828	880	1774	3405	193	1774	3539	1583
Grp Volume(v), veh/h	27	0	98	23	0	99	44	486	503	74	1054	31
Grp Sat Flow(s),veh/h/ln	1774	0	1723	1774	0	1708	1774	1770	1829	1774	1770	1583
Q Serve(g_s), s	0.7	0.0	2.5	0.6	0.0	2.6	1.1	11.0	11.0	1.9	11.8	0.6
Cycle Q Clear(g_c), s	0.7	0.0	2.5	0.6	0.0	2.6	1.1	11.0	11.0	1.9	11.8	0.6
Prop In Lane	1.00		0.46	1.00		0.52	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	247	68	0	235	115	698	722	162	1491	667
V/C Ratio(X)	0.35	0.00	0.40	0.34	0.00	0.42	0.38	0.70	0.70	0.46	0.71	0.05
Avail Cap(c_a), veh/h	258	0	573	258	0	567	258	698	722	258	1491	667
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	0.0	18.7	22.5	0.0	19.0	21.6	12.2	12.2	20.7	11.5	8.2
Incr Delay (d2), s/veh	2.6	0.0	1.0	2.9	0.0	1.2	2.1	5.7	5.5	2.0	2.9	0.1
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	0.4	0.0	1.2	0.3	0.0	1.3	0.6	6.4	6.5	1.0	6.3	0.3
LnGrp Delay(d),s/veh	24.9	0.0	19.8	25.4	0.0	20.2	23.7	17.8	17.7	22.7	14.3	8.4
LnGrp LOS	C		B	C		C	C	B	B	C	B	A
Approach Vol, veh/h		125			122			1033			1159	
Approach Delay, s/veh		20.9			21.2			18.0			14.7	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	23.0	5.9	10.9	7.1	24.3	6.1	10.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	3.9	13.0	2.6	4.5	3.1	13.8	2.7	4.6				
Green Ext Time (p_c), s	0.0	4.9	0.0	0.7	0.0	4.3	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	406	761	273	168	502	99	241	561	106	141	719	132
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	432	810	290	195	584	115	265	616	116	155	790	145
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	898	402	317	906	175	305	1170	523	194	949	424
Arrive On Green	0.13	0.25	0.25	0.09	0.21	0.21	0.17	0.33	0.33	0.11	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	4278	828	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	432	810	290	195	461	238	265	616	116	155	790	145
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1717	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.3	16.5	12.5	4.1	9.2	9.5	10.9	10.5	3.9	6.4	15.7	5.5
Cycle Q Clear(g_c), s	9.3	16.5	12.5	4.1	9.2	9.5	10.9	10.5	3.9	6.4	15.7	5.5
Prop In Lane	1.00		1.00	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	461	898	402	317	718	364	305	1170	523	194	949	424
V/C Ratio(X)	0.94	0.90	0.72	0.61	0.64	0.66	0.87	0.53	0.22	0.80	0.83	0.34
Avail Cap(c_a), veh/h	461	901	403	323	727	368	309	1170	523	285	949	424
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	27.0	25.4	32.6	26.8	26.9	30.1	20.2	18.0	32.4	25.7	22.0
Incr Delay (d2), s/veh	26.8	12.2	6.2	3.4	1.9	4.1	22.2	1.7	1.0	9.6	8.5	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	6.1	9.5	6.1	2.1	4.5	4.9	7.2	5.4	1.8	3.6	8.8	2.7
LnGrp Delay(d),s/veh	58.8	39.1	31.7	36.0	28.7	31.0	52.3	21.9	19.0	42.0	34.2	24.2
LnGrp LOS	E	D	C	D	C	C	D	C	B	D	C	C
Approach Vol, veh/h		1532			894			997			1090	
Approach Delay, s/veh		43.3			30.9			29.7			34.0	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	28.7	10.9	22.9	16.8	24.0	14.0	19.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	21.0	7.0	19.0	13.0	20.0	10.0	16.0				
Max Q Clear Time (g_c+1), s	8.4	12.5	6.1	18.5	12.9	17.7	11.3	11.5				
Green Ext Time (p_c), s	0.1	5.7	0.1	0.4	0.0	1.8	0.0	3.4				
Intersection Summary												
HCM 2010 Ctrl Delay			35.6									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	3	36	2	1	11	36	985	2	43	1230	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	97	97	97	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	4	46	3	2	19	41	1117	2	44	1255	20
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1994	2554	638	1917	2563	560	1276	0	0	1119	0	0
Stage 1	1353	1353	-	1200	1200	-	-	-	-	-	-	-
Stage 2	641	1201	-	717	1363	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	36	26	419	41	26	472	540	-	-	620	-	-
Stage 1	158	216	-	196	256	-	-	-	-	-	-	-
Stage 2	430	256	-	387	214	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	30	22	419	32	22	472	540	-	-	620	-	-
Mov Cap-2 Maneuver	104	100	-	113	96	-	-	-	-	-	-	-
Stage 1	146	201	-	181	237	-	-	-	-	-	-	-
Stage 2	379	237	-	314	199	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	29.8			19.5			0.4			0.4		
HCM LOS	D			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	540	-	-	212	272	620	-	-				
HCM Lane V/C Ratio	0.076	-	-	0.321	0.089	0.071	-	-				
HCM Control Delay (s)	12.2	-	-	29.8	19.5	11.2	-	-				
HCM Lane LOS	B	-	-	D	C	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.3	0.3	0.2	-	-				

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	308	50	14	222	8	28	5	8	6	2	10
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	88	88	88	60	60	60	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	314	51	16	252	9	47	8	13	8	3	13

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	252	0	0	314	0	0	639	631	314	642	631	252
Stage 1	-	-	-	-	-	-	347	347	-	284	284	-
Stage 2	-	-	-	-	-	-	292	284	-	358	347	-
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	1313	-	-	1246	-	-	389	398	726	387	398	787
Stage 1	-	-	-	-	-	-	669	635	-	723	676	-
Stage 2	-	-	-	-	-	-	716	676	-	660	635	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1313	-	-	1246	-	-	373	388	726	367	388	787
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	388	-	367	388	-
Stage 1	-	-	-	-	-	-	661	627	-	714	667	-
Stage 2	-	-	-	-	-	-	692	667	-	631	627	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	15.4	12.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	414	1313	-	-	1246	-	-	526
HCM Lane V/C Ratio	0.165	0.012	-	-	0.013	-	-	0.046
HCM Control Delay (s)	15.4	7.8	-	-	7.9	-	-	12.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

HCM 2010 TWSC
10: Driveway & Cottonwood Ave

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	22	373	12	0	258	10	4	0	4	13	0	26
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	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	81	81	81	33	33	33	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	410	13	0	319	12	12	0	12	14	0	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	331	0	0	423	0	0	804	796	416	796	796	325
Stage 1	-	-	-	-	-	-	465	465	-	325	325	-
Stage 2	-	-	-	-	-	-	339	331	-	471	471	-
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	1228	-	-	1136	-	-	301	320	637	305	320	716
Stage 1	-	-	-	-	-	-	578	563	-	687	649	-
Stage 2	-	-	-	-	-	-	676	645	-	573	560	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1228	-	-	1136	-	-	283	312	637	293	312	716
Mov Cap-2 Maneuver	-	-	-	-	-	-	283	312	-	293	312	-
Stage 1	-	-	-	-	-	-	563	548	-	669	649	-
Stage 2	-	-	-	-	-	-	649	645	-	547	545	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	14.8	13.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	392	1228	-	-	1136	-	-	483
HCM Lane V/C Ratio	0.062	0.02	-	-	-	-	-	0.088
HCM Control Delay (s)	14.8	8	0	-	0	-	-	13.2
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.3

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	11	0	67	34	0	35	49	938	40	40	1128	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	92	92	92	95	95	95	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	93	37	0	38	52	987	42	43	1213	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1914	2450	625	1804	2447	515	1249	0	0	1029	0	0
Stage 1	1317	1317	-	1112	1112	-	-	-	-	-	-	-
Stage 2	597	1133	-	692	1335	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	41	31	428	50	31	505	553	-	-	671	-	-
Stage 1	166	225	-	223	282	-	-	-	-	-	-	-
Stage 2	456	276	-	400	221	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	33	26	428	~ 35	26	505	553	-	-	671	-	-
Mov Cap-2 Maneuver	33	26	-	~ 35	26	-	-	-	-	-	-	-
Stage 1	150	211	-	202	255	-	-	-	-	-	-	-
Stage 2	382	250	-	293	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	65.9	260	0.6	0.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	553	-	-	159	66	671	-	-
HCM Lane V/C Ratio	0.093	-	-	0.681	1.136	0.064	-	-
HCM Control Delay (s)	12.2	-	-	65.9	260	10.7	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	4	5.9	0.2	-	-

Notes























~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary

























1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	78	36	31	61	73	51	887	34	62	833	44
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	56	87	40	37	73	88	56	975	37	69	926	49
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	294	250	100	258	219	134	1344	601	153	1382	618
Arrive On Green	0.08	0.16	0.16	0.06	0.14	0.14	0.08	0.38	0.38	0.09	0.39	0.39
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	56	87	40	37	73	88	56	975	37	69	926	49
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	1.5	2.1	1.1	1.0	1.8	2.5	1.5	11.8	0.7	1.8	10.8	1.0
Cycle Q Clear(g_c), s	1.5	2.1	1.1	1.0	1.8	2.5	1.5	11.8	0.7	1.8	10.8	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	294	250	100	258	219	134	1344	601	153	1382	618
V/C Ratio(X)	0.42	0.30	0.16	0.37	0.28	0.40	0.42	0.73	0.06	0.45	0.67	0.08
Avail Cap(c_a), veh/h	248	596	506	248	596	506	248	1344	601	248	1382	618
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	18.6	18.2	22.8	19.3	19.7	22.1	13.3	9.9	21.7	12.6	9.6
Incr Delay (d2), s/veh	2.1	0.6	0.3	2.3	0.6	1.2	2.1	3.4	0.2	2.1	2.6	0.3
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	1.1	0.5	0.6	0.9	1.2	0.8	6.3	0.4	1.0	5.6	0.5
LnGrp Delay(d),s/veh	24.1	19.2	18.5	25.0	19.9	20.8	24.1	16.7	10.0	23.8	15.2	9.8
LnGrp LOS	C	B	B	C	B	C	C	B	B	C	B	A
Approach Vol, veh/h		183			198			1068			1044	
Approach Delay, s/veh		20.5			21.3			16.9			15.5	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	23.0	6.8	11.9	7.8	23.5	7.8	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	3.8	13.8	3.0	4.1	3.5	12.8	3.5	4.5				
Green Ext Time (p_c), s	0.0	4.3	0.0	0.9	0.0	5.1	0.0	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			16.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 3: Perris Blvd & Dracaea Ave

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	71	82	26	35	59	57	24	849	25	26	803	52	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
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	
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863	
Adj Flow Rate, veh/h	82	94	30	40	68	66	29	1011	30	30	934	60	
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	95	76	456	89	111	456	81	1578	47	83	1596	714	
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.45	0.45	0.05	0.45	0.45	
Sat Flow, veh/h	0	265	1583	0	386	1583	1774	3510	104	1774	3539	1583	
Grp Volume(v), veh/h	176	0	30	108	0	66	29	510	531	30	934	60	
Grp Sat Flow(s),veh/h/ln	265	0	1583	386	0	1583	1774	1770	1844	1774	1770	1583	
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	1.7	0.9	12.4	12.4	0.9	10.9	1.2	
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	1.7	0.9	12.4	12.4	0.9	10.9	1.2	
Prop In Lane	0.47		1.00	0.37		1.00	1.00		0.06	1.00		1.00	
Lane Grp Cap(c), veh/h	171	0	456	200	0	456	81	796	829	83	1596	714	
V/C Ratio(X)	1.03	0.00	0.07	0.54	0.00	0.14	0.36	0.64	0.64	0.36	0.59	0.08	
Avail Cap(c_a), veh/h	171	0	456	200	0	456	223	796	829	223	1596	714	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	21.2	0.0	14.4	16.4	0.0	14.7	25.7	11.8	11.8	25.7	11.4	8.7	
Incr Delay (d2), s/veh	76.3	0.0	0.1	2.9	0.0	0.1	2.7	3.9	3.8	2.6	1.6	0.2	
Initial Q Delay(d3),s/veh	0.3	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	6.2	0.0	0.3	1.4	0.0	0.8	0.5	6.8	7.1	0.5	5.7	0.6	
LnGrp Delay(d),s/veh	97.7	0.0	14.4	19.3	0.0	14.9	28.4	15.8	15.6	28.3	13.0	8.9	
LnGrp LOS	F		B	B		B	C	B	B	C	B	A	
Approach Vol, veh/h		206			174			1070			1024		
Approach Delay, s/veh		85.6			17.6			16.0			13.2		
Approach LOS		F			B			B			B		
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	6.6	29.0		20.0	6.5	29.1		20.0					
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0					
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0					
Max Q Clear Time (g_c+1), s	2.9	14.4		18.0	2.9	12.9		18.0					
Green Ext Time (p_c), s	0.0	8.0		0.0	0.0	8.9		0.0					
Intersection Summary													
HCM 2010 Ctrl Delay			20.8										
HCM 2010 LOS			C										

HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	205	104	44	253	24	88	213	43	20	171	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	21	263	133	52	301	29	91	220	44	22	184	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	394	335	125	460	391	173	1122	221	65	1019	120
Arrive On Green	0.04	0.21	0.21	0.07	0.25	0.25	0.10	0.38	0.38	0.04	0.32	0.32
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2950	580	1774	3189	377
Grp Volume(v), veh/h	21	263	133	52	301	29	91	130	134	22	101	105
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1760	1774	1770	1796
Q Serve(g_s), s	0.6	6.9	3.8	1.5	7.7	0.7	2.6	2.6	2.7	0.6	2.2	2.2
Cycle Q Clear(g_c), s	0.6	6.9	3.8	1.5	7.7	0.7	2.6	2.6	2.7	0.6	2.2	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.21
Lane Grp Cap(c), veh/h	62	394	335	125	460	391	173	673	670	65	566	574
V/C Ratio(X)	0.34	0.67	0.40	0.42	0.65	0.07	0.53	0.19	0.20	0.34	0.18	0.18
Avail Cap(c_a), veh/h	233	595	506	233	595	506	267	673	670	233	566	574
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	19.2	18.0	23.7	18.0	15.4	22.8	11.0	11.0	25.0	13.1	13.1
Incr Delay (d2), s/veh	3.1	1.9	0.8	2.2	1.6	0.1	2.5	0.6	0.7	3.1	0.7	0.7
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	0.4	3.7	1.7	0.8	4.1	0.3	1.4	1.4	1.4	0.4	1.2	1.2
LnGrp Delay(d),s/veh	28.2	21.2	18.8	25.9	19.6	15.4	25.3	11.7	11.7	28.1	13.7	13.8
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		417			382			355			228	
Approach Delay, s/veh		20.8			20.2			15.2			15.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	24.2	7.8	15.3	9.2	21.0	5.9	17.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	18.0	7.0	17.0	8.0	17.0	7.0	17.0				
Max Q Clear Time (g_c+1), s	2.6	4.7	3.5	8.9	4.6	4.2	2.6	9.7				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.4	0.1	2.1	0.0	2.2				
Intersection Summary												
HCM 2010 Ctrl Delay			18.2									
HCM 2010 LOS			B									






















HCM 2010 Signalized Intersection Summary 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	130	51	63	167	162	72	761	60	131	662	96
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	108	165	65	111	293	284	79	836	66	151	761	110
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	420	357	175	422	358	152	1065	477	191	1143	511
Arrive On Green	0.10	0.23	0.23	0.10	0.23	0.23	0.09	0.30	0.30	0.11	0.32	0.32
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	108	165	65	111	293	284	79	836	66	151	761	110
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.5	4.5	2.0	3.6	8.6	10.1	2.5	12.9	1.8	5.0	11.1	3.0
Cycle Q Clear(g_c), s	3.5	4.5	2.0	3.6	8.6	10.1	2.5	12.9	1.8	5.0	11.1	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	420	357	175	422	358	152	1065	477	191	1143	511
V/C Ratio(X)	0.62	0.39	0.18	0.63	0.70	0.79	0.52	0.78	0.14	0.79	0.67	0.22
Avail Cap(c_a), veh/h	208	498	424	208	498	424	208	1065	477	237	1143	511
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	19.7	18.7	25.9	21.2	21.8	26.2	19.1	15.2	26.0	17.5	14.7
Incr Delay (d2), s/veh	4.2	0.6	0.2	4.7	3.4	8.5	2.7	5.8	0.6	13.4	3.1	1.0
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	2.4	0.9	2.0	4.8	5.2	1.4	7.1	0.9	3.1	5.9	1.4
LnGrp Delay(d),s/veh	30.1	20.3	19.0	30.6	24.6	30.3	28.9	24.9	15.9	39.5	20.5	15.7
LnGrp LOS	C	C	B	C	C	C	C	C	B	D	C	B
Approach Vol, veh/h		338			688			981			1022	
Approach Delay, s/veh		23.2			27.9			24.6			22.8	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	22.0	9.9	17.5	9.1	23.3	9.8	17.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	18.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+11), s	7.0	14.9	5.6	6.5	4.5	13.1	5.5	12.1				
Green Ext Time (p_c), s	0.0	2.5	0.0	2.6	0.0	4.5	0.0	1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			24.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	176	58	9	196	28	31	157	14	25	170	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	57	314	104	13	288	41	37	187	17	29	195	20
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	524	445	41	426	362	99	1114	100	82	1070	109
Arrive On Green	0.08	0.28	0.28	0.02	0.23	0.23	0.06	0.34	0.34	0.05	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3284	296	1774	3245	329
Grp Volume(v), veh/h	57	314	104	13	288	41	37	100	104	29	105	110
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1811	1774	1770	1805
Q Serve(g_s), s	1.6	7.5	2.6	0.4	7.3	1.1	1.0	2.0	2.1	0.8	2.2	2.2
Cycle Q Clear(g_c), s	1.6	7.5	2.6	0.4	7.3	1.1	1.0	2.0	2.1	0.8	2.2	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.18
Lane Grp Cap(c), veh/h	134	524	445	41	426	362	99	600	614	82	583	595
V/C Ratio(X)	0.42	0.60	0.23	0.32	0.68	0.11	0.37	0.17	0.17	0.35	0.18	0.18
Avail Cap(c_a), veh/h	241	650	553	241	650	553	241	600	614	241	583	595
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	16.0	14.3	24.8	18.2	15.8	23.5	11.9	11.9	23.9	12.3	12.3
Incr Delay (d2), s/veh	2.1	1.1	0.3	4.4	1.9	0.1	2.3	0.6	0.6	2.6	0.7	0.7
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	0.9	4.0	1.2	0.2	3.9	0.5	0.6	1.1	1.1	0.5	1.2	1.2
LnGrp Delay(d),s/veh	24.9	17.1	14.5	29.2	20.0	15.9	25.8	12.5	12.5	26.4	13.0	13.0
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		475			342			241			244	
Approach Delay, s/veh		17.5			19.9			14.6			14.6	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	21.5	5.2	18.5	6.9	21.0	7.9	15.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+I1), s	2.8	4.1	2.4	9.5	3.0	4.2	3.6	9.3				
Green Ext Time (p_c), s	0.0	1.8	0.0	2.5	0.0	1.8	0.0	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay			17.0									
HCM 2010 LOS			B									































HCM 2010 Signalized Intersection Summary 8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	37	27	24	31	60	30	786	35	61	743	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	27	44	32	31	40	78	31	819	36	69	835	31
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	138	100	88	81	158	88	1360	60	155	1529	684
Arrive On Green	0.04	0.14	0.14	0.05	0.14	0.14	0.05	0.39	0.39	0.09	0.43	0.43
Sat Flow, veh/h	1774	1004	730	1774	565	1103	1774	3454	152	1774	3539	1583
Grp Volume(v), veh/h	27	0	76	31	0	118	31	420	435	69	835	31
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1668	1774	1770	1836	1774	1770	1583
Q Serve(g_s), s	0.7	0.0	1.9	0.8	0.0	3.1	0.8	9.1	9.1	1.8	8.5	0.5
Cycle Q Clear(g_c), s	0.7	0.0	1.9	0.8	0.0	3.1	0.8	9.1	9.1	1.8	8.5	0.5
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	239	88	0	238	88	697	723	155	1529	684
V/C Ratio(X)	0.35	0.00	0.32	0.35	0.00	0.50	0.35	0.60	0.60	0.44	0.55	0.05
Avail Cap(c_a), veh/h	257	0	575	257	0	553	257	697	723	257	1529	684
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	0.0	18.8	22.2	0.0	19.1	22.2	11.6	11.6	20.9	10.2	7.9
Incr Delay (d2), s/veh	2.6	0.0	0.8	2.4	0.0	1.6	2.4	3.8	3.7	2.0	1.4	0.1
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	0.4	0.0	1.0	0.5	0.0	1.5	0.5	5.2	5.3	0.9	4.4	0.3
LnGrp Delay(d),s/veh	25.0	0.0	19.5	24.6	0.0	20.7	24.6	15.4	15.3	22.9	11.6	8.1
LnGrp LOS	C		B	C		C	C	B	B	C	B	A
Approach Vol, veh/h		103			149			886			935	
Approach Delay, s/veh		21.0			21.5			15.7			12.3	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	23.0	6.4	10.6	6.4	24.8	6.1	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	19.0	7.0	16.0	7.0	19.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	3.8	11.1	2.8	3.9	2.8	10.5	2.7	5.1				
Green Ext Time (p_c), s	0.0	5.6	0.0	0.8	0.0	6.0	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			14.8									
HCM 2010 LOS			B									

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	  			 			 	
Volume (veh/h)	334	396	206	157	370	89	274	535	68	114	489	158
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	371	440	229	183	430	103	301	588	75	124	532	172
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	732	328	350	777	180	344	1258	563	168	906	405
Arrive On Green	0.12	0.21	0.21	0.10	0.19	0.19	0.19	0.36	0.36	0.09	0.26	0.26
Sat Flow, veh/h	3442	3539	1583	3442	4125	958	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	371	440	229	183	351	182	301	588	75	124	532	172
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1694	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.1	7.5	8.9	3.3	6.2	6.5	10.9	8.5	2.1	4.5	8.7	6.0
Cycle Q Clear(g_c), s	7.1	7.5	8.9	3.3	6.2	6.5	10.9	8.5	2.1	4.5	8.7	6.0
Prop In Lane	1.00		1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	732	328	350	638	319	344	1258	563	168	906	405
V/C Ratio(X)	0.89	0.60	0.70	0.52	0.55	0.57	0.87	0.47	0.13	0.74	0.59	0.42
Avail Cap(c_a), veh/h	415	853	382	415	817	408	347	1258	563	267	906	405
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	23.8	24.4	28.3	24.4	24.5	26.0	16.5	14.5	29.2	21.6	20.6
Incr Delay (d2), s/veh	21.2	0.9	4.6	1.2	0.7	1.6	20.9	1.2	0.5	6.2	2.8	3.2
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	4.6	3.8	4.3	1.6	3.0	3.2	7.4	4.4	1.0	2.5	4.6	3.0
LnGrp Delay(d),s/veh	50.0	24.7	29.0	29.5	25.1	26.1	46.9	17.8	15.0	35.4	24.4	23.8
LnGrp LOS	D	C	C	C	C	C	D	B	B	D	C	C
Approach Vol, veh/h		1040			716			964			828	
Approach Delay, s/veh		34.7			26.5			26.7			25.9	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	27.6	10.8	17.7	16.9	21.0	12.0	16.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	10.0	20.0	8.0	16.0	13.0	17.0	8.0	16.0				
Max Q Clear Time (g_c+I1), s	6.5	10.5	5.3	10.9	12.9	10.7	9.1	8.5				
Green Ext Time (p_c), s	0.1	5.2	0.1	2.8	0.0	3.8	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			28.8									
HCM 2010 LOS			C									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	4	27	3	6	14	37	940	3	34	848	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	72	72	72	89	89	89	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	6	42	4	8	19	46	1162	4	39	975	20
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1740	2320	497	1824	2327	583	994	0	0	1166	0	0
Stage 1	1063	1063	-	1255	1255	-	-	-	-	-	-	-
Stage 2	677	1257	-	569	1072	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	56	37	519	48	37	456	692	-	-	595	-	-
Stage 1	238	298	-	182	241	-	-	-	-	-	-	-
Stage 2	409	241	-	474	295	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	46	32	519	38	32	456	692	-	-	595	-	-
Mov Cap-2 Maneuver	139	116	-	120	118	-	-	-	-	-	-	-
Stage 1	222	278	-	170	225	-	-	-	-	-	-	-
Stage 2	352	225	-	398	276	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	28.5			24.5			0.4			0.4		
HCM LOS	D			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	692	-	-	227	216	595	-	-				
HCM Lane V/C Ratio	0.066	-	-	0.332	0.148	0.066	-	-				
HCM Control Delay (s)	10.6	-	-	28.5	24.5	11.5	-	-				
HCM Lane LOS	B	-	-	D	C	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.5	0.2	-	-				

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	265	42	3	236	4	31	4	9	2	2	9
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	58	58	58	79	79	79	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	465	74	5	407	7	39	5	11	3	3	14

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	407	0	0	465	0	0	972	963	465	971	963	407
Stage 1	-	-	-	-	-	-	546	546	-	417	417	-
Stage 2	-	-	-	-	-	-	426	417	-	554	546	-
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	1152	-	-	1096	-	-	232	256	597	232	256	644
Stage 1	-	-	-	-	-	-	522	518	-	613	591	-
Stage 2	-	-	-	-	-	-	606	591	-	517	518	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1152	-	-	1096	-	-	218	246	597	217	246	644
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	246	-	217	246	-
Stage 1	-	-	-	-	-	-	504	500	-	592	588	-
Stage 2	-	-	-	-	-	-	587	588	-	485	500	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	23.1	14.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	254	1152	-	-	1096	-	-	415
HCM Lane V/C Ratio	0.219	0.035	-	-	0.005	-	-	0.048
HCM Control Delay (s)	23.1	8.2	-	-	8.3	-	-	14.1
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0	-	-	0.2

Existing With Project Sunday

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC
10: Driveway & Cottonwood Ave

Intersection

Int Delay, s/veh 5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	31	211	121	19	286	14	47	0	39	18	0	38
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	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	81	81	81	52	52	52	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	274	157	23	353	17	90	0	75	20	0	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	370	0	0	431	0	0	862	850	353	880	921	362
Stage 1	-	-	-	-	-	-	433	433	-	409	409	-
Stage 2	-	-	-	-	-	-	429	417	-	471	512	-
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	1189	-	-	1129	-	-	275	298	691	268	270	683
Stage 1	-	-	-	-	-	-	601	582	-	619	596	-
Stage 2	-	-	-	-	-	-	604	591	-	573	536	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1189	-	-	1129	-	-	246	279	691	227	253	683
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	279	-	227	253	-
Stage 1	-	-	-	-	-	-	574	556	-	591	584	-
Stage 2	-	-	-	-	-	-	556	579	-	488	512	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.5	24.5	15.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	1189	-	-	1129	-	-	415
HCM Lane V/C Ratio	0.477	0.034	-	-	0.021	-	-	0.147
HCM Control Delay (s)	24.5	8.1	0	-	8.3	-	-	15.2
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.1	-	-	0.5

Existing With Project Sunday

Synchro 8 Report

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 26

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	19	0	71	49	0	50	63	887	55	55	768	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	92	92	92	82	82	82	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	89	53	0	54	77	1082	67	64	893	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1736	2343	466	1843	2329	574	933	0	0	1149	0	0
Stage 1	1041	1041	-	1269	1269	-	-	-	-	-	-	-
Stage 2	695	1302	-	574	1060	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	56	36	543	~ 46	37	462	729	-	-	604	-	-
Stage 1	246	305	-	178	238	-	-	-	-	-	-	-
Stage 2	399	229	-	471	299	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	42	29	543	~ 33	30	462	729	-	-	604	-	-
Mov Cap-2 Maneuver	42	29	-	~ 33	30	-	-	-	-	-	-	-
Stage 1	220	273	-	159	213	-	-	-	-	-	-	-
Stage 2	315	205	-	352	267	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	74.3	\$ 498.3	0.7	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	729	-	-	154 62	604	-	-
HCM Lane V/C Ratio	0.105	-	-	0.731 1.736	0.106	-	-
HCM Control Delay (s)	10.5	-	-	74.3\$ 498.3	11.7	-	-
HCM Lane LOS	B	-	-	F F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	4.4 9.8	0.4	-	-

Notes






















~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	92	59	111	158	199	61	1385	65	78	1125	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	133	86	126	180	226	70	1592	75	89	1278	36
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.88	0.88	0.88	0.87	0.87	0.87	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	276	235	145	315	268	117	1813	811	127	1833	820
Arrive On Green	0.06	0.15	0.15	0.08	0.17	0.17	0.07	0.51	0.51	0.07	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	57	133	86	126	180	226	70	1592	75	89	1278	36
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.7	5.6	4.2	6.0	7.6	11.9	3.3	34.3	2.1	4.2	23.4	1.0
Cycle Q Clear(g_c), s	2.7	5.6	4.2	6.0	7.6	11.9	3.3	34.3	2.1	4.2	23.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	276	235	145	315	268	117	1813	811	127	1833	820
V/C Ratio(X)	0.53	0.48	0.37	0.87	0.57	0.84	0.60	0.88	0.09	0.70	0.70	0.04
Avail Cap(c_a), veh/h	145	347	295	145	347	295	165	1813	811	145	1833	820
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	33.6	32.9	39.0	32.8	34.6	39.0	18.6	10.7	39.0	15.6	10.2
Incr Delay (d2), s/veh	4.0	1.3	1.0	39.9	1.9	18.3	4.8	6.4	0.2	12.0	2.2	0.1
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	1.4	3.0	1.9	4.5	4.1	6.5	1.8	18.2	1.0	2.5	11.9	0.4
LnGrp Delay(d),s/veh	43.2	34.9	33.9	78.9	34.7	52.8	43.8	25.0	11.0	51.0	17.9	10.3
LnGrp LOS	D	C	C	E	C	D	D	C	B	D	B	B
Approach Vol, veh/h		276			532			1737			1403	
Approach Delay, s/veh		36.3			52.9			25.1			19.8	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	48.0	11.0	16.7	9.7	48.5	9.2	18.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	44.0	7.0	16.0	8.0	43.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.2	36.3	8.0	7.6	5.3	25.4	4.7	13.9				
Green Ext Time (p_c), s	0.0	7.3	0.0	1.8	0.0	15.8	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			27.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	74	77	49	66	102	62	33	1390	26	35	1188	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	85	89	56	88	136	83	38	1616	30	42	1414	94
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	58	379	75	72	379	94	1863	35	101	1868	836
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.05	0.52	0.52	0.06	0.53	0.53
Sat Flow, veh/h	0	243	1583	0	299	1583	1774	3555	66	1774	3539	1583
Grp Volume(v), veh/h	174	0	56	224	0	83	38	803	843	42	1414	94
Grp Sat Flow(s),veh/h/ln	243	0	1583	299	0	1583	1774	1770	1851	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	1.9	0.0	0.0	2.8	1.4	26.4	26.6	1.5	21.0	2.0
Cycle Q Clear(g_c), s	16.0	0.0	1.9	16.0	0.0	2.8	1.4	26.4	26.6	1.5	21.0	2.0
Prop In Lane	0.49		1.00	0.39		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	138	0	379	147	0	379	94	927	970	101	1868	836
V/C Ratio(X)	1.26	0.00	0.15	1.53	0.00	0.22	0.40	0.87	0.87	0.42	0.76	0.11
Avail Cap(c_a), veh/h	138	0	379	147	0	379	186	927	970	186	1868	836
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	20.0	26.2	0.0	20.4	30.6	13.9	13.9	30.4	12.4	7.9
Incr Delay (d2), s/veh	161.5	0.0	0.2	268.5	0.0	0.3	2.8	10.7	10.4	2.7	2.9	0.3
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	8.7	0.0	0.8	13.6	0.0	1.2	0.7	15.5	16.2	0.8	10.8	0.9
LnGrp Delay(d),s/veh	188.6	0.0	20.2	294.7	0.0	20.7	33.4	24.5	24.3	33.2	15.3	8.2
LnGrp LOS	F		C	F		C	C	C	C	C	B	A
Approach Vol, veh/h		230			307			1684			1550	
Approach Delay, s/veh		147.6			220.6			24.6			15.4	
Approach LOS		F			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.0		20.0	7.5	39.2		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	35.0		16.0	7.0	35.0		16.0				
Max Q Clear Time (g_c+1), s	3.5	28.6		18.0	3.4	23.0		18.0				
Green Ext Time (p_c), s	0.0	6.2		0.0	0.0	11.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			44.3									
HCM 2010 LOS			D									

























HCM 2010 Signalized Intersection Summary 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	327	138	49	407	92	103	330	32	59	408	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	59	385	162	64	536	121	130	418	41	68	469	60
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	567	482	134	574	488	180	920	90	139	819	104
Arrive On Green	0.07	0.30	0.30	0.08	0.31	0.31	0.10	0.28	0.28	0.08	0.26	0.26
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3258	318	1774	3159	402
Grp Volume(v), veh/h	59	385	162	64	536	121	130	226	233	68	262	267
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1807	1774	1770	1792
Q Serve(g_s), s	2.0	11.2	4.9	2.1	17.3	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Cycle Q Clear(g_c), s	2.0	11.2	4.9	2.1	17.3	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		0.22
Lane Grp Cap(c), veh/h	128	567	482	134	574	488	180	500	510	139	459	465
V/C Ratio(X)	0.46	0.68	0.34	0.48	0.93	0.25	0.72	0.45	0.46	0.49	0.57	0.58
Avail Cap(c_a), veh/h	201	574	488	201	574	488	201	500	510	201	459	465
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	18.8	16.6	27.3	20.7	16.0	26.9	18.2	18.2	27.3	19.9	19.9
Incr Delay (d2), s/veh	2.6	3.2	0.4	2.6	22.7	0.3	10.8	2.9	2.9	2.7	5.1	5.1
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	6.2	2.2	1.1	12.4	1.6	2.7	3.5	3.6	1.2	4.5	4.6
LnGrp Delay(d),s/veh	30.0	22.0	17.0	30.0	43.4	16.3	37.6	21.2	21.2	29.9	24.9	25.0
LnGrp LOS	C	C	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h	606			721			589			597		
Approach Delay, s/veh	21.4			37.7			24.8			25.5		
Approach LOS	C			D			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	21.4	8.7	22.8	10.2	20.0	8.5	23.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	4.3	8.6	4.1	13.2	6.4	10.0	4.0	19.3				
Green Ext Time (p_c), s	0.0	3.4	0.0	3.1	0.0	2.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	27.9											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	88	204	75	69	243	205	79	1162	74	124	1108	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	110	255	94	93	328	277	96	1417	90	148	1319	117
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.74	0.74	0.74	0.82	0.82	0.82	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	380	323	125	366	311	126	1581	707	178	1685	754
Arrive On Green	0.08	0.20	0.20	0.07	0.20	0.20	0.07	0.45	0.45	0.10	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	110	255	94	93	328	277	96	1417	90	148	1319	117
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.5	11.3	4.5	4.6	15.4	15.3	4.8	33.1	3.0	7.3	27.9	3.7
Cycle Q Clear(g_c), s	5.5	11.3	4.5	4.6	15.4	15.3	4.8	33.1	3.0	7.3	27.9	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	380	323	125	366	311	126	1581	707	178	1685	754
V/C Ratio(X)	0.80	0.67	0.29	0.74	0.90	0.89	0.76	0.90	0.13	0.83	0.78	0.16
Avail Cap(c_a), veh/h	139	380	323	139	374	318	139	1581	707	178	1685	754
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	32.9	30.2	40.8	35.1	35.1	40.9	22.9	14.5	39.5	19.6	13.3
Incr Delay (d2), s/veh	26.6	4.6	0.5	17.6	23.0	25.0	20.0	8.4	0.4	26.8	3.7	0.4
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	3.7	6.3	2.0	2.9	10.3	8.8	3.0	18.0	1.4	4.9	14.4	1.7
LnGrp Delay(d),s/veh	67.2	37.5	30.7	58.4	58.1	60.0	60.9	31.2	14.9	66.3	23.3	13.7
LnGrp LOS	E	D	C	E	E	E	E	C	B	E	C	B
Approach Vol, veh/h		459			698			1603			1584	
Approach Delay, s/veh		43.2			58.9			32.1			26.6	
Approach LOS		D			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	44.0	10.3	22.3	10.4	46.6	11.0	21.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	40.0	7.0	18.0	7.0	42.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	9.3	35.1	6.6	13.3	6.8	29.9	7.5	17.4				
Green Ext Time (p_c), s	0.0	4.7	0.0	2.0	0.0	11.0	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			35.6									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	259	79	47	361	142	109	347	30	34	281	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	148	365	111	69	531	209	127	403	35	47	385	62
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.71	0.71	0.71	0.68	0.68	0.68	0.86	0.86	0.86	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	604	514	137	553	470	174	944	82	110	765	122
Arrive On Green	0.10	0.32	0.32	0.08	0.30	0.30	0.10	0.29	0.29	0.06	0.25	0.25
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3297	285	1774	3058	489
Grp Volume(v), veh/h	148	365	111	69	531	209	127	215	223	47	222	225
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1812	1774	1770	1777
Q Serve(g_s), s	5.2	10.5	3.3	2.4	17.9	6.8	4.4	6.3	6.4	1.6	6.9	7.0
Cycle Q Clear(g_c), s	5.2	10.5	3.3	2.4	17.9	6.8	4.4	6.3	6.4	1.6	6.9	7.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.27
Lane Grp Cap(c), veh/h	186	604	514	137	553	470	174	506	519	110	443	444
V/C Ratio(X)	0.80	0.60	0.22	0.50	0.96	0.44	0.73	0.43	0.43	0.43	0.50	0.51
Avail Cap(c_a), veh/h	194	604	514	194	553	470	194	506	519	194	443	444
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	18.2	15.7	28.3	22.1	18.2	28.0	18.6	18.6	28.9	20.6	20.6
Incr Delay (d2), s/veh	19.7	1.7	0.2	2.8	28.3	0.7	11.7	2.6	2.6	2.6	4.0	4.1
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	3.6	5.7	1.5	1.3	13.5	3.0	2.8	3.4	3.5	0.9	3.8	3.9
LnGrp Delay(d),s/veh	47.7	19.9	15.9	31.2	50.4	18.9	39.7	21.2	21.2	31.5	24.6	24.7
LnGrp LOS	D	B	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		624			809			565			494	
Approach Delay, s/veh		25.7			40.6			25.3			25.3	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	22.3	8.9	24.7	10.3	20.0	10.7	23.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+l1), s	3.6	8.4	4.4	12.5	6.4	9.0	7.2	19.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	3.3	0.0	2.8	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			30.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	89	52	88	44	63	103	61	1182	60	97	1057	82
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	70	119	52	74	121	66	1271	65	120	1305	101
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.74	0.74	0.74	0.85	0.85	0.85	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	115	195	114	100	164	130	1454	74	163	1569	702
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.07	0.42	0.42	0.09	0.44	0.44
Sat Flow, veh/h	1774	621	1056	1774	637	1042	1774	3426	175	1774	3539	1583
Grp Volume(v), veh/h	120	0	189	52	0	195	66	656	680	120	1305	101
Grp Sat Flow(s),veh/h/ln	1774	0	1676	1774	0	1679	1774	1770	1832	1774	1770	1583
Q Serve(g_s), s	4.5	0.0	7.1	1.9	0.0	7.6	2.4	23.1	23.2	4.5	22.2	2.6
Cycle Q Clear(g_c), s	4.5	0.0	7.1	1.9	0.0	7.6	2.4	23.1	23.2	4.5	22.2	2.6
Prop In Lane	1.00		0.63	1.00		0.62	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	163	0	310	114	0	264	130	751	778	163	1569	702
V/C Ratio(X)	0.74	0.00	0.61	0.46	0.00	0.74	0.51	0.87	0.87	0.74	0.83	0.14
Avail Cap(c_a), veh/h	182	0	393	182	0	393	182	751	778	182	1569	702
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	25.6	30.8	0.0	27.4	30.5	18.0	18.0	30.2	16.8	11.3
Incr Delay (d2), s/veh	12.9	0.0	1.9	2.8	0.0	4.0	3.1	13.3	13.1	12.9	5.3	0.4
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	2.8	0.0	3.4	1.0	0.0	3.8	1.3	14.1	14.6	2.8	11.8	1.2
LnGrp Delay(d),s/veh	43.1	0.0	27.5	33.6	0.0	31.4	33.5	31.3	31.1	43.1	22.1	11.7
LnGrp LOS	D		C	C		C	C	C	C	D	C	B
Approach Vol, veh/h		309			247			1402			1526	
Approach Delay, s/veh		33.6			31.9			31.3			23.1	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	33.0	8.4	16.6	9.0	34.3	10.3	14.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.5	25.2	3.9	9.1	4.4	24.2	6.5	9.6				
Green Ext Time (p_c), s	0.0	3.5	0.0	1.3	0.0	4.5	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			27.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	203	458	100	205	891	244	267	910	211	238	677	237
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	248	559	122	241	1048	287	284	968	224	283	806	282
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	887	397	331	1007	275	308	991	443	284	944	422
Arrive On Green	0.09	0.25	0.25	0.10	0.25	0.25	0.17	0.28	0.28	0.16	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	3974	1087	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	248	559	122	241	894	441	284	968	224	283	806	282
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1671	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.3	10.5	4.7	5.1	19.0	19.0	11.8	20.3	8.9	12.0	16.2	11.9
Cycle Q Clear(g_c), s	5.3	10.5	4.7	5.1	19.0	19.0	11.8	20.3	8.9	12.0	16.2	11.9
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	887	397	331	859	423	308	991	443	284	944	422
V/C Ratio(X)	0.77	0.63	0.31	0.73	1.04	1.04	0.92	0.98	0.51	1.00	0.85	0.67
Avail Cap(c_a), veh/h	321	887	397	413	859	423	308	991	443	284	944	422
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	25.0	22.8	32.9	28.0	28.0	30.5	26.8	22.6	31.5	26.1	24.5
Incr Delay (d2), s/veh	11.0	1.4	0.4	4.9	41.9	55.0	32.2	23.5	4.1	52.5	9.7	8.1
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	3.0	5.3	2.1	2.6	13.8	15.2	8.5	13.1	4.4	10.0	9.1	6.1
LnGrp Delay(d),s/veh	44.2	26.5	23.3	37.8	69.9	83.0	62.7	50.3	26.7	84.0	35.8	32.7
LnGrp LOS	D	C	C	D	F	F	E	D	C	F	D	C
Approach Vol, veh/h		929			1576			1476			1371	
Approach Delay, s/veh		30.8			68.7			49.1			45.1	
Approach LOS		C			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	25.0	11.2	22.8	17.0	24.0	11.0	23.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	21.0	9.0	17.0	13.0	20.0	7.0	19.0				
Max Q Clear Time (g_c+I1), s	14.0	22.3	7.1	12.5	13.8	18.2	7.3	21.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.7	0.0	1.6	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			50.7									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	2	41	2	1	18	38	1477	4	14	1264	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	68	68	68	87	87	87	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	3	61	3	1	26	48	1867	5	16	1436	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2511	3449	730	2717	3457	936	1459	0	0	1873	0	0
Stage 1	1480	1480	-	1966	1966	-	-	-	-	-	-	-
Stage 2	1031	1969	-	751	1491	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	7	365	10	7	266	459	-	-	317	-	-
Stage 1	132	188	-	65	107	-	-	-	-	-	-	-
Stage 2	249	107	-	369	185	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 11	6	365	7	6	266	459	-	-	317	-	-
Mov Cap-2 Maneuver	70	53	-	45	53	-	-	-	-	-	-	-
Stage 1	118	179	-	58	96	-	-	-	-	-	-	-
Stage 2	198	96	-	287	176	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.4	32.8	0.3	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	459	-	-	167	160	317	-
HCM Lane V/C Ratio	0.105	-	-	0.5	0.193	0.05	-
HCM Control Delay (s)	13.8	-	-	46.4	32.8	17	-
HCM Lane LOS	B	-	-	E	D	C	-
HCM 95th %tile Q(veh)	0.3	-	-	2.4	0.7	0.2	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection

Int Delay, s/veh 8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	346	13	36	472	19	30	11	42	34	12	15
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	70	70	70	67	67	67	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	449	17	51	674	27	45	16	63	53	19	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	674	0	0	449	0	0	1273	1252	449	1292	1252	674
Stage 1	-	-	-	-	-	-	475	475	-	777	777	-
Stage 2	-	-	-	-	-	-	798	777	-	515	475	-
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	917	-	-	1111	-	-	144	172	610	140	172	455
Stage 1	-	-	-	-	-	-	570	557	-	390	407	-
Stage 2	-	-	-	-	-	-	380	407	-	543	557	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	917	-	-	1111	-	-	119	162	610	111	162	455
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	162	-	111	162	-
Stage 1	-	-	-	-	-	-	562	549	-	384	388	-
Stage 2	-	-	-	-	-	-	327	388	-	466	549	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	43	65.3
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	213	917	-	-	1111	-	-	148
HCM Lane V/C Ratio	0.582	0.014	-	-	0.046	-	-	0.644
HCM Control Delay (s)	43	9	-	-	8.4	-	-	65.3
HCM Lane LOS	E	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	3.2	0	-	-	0.1	-	-	3.5

























HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	11	0	0	0	14	1449	0	0	1316	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	0	0	0	16	1705	0	0	1548	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2435	3288	776	2512	3290	852	1552	0	0	1705	0	0
Stage 1	1550	1550	-	1738	1738	-	-	-	-	-	-	-
Stage 2	885	1738	-	774	1552	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	16	9	340	14	9	303	423	-	-	369	-	-
Stage 1	119	173	-	90	140	-	-	-	-	-	-	-
Stage 2	306	140	-	357	173	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	16	9	340	13	9	303	423	-	-	369	-	-
Mov Cap-2 Maneuver	16	9	-	13	9	-	-	-	-	-	-	-
Stage 1	114	173	-	87	135	-	-	-	-	-	-	-
Stage 2	294	135	-	338	173	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	16.2			0			0.1			0		
HCM LOS	C			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	423	-	-	340	-	369	-	-				
HCM Lane V/C Ratio	0.039	-	-	0.052	-	-	-	-				
HCM Control Delay (s)	13.9	-	-	16.2	0	0	-	-				
HCM Lane LOS	B	-	-	C	A	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	0	-	-				

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	199	72	67	131	95	65	1268	88	121	1617	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	234	85	96	187	136	68	1321	92	126	1684	78
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.70	0.70	0.70	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	124	293	249	131	301	256	116	1743	780	157	1825	816
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16	0.07	0.49	0.49	0.09	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	80	234	85	96	187	136	68	1321	92	126	1684	78
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.7	10.3	4.1	4.5	8.0	6.7	3.2	25.8	2.7	5.9	37.5	2.1
Cycle Q Clear(g_c), s	3.7	10.3	4.1	4.5	8.0	6.7	3.2	25.8	2.7	5.9	37.5	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	293	249	131	301	256	116	1743	780	157	1825	816
V/C Ratio(X)	0.65	0.80	0.34	0.74	0.62	0.53	0.58	0.76	0.12	0.80	0.92	0.10
Avail Cap(c_a), veh/h	146	349	297	146	349	297	146	1743	780	187	1825	816
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	34.6	32.0	38.7	33.3	32.8	38.7	17.5	11.7	38.1	19.1	10.5
Incr Delay (d2), s/veh	7.5	10.4	0.8	15.8	2.6	1.7	4.6	3.1	0.3	18.6	9.3	0.2
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	2.1	6.2	1.8	2.8	4.3	3.1	1.7	13.2	1.2	3.7	20.6	1.0
LnGrp Delay(d),s/veh	46.1	45.1	32.8	54.5	36.0	34.5	43.3	20.7	12.0	56.7	28.4	10.8
LnGrp LOS	D	D	C	D	D	C	D	C	B	E	C	B
Approach Vol, veh/h		399			419			1481			1888	
Approach Delay, s/veh		42.7			39.7			21.2			29.5	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	46.0	10.3	17.4	9.6	48.0	9.9	17.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	42.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	7.9	27.8	6.5	12.3	5.2	39.5	5.7	10.0				
Green Ext Time (p_c), s	0.0	13.2	0.0	1.1	0.0	4.3	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			28.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 3: Perris Blvd & Dracaea Ave

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	102	26	31	94	64	15	1323	46	79	1568	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	72	115	29	35	106	72	16	1378	48	81	1616	92
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	92	400	71	160	400	48	1653	58	149	1878	840
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.47	0.47	0.08	0.53	0.53
Sat Flow, veh/h	0	364	1583	0	633	1583	1774	3490	121	1774	3539	1583
Grp Volume(v), veh/h	187	0	29	141	0	72	16	698	728	81	1616	92
Grp Sat Flow(s),veh/h/ln	364	0	1583	633	0	1583	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.9	0.0	0.0	2.3	0.6	21.7	21.8	2.8	25.0	1.8
Cycle Q Clear(g_c), s	16.0	0.0	0.9	16.0	0.0	2.3	0.6	21.7	21.8	2.8	25.0	1.8
Prop In Lane	0.39		1.00	0.25		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	400	231	0	400	48	838	872	149	1878	840
V/C Ratio(X)	1.09	0.00	0.07	0.61	0.00	0.18	0.33	0.83	0.83	0.54	0.86	0.11
Avail Cap(c_a), veh/h	171	0	400	231	0	400	196	838	872	196	1878	840
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	18.0	20.0	0.0	18.5	30.2	14.5	14.5	27.8	12.8	7.4
Incr Delay (d2), s/veh	96.5	0.0	0.1	4.6	0.0	0.2	4.0	9.5	9.3	3.1	5.4	0.3
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	7.5	0.0	0.4	2.3	0.0	1.0	0.3	12.7	13.2	1.5	13.3	0.9
LnGrp Delay(d),s/veh	120.4	0.0	18.1	24.6	0.0	18.7	34.2	23.9	23.8	30.9	18.3	7.7
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		216			213			1442			1789	
Approach Delay, s/veh		106.6			22.6			24.0			18.3	
Approach LOS		F			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	34.0		20.0	5.7	37.6		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		16.0	7.0	30.0		16.0				
Max Q Clear Time (g_c+l1), s	4.8	23.8		18.0	2.6	27.0		18.0				
Green Ext Time (p_c), s	0.0	5.9		0.0	0.0	2.9		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			26.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	376	162	45	296	41	88	438	60	31	374	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	442	191	55	361	50	106	528	72	33	394	49
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.82	0.82	0.82	0.83	0.83	0.83	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	539	458	125	540	459	173	1000	136	88	860	106
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.10	0.32	0.32	0.05	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3132	426	1774	3171	392
Grp Volume(v), veh/h	54	442	191	55	361	50	106	298	302	33	219	224
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1788	1774	1770	1794
Q Serve(g_s), s	1.7	13.0	5.8	1.8	10.1	1.4	3.4	8.1	8.2	1.1	6.1	6.1
Cycle Q Clear(g_c), s	1.7	13.0	5.8	1.8	10.1	1.4	3.4	8.1	8.2	1.1	6.1	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.22
Lane Grp Cap(c), veh/h	124	539	458	125	540	459	173	565	571	88	480	487
V/C Ratio(X)	0.44	0.82	0.42	0.44	0.67	0.11	0.61	0.53	0.53	0.38	0.46	0.46
Avail Cap(c_a), veh/h	211	600	510	211	600	510	211	565	571	211	480	487
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	19.5	16.9	26.3	18.4	15.4	25.5	16.4	16.4	27.1	17.9	17.9
Incr Delay (d2), s/veh	2.4	8.1	0.6	2.4	2.5	0.1	3.5	3.5	3.5	2.6	3.1	3.1
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	0.9	7.8	2.6	0.9	5.5	0.6	1.8	4.5	4.6	0.6	3.3	3.5
LnGrp Delay(d),s/veh	28.7	27.7	17.5	28.7	20.9	15.5	29.1	19.9	19.9	29.8	21.0	21.0
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	C	C
Approach Vol, veh/h		687			466			706			476	
Approach Delay, s/veh		24.9			21.3			21.3			21.6	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	22.8	8.2	21.1	9.8	20.0	8.1	21.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	10.2	3.8	15.0	5.4	8.1	3.7	12.1				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.0	0.0	3.7	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			22.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	103	241	72	44	166	112	74	1226	59	176	1385	131
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	121	284	85	56	213	144	79	1304	63	187	1473	139
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.78	0.78	0.78	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	347	295	113	306	260	133	1490	667	210	1645	736
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.07	0.42	0.42	0.12	0.46	0.46
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	121	284	85	56	213	144	79	1304	63	187	1473	139
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.1	11.1	3.5	2.3	8.2	6.4	3.3	25.7	1.8	7.9	29.0	3.9
Cycle Q Clear(g_c), s	5.1	11.1	3.5	2.3	8.2	6.4	3.3	25.7	1.8	7.9	29.0	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	347	295	113	306	260	133	1490	667	210	1645	736
V/C Ratio(X)	0.79	0.82	0.29	0.49	0.70	0.55	0.60	0.88	0.09	0.89	0.90	0.19
Avail Cap(c_a), veh/h	163	392	333	163	392	333	163	1490	667	210	1645	736
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	29.7	26.6	34.4	30.0	29.2	34.1	20.2	13.3	33.0	18.7	11.9
Incr Delay (d2), s/veh	21.8	11.6	0.5	3.3	3.7	1.8	4.2	7.5	0.3	34.0	8.0	0.6
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	3.4	6.8	1.6	1.2	4.5	2.9	1.8	14.0	0.8	5.8	15.9	1.8
LnGrp Delay(d),s/veh	55.9	41.3	27.1	37.7	33.7	31.1	38.3	27.6	13.5	67.1	26.7	12.5
LnGrp LOS	E	D	C	D	C	C	D	C	B	E	C	B
Approach Vol, veh/h		490			413			1446			1799	
Approach Delay, s/veh		42.5			33.3			27.6			29.8	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	36.0	8.9	18.2	9.7	39.3	10.5	16.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	32.0	7.0	16.0	7.0	34.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	9.9	27.7	4.3	13.1	5.3	31.0	7.1	10.2				
Green Ext Time (p_c), s	0.0	4.1	0.0	1.0	0.0	2.9	0.0	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			30.9									
HCM 2010 LOS			C									

Cumulative PM

Synchro 8 Report

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	259	57	31	230	43	31	355	19	39	322	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	320	70	34	250	47	35	403	22	41	339	21
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.92	0.92	0.92	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	456	387	94	485	412	96	1095	60	108	1110	68
Arrive On Green	0.04	0.24	0.24	0.05	0.26	0.26	0.05	0.32	0.32	0.06	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3414	186	1774	3387	209
Grp Volume(v), veh/h	22	320	70	34	250	47	35	208	217	41	176	184
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1830	1774	1770	1826
Q Serve(g_s), s	0.6	7.8	1.7	0.9	5.7	1.1	0.9	4.5	4.5	1.1	3.7	3.7
Cycle Q Clear(g_c), s	0.6	7.8	1.7	0.9	5.7	1.1	0.9	4.5	4.5	1.1	3.7	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	65	456	387	94	485	412	96	568	587	108	580	599
V/C Ratio(X)	0.34	0.70	0.18	0.36	0.52	0.11	0.37	0.37	0.37	0.38	0.30	0.31
Avail Cap(c_a), veh/h	249	710	603	249	710	603	249	568	587	249	580	599
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	17.2	14.9	22.8	15.7	14.1	22.8	13.0	13.0	22.5	12.5	12.5
Incr Delay (d2), s/veh	3.0	2.0	0.2	2.4	0.8	0.1	2.3	1.8	1.8	2.2	1.4	1.3
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	0.3	4.3	0.8	0.5	3.0	0.5	0.5	2.5	2.6	0.6	2.0	2.1
LnGrp Delay(d),s/veh	26.4	19.2	15.1	25.2	16.6	14.2	25.1	14.9	14.8	24.7	13.9	13.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		412			331			460			401	
Approach Delay, s/veh		18.9			17.1			15.6			15.0	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	20.0	6.6	16.2	6.7	20.3	5.8	17.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	6.5	2.9	9.8	2.9	5.7	2.6	7.7				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.4	0.0	3.2	0.0	2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	52	44	21	44	46	45	1298	55	75	1400	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	27	59	50	25	52	55	48	1381	59	81	1505	33
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	101	86	69	88	93	111	1810	77	147	1924	861
Arrive On Green	0.04	0.11	0.11	0.04	0.11	0.11	0.06	0.52	0.52	0.08	0.54	0.54
Sat Flow, veh/h	1774	933	790	1774	830	878	1774	3459	148	1774	3539	1583
Grp Volume(v), veh/h	27	0	109	25	0	107	48	705	735	81	1505	33
Grp Sat Flow(s),veh/h/ln	1774	0	1723	1774	0	1708	1774	1770	1837	1774	1770	1583
Q Serve(g_s), s	1.0	0.0	3.9	0.9	0.0	3.9	1.7	20.5	20.7	2.9	21.9	0.6
Cycle Q Clear(g_c), s	1.0	0.0	3.9	0.9	0.0	3.9	1.7	20.5	20.7	2.9	21.9	0.6
Prop In Lane	1.00		0.46	1.00		0.51	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	74	0	187	69	0	182	111	926	961	147	1924	861
V/C Ratio(X)	0.37	0.00	0.58	0.36	0.00	0.59	0.43	0.76	0.76	0.55	0.78	0.04
Avail Cap(c_a), veh/h	191	0	424	191	0	420	191	926	961	191	1924	861
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	27.6	30.4	0.0	27.7	29.4	12.3	12.3	28.6	11.8	6.9
Incr Delay (d2), s/veh	3.0	0.0	2.8	3.1	0.0	3.0	2.7	5.9	5.8	3.2	3.3	0.1
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	2.0	0.5	0.0	2.0	0.9	11.3	11.7	1.5	11.3	0.3
LnGrp Delay(d),s/veh	33.3	0.0	30.4	33.6	0.0	30.7	32.0	18.2	18.1	31.9	15.0	7.0
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		136			132			1488			1619	
Approach Delay, s/veh		31.0			31.2			18.6			15.7	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	38.0	6.5	11.1	8.1	39.3	6.7	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	34.0	7.0	16.0	7.0	34.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	4.9	22.7	2.9	5.9	3.7	23.9	3.0	5.9				
Green Ext Time (p_c), s	0.0	10.4	0.0	0.8	0.0	9.3	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			18.2									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	504	1029	305	260	658	216	270	782	193	309	945	159
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	536	1095	324	302	765	251	297	859	212	340	1038	175
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	590	1062	475	313	834	271	290	933	417	355	1062	475
Arrive On Green	0.17	0.30	0.30	0.09	0.22	0.22	0.16	0.26	0.26	0.20	0.30	0.30
Sat Flow, veh/h	3442	3539	1583	3442	3800	1235	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	536	1095	324	302	682	334	297	859	212	340	1038	175
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1645	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	16.8	33.0	19.8	9.6	21.6	21.9	18.0	26.0	12.5	20.9	32.0	9.6
Cycle Q Clear(g_c), s	16.8	33.0	19.8	9.6	21.6	21.9	18.0	26.0	12.5	20.9	32.0	9.6
Prop In Lane	1.00		1.00	1.00		0.75	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	590	1062	475	313	744	361	290	933	417	355	1062	475
V/C Ratio(X)	0.91	1.03	0.68	0.97	0.92	0.93	1.02	0.92	0.51	0.96	0.98	0.37
Avail Cap(c_a), veh/h	594	1062	475	313	744	361	290	933	417	355	1062	475
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	38.5	33.9	49.8	41.9	42.1	46.0	39.4	34.4	43.5	38.1	30.3
Incr Delay (d2), s/veh	17.8	36.0	4.0	41.4	16.1	29.4	58.9	15.6	4.4	36.8	22.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	21.4	9.2	6.4	11.8	12.9	13.5	14.7	6.0	13.8	18.9	4.5
LnGrp Delay(d),s/veh	62.6	74.5	37.9	91.2	58.0	71.4	104.9	55.0	38.8	80.3	60.9	32.5
LnGrp LOS	E	F	D	F	E	E	F	D	D	F	E	C
Approach Vol, veh/h	1955			1318			1368			1553		
Approach Delay, s/veh	65.1			69.0			63.3			61.9		
Approach LOS	E			E			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	33.0	14.0	37.0	22.0	37.0	22.9	28.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	22.0	29.0	10.0	33.0	18.0	33.0	19.0	24.0				
Max Q Clear Time (g_c+1), s	22.9	28.0	11.6	35.0	20.0	34.0	18.8	23.9				
Green Ext Time (p_c), s	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	64.8											
HCM 2010 LOS	E											

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	101	36	50	81	84	53	1169	54	71	1117	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	70	112	40	60	98	101	58	1285	59	79	1241	64
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	222	188	129	210	178	126	1652	739	149	1697	759
Arrive On Green	0.08	0.12	0.12	0.07	0.11	0.11	0.07	0.47	0.47	0.08	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	70	112	40	60	98	101	58	1285	59	79	1241	64
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.3	3.5	1.4	2.0	3.1	3.8	1.9	18.9	1.3	2.7	17.5	1.4
Cycle Q Clear(g_c), s	2.3	3.5	1.4	2.0	3.1	3.8	1.9	18.9	1.3	2.7	17.5	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	222	188	129	210	178	126	1652	739	149	1697	759
V/C Ratio(X)	0.50	0.51	0.21	0.47	0.47	0.57	0.46	0.78	0.08	0.53	0.73	0.08
Avail Cap(c_a), veh/h	200	480	408	200	480	408	200	1652	739	200	1697	759
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	25.6	24.7	27.6	25.8	26.1	27.7	13.9	9.2	27.3	13.0	8.8
Incr Delay (d2), s/veh	2.7	1.8	0.6	2.6	1.6	2.8	2.6	3.7	0.2	2.9	2.8	0.2
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	1.3	1.9	0.6	1.1	1.7	1.8	1.0	9.9	0.6	1.4	9.1	0.6
LnGrp Delay(d),s/veh	30.2	27.4	25.3	30.2	27.4	28.9	30.3	17.5	9.4	30.2	15.8	9.0
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	A
Approach Vol, veh/h		222			259			1402			1384	
Approach Delay, s/veh		27.9			28.7			17.7			16.3	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	33.0	8.5	11.4	8.4	33.8	8.9	11.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.7	20.9	4.0	5.5	3.9	19.5	4.3	5.8				
Green Ext Time (p_c), s	0.0	7.3	0.0	1.1	0.0	8.5	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	78	91	26	38	65	63	24	1141	26	29	1096	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	90	105	30	44	75	72	29	1358	31	34	1274	66
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	77	453	88	111	453	81	1583	36	91	1605	718
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	0	270	1583	0	387	1583	1774	3537	81	1774	3539	1583
Grp Volume(v), veh/h	195	0	30	119	0	72	29	679	710	34	1274	66
Grp Sat Flow(s),veh/h/ln	270	0	1583	387	0	1583	1774	1770	1849	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	1.9	0.9	19.2	19.3	1.0	17.2	1.3
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	1.9	0.9	19.2	19.3	1.0	17.2	1.3
Prop In Lane	0.46		1.00	0.37		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	453	199	0	453	81	792	827	91	1605	718
V/C Ratio(X)	1.14	0.00	0.07	0.60	0.00	0.16	0.36	0.86	0.86	0.37	0.79	0.09
Avail Cap(c_a), veh/h	171	0	453	199	0	453	222	792	827	222	1605	718
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	14.5	16.6	0.0	14.9	25.9	13.8	13.8	25.6	13.0	8.7
Incr Delay (d2), s/veh	110.5	0.0	0.1	4.8	0.0	0.2	2.7	11.6	11.2	2.5	4.1	0.3
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	7.8	0.0	0.3	1.7	0.0	0.8	0.5	11.8	12.2	0.6	9.2	0.6
LnGrp Delay(d),s/veh	131.8	0.0	14.6	21.5	0.0	15.1	28.6	25.4	25.1	28.1	17.2	9.0
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		225			191			1418			1374	
Approach Delay, s/veh		116.1			19.1			25.3			17.1	
Approach LOS		F			B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	29.0		20.0	6.5	29.3		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	3.0	21.3		18.0	2.9	19.2		18.0				
Green Ext Time (p_c), s	0.0	3.5		0.0	0.0	5.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	261	115	49	315	26	97	278	47	22	239	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	23	335	147	58	375	31	100	287	48	24	257	24
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	459	390	131	527	448	174	1091	180	69	982	91
Arrive On Green	0.04	0.25	0.25	0.07	0.28	0.28	0.10	0.36	0.36	0.04	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3041	503	1774	3275	303
Grp Volume(v), veh/h	23	335	147	58	375	31	100	166	169	24	138	143
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1774	1774	1770	1809
Q Serve(g_s), s	0.7	9.4	4.4	1.8	10.3	0.8	3.1	3.8	3.8	0.7	3.4	3.4
Cycle Q Clear(g_c), s	0.7	9.4	4.4	1.8	10.3	0.8	3.1	3.8	3.8	0.7	3.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.17
Lane Grp Cap(c), veh/h	67	459	390	131	527	448	174	635	637	69	530	542
V/C Ratio(X)	0.35	0.73	0.38	0.44	0.71	0.07	0.58	0.26	0.27	0.35	0.26	0.26
Avail Cap(c_a), veh/h	219	591	503	219	591	503	219	635	637	219	530	542
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	19.6	17.8	25.1	18.3	14.9	24.5	12.9	12.9	26.6	15.1	15.1
Incr Delay (d2), s/veh	3.1	3.3	0.6	2.3	3.5	0.1	3.0	1.0	1.0	3.0	1.2	1.2
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	0.4	5.2	2.0	1.0	5.7	0.4	1.6	2.0	2.1	0.4	1.8	1.9
LnGrp Delay(d),s/veh	29.7	23.0	18.4	27.5	21.8	14.9	27.4	13.9	13.9	29.5	16.3	16.3
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		505			464			435			305	
Approach Delay, s/veh		21.9			22.0			17.0			17.3	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	24.3	8.2	18.0	9.6	21.0	6.1	20.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	2.7	5.8	3.8	11.4	5.1	5.4	2.7	12.3				
Green Ext Time (p_c), s	0.0	2.7	0.0	2.6	0.0	2.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			19.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 5: Perris Blvd & Cottonwood Ave






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	88	153	65	71	190	189	87	1030	75	154	936	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	111	194	82	125	333	332	96	1132	82	177	1076	122
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	394	335	157	401	341	144	1286	575	215	1427	639
Arrive On Green	0.08	0.21	0.21	0.09	0.22	0.22	0.08	0.36	0.36	0.12	0.40	0.40
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	111	194	82	125	333	332	96	1132	82	177	1076	122
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	4.5	6.8	3.2	5.1	12.7	15.5	3.9	22.2	2.6	7.2	19.4	3.7
Cycle Q Clear(g_c), s	4.5	6.8	3.2	5.1	12.7	15.5	3.9	22.2	2.6	7.2	19.4	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	150	394	335	157	401	341	144	1286	575	215	1427	639
V/C Ratio(X)	0.74	0.49	0.25	0.79	0.83	0.97	0.67	0.88	0.14	0.82	0.75	0.19
Avail Cap(c_a), veh/h	167	401	341	167	401	341	167	1286	575	215	1427	639
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	25.8	24.4	33.2	27.8	28.9	33.1	22.1	15.9	31.9	19.0	14.3
Incr Delay (d2), s/veh	14.3	1.0	0.4	21.6	13.6	41.5	7.9	8.8	0.5	22.2	3.7	0.7
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	2.8	3.6	1.4	3.4	8.0	10.7	2.2	12.4	1.2	4.9	10.2	1.7
LnGrp Delay(d),s/veh	47.5	26.7	24.7	54.8	41.5	70.4	41.0	31.0	16.4	54.0	22.7	15.0
LnGrp LOS	D	C	C	D	D	E	D	C	B	D	C	B
Approach Vol, veh/h		387			790			1310			1375	
Approach Delay, s/veh		32.3			55.8			30.8			26.1	
Approach LOS		C			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	31.0	10.6	19.7	10.0	34.0	10.3	20.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	27.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	9.2	24.2	7.1	8.8	5.9	21.4	6.5	17.5				
Green Ext Time (p_c), s	0.0	2.5	0.0	2.6	0.0	6.6	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			34.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	214	64	10	238	31	34	206	15	28	223	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	382	114	15	350	46	40	245	18	32	256	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	587	499	46	488	415	104	1035	76	88	991	85
Arrive On Green	0.08	0.31	0.31	0.03	0.26	0.26	0.06	0.31	0.31	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3345	244	1774	3301	282
Grp Volume(v), veh/h	62	382	114	15	350	46	40	129	134	32	136	142
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1820	1774	1770	1813
Q Serve(g_s), s	1.8	9.4	2.8	0.4	9.1	1.2	1.2	2.9	2.9	0.9	3.1	3.2
Cycle Q Clear(g_c), s	1.8	9.4	2.8	0.4	9.1	1.2	1.2	2.9	2.9	0.9	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	140	587	499	46	488	415	104	547	563	88	531	544
V/C Ratio(X)	0.44	0.65	0.23	0.32	0.72	0.11	0.38	0.24	0.24	0.36	0.26	0.26
Avail Cap(c_a), veh/h	233	664	564	233	664	564	233	547	563	233	531	544
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	15.7	13.5	25.5	17.9	14.9	24.2	13.7	13.7	24.5	14.1	14.2
Incr Delay (d2), s/veh	2.2	1.9	0.2	4.0	2.4	0.1	2.3	1.0	1.0	2.5	1.2	1.2
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	0.9	5.1	1.3	0.3	5.0	0.5	0.6	1.5	1.6	0.5	1.7	1.7
LnGrp Delay(d),s/veh	25.6	17.6	13.7	29.4	20.2	15.1	26.5	14.7	14.7	27.0	15.3	15.3
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		558			411			303			310	
Approach Delay, s/veh		17.7			20.0			16.3			16.5	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	20.5	5.4	20.8	7.1	20.0	8.2	18.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+l1), s	2.9	4.9	2.4	11.4	3.2	5.2	3.8	11.1				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.8	0.0	2.2	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			17.8									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

























8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	41	30	26	34	65	33	1084	39	66	1048	29
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	27	48	35	34	44	84	34	1129	41	74	1178	33
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	126	92	92	77	147	92	1539	56	154	1687	755
Arrive On Green	0.04	0.13	0.13	0.05	0.13	0.13	0.05	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1774	1003	731	1774	574	1096	1774	3484	126	1774	3539	1583
Grp Volume(v), veh/h	27	0	83	34	0	128	34	573	597	74	1178	33
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1669	1774	1770	1840	1774	1770	1583
Q Serve(g_s), s	0.8	0.0	2.4	1.0	0.0	3.9	1.0	14.5	14.5	2.2	14.2	0.6
Cycle Q Clear(g_c), s	0.8	0.0	2.4	1.0	0.0	3.9	1.0	14.5	14.5	2.2	14.2	0.6
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	76	0	217	92	0	224	92	782	813	154	1687	755
V/C Ratio(X)	0.35	0.00	0.38	0.37	0.00	0.57	0.37	0.73	0.73	0.48	0.70	0.04
Avail Cap(c_a), veh/h	229	0	511	229	0	492	229	782	813	229	1687	755
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	21.8	24.9	0.0	22.1	24.9	12.5	12.5	23.6	11.1	7.6
Incr Delay (d2), s/veh	2.7	0.0	1.1	2.5	0.0	2.3	2.5	6.0	5.8	2.3	2.4	0.1
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	0.4	0.0	1.2	0.6	0.0	1.9	0.6	8.3	8.6	1.1	7.4	0.3
LnGrp Delay(d),s/veh	28.0	0.0	22.9	27.4	0.0	24.4	27.4	18.6	18.3	26.0	13.6	7.7
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		110			162			1204			1285	
Approach Delay, s/veh		24.2			25.0			18.7			14.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	28.0	6.8	10.8	6.8	29.9	6.3	11.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	4.2	16.5	3.0	4.4	3.0	16.2	2.8	5.9				
Green Ext Time (p_c), s	0.0	6.5	0.0	0.8	0.0	6.8	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			17.2									
HCM 2010 LOS			B									

Cumulative Sunday

Synchro 8 Report

HCM 2010 Signalized Intersection Summary
9: Perris Blvd & Alessandro Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	370	519	232	239	489	177	308	725	140	209	679	178
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	411	577	258	278	569	206	338	797	154	227	738	193
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	765	342	360	722	255	375	1157	517	266	940	420
Arrive On Green	0.13	0.22	0.22	0.10	0.19	0.19	0.21	0.33	0.33	0.15	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	3712	1310	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	411	577	258	278	518	257	338	797	154	227	738	193
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1632	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.4	12.1	12.1	6.2	11.5	11.9	14.7	15.5	5.7	9.9	15.3	8.1
Cycle Q Clear(g_c), s	9.4	12.1	12.1	6.2	11.5	11.9	14.7	15.5	5.7	9.9	15.3	8.1
Prop In Lane	1.00		1.00	1.00		0.80	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	765	342	360	660	317	375	1157	517	266	940	420
V/C Ratio(X)	0.94	0.75	0.75	0.77	0.79	0.81	0.90	0.69	0.30	0.85	0.79	0.46
Avail Cap(c_a), veh/h	435	765	342	392	686	330	381	1157	517	292	940	420
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	29.0	29.0	34.5	30.3	30.4	30.4	23.1	19.9	32.8	27.0	24.3
Incr Delay (d2), s/veh	29.5	4.3	9.1	8.5	5.8	13.5	23.6	3.4	1.5	19.8	6.6	3.6
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	6.2	6.3	6.1	3.4	5.9	6.5	9.6	8.1	2.7	6.3	8.3	3.9
LnGrp Delay(d),s/veh	63.8	33.3	38.1	43.0	36.1	43.9	54.0	26.5	21.3	52.6	33.5	27.9
LnGrp LOS	E	C	D	D	D	D	D	C	C	D	C	C
Approach Vol, veh/h		1246			1053			1289			1158	
Approach Delay, s/veh		44.4			39.8			33.1			36.3	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	29.9	12.3	21.1	20.7	25.0	14.0	19.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	25.0	9.0	17.0	17.0	21.0	10.0	16.0				
Max Q Clear Time (g_c+1), s	11.9	17.5	8.2	14.1	16.7	17.3	11.4	13.9				
Green Ext Time (p_c), s	0.1	5.6	0.1	2.2	0.0	3.0	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			38.3									
HCM 2010 LOS			D									

Cumulative Sunday

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	3	40	2	1	12	40	1406	2	47	1678	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	97	97	97	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	4	51	3	2	21	45	1594	2	48	1712	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2708	3506	867	2640	3517	798	1735	0	0	1597	0	0
Stage 1	1819	1819	-	1686	1686	-	-	-	-	-	-	-
Stage 2	889	1687	-	954	1831	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 10	6	296	11	6	329	359	-	-	406	-	-
Stage 1	80	127	-	98	149	-	-	-	-	-	-	-
Stage 2	304	148	-	278	126	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 7	5	296	7	5	329	359	-	-	406	-	-
Mov Cap-2 Maneuver	50	45	-	53	42	-	-	-	-	-	-	-
Stage 1	70	112	-	86	130	-	-	-	-	-	-	-
Stage 2	246	129	-	196	111	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	79.7	33.3	0.5	0.4
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	359	-	-	116	153	406	-	-
HCM Lane V/C Ratio	0.126	-	-	0.641	0.169	0.118	-	-
HCM Control Delay (s)	16.5	-	-	79.7	33.3	15.1	-	-
HCM Lane LOS	C	-	-	F	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	3.3	0.6	0.4	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	378	55	15	252	9	31	6	9	7	2	11
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	88	88	88	60	60	60	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	386	56	17	286	10	52	10	15	9	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	386	0	0	751	742	386	755	742	286
Stage 1	-	-	-	-	-	-	422	422	-	320	320	-
Stage 2	-	-	-	-	-	-	329	320	-	435	422	-
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	1276	-	-	1172	-	-	327	344	662	325	344	753
Stage 1	-	-	-	-	-	-	609	588	-	692	652	-
Stage 2	-	-	-	-	-	-	684	652	-	600	588	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1276	-	-	1172	-	-	312	334	662	304	334	753
Mov Cap-2 Maneuver	-	-	-	-	-	-	312	334	-	304	334	-
Stage 1	-	-	-	-	-	-	600	580	-	682	643	-
Stage 2	-	-	-	-	-	-	658	643	-	568	580	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			18.1			13.3		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	351	1276	-	-	1172	-	-	458				
HCM Lane V/C Ratio	0.218	0.014	-	-	0.015	-	-	0.058				
HCM Control Delay (s)	18.1	7.9	-	-	8.1	-	-	13.3				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	464	318	0	0	0
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	91	91	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	510	393	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	393	0	393
Stage 1	-	-	393
Stage 2	-	-	510
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1166	-	656
Stage 1	-	-	682
Stage 2	-	-	603
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1166	-	656
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	682
Stage 2	-	-	603

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Cumulative PM

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC
11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 22.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	0	74	0	0	0	54	1391	0	0	1608	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	92	92	92	95	95	95	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	103	0	0	0	57	1464	0	0	1729	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2595	3327	885	2443	3348	732	1770	0	0	1464	0	0
Stage 1	1749	1749	-	1578	1578	-	-	-	-	-	-	-
Stage 2	846	1578	-	865	1770	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 12	8	288	16	8	364	348	-	-	457	-	-
Stage 1	89	138	-	114	168	-	-	-	-	-	-	-
Stage 2	323	168	-	315	135	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 10	7	288	9	7	364	348	-	-	457	-	-
Mov Cap-2 Maneuver	~ 10	7	-	9	7	-	-	-	-	-	-	-
Stage 1	74	138	-	95	140	-	-	-	-	-	-	-
Stage 2	270	140	-	203	135	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 626.3	0	0.6	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	348	-	-	59	-	457	-
HCM Lane V/C Ratio	0.163	-	-	2.024	-	-	-
HCM Control Delay (s)	17.4	-	-	\$ 626.3	0	0	-
HCM Lane LOS	C	-	-	F	A	A	-
HCM 95th %tile Q(veh)	0.6	-	-	11.5	-	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary 1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	101	36	50	81	84	53	1169	54	71	1117	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	70	112	40	60	98	101	58	1285	59	79	1241	64
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	222	188	129	210	178	126	1652	739	149	1697	759
Arrive On Green	0.08	0.12	0.12	0.07	0.11	0.11	0.07	0.47	0.47	0.08	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	70	112	40	60	98	101	58	1285	59	79	1241	64
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.3	3.5	1.4	2.0	3.1	3.8	1.9	18.9	1.3	2.7	17.5	1.4
Cycle Q Clear(g_c), s	2.3	3.5	1.4	2.0	3.1	3.8	1.9	18.9	1.3	2.7	17.5	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	222	188	129	210	178	126	1652	739	149	1697	759
V/C Ratio(X)	0.50	0.51	0.21	0.47	0.47	0.57	0.46	0.78	0.08	0.53	0.73	0.08
Avail Cap(c_a), veh/h	200	480	408	200	480	408	200	1652	739	200	1697	759
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	25.6	24.7	27.6	25.8	26.1	27.7	13.9	9.2	27.3	13.0	8.8
Incr Delay (d2), s/veh	2.7	1.8	0.6	2.6	1.6	2.8	2.6	3.7	0.2	2.9	2.8	0.2
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	1.3	1.9	0.6	1.1	1.7	1.8	1.0	9.9	0.6	1.4	9.1	0.6
LnGrp Delay(d),s/veh	30.2	27.4	25.3	30.2	27.4	28.9	30.3	17.5	9.4	30.2	15.8	9.0
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	A
Approach Vol, veh/h		222			259			1402			1384	
Approach Delay, s/veh		27.9			28.7			17.7			16.3	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	33.0	8.5	11.4	8.4	33.8	8.9	11.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.7	20.9	4.0	5.5	3.9	19.5	4.3	5.8				
Green Ext Time (p_c), s	0.0	7.3	0.0	1.1	0.0	8.5	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	78	91	26	38	65	63	24	1141	26	29	1096	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	90	105	30	44	75	72	29	1358	31	34	1274	66
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	77	453	88	111	453	81	1583	36	91	1605	718
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	0	270	1583	0	387	1583	1774	3537	81	1774	3539	1583
Grp Volume(v), veh/h	195	0	30	119	0	72	29	679	710	34	1274	66
Grp Sat Flow(s),veh/h/ln	270	0	1583	387	0	1583	1774	1770	1849	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	1.9	0.9	19.2	19.3	1.0	17.2	1.3
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	1.9	0.9	19.2	19.3	1.0	17.2	1.3
Prop In Lane	0.46		1.00	0.37		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	453	199	0	453	81	792	827	91	1605	718
V/C Ratio(X)	1.14	0.00	0.07	0.60	0.00	0.16	0.36	0.86	0.86	0.37	0.79	0.09
Avail Cap(c_a), veh/h	171	0	453	199	0	453	222	792	827	222	1605	718
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	14.5	16.6	0.0	14.9	25.9	13.8	13.8	25.6	13.0	8.7
Incr Delay (d2), s/veh	110.5	0.0	0.1	4.8	0.0	0.2	2.7	11.6	11.2	2.5	4.1	0.3
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	7.8	0.0	0.3	1.7	0.0	0.8	0.5	11.8	12.2	0.6	9.2	0.6
LnGrp Delay(d),s/veh	131.8	0.0	14.6	21.5	0.0	15.1	28.6	25.4	25.1	28.1	17.2	9.0
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		225			191			1418			1374	
Approach Delay, s/veh		116.1			19.1			25.3			17.1	
Approach LOS		F			B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	29.0		20.0	6.5	29.3		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	3.0	21.3		18.0	2.9	19.2		18.0				
Green Ext Time (p_c), s	0.0	3.5		0.0	0.0	5.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

























4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	261	115	49	315	26	97	278	47	22	239	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	23	335	147	58	375	31	100	287	48	24	257	24
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	459	390	131	527	448	174	1091	180	69	982	91
Arrive On Green	0.04	0.25	0.25	0.07	0.28	0.28	0.10	0.36	0.36	0.04	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3041	503	1774	3275	303
Grp Volume(v), veh/h	23	335	147	58	375	31	100	166	169	24	138	143
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1774	1774	1770	1809
Q Serve(g_s), s	0.7	9.4	4.4	1.8	10.3	0.8	3.1	3.8	3.8	0.7	3.4	3.4
Cycle Q Clear(g_c), s	0.7	9.4	4.4	1.8	10.3	0.8	3.1	3.8	3.8	0.7	3.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.17
Lane Grp Cap(c), veh/h	67	459	390	131	527	448	174	635	637	69	530	542
V/C Ratio(X)	0.35	0.73	0.38	0.44	0.71	0.07	0.58	0.26	0.27	0.35	0.26	0.26
Avail Cap(c_a), veh/h	219	591	503	219	591	503	219	635	637	219	530	542
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	19.6	17.8	25.1	18.3	14.9	24.5	12.9	12.9	26.6	15.1	15.1
Incr Delay (d2), s/veh	3.1	3.3	0.6	2.3	3.5	0.1	3.0	1.0	1.0	3.0	1.2	1.2
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	0.4	5.2	2.0	1.0	5.7	0.4	1.6	2.0	2.1	0.4	1.8	1.9
LnGrp Delay(d),s/veh	29.7	23.0	18.4	27.5	21.8	14.9	27.4	13.9	13.9	29.5	16.3	16.3
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		505			464			435			305	
Approach Delay, s/veh		21.9			22.0			17.0			17.3	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	24.3	8.2	18.0	9.6	21.0	6.1	20.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	2.7	5.8	3.8	11.4	5.1	5.4	2.7	12.3				
Green Ext Time (p_c), s	0.0	2.7	0.0	2.6	0.0	2.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			19.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	88	153	65	71	190	189	87	1030	75	154	936	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	111	194	82	125	333	332	96	1132	82	177	1076	122
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	394	335	157	401	341	144	1286	575	215	1427	639
Arrive On Green	0.08	0.21	0.21	0.09	0.22	0.22	0.08	0.36	0.36	0.12	0.40	0.40
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	111	194	82	125	333	332	96	1132	82	177	1076	122
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	4.5	6.8	3.2	5.1	12.7	15.5	3.9	22.2	2.6	7.2	19.4	3.7
Cycle Q Clear(g_c), s	4.5	6.8	3.2	5.1	12.7	15.5	3.9	22.2	2.6	7.2	19.4	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	150	394	335	157	401	341	144	1286	575	215	1427	639
V/C Ratio(X)	0.74	0.49	0.25	0.79	0.83	0.97	0.67	0.88	0.14	0.82	0.75	0.19
Avail Cap(c_a), veh/h	167	401	341	167	401	341	167	1286	575	215	1427	639
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	25.8	24.4	33.2	27.8	28.9	33.1	22.1	15.9	31.9	19.0	14.3
Incr Delay (d2), s/veh	14.3	1.0	0.4	21.6	13.6	41.5	7.9	8.8	0.5	22.2	3.7	0.7
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	2.8	3.6	1.4	3.4	8.0	10.7	2.2	12.4	1.2	4.9	10.2	1.7
LnGrp Delay(d),s/veh	47.5	26.7	24.7	54.8	41.5	70.4	41.0	31.0	16.4	54.0	22.7	15.0
LnGrp LOS	D	C	C	D	D	E	D	C	B	D	C	B
Approach Vol, veh/h		387			790			1310			1375	
Approach Delay, s/veh		32.3			55.8			30.8			26.1	
Approach LOS		C			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	31.0	10.6	19.7	10.0	34.0	10.3	20.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	27.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+11), s	9.2	24.2	7.1	8.8	5.9	21.4	6.5	17.5				
Green Ext Time (p_c), s	0.0	2.5	0.0	2.6	0.0	6.6	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			34.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	214	64	10	238	31	34	206	15	28	223	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	382	114	15	350	46	40	245	18	32	256	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	587	499	46	488	415	104	1035	76	88	991	85
Arrive On Green	0.08	0.31	0.31	0.03	0.26	0.26	0.06	0.31	0.31	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3345	244	1774	3301	282
Grp Volume(v), veh/h	62	382	114	15	350	46	40	129	134	32	136	142
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1820	1774	1770	1813
Q Serve(g_s), s	1.8	9.4	2.8	0.4	9.1	1.2	1.2	2.9	2.9	0.9	3.1	3.2
Cycle Q Clear(g_c), s	1.8	9.4	2.8	0.4	9.1	1.2	1.2	2.9	2.9	0.9	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	140	587	499	46	488	415	104	547	563	88	531	544
V/C Ratio(X)	0.44	0.65	0.23	0.32	0.72	0.11	0.38	0.24	0.24	0.36	0.26	0.26
Avail Cap(c_a), veh/h	233	664	564	233	664	564	233	547	563	233	531	544
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	15.7	13.5	25.5	17.9	14.9	24.2	13.7	13.7	24.5	14.1	14.2
Incr Delay (d2), s/veh	2.2	1.9	0.2	4.0	2.4	0.1	2.3	1.0	1.0	2.5	1.2	1.2
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	0.9	5.1	1.3	0.3	5.0	0.5	0.6	1.5	1.6	0.5	1.7	1.7
LnGrp Delay(d),s/veh	25.6	17.6	13.7	29.4	20.2	15.1	26.5	14.7	14.7	27.0	15.3	15.3
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		558			411			303			310	
Approach Delay, s/veh		17.7			20.0			16.3			16.5	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	20.5	5.4	20.8	7.1	20.0	8.2	18.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	2.9	4.9	2.4	11.4	3.2	5.2	3.8	11.1				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.8	0.0	2.2	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			17.8									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: Perris Blvd & Bay Ave
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	41	30	26	34	65	33	1084	39	66	1048	29
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	27	48	35	34	44	84	34	1129	41	74	1178	33
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	126	92	92	77	147	92	1539	56	154	1687	755
Arrive On Green	0.04	0.13	0.13	0.05	0.13	0.13	0.05	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1774	1003	731	1774	574	1096	1774	3484	126	1774	3539	1583
Grp Volume(v), veh/h	27	0	83	34	0	128	34	573	597	74	1178	33
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1669	1774	1770	1840	1774	1770	1583
Q Serve(g_s), s	0.8	0.0	2.4	1.0	0.0	3.9	1.0	14.5	14.5	2.2	14.2	0.6
Cycle Q Clear(g_c), s	0.8	0.0	2.4	1.0	0.0	3.9	1.0	14.5	14.5	2.2	14.2	0.6
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	76	0	217	92	0	224	92	782	813	154	1687	755
V/C Ratio(X)	0.35	0.00	0.38	0.37	0.00	0.57	0.37	0.73	0.73	0.48	0.70	0.04
Avail Cap(c_a), veh/h	229	0	511	229	0	492	229	782	813	229	1687	755
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	21.8	24.9	0.0	22.1	24.9	12.5	12.5	23.6	11.1	7.6
Incr Delay (d2), s/veh	2.7	0.0	1.1	2.5	0.0	2.3	2.5	6.0	5.8	2.3	2.4	0.1
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	0.4	0.0	1.2	0.6	0.0	1.9	0.6	8.3	8.6	1.1	7.4	0.3
LnGrp Delay(d),s/veh	28.0	0.0	22.9	27.4	0.0	24.4	27.4	18.6	18.3	26.0	13.6	7.7
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		110			162			1204			1285	
Approach Delay, s/veh		24.2			25.0			18.7			14.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	28.0	6.8	10.8	6.8	29.9	6.3	11.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+11), s	4.2	16.5	3.0	4.4	3.0	16.2	2.8	5.9				
Green Ext Time (p_c), s	0.0	6.5	0.0	0.8	0.0	6.8	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			17.2									
HCM 2010 LOS			B									

Cumulative Sunday

Synchro 8 Report

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	370	519	232	239	489	177	308	725	140	209	679	178
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	411	577	258	278	569	206	338	797	154	227	738	193
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	765	342	360	722	255	375	1157	517	266	940	420
Arrive On Green	0.13	0.22	0.22	0.10	0.19	0.19	0.21	0.33	0.33	0.15	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	3712	1310	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	411	577	258	278	518	257	338	797	154	227	738	193
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1632	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.4	12.1	12.1	6.2	11.5	11.9	14.7	15.5	5.7	9.9	15.3	8.1
Cycle Q Clear(g_c), s	9.4	12.1	12.1	6.2	11.5	11.9	14.7	15.5	5.7	9.9	15.3	8.1
Prop In Lane	1.00		1.00	1.00		0.80	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	765	342	360	660	317	375	1157	517	266	940	420
V/C Ratio(X)	0.94	0.75	0.75	0.77	0.79	0.81	0.90	0.69	0.30	0.85	0.79	0.46
Avail Cap(c_a), veh/h	435	765	342	392	686	330	381	1157	517	292	940	420
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	29.0	29.0	34.5	30.3	30.4	30.4	23.1	19.9	32.8	27.0	24.3
Incr Delay (d2), s/veh	29.5	4.3	9.1	8.5	5.8	13.5	23.6	3.4	1.5	19.8	6.6	3.6
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	6.2	6.3	6.1	3.4	5.9	6.5	9.6	8.1	2.7	6.3	8.3	3.9
LnGrp Delay(d),s/veh	63.8	33.3	38.1	43.0	36.1	43.9	54.0	26.5	21.3	52.6	33.5	27.9
LnGrp LOS	E	C	D	D	D	D	D	C	C	D	C	C
Approach Vol, veh/h		1246			1053			1289			1158	
Approach Delay, s/veh		44.4			39.8			33.1			36.3	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	29.9	12.3	21.1	20.7	25.0	14.0	19.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	25.0	9.0	17.0	17.0	21.0	10.0	16.0				
Max Q Clear Time (g_c+I1), s	11.9	17.5	8.2	14.1	16.7	17.3	11.4	13.9				
Green Ext Time (p_c), s	0.1	5.6	0.1	2.2	0.0	3.0	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			38.3									
HCM 2010 LOS			D									

Cumulative Sunday

Synchro 8 Report

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC
 2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	4	30	3	7	15	41	1241	3	38	1146	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	72	72	72	89	89	89	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	6	46	4	10	21	51	1534	4	44	1317	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2289	3055	670	2386	3063	769	1339	0	0	1538	0	0
Stage 1	1416	1416	-	1637	1637	-	-	-	-	-	-	-
Stage 2	873	1639	-	749	1426	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 21	12	399	18	12	344	511	-	-	428	-	-
Stage 1	144	202	-	105	157	-	-	-	-	-	-	-
Stage 2	311	157	-	370	199	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 15	10	399	13	10	344	511	-	-	428	-	-
Mov Cap-2 Maneuver	79	62	-	66	66	-	-	-	-	-	-	-
Stage 1	130	181	-	95	141	-	-	-	-	-	-	-
Stage 2	245	141	-	284	179	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	65.2	43.3	0.4	0.5
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	511	-	-	137	128	428	-
HCM Lane V/C Ratio	0.099	-	-	0.606	0.271	0.102	-
HCM Control Delay (s)	12.8	-	-	65.2	43.3	14.4	-
HCM Lane LOS	B	-	-	F	E	B	-
HCM 95th %tile Q(veh)	0.3	-	-	3.1	1	0.3	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	336	46	3	282	4	34	4	10	2	2	10
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	58	58	58	79	79	79	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	589	81	5	486	7	43	5	13	3	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	486	0	0	589	0	0	1183	1174	589	1183	1174	486
Stage 1	-	-	-	-	-	-	677	677	-	497	497	-
Stage 2	-	-	-	-	-	-	506	497	-	686	677	-
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	1077	-	-	986	-	-	166	192	508	166	192	581
Stage 1	-	-	-	-	-	-	443	452	-	555	545	-
Stage 2	-	-	-	-	-	-	549	545	-	438	452	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1077	-	-	986	-	-	154	183	508	153	183	581
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	183	-	153	183	-
Stage 1	-	-	-	-	-	-	425	434	-	532	542	-
Stage 2	-	-	-	-	-	-	529	542	-	405	434	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.1			34.2			16.3		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	183	1077	-	-	986	-	-	340				
HCM Lane V/C Ratio	0.332	0.041	-	-	0.005	-	-	0.063				
HCM Control Delay (s)	34.2	8.5	-	-	8.7	-	-	16.3				
HCM Lane LOS	D	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	294	376	0	0	0
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	77	77	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	382	464	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	464	0	464
Stage 1	-	-	464
Stage 2	-	-	382
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1097	-	598
Stage 1	-	-	633
Stage 2	-	-	690
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1097	-	598
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	633
Stage 2	-	-	690

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1097	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Cumulative Sunday

Synchro 8 Report

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 16.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	0	78	0	0	0	70	1235	0	0	1116	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	92	92	92	82	82	82	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	0	98	0	0	0	85	1506	0	0	1298	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2244	2997	671	2326	3019	753	1342	0	0	1506	0	0
Stage 1	1320	1320	-	1677	1677	-	-	-	-	-	-	-
Stage 2	924	1677	-	649	1342	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 23	13	399	20	13	352	509	-	-	441	-	-
Stage 1	166	225	-	99	150	-	-	-	-	-	-	-
Stage 2	290	150	-	425	219	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 20	11	399	13	11	352	509	-	-	441	-	-
Mov Cap-2 Maneuver	~ 20	11	-	13	11	-	-	-	-	-	-	-
Stage 1	138	225	-	82	125	-	-	-	-	-	-	-
Stage 2	242	125	-	321	219	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 397.9	0	0.7	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	509	-	-	79	-	441	-	-
HCM Lane V/C Ratio	0.168	-	-	1.566	-	-	-	-
HCM Control Delay (s)	13.5	-	-	\$ 397.9	0	0	-	-
HCM Lane LOS	B	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	10.2	-	0	-	-

Notes






















~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	92	62	112	158	199	63	1394	66	78	1134	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.88	0.88	0.88	0.87	0.87	0.87	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
Arrive On Green	0.06	0.15	0.15	0.08	0.17	0.17	0.07	0.51	0.51	0.07	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Cycle Q Clear(g_c), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
V/C Ratio(X)	0.53	0.48	0.38	0.88	0.57	0.84	0.61	0.88	0.09	0.70	0.70	0.04
Avail Cap(c_a), veh/h	145	347	295	145	347	295	145	1813	811	145	1830	819
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	33.6	33.0	39.0	32.8	34.6	39.0	18.7	10.7	39.0	15.8	10.2
Incr Delay (d2), s/veh	4.0	1.3	1.0	41.4	1.8	18.2	4.9	6.7	0.2	12.0	2.3	0.1
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	1.4	3.0	2.0	4.6	4.1	6.5	1.8	18.4	1.0	2.5	12.0	0.4
LnGrp Delay(d),s/veh	43.2	34.9	34.1	80.5	34.7	52.8	43.9	25.4	11.0	51.0	18.1	10.3
LnGrp LOS	D	C	C	F	C	D	D	C	B	D	B	B
Approach Vol, veh/h		280			533			1750			1414	
Approach Delay, s/veh		36.3			53.3			25.5			19.9	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	48.0	11.0	16.7	9.7	48.4	9.2	18.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	44.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.2	36.6	8.1	7.6	5.4	25.8	4.7	13.9				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.8	0.0	16.3	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			28.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	74	77	50	67	102	62	34	1402	27	35	1201	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	85	89	57	89	136	83	40	1630	31	42	1430	94
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	58	379	75	70	379	97	1862	35	101	1861	833
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.05	0.52	0.52	0.06	0.53	0.53
Sat Flow, veh/h	0	243	1583	0	294	1583	1774	3553	67	1774	3539	1583
Grp Volume(v), veh/h	174	0	57	225	0	83	40	811	850	42	1430	94
Grp Sat Flow(s),veh/h/ln	243	0	1583	294	0	1583	1774	1770	1851	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	1.9	0.0	0.0	2.8	1.5	26.9	27.0	1.5	21.5	2.0
Cycle Q Clear(g_c), s	16.0	0.0	1.9	16.0	0.0	2.8	1.5	26.9	27.0	1.5	21.5	2.0
Prop In Lane	0.49		1.00	0.40		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	138	0	379	146	0	379	97	927	970	101	1861	833
V/C Ratio(X)	1.26	0.00	0.15	1.55	0.00	0.22	0.41	0.87	0.88	0.42	0.77	0.11
Avail Cap(c_a), veh/h	138	0	379	146	0	379	186	927	970	186	1861	833
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	20.0	26.3	0.0	20.4	30.5	14.0	14.0	30.4	12.6	8.0
Incr Delay (d2), s/veh	161.5	0.0	0.2	276.7	0.0	0.3	2.8	11.2	11.0	2.7	3.1	0.3
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	8.7	0.0	0.8	13.8	0.0	1.2	0.8	15.7	16.4	0.8	11.1	0.9
LnGrp Delay(d),s/veh	188.6	0.0	20.2	302.9	0.0	20.7	33.3	25.2	25.0	33.2	15.7	8.3
LnGrp LOS	F		C	F		C	C	C	C	C	B	A
Approach Vol, veh/h		231			308			1701			1566	
Approach Delay, s/veh		147.0			226.9			25.3			15.7	
Approach LOS		F			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.0		20.0	7.7	39.1		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	35.0		16.0	7.0	35.0		16.0				
Max Q Clear Time (g_c+1), s	3.5	29.0		18.0	3.5	23.5		18.0				
Green Ext Time (p_c), s	0.0	5.7		0.0	0.0	10.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			45.1									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	333	138	49	412	92	103	330	32	59	408	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	59	392	162	64	542	121	130	418	41	68	469	60
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	567	482	134	574	488	180	920	90	139	819	104
Arrive On Green	0.07	0.30	0.30	0.08	0.31	0.31	0.10	0.28	0.28	0.08	0.26	0.26
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3258	318	1774	3159	402
Grp Volume(v), veh/h	59	392	162	64	542	121	130	226	233	68	262	267
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1807	1774	1770	1792
Q Serve(g_s), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Cycle Q Clear(g_c), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		0.22
Lane Grp Cap(c), veh/h	128	567	482	134	574	488	180	500	510	139	459	465
V/C Ratio(X)	0.46	0.69	0.34	0.48	0.94	0.25	0.72	0.45	0.46	0.49	0.57	0.58
Avail Cap(c_a), veh/h	201	574	488	201	574	488	201	500	510	201	459	465
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	18.9	16.6	27.3	20.8	16.0	26.9	18.2	18.2	27.3	19.9	19.9
Incr Delay (d2), s/veh	2.6	3.5	0.4	2.6	24.6	0.3	10.8	2.9	2.9	2.7	5.1	5.1
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	6.4	2.2	1.1	12.8	1.6	2.7	3.5	3.6	1.2	4.5	4.6
LnGrp Delay(d),s/veh	30.0	22.4	17.0	30.0	45.5	16.3	37.6	21.2	21.2	29.9	24.9	25.0
LnGrp LOS	C	C	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		613			727			589			597	
Approach Delay, s/veh		21.7			39.3			24.8			25.5	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	21.4	8.7	22.8	10.2	20.0	8.5	23.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+l1), s	4.3	8.6	4.1	13.4	6.4	10.0	4.0	19.5				
Green Ext Time (p_c), s	0.0	3.4	0.0	3.0	0.0	2.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	91	207	75	75	248	209	79	1172	77	129	1114	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	114	259	94	101	335	282	96	1429	94	154	1326	117
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.74	0.74	0.74	0.82	0.82	0.82	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	381	324	128	370	315	126	1575	705	178	1679	751
Arrive On Green	0.08	0.20	0.20	0.07	0.20	0.20	0.07	0.45	0.45	0.10	0.47	0.47
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	114	259	94	101	335	282	96	1429	94	154	1326	117
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	11.5	4.5	5.0	15.8	15.6	4.8	33.8	3.1	7.7	28.3	3.8
Cycle Q Clear(g_c), s	5.7	11.5	4.5	5.0	15.8	15.6	4.8	33.8	3.1	7.7	28.3	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	381	324	128	370	315	126	1575	705	178	1679	751
V/C Ratio(X)	0.82	0.68	0.29	0.79	0.90	0.90	0.76	0.91	0.13	0.87	0.79	0.16
Avail Cap(c_a), veh/h	138	381	324	138	373	317	138	1575	705	178	1679	751
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	33.0	30.2	41.0	35.2	35.1	41.0	23.2	14.7	39.8	19.8	13.4
Incr Delay (d2), s/veh	31.7	4.8	0.5	24.5	24.6	26.1	20.3	9.1	0.4	33.5	3.9	0.4
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	4.0	6.4	2.0	3.3	10.6	9.1	3.1	18.5	1.5	5.4	14.7	1.7
LnGrp Delay(d),s/veh	72.6	37.8	30.7	65.5	59.8	61.2	61.3	32.4	15.1	73.3	23.7	13.8
LnGrp LOS	E	D	C	E	E	E	E	C	B	E	C	B
Approach Vol, veh/h		467			718			1619			1597	
Approach Delay, s/veh		44.9			61.2			33.1			27.8	
Approach LOS		D			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	44.0	10.5	22.4	10.4	46.6	11.0	21.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	40.0	7.0	18.0	7.0	42.0	7.0	18.0				
Max Q Clear Time (g_c+11), s	9.7	35.8	7.0	13.5	6.8	30.3	7.7	17.8				
Green Ext Time (p_c), s	0.0	4.0	0.0	1.9	0.0	10.7	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			37.0									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	263	79	47	365	142	109	347	30	34	281	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	148	370	111	69	537	209	127	403	35	47	385	62
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.71	0.71	0.71	0.68	0.68	0.68	0.86	0.86	0.86	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	647	550	133	595	505	166	931	81	107	763	122
Arrive On Green	0.10	0.35	0.35	0.07	0.32	0.32	0.09	0.28	0.28	0.06	0.25	0.25
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3297	285	1774	3058	489
Grp Volume(v), veh/h	148	370	111	69	537	209	127	215	223	47	222	225
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1812	1774	1770	1777
Q Serve(g_s), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Cycle Q Clear(g_c), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.27
Lane Grp Cap(c), veh/h	182	647	550	133	595	505	166	500	512	107	442	443
V/C Ratio(X)	0.81	0.57	0.20	0.52	0.90	0.41	0.77	0.43	0.43	0.44	0.50	0.51
Avail Cap(c_a), veh/h	182	647	550	182	629	535	182	500	512	182	442	443
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	18.1	15.6	30.3	22.2	18.2	30.1	20.0	20.0	30.9	21.9	22.0
Incr Delay (d2), s/veh	23.5	1.2	0.2	3.1	15.9	0.5	16.1	2.7	2.7	2.8	4.0	4.1
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	3.9	5.9	1.5	1.4	12.2	3.1	3.1	3.7	3.8	0.9	4.1	4.1
LnGrp Delay(d),s/veh	53.4	19.3	15.8	33.4	38.1	18.7	46.3	22.7	22.7	33.7	26.0	26.1
LnGrp LOS	D	B	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		629			815			565			494	
Approach Delay, s/veh		26.7			32.7			28.0			26.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	23.2	9.1	27.6	10.4	21.0	11.0	25.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	23.0	7.0	17.0	7.0	23.0				
Max Q Clear Time (g_c+1), s	3.7	8.8	4.5	13.0	6.8	9.4	7.6	20.8				
Green Ext Time (p_c), s	0.0	3.1	0.0	4.5	0.0	3.0	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	52	88	44	63	104	61	1193	60	98	1068	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	122	70	119	52	74	122	66	1283	65	121	1319	102
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.74	0.74	0.74	0.85	0.85	0.85	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	115	196	114	100	165	130	1453	74	163	1567	701
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.07	0.42	0.42	0.09	0.44	0.44
Sat Flow, veh/h	1774	621	1056	1774	634	1045	1774	3428	173	1774	3539	1583
Grp Volume(v), veh/h	122	0	189	52	0	196	66	661	687	121	1319	102
Grp Sat Flow(s),veh/h/ln	1774	0	1676	1774	0	1678	1774	1770	1832	1774	1770	1583
Q Serve(g_s), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Cycle Q Clear(g_c), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Prop In Lane	1.00		0.63	1.00		0.62	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	164	0	312	114	0	265	130	750	777	163	1567	701
V/C Ratio(X)	0.75	0.00	0.61	0.46	0.00	0.74	0.51	0.88	0.88	0.74	0.84	0.15
Avail Cap(c_a), veh/h	182	0	392	182	0	393	182	750	777	182	1567	701
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	25.5	30.9	0.0	27.5	30.5	18.1	18.2	30.3	16.9	11.4
Incr Delay (d2), s/veh	14.0	0.0	1.9	2.8	0.0	4.0	3.1	14.1	13.9	13.5	5.7	0.4
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	2.9	0.0	3.4	1.0	0.0	3.8	1.3	14.3	14.8	2.8	12.2	1.2
LnGrp Delay(d),s/veh	44.2	0.0	27.4	33.7	0.0	31.5	33.6	32.3	32.1	43.7	22.6	11.8
LnGrp LOS	D		C	C		C	C	C	C	D	C	B
Approach Vol, veh/h		311			248			1414			1542	
Approach Delay, s/veh		34.0			32.0			32.2			23.5	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	33.0	8.4	16.7	9.0	34.3	10.3	14.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.5	25.6	3.9	9.1	4.5	24.6	6.6	9.6				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.3	0.0	4.1	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔↔	↑↑↔		↔	↑↑	↔	↔	↑↑	↔
Volume (veh/h)	206	458	100	205	891	245	267	917	211	239	684	239
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	251	559	122	241	1048	288	284	976	224	285	814	285
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	861	385	325	993	273	322	1018	455	310	995	445
Arrive On Green	0.09	0.24	0.24	0.09	0.25	0.25	0.18	0.29	0.29	0.17	0.28	0.28
Sat Flow, veh/h	3442	3539	1583	3442	3970	1090	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	251	559	122	241	895	441	284	976	224	285	814	285
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1670	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Cycle Q Clear(g_c), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	861	385	325	848	418	322	1018	455	310	995	445
V/C Ratio(X)	0.83	0.65	0.32	0.74	1.06	1.06	0.88	0.96	0.49	0.92	0.82	0.64
Avail Cap(c_a), veh/h	301	861	385	387	848	418	333	1018	455	310	995	445
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	27.2	24.8	35.3	30.0	30.0	31.9	28.0	23.7	32.4	26.8	25.2
Incr Delay (d2), s/veh	17.9	1.7	0.5	6.2	46.7	59.7	22.7	19.9	3.8	30.8	7.5	6.9
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	3.5	5.7	2.2	2.9	14.8	16.1	8.1	13.4	4.6	8.8	9.4	6.4
LnGrp Delay(d),s/veh	53.8	28.9	25.3	41.5	76.7	89.7	54.6	48.0	27.4	63.3	34.3	32.1
LnGrp LOS	D	C	C	D	F	F	D	D	C	E	C	C
Approach Vol, veh/h		932			1577			1484			1384	
Approach Delay, s/veh		35.1			75.0			46.1			39.8	
Approach LOS		D			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	27.0	11.5	23.5	18.5	26.5	11.0	24.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	23.0	9.0	18.0	15.0	22.0	7.0	20.0				
Max Q Clear Time (g_c+l1), s	14.6	23.7	7.5	13.4	14.5	19.2	7.7	22.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.8	0.0	2.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			51.1									
HCM 2010 LOS			D									

HCM 2010 TWSC
2: Perris Blvd & Atwood Ave

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	2	41	2	1	18	38	1489	4	14	1277	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	68	68	68	87	87	87	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	3	61	3	1	26	48	1883	5	16	1451	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2532	3478	737	2740	3487	944	1474	0	0	1888	0	0
Stage 1	1494	1494	-	1981	1981	-	-	-	-	-	-	-
Stage 2	1038	1984	-	759	1506	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	6	361	9	6	263	453	-	-	313	-	-
Stage 1	129	185	-	63	106	-	-	-	-	-	-	-
Stage 2	247	105	-	365	182	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 11	5	361	6	5	263	453	-	-	313	-	-
Mov Cap-2 Maneuver	69	51	-	43	52	-	-	-	-	-	-	-
Stage 1	115	176	-	56	95	-	-	-	-	-	-	-
Stage 2	196	94	-	283	173	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.8	33.5	0.3	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	453	-	-	164	157	313	-
HCM Lane V/C Ratio	0.106	-	-	0.51	0.197	0.051	-
HCM Control Delay (s)	13.9	-	-	47.8	33.5	17.1	-
HCM Lane LOS	B	-	-	E	D	C	-
HCM 95th %tile Q(veh)	0.4	-	-	2.5	0.7	0.2	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	350	13	36	476	19	30	11	42	34	12	15
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	70	70	70	67	67	67	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	455	17	51	680	27	45	16	63	53	19	23
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	680	0	0	455	0	0	1285	1264	455	1303	1264	680
Stage 1	-	-	-	-	-	-	481	481	-	783	783	-
Stage 2	-	-	-	-	-	-	804	783	-	520	481	-
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	912	-	-	1106	-	-	142	169	605	138	169	451
Stage 1	-	-	-	-	-	-	566	554	-	387	404	-
Stage 2	-	-	-	-	-	-	377	404	-	539	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	912	-	-	1106	-	-	117	159	605	109	159	451
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	159	-	109	159	-
Stage 1	-	-	-	-	-	-	558	546	-	381	385	-
Stage 2	-	-	-	-	-	-	324	385	-	462	546	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			44.2			68		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	210	912	-	-	1106	-	-	145				
HCM Lane V/C Ratio	0.59	0.014	-	-	0.046	-	-	0.657				
HCM Control Delay (s)	44.2	9	-	-	8.4	-	-	68				
HCM Lane LOS	E	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	3.3	0	-	-	0.1	-	-	3.6				

HCM 2010 TWSC
10: Cottonwood Ave

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	19	354	529	9	12	21
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	75	75	78	78	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	472	678	12	13	23

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	690	0	684
Stage 1	-	-	684
Stage 2	-	-	523
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	905	-	449
Stage 1	-	-	501
Stage 2	-	-	595
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	905	-	449
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	501
Stage 2	-	-	573

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	905	-	-	-	305
HCM Lane V/C Ratio	0.028	-	-	-	0.118
HCM Control Delay (s)	9.1	0	-	-	18.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 25.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	11	30	0	31	14	1432	34	35	1296	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	33	0	34	16	1685	40	41	1525	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2484	3367	764	2583	3349	862	1528	0	0	1725	0	0
Stage 1	1609	1609	-	1738	1738	-	-	-	-	-	-	-
Stage 2	875	1758	-	845	1611	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	15	8	346	~ 13	8	298	432	-	-	362	-	-
Stage 1	109	162	-	90	140	-	-	-	-	-	-	-
Stage 2	310	137	-	324	162	-	-	-	-	-	-	-
Platoon blocked, %							-	-	-	-	-	-
Mov Cap-1 Maneuver	12	7	346	~ 11	7	298	432	-	-	362	-	-
Mov Cap-2 Maneuver	12	7	-	~ 11	7	-	-	-	-	-	-	-
Stage 1	105	144	-	87	135	-	-	-	-	-	-	-
Stage 2	265	132	-	273	144	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	\$ 1275.4	0.1	0.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	432	-	-	346	22	362	-	-
HCM Lane V/C Ratio	0.038	-	-	0.051	3.014	0.114	-	-
HCM Control Delay (s)	13.7	-	-	\$ 1275.4	16.2	-	-	-
HCM Lane LOS	B	-	-	C	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	8.5	0.4	-	-

Notes























~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	199	76	69	131	95	68	1280	89	121	1630	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.70	0.70	0.70	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	124	293	249	131	302	256	118	1743	780	157	1821	815
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16	0.07	0.49	0.49	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Cycle Q Clear(g_c), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	293	249	131	302	256	118	1743	780	157	1821	815
V/C Ratio(X)	0.65	0.80	0.36	0.75	0.62	0.53	0.60	0.76	0.12	0.80	0.93	0.10
Avail Cap(c_a), veh/h	145	349	296	145	349	296	145	1743	780	187	1821	815
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	34.7	32.2	38.8	33.4	32.8	38.8	17.7	11.7	38.2	19.4	10.6
Incr Delay (d2), s/veh	7.6	10.5	0.9	18.0	2.6	1.7	4.8	3.3	0.3	18.6	10.2	0.2
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	2.1	6.2	1.9	2.9	4.3	3.1	1.8	13.6	1.2	3.7	21.2	1.0
LnGrp Delay(d),s/veh	46.3	45.2	33.0	56.8	36.0	34.5	43.6	20.9	12.0	56.9	29.6	10.8
LnGrp LOS	D	D	C	E	D	C	D	C	B	E	C	B
Approach Vol, veh/h		403			422			1497			1902	
Approach Delay, s/veh		42.7			40.4			21.4			30.6	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	46.1	10.3	17.5	9.7	48.0	10.0	17.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	42.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	8.0	28.2	6.7	12.3	5.3	40.3	5.8	10.0				
Green Ext Time (p_c), s	0.0	12.9	0.0	1.1	0.0	3.6	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 3: Perris Blvd & Dracaea Ave

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	102	28	32	94	64	16	1340	47	79	1586	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	72	115	31	36	106	72	17	1396	49	81	1635	92
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	92	400	71	157	400	51	1653	58	149	1873	838
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.47	0.47	0.08	0.53	0.53
Sat Flow, veh/h	0	364	1583	0	619	1583	1774	3488	122	1774	3539	1583
Grp Volume(v), veh/h	187	0	31	142	0	72	17	707	738	81	1635	92
Grp Sat Flow(s),veh/h/ln	364	0	1583	619	0	1583	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.9	0.0	0.0	2.3	0.6	22.2	22.3	2.8	25.6	1.8
Cycle Q Clear(g_c), s	16.0	0.0	0.9	16.0	0.0	2.3	0.6	22.2	22.3	2.8	25.6	1.8
Prop In Lane	0.39		1.00	0.25		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	400	228	0	400	51	838	872	149	1873	838
V/C Ratio(X)	1.09	0.00	0.08	0.62	0.00	0.18	0.34	0.84	0.85	0.54	0.87	0.11
Avail Cap(c_a), veh/h	171	0	400	228	0	400	196	838	872	196	1873	838
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	18.0	20.0	0.0	18.5	30.2	14.6	14.6	27.8	13.0	7.4
Incr Delay (d2), s/veh	96.5	0.0	0.1	5.2	0.0	0.2	3.8	10.1	9.9	3.1	6.0	0.3
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	7.5	0.0	0.4	2.3	0.0	1.0	0.3	13.0	13.7	1.5	13.8	0.9
LnGrp Delay(d),s/veh	120.4	0.0	18.1	25.2	0.0	18.7	34.0	24.7	24.5	30.9	19.0	7.7
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		218			214			1462			1808	
Approach Delay, s/veh		105.8			23.0			24.7			19.0	
Approach LOS		F			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	34.0		20.0	5.8	37.5		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		16.0	7.0	30.0		16.0				
Max Q Clear Time (g_c+1), s	4.8	24.3		18.0	2.6	27.6		18.0				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.0	2.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			26.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

4: Indian St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	384	162	45	303	41	88	438	60	31	374	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	452	191	55	370	50	106	528	72	33	394	49
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.82	0.82	0.82	0.83	0.83	0.83	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	544	463	125	546	464	173	996	135	88	856	106
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.10	0.32	0.32	0.05	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3132	426	1774	3171	392
Grp Volume(v), veh/h	54	452	191	55	370	50	106	298	302	33	219	224
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1788	1774	1770	1794
Q Serve(g_s), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Cycle Q Clear(g_c), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.22
Lane Grp Cap(c), veh/h	123	544	463	125	546	464	173	563	568	88	478	484
V/C Ratio(X)	0.44	0.83	0.41	0.44	0.68	0.11	0.61	0.53	0.53	0.38	0.46	0.46
Avail Cap(c_a), veh/h	210	597	508	210	597	508	210	563	568	210	478	484
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	19.6	16.9	26.4	18.5	15.3	25.7	16.6	16.6	27.3	18.0	18.1
Incr Delay (d2), s/veh	2.4	9.0	0.6	2.4	2.7	0.1	3.6	3.5	3.5	2.6	3.1	3.2
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	0.9	8.3	2.6	0.9	5.8	0.6	1.8	4.5	4.6	0.6	3.4	3.5
LnGrp Delay(d),s/veh	28.9	28.6	17.5	28.9	21.2	15.4	29.3	20.1	20.1	29.9	21.2	21.2
LnGrp LOS	C	C	B	C	C	B	C	C	C	C	C	C
Approach Vol, veh/h		697			475			706			476	
Approach Delay, s/veh		25.5			21.5			21.5			21.8	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	22.8	8.2	21.3	9.8	20.0	8.1	21.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	10.2	3.8	15.4	5.4	8.2	3.7	12.4				
Green Ext Time (p_c), s	0.0	2.9	0.0	1.9	0.0	3.7	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			22.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	107	245	72	52	173	118	74	1239	63	182	1393	131
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	126	288	85	67	222	151	79	1318	67	194	1482	139
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.78	0.78	0.78	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	349	297	123	312	265	132	1477	661	208	1629	729
Arrive On Green	0.09	0.19	0.19	0.07	0.17	0.17	0.07	0.42	0.42	0.12	0.46	0.46
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	126	288	85	67	222	151	79	1318	67	194	1482	139
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.3	11.4	3.5	2.8	8.6	6.7	3.3	26.5	2.0	8.3	29.8	4.0
Cycle Q Clear(g_c), s	5.3	11.4	3.5	2.8	8.6	6.7	3.3	26.5	2.0	8.3	29.8	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	349	297	123	312	265	132	1477	661	208	1629	729
V/C Ratio(X)	0.80	0.83	0.29	0.54	0.71	0.57	0.60	0.89	0.10	0.93	0.91	0.19
Avail Cap(c_a), veh/h	162	389	330	162	389	330	162	1477	661	208	1629	729
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	30.0	26.8	34.5	30.2	29.4	34.4	20.7	13.6	33.5	19.2	12.2
Incr Delay (d2), s/veh	23.2	12.5	0.5	3.7	4.5	1.9	4.3	8.6	0.3	43.6	9.1	0.6
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	3.6	7.1	1.6	1.5	4.8	3.1	1.8	14.6	0.9	6.6	16.5	1.8
LnGrp Delay(d),s/veh	57.4	42.4	27.3	38.2	34.7	31.3	38.7	29.3	13.9	77.1	28.3	12.8
LnGrp LOS	E	D	C	D	C	C	D	C	B	E	C	B
Approach Vol, veh/h		499			440			1464			1815	
Approach Delay, s/veh		43.6			34.1			29.1			32.3	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	36.0	9.3	18.4	9.7	39.3	10.8	16.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	32.0	7.0	16.0	7.0	34.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	10.3	28.5	4.8	13.4	5.3	31.8	7.3	10.6				
Green Ext Time (p_c), s	0.0	3.4	0.0	1.0	0.0	2.1	0.0	1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			32.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	264	57	31	235	43	31	355	19	39	322	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	326	70	34	255	47	35	403	22	41	339	21
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.92	0.92	0.92	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	461	392	93	491	417	96	1091	59	108	1105	68
Arrive On Green	0.04	0.25	0.25	0.05	0.26	0.26	0.05	0.32	0.32	0.06	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3414	186	1774	3387	209
Grp Volume(v), veh/h	22	326	70	34	255	47	35	208	217	41	176	184
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1830	1774	1770	1826
Q Serve(g_s), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Cycle Q Clear(g_c), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	65	461	392	93	491	417	96	565	585	108	578	596
V/C Ratio(X)	0.34	0.71	0.18	0.36	0.52	0.11	0.37	0.37	0.37	0.38	0.31	0.31
Avail Cap(c_a), veh/h	248	707	601	248	707	601	248	565	585	248	578	596
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	17.2	14.8	22.9	15.7	14.0	22.9	13.1	13.2	22.6	12.6	12.6
Incr Delay (d2), s/veh	3.0	2.0	0.2	2.4	0.9	0.1	2.3	1.8	1.8	2.2	1.4	1.3
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	0.3	4.3	0.8	0.5	3.1	0.5	0.5	2.5	2.6	0.6	2.0	2.1
LnGrp Delay(d),s/veh	26.5	19.2	15.0	25.3	16.6	14.1	25.2	15.0	15.0	24.8	14.0	14.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		418			336			460			401	
Approach Delay, s/veh		18.9			17.1			15.7			15.1	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	20.0	6.6	16.4	6.7	20.3	5.8	17.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+l1), s	3.1	6.6	2.9	10.0	3.0	5.8	2.6	7.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.4	0.0	3.2	0.0	2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	52	44	21	44	47	45	1313	55	76	1414	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	30	59	50	25	52	56	48	1397	59	82	1520	34
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	104	88	69	87	94	111	1803	76	147	1917	858
Arrive On Green	0.04	0.11	0.11	0.04	0.11	0.11	0.06	0.52	0.52	0.08	0.54	0.54
Sat Flow, veh/h	1774	933	790	1774	822	885	1774	3461	146	1774	3539	1583
Grp Volume(v), veh/h	30	0	109	25	0	108	48	713	743	82	1520	34
Grp Sat Flow(s),veh/h/ln	1774	0	1723	1774	0	1707	1774	1770	1837	1774	1770	1583
Q Serve(g_s), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Cycle Q Clear(g_c), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Prop In Lane	1.00		0.46	1.00		0.52	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	80	0	193	69	0	181	111	922	957	147	1917	858
V/C Ratio(X)	0.38	0.00	0.57	0.36	0.00	0.60	0.43	0.77	0.78	0.56	0.79	0.04
Avail Cap(c_a), veh/h	190	0	422	190	0	418	190	922	957	190	1917	858
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	27.5	30.6	0.0	27.8	29.5	12.5	12.6	28.8	12.0	7.0
Incr Delay (d2), s/veh	2.9	0.0	2.6	3.1	0.0	3.1	2.7	6.3	6.1	3.3	3.5	0.1
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	0.6	0.0	2.0	0.5	0.0	2.0	0.9	11.7	12.2	1.5	11.7	0.3
LnGrp Delay(d),s/veh	33.2	0.0	30.1	33.7	0.0	31.0	32.2	18.8	18.7	32.0	15.5	7.1
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		139			133			1504			1636	
Approach Delay, s/veh		30.7			31.5			19.2			16.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	38.0	6.6	11.3	8.1	39.3	6.9	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	34.0	7.0	16.0	7.0	34.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.9	23.2	2.9	5.9	3.7	24.5	3.1	5.9				
Green Ext Time (p_c), s	0.0	10.0	0.0	0.8	0.0	8.8	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 9: Perris Blvd & Alessandro Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵↵	↑↑	↵	↵↵	↑↑↵		↵	↑↑	↵	↵	↑↑	↵
Volume (veh/h)	508	1029	305	260	658	218	270	792	193	310	955	162
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	540	1095	324	302	765	253	297	870	212	341	1049	178
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	563	1062	475	313	862	282	290	933	417	355	1062	475
Arrive On Green	0.16	0.30	0.30	0.09	0.23	0.23	0.16	0.26	0.26	0.20	0.30	0.30
Sat Flow, veh/h	3442	3539	1583	3442	3792	1242	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	540	1095	324	302	683	335	297	870	212	341	1049	178
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1644	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	17.1	33.0	19.8	9.6	21.5	21.7	18.0	26.4	12.5	20.9	32.4	9.8
Cycle Q Clear(g_c), s	17.1	33.0	19.8	9.6	21.5	21.7	18.0	26.4	12.5	20.9	32.4	9.8
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	563	1062	475	313	770	374	290	933	417	355	1062	475
V/C Ratio(X)	0.96	1.03	0.68	0.97	0.89	0.90	1.02	0.93	0.51	0.96	0.99	0.37
Avail Cap(c_a), veh/h	563	1062	475	313	770	374	290	933	417	355	1062	475
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	38.5	33.9	49.8	41.1	41.2	46.0	39.5	34.4	43.6	38.3	30.4
Incr Delay (d2), s/veh	27.8	36.0	4.0	41.4	12.1	23.3	58.9	17.1	4.4	37.5	24.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	21.4	9.2	6.4	11.4	12.3	13.5	15.1	6.0	13.9	19.5	4.5
LnGrp Delay(d),s/veh	73.5	74.5	37.9	91.2	53.3	64.5	104.9	56.6	38.8	81.0	63.2	32.6
LnGrp LOS	E	F	D	F	D	E	F	E	D	F	E	C
Approach Vol, veh/h		1959			1320			1379			1568	
Approach Delay, s/veh		68.1			64.8			64.3			63.6	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	33.0	14.0	37.0	22.0	37.0	22.0	29.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	22.0	29.0	10.0	33.0	18.0	33.0	18.0	25.0				
Max Q Clear Time (g_c+l1), s	22.9	28.4	11.6	35.0	20.0	34.4	19.1	23.7				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			65.4									
HCM 2010 LOS			E									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	3	40	2	1	12	40	1423	2	47	1696	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	97	97	97	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	4	51	3	2	21	45	1614	2	48	1731	22
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2736	3545	877	2669	3555	808	1753	0	0	1616	0	0
Stage 1	1838	1838	-	1706	1706	-	-	-	-	-	-	-
Stage 2	898	1707	-	963	1849	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 10	6	292	11	6	324	353	-	-	399	-	-
Stage 1	78	125	-	95	145	-	-	-	-	-	-	-
Stage 2	301	145	-	274	123	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 7	5	292	7	5	324	353	-	-	399	-	-
Mov Cap-2 Maneuver	48	44	-	51	40	-	-	-	-	-	-	-
Stage 1	68	110	-	83	127	-	-	-	-	-	-	-
Stage 2	243	127	-	192	108	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	85.3			34.4			0.5			0.4		
HCM LOS	F			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	353	-	-	112	148	399	-	-				
HCM Lane V/C Ratio	0.129	-	-	0.664	0.175	0.12	-	-				
HCM Control Delay (s)	16.7	-	-	85.3	34.4	15.3	-	-				
HCM Lane LOS	C	-	-	F	D	C	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	3.4	0.6	0.4	-	-				
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	383	55	15	257	9	31	6	9	7	2	11
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	88	88	88	60	60	60	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	391	56	17	292	10	52	10	15	9	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	292	0	0	391	0	0	763	754	391	766	754	292
Stage 1	-	-	-	-	-	-	428	428	-	326	326	-
Stage 2	-	-	-	-	-	-	335	326	-	440	428	-
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	1270	-	-	1168	-	-	321	338	658	320	338	747
Stage 1	-	-	-	-	-	-	605	585	-	687	648	-
Stage 2	-	-	-	-	-	-	679	648	-	596	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1270	-	-	1168	-	-	306	328	658	299	328	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	328	-	299	328	-
Stage 1	-	-	-	-	-	-	596	577	-	677	639	-
Stage 2	-	-	-	-	-	-	653	639	-	564	577	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			18.4			13.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	345	1270	-	-	1168	-	-	452				
HCM Lane V/C Ratio	0.222	0.014	-	-	0.015	-	-	0.059				
HCM Control Delay (s)	18.4	7.9	-	-	8.1	-	-	13.5				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	22	456	313	10	13	26
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	91	91	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	501	386	12	14	28

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	399	0	393
Stage 1	-	-	393
Stage 2	-	-	549
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1160	-	656
Stage 1	-	-	682
Stage 2	-	-	579
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1160	-	656
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	682
Stage 2	-	-	562

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1160	-	-	-	457
HCM Lane V/C Ratio	0.021	-	-	-	0.093
HCM Control Delay (s)	8.2	0	-	-	13.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 81.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	0	74	34	0	35	54	1374	40	40	1588	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	92	92	92	95	95	95	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	103	37	0	38	57	1446	42	43	1708	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2651	3416	874	2521	3415	744	1748	0	0	1488	0	0
Stage 1	1814	1814	-	1581	1581	-	-	-	-	-	-	-
Stage 2	837	1602	-	940	1834	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 11	7	293	~ 14	7	357	355	-	-	448	-	-
Stage 1	81	128	-	114	167	-	-	-	-	-	-	-
Stage 2	327	163	-	283	125	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 8	5	293	~ 7	5	357	355	-	-	448	-	-
Mov Cap-2 Maneuver	~ 8	5	-	~ 7	5	-	-	-	-	-	-	-
Stage 1	68	116	-	96	140	-	-	-	-	-	-	-
Stage 2	245	137	-	166	113	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 832.3	\$ 2499.9	0.6	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	355	-	-	49	14	448	-	-
HCM Lane V/C Ratio	0.16	-	-	2.438	5.357	0.096	-	-
HCM Control Delay (s)	17.1	-	-	\$ 832.3	\$ 2499.9	13.9	-	-
HCM Lane LOS	C	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	12.4	10.3	0.3	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	4	30	3	7	15	41	1265	3	38	1170	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	72	72	72	89	89	89	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	6	46	4	10	21	51	1563	4	44	1345	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2331	3112	683	2430	3121	784	1367	0	0	1567	0	0
Stage 1	1443	1443	-	1667	1667	-	-	-	-	-	-	-
Stage 2	888	1669	-	763	1454	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 20	11	392	17	11	336	498	-	-	417	-	-
Stage 1	139	196	-	100	152	-	-	-	-	-	-	-
Stage 2	305	151	-	363	193	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 14	9	392	12	~ 9	336	498	-	-	417	-	-
Mov Cap-2 Maneuver	75	59	-	63	63	-	-	-	-	-	-	-
Stage 1	125	175	-	90	136	-	-	-	-	-	-	-
Stage 2	238	136	-	276	173	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	71.1	45.4	0.4	0.5
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	498	-	-	131	123	417	-
HCM Lane V/C Ratio	0.102	-	-	0.634	0.282	0.105	-
HCM Control Delay (s)	13	-	-	71.1	45.4	14.6	-
HCM Lane LOS	B	-	-	F	E	B	-
HCM 95th %tile Q(veh)	0.3	-	-	3.3	1.1	0.3	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	343	46	3	289	4	34	4	10	2	2	10
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	58	58	58	79	79	79	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	602	81	5	498	7	43	5	13	3	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	498	0	0	602	0	0	1207	1198	602	1207	1198	498
Stage 1	-	-	-	-	-	-	689	689	-	509	509	-
Stage 2	-	-	-	-	-	-	518	509	-	698	689	-
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	1066	-	-	975	-	-	160	186	500	160	186	572
Stage 1	-	-	-	-	-	-	436	446	-	547	538	-
Stage 2	-	-	-	-	-	-	541	538	-	431	446	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1066	-	-	975	-	-	148	177	500	147	177	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	177	-	147	177	-
Stage 1	-	-	-	-	-	-	418	428	-	524	535	-
Stage 2	-	-	-	-	-	-	521	535	-	398	428	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.1			35.9			16.7		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	176	1066	-	-	975	-	-	330				
HCM Lane V/C Ratio	0.345	0.041	-	-	0.005	-	-	0.065				
HCM Control Delay (s)	35.9	8.5	-	-	8.7	-	-	16.7				
HCM Lane LOS	E	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	31	283	369	14	18	38
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	77	77	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	368	456	17	20	41

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	473	0	464
Stage 1	-	-	464
Stage 2	-	-	448
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1089	-	598
Stage 1	-	-	633
Stage 2	-	-	644
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1089	-	598
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	633
Stage 2	-	-	614

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	446
HCM Lane V/C Ratio	0.037	-	-	-	0.136
HCM Control Delay (s)	8.4	0	-	-	14.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 117.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	0	78	49	0	50	70	1212	55	55	1088	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	92	92	92	82	82	82	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	0	98	53	0	54	85	1478	67	64	1265	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2325	3131	655	2442	3119	773	1309	0	0	1545	0	0
Stage 1	1415	1415	-	1682	1682	-	-	-	-	-	-	-
Stage 2	910	1716	-	760	1437	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 20	11	409	~ 16	11	342	524	-	-	426	-	-
Stage 1	144	202	-	98	149	-	-	-	-	-	-	-
Stage 2	296	143	-	364	197	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 13	8	409	~ 9	8	342	524	-	-	426	-	-
Mov Cap-2 Maneuver	~ 13	8	-	~ 9	8	-	-	-	-	-	-	-
Stage 1	121	172	-	82	125	-	-	-	-	-	-	-
Stage 2	209	120	-	236	167	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 733	\$ 2664	0.7	0.7
HCM LOS	F	F		

























Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	524	-	-	55	18	426	-	-
HCM Lane V/C Ratio	0.163	-	-	2.25	5.978	0.15	-	-
HCM Control Delay (s)	13.2	-	-	\$ 733	\$ 2664	14.9	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	12.4	14.1	0.5	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary













1: Perris Blvd & Eucalyptus Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	101	41	52	81	84	58	1186	56	71	1134	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
Arrive On Green	0.08	0.12	0.12	0.07	0.11	0.11	0.08	0.47	0.47	0.08	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Cycle Q Clear(g_c), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
V/C Ratio(X)	0.50	0.51	0.25	0.48	0.47	0.57	0.48	0.79	0.08	0.53	0.75	0.09
Avail Cap(c_a), veh/h	200	480	408	200	480	408	200	1652	739	200	1683	753
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	25.8	24.9	27.6	25.8	26.1	27.5	14.0	9.2	27.3	13.3	8.9
Incr Delay (d2), s/veh	2.7	1.9	0.7	2.6	1.6	2.8	2.6	3.9	0.2	2.9	3.1	0.2
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	1.3	1.9	0.7	1.1	1.7	1.8	1.1	10.1	0.6	1.4	9.5	0.6
LnGrp Delay(d),s/veh	30.2	27.6	25.6	30.2	27.4	28.9	30.2	17.9	9.4	30.2	16.4	9.1
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	A
Approach Vol, veh/h		228			262			1429			1403	
Approach Delay, s/veh		28.0			28.7			18.1			16.8	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	33.0	8.6	11.3	8.7	33.5	8.9	11.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+11), s	4.7	21.3	4.1	5.5	4.1	20.0	4.3	5.8				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.1	0.0	8.1	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			19.1									
HCM 2010 LOS			B									

Cumulative WP Sunday

Synchro 8 Report

























HCM 2010 Signalized Intersection Summary 3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↕		↖	↕	↗
Volume (veh/h)	78	91	28	39	65	63	26	1165	27	29	1120	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	90	105	32	45	75	72	31	1387	32	34	1302	66
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	77	453	89	109	453	85	1582	36	91	1596	714
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	0	270	1583	0	379	1583	1774	3536	82	1774	3539	1583
Grp Volume(v), veh/h	195	0	32	120	0	72	31	693	726	34	1302	66
Grp Sat Flow(s),veh/h/ln	270	0	1583	379	0	1583	1774	1770	1848	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	1.9	0.9	19.9	19.9	1.0	17.9	1.3
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	1.9	0.9	19.9	19.9	1.0	17.9	1.3
Prop In Lane	0.46		1.00	0.37		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	453	197	0	453	85	792	827	91	1596	714
V/C Ratio(X)	1.14	0.00	0.07	0.61	0.00	0.16	0.37	0.88	0.88	0.37	0.82	0.09
Avail Cap(c_a), veh/h	171	0	453	197	0	453	222	792	827	222	1596	714
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	14.5	16.7	0.0	14.9	25.8	14.0	14.0	25.6	13.3	8.8
Incr Delay (d2), s/veh	110.5	0.0	0.1	5.3	0.0	0.2	2.6	13.0	12.7	2.5	4.7	0.3
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	7.8	0.0	0.4	1.7	0.0	0.8	0.5	12.5	13.0	0.6	9.5	0.6
LnGrp Delay(d),s/veh	131.8	0.0	14.6	22.0	0.0	15.1	28.4	27.0	26.7	28.1	18.0	9.0
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		227			192			1450			1402	
Approach Delay, s/veh		115.3			19.4			26.9			17.9	
Approach LOS		F			B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	29.0		20.0	6.7	29.2		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+l1), s	3.0	21.9		18.0	2.9	19.9		18.0				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.0	4.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	271	115	49	325	26	97	278	47	22	239	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	23	347	147	58	387	31	100	287	48	24	257	24
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	468	398	131	535	455	173	1084	179	69	975	90
Arrive On Green	0.04	0.25	0.25	0.07	0.29	0.29	0.10	0.36	0.36	0.04	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3041	503	1774	3275	303
Grp Volume(v), veh/h	23	347	147	58	387	31	100	166	169	24	138	143
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1774	1774	1770	1809
Q Serve(g_s), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Cycle Q Clear(g_c), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.17
Lane Grp Cap(c), veh/h	66	468	398	131	535	455	173	630	632	69	527	538
V/C Ratio(X)	0.35	0.74	0.37	0.44	0.72	0.07	0.58	0.26	0.27	0.35	0.26	0.27
Avail Cap(c_a), veh/h	217	587	499	217	587	499	217	630	632	217	527	538
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	19.7	17.7	25.3	18.3	14.8	24.7	13.1	13.1	26.7	15.3	15.3
Incr Delay (d2), s/veh	3.1	3.8	0.6	2.3	4.0	0.1	3.0	1.0	1.0	3.0	1.2	1.2
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	0.4	5.5	2.0	1.0	6.1	0.4	1.6	2.0	2.1	0.4	1.8	1.9
LnGrp Delay(d),s/veh	29.9	23.5	18.2	27.7	22.3	14.9	27.7	14.1	14.1	29.7	16.5	16.5
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		517			476			435			305	
Approach Delay, s/veh		22.3			22.5			17.2			17.5	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	24.4	8.2	18.3	9.6	21.0	6.1	20.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+l1), s	2.8	5.9	3.8	11.8	5.1	5.4	2.7	12.7				
Green Ext Time (p_c), s	0.0	2.7	0.0	2.5	0.0	2.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 5: Perris Blvd & Cottonwood Ave






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	93	158	65	83	200	198	87	1048	81	163	948	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	118	200	82	146	351	347	96	1152	89	187	1090	122
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	366	311	178	397	338	137	1333	596	223	1503	672
Arrive On Green	0.08	0.20	0.20	0.10	0.21	0.21	0.08	0.38	0.38	0.13	0.42	0.42
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	118	200	82	146	351	347	96	1152	89	187	1090	122
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.2	7.7	3.5	6.4	14.6	17.0	4.2	24.0	3.0	8.2	20.4	3.8
Cycle Q Clear(g_c), s	5.2	7.7	3.5	6.4	14.6	17.0	4.2	24.0	3.0	8.2	20.4	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	366	311	178	397	338	137	1333	596	223	1503	672
V/C Ratio(X)	0.79	0.55	0.26	0.82	0.88	1.03	0.70	0.86	0.15	0.84	0.73	0.18
Avail Cap(c_a), veh/h	156	374	318	178	397	338	156	1333	596	223	1503	672
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	28.8	27.1	35.1	30.4	31.3	35.9	23.0	16.4	34.1	19.1	14.3
Incr Delay (d2), s/veh	23.2	1.6	0.4	25.1	20.2	56.1	11.2	7.7	0.5	23.8	3.1	0.6
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	3.5	4.1	1.6	4.4	9.7	12.6	2.5	13.1	1.4	5.5	10.5	1.8
LnGrp Delay(d),s/veh	59.0	30.4	27.6	60.3	50.6	87.4	47.1	30.6	16.9	57.9	22.1	14.9
LnGrp LOS	E	C	C	E	D	F	D	C	B	E	C	B
Approach Vol, veh/h		400			844			1337			1399	
Approach Delay, s/veh		38.2			67.4			30.9			26.3	
Approach LOS		D			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	34.0	12.0	19.7	10.2	37.8	10.7	21.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	10.0	30.0	8.0	16.0	7.0	33.0	7.0	17.0				
Max Q Clear Time (g_c+1l), s	10.2	26.0	8.4	9.7	6.2	22.4	7.2	19.0				
Green Ext Time (p_c), s	0.0	3.7	0.0	2.5	0.0	9.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			37.7									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	221	64	10	245	31	34	206	15	28	223	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	395	114	15	360	46	40	245	18	32	256	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	594	505	46	497	422	104	1028	75	88	984	84
Arrive On Green	0.08	0.32	0.32	0.03	0.27	0.27	0.06	0.31	0.31	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3345	244	1774	3301	282
Grp Volume(v), veh/h	62	395	114	15	360	46	40	129	134	32	136	142
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1820	1774	1770	1813
Q Serve(g_s), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Cycle Q Clear(g_c), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	140	594	505	46	497	422	104	544	559	88	527	540
V/C Ratio(X)	0.44	0.66	0.23	0.32	0.72	0.11	0.38	0.24	0.24	0.36	0.26	0.26
Avail Cap(c_a), veh/h	231	659	560	231	659	560	231	544	559	231	527	540
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	15.8	13.4	25.7	17.9	14.9	24.3	13.9	13.9	24.7	14.3	14.3
Incr Delay (d2), s/veh	2.2	2.2	0.2	4.0	2.7	0.1	2.3	1.0	1.0	2.5	1.2	1.2
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	1.0	5.4	1.3	0.3	5.2	0.5	0.6	1.6	1.6	0.5	1.7	1.8
LnGrp Delay(d),s/veh	25.8	18.0	13.6	29.6	20.6	15.0	26.7	14.9	14.9	27.2	15.5	15.5
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		571			421			303			310	
Approach Delay, s/veh		18.0			20.3			16.5			16.7	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	20.5	5.4	21.1	7.1	20.0	8.2	18.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	2.9	5.0	2.4	11.8	3.2	5.2	3.8	11.4				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.8	0.0	2.2	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			18.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: Perris Blvd & Bay Ave

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	41	30	26	34	66	33	1104	39	67	1068	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	29	48	35	34	44	86	34	1150	41	75	1200	35
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	126	92	92	74	145	92	1539	55	155	1688	755
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.05	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1774	1003	731	1774	565	1103	1774	3486	124	1774	3539	1583
Grp Volume(v), veh/h	29	0	83	34	0	130	34	584	607	75	1200	35
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1668	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Cycle Q Clear(g_c), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	217	92	0	219	92	781	812	155	1688	755
V/C Ratio(X)	0.36	0.00	0.38	0.37	0.00	0.59	0.37	0.75	0.75	0.48	0.71	0.05
Avail Cap(c_a), veh/h	228	0	510	228	0	491	228	781	812	228	1688	755
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	21.8	24.9	0.0	22.2	24.9	12.7	12.7	23.6	11.3	7.6
Incr Delay (d2), s/veh	2.7	0.0	1.1	2.5	0.0	2.5	2.5	6.4	6.2	2.3	2.6	0.1
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	1.2	0.6	0.0	2.0	0.6	8.5	8.8	1.2	7.6	0.3
LnGrp Delay(d),s/veh	27.8	0.0	22.9	27.4	0.0	24.8	27.4	19.1	18.9	26.0	13.8	7.7
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		112			164			1225			1310	
Approach Delay, s/veh		24.2			25.3			19.2			14.4	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	28.0	6.8	10.8	6.8	29.9	6.5	11.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+1l), s	4.2	17.0	3.0	4.4	3.0	16.6	2.9	6.0				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.8	0.0	6.5	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			17.5									
HCM 2010 LOS			B									

Cumulative WP Sunday

Synchro 8 Report

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	375	519	232	239	489	179	308	739	140	211	693	183	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
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	
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863	
Adj Flow Rate, veh/h	417	577	258	278	569	208	338	812	154	229	753	199	
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	435	765	342	360	720	257	375	1153	516	268	939	420	
Arrive On Green	0.13	0.22	0.22	0.10	0.19	0.19	0.21	0.33	0.33	0.15	0.27	0.27	
Sat Flow, veh/h	3442	3539	1583	3442	3701	1319	1774	3539	1583	1774	3539	1583	
Grp Volume(v), veh/h	417	577	258	278	520	257	338	812	154	229	753	199	
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1630	1774	1770	1583	1774	1770	1583	
Q Serve(g_s), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4	
Cycle Q Clear(g_c), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4	
Prop In Lane	1.00		1.00	1.00		0.81	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	435	765	342	360	660	317	375	1153	516	268	939	420	
V/C Ratio(X)	0.96	0.75	0.75	0.77	0.79	0.81	0.90	0.70	0.30	0.85	0.80	0.47	
Avail Cap(c_a), veh/h	435	765	342	392	686	330	381	1153	516	292	939	420	
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	34.3	29.0	29.0	34.5	30.3	30.5	30.4	23.3	19.9	32.7	27.1	24.4	
Incr Delay (d2), s/veh	32.6	4.3	9.1	8.5	5.9	13.7	23.6	3.6	1.5	20.1	7.2	3.8	
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	6.5	6.3	6.1	3.4	6.0	6.6	9.6	8.4	2.7	6.4	8.6	4.1	
LnGrp Delay(d),s/veh	66.9	33.3	38.1	43.0	36.2	44.1	54.0	27.0	21.4	52.8	34.3	28.2	
LnGrp LOS	E	C	D	D	D	D	D	C	C	D	C	C	
Approach Vol, veh/h	1252			1055			1304			1181			
Approach Delay, s/veh	45.5			39.9			33.3			36.8			
Approach LOS	D			D			C			D			
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	15.9	29.8	12.3	21.1	20.7	25.0	14.0	19.4					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	13.0	25.0	9.0	17.0	17.0	21.0	10.0	16.0					
Max Q Clear Time (g_c+I1), s	12.0	17.9	8.2	14.1	16.7	17.7	11.5	13.9					
Green Ext Time (p_c), s	0.1	5.4	0.1	2.2	0.0	2.7	0.0	1.5					
Intersection Summary													
HCM 2010 Ctrl Delay	38.8												
HCM 2010 LOS	D												

Cumulative WP Sunday

Synchro 8 Report























HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	92	62	112	158	199	63	1394	66	78	1134	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.88	0.88	0.88	0.87	0.87	0.87	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
Arrive On Green	0.06	0.15	0.15	0.08	0.17	0.17	0.07	0.51	0.51	0.07	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Cycle Q Clear(g_c), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
V/C Ratio(X)	0.53	0.48	0.38	0.88	0.57	0.84	0.61	0.88	0.09	0.70	0.70	0.04
Avail Cap(c_a), veh/h	145	347	295	145	347	295	145	1813	811	145	1830	819
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	33.6	33.0	39.0	32.8	34.6	39.0	18.7	10.7	39.0	15.8	10.2
Incr Delay (d2), s/veh	4.0	1.3	1.0	41.4	1.8	18.2	4.9	6.7	0.2	12.0	2.3	0.1
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	1.4	3.0	2.0	4.6	4.1	6.5	1.8	18.4	1.0	2.5	12.0	0.4
LnGrp Delay(d),s/veh	43.2	34.9	34.1	80.5	34.7	52.8	43.9	25.4	11.0	51.0	18.1	10.3
LnGrp LOS	D	C	C	F	C	D	D	C	B	D	B	B
Approach Vol, veh/h		280			533			1750			1414	
Approach Delay, s/veh		36.3			53.3			25.5			19.9	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	48.0	11.0	16.7	9.7	48.4	9.2	18.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	44.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.2	36.6	8.1	7.6	5.4	25.8	4.7	13.9				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.8	0.0	16.3	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			28.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	74	77	50	67	102	62	47	1402	27	35	1201	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	85	89	57	89	136	83	55	1630	31	42	1430	94
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	58	375	74	68	375	118	1878	36	100	1835	821
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.07	0.53	0.53	0.06	0.52	0.52
Sat Flow, veh/h	0	243	1583	0	289	1583	1774	3553	67	1774	3539	1583
Grp Volume(v), veh/h	174	0	57	225	0	83	55	811	850	42	1430	94
Grp Sat Flow(s),veh/h/ln	243	0	1583	289	0	1583	1774	1770	1851	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	1.9	0.0	0.0	2.8	2.0	26.9	27.0	1.5	22.0	2.1
Cycle Q Clear(g_c), s	16.0	0.0	1.9	16.0	0.0	2.8	2.0	26.9	27.0	1.5	22.0	2.1
Prop In Lane	0.49		1.00	0.40		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	137	0	375	143	0	375	118	936	979	100	1835	821
V/C Ratio(X)	1.27	0.00	0.15	1.58	0.00	0.22	0.46	0.87	0.87	0.42	0.78	0.11
Avail Cap(c_a), veh/h	137	0	375	143	0	375	184	936	979	184	1835	821
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	20.4	26.7	0.0	20.7	30.3	13.8	13.9	30.8	13.1	8.3
Incr Delay (d2), s/veh	167.0	0.0	0.2	289.8	0.0	0.3	2.8	10.6	10.4	2.8	3.4	0.3
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	8.9	0.0	0.9	14.1	0.0	1.3	1.1	15.8	16.5	0.8	11.6	1.0
LnGrp Delay(d),s/veh	194.5	0.0	20.6	316.5	0.0	21.0	33.2	24.4	24.3	33.5	16.5	8.6
LnGrp LOS	F		C	F		C	C	C	C	C	B	A
Approach Vol, veh/h		231			308			1716			1566	
Approach Delay, s/veh		151.6			236.9			24.6			16.5	
Approach LOS		F			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.7		20.0	8.5	39.0		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	35.0		16.0	7.0	35.0		16.0				
Max Q Clear Time (g_c+l1), s	3.5	29.0		18.0	4.0	24.0		18.0				
Green Ext Time (p_c), s	0.0	5.7		0.0	0.0	10.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay		46.1										
HCM 2010 LOS		D										

























HCM 2010 Signalized Intersection Summary

4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	333	138	49	412	92	103	330	32	59	408	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	59	392	162	64	542	121	130	418	41	68	469	60
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	567	482	134	574	488	180	920	90	139	819	104
Arrive On Green	0.07	0.30	0.30	0.08	0.31	0.31	0.10	0.28	0.28	0.08	0.26	0.26
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3258	318	1774	3159	402
Grp Volume(v), veh/h	59	392	162	64	542	121	130	226	233	68	262	267
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1807	1774	1770	1792
Q Serve(g_s), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Cycle Q Clear(g_c), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		0.22
Lane Grp Cap(c), veh/h	128	567	482	134	574	488	180	500	510	139	459	465
V/C Ratio(X)	0.46	0.69	0.34	0.48	0.94	0.25	0.72	0.45	0.46	0.49	0.57	0.58
Avail Cap(c_a), veh/h	201	574	488	201	574	488	201	500	510	201	459	465
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	18.9	16.6	27.3	20.8	16.0	26.9	18.2	18.2	27.3	19.9	19.9
Incr Delay (d2), s/veh	2.6	3.5	0.4	2.6	24.6	0.3	10.8	2.9	2.9	2.7	5.1	5.1
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	6.4	2.2	1.1	12.8	1.6	2.7	3.5	3.6	1.2	4.5	4.6
LnGrp Delay(d),s/veh	30.0	22.4	17.0	30.0	45.5	16.3	37.6	21.2	21.2	29.9	24.9	25.0
LnGrp LOS	C	C	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		613			727			589			597	
Approach Delay, s/veh		21.7			39.3			24.8			25.5	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	21.4	8.7	22.8	10.2	20.0	8.5	23.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	4.3	8.6	4.1	13.4	6.4	10.0	4.0	19.5				
Green Ext Time (p_c), s	0.0	3.4	0.0	3.0	0.0	2.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	103	195	75	104	248	209	79	1175	74	175	1084	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	129	244	94	141	335	282	96	1433	90	208	1290	117
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.74	0.74	0.74	0.82	0.82	0.82	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	331	281	158	352	299	125	1534	686	217	1716	768
Arrive On Green	0.08	0.18	0.18	0.09	0.19	0.19	0.07	0.43	0.43	0.12	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	129	244	94	141	335	282	96	1433	90	208	1290	117
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.5	11.2	4.7	7.1	16.0	15.8	4.8	34.7	3.1	10.5	26.6	3.7
Cycle Q Clear(g_c), s	6.5	11.2	4.7	7.1	16.0	15.8	4.8	34.7	3.1	10.5	26.6	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	331	281	158	352	299	125	1534	686	217	1716	768
V/C Ratio(X)	0.93	0.74	0.33	0.89	0.95	0.94	0.77	0.93	0.13	0.96	0.75	0.15
Avail Cap(c_a), veh/h	138	331	281	158	352	299	138	1534	686	217	1716	768
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	35.0	32.3	40.6	36.1	36.0	41.1	24.3	15.3	39.3	18.8	12.9
Incr Delay (d2), s/veh	57.1	8.3	0.7	42.5	35.5	37.1	20.5	11.9	0.4	49.5	3.1	0.4
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	5.4	6.5	2.1	5.3	11.7	10.0	3.1	19.5	1.4	8.1	13.6	1.7
LnGrp Delay(d),s/veh	98.3	43.4	33.0	83.1	71.6	73.1	61.6	36.2	15.7	88.8	21.9	13.3
LnGrp LOS	F	D	C	F	E	E	E	D	B	F	C	B
Approach Vol, veh/h		467			758			1619			1615	
Approach Delay, s/veh		56.5			74.3			36.6			29.9	
Approach LOS		E			E			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	43.0	12.0	20.0	10.4	47.6	11.0	21.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	11.0	39.0	8.0	16.0	7.0	43.0	7.0	17.0				
Max Q Clear Time (g_c+1), s	12.5	36.7	9.1	13.2	6.8	28.6	8.5	18.0				
Green Ext Time (p_c), s	0.0	2.2	0.0	1.3	0.0	12.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			42.6									
HCM 2010 LOS			D									






















HCM 2010 Signalized Intersection Summary

7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	263	79	47	365	142	109	347	30	34	281	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	148	370	111	69	537	209	127	403	35	47	385	62
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.71	0.71	0.71	0.68	0.68	0.68	0.86	0.86	0.86	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	647	550	133	595	505	166	931	81	107	763	122
Arrive On Green	0.10	0.35	0.35	0.07	0.32	0.32	0.09	0.28	0.28	0.06	0.25	0.25
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3297	285	1774	3058	489
Grp Volume(v), veh/h	148	370	111	69	537	209	127	215	223	47	222	225
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1812	1774	1770	1777
Q Serve(g_s), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Cycle Q Clear(g_c), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.27
Lane Grp Cap(c), veh/h	182	647	550	133	595	505	166	500	512	107	442	443
V/C Ratio(X)	0.81	0.57	0.20	0.52	0.90	0.41	0.77	0.43	0.43	0.44	0.50	0.51
Avail Cap(c_a), veh/h	182	647	550	182	629	535	182	500	512	182	442	443
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	18.1	15.6	30.3	22.2	18.2	30.1	20.0	20.0	30.9	21.9	22.0
Incr Delay (d2), s/veh	23.5	1.2	0.2	3.1	15.9	0.5	16.1	2.7	2.7	2.8	4.0	4.1
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	3.9	5.9	1.5	1.4	12.2	3.1	3.1	3.7	3.8	0.9	4.1	4.1
LnGrp Delay(d),s/veh	53.4	19.3	15.8	33.4	38.1	18.7	46.3	22.7	22.7	33.7	26.0	26.1
LnGrp LOS	D	B	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		629			815			565			494	
Approach Delay, s/veh		26.7			32.7			28.0			26.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	23.2	9.1	27.6	10.4	21.0	11.0	25.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	23.0	7.0	17.0	7.0	23.0				
Max Q Clear Time (g_c+1), s	3.7	8.8	4.5	13.0	6.8	9.4	7.6	20.8				
Green Ext Time (p_c), s	0.0	3.1	0.0	4.5	0.0	3.0	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	52	88	44	63	104	61	1193	60	98	1068	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	122	70	119	52	74	122	66	1283	65	121	1319	102
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.74	0.74	0.74	0.85	0.85	0.85	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	115	196	114	100	165	130	1453	74	163	1567	701
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.07	0.42	0.42	0.09	0.44	0.44
Sat Flow, veh/h	1774	621	1056	1774	634	1045	1774	3428	173	1774	3539	1583
Grp Volume(v), veh/h	122	0	189	52	0	196	66	661	687	121	1319	102
Grp Sat Flow(s),veh/h/ln	1774	0	1676	1774	0	1678	1774	1770	1832	1774	1770	1583
Q Serve(g_s), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Cycle Q Clear(g_c), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Prop In Lane	1.00		0.63	1.00		0.62	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	164	0	312	114	0	265	130	750	777	163	1567	701
V/C Ratio(X)	0.75	0.00	0.61	0.46	0.00	0.74	0.51	0.88	0.88	0.74	0.84	0.15
Avail Cap(c_a), veh/h	182	0	392	182	0	393	182	750	777	182	1567	701
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	25.5	30.9	0.0	27.5	30.5	18.1	18.2	30.3	16.9	11.4
Incr Delay (d2), s/veh	14.0	0.0	1.9	2.8	0.0	4.0	3.1	14.1	13.9	13.5	5.7	0.4
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	2.9	0.0	3.4	1.0	0.0	3.8	1.3	14.3	14.8	2.8	12.2	1.2
LnGrp Delay(d),s/veh	44.2	0.0	27.4	33.7	0.0	31.5	33.6	32.3	32.1	43.7	22.6	11.8
LnGrp LOS	D		C	C		C	C	C	C	D	C	B
Approach Vol, veh/h		311			248			1414			1542	
Approach Delay, s/veh		34.0			32.0			32.2			23.5	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	33.0	8.4	16.7	9.0	34.3	10.3	14.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.5	25.6	3.9	9.1	4.5	24.6	6.6	9.6				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.3	0.0	4.1	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	206	458	100	205	891	245	267	917	211	239	684	239
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	251	559	122	241	1048	288	284	976	224	285	814	285
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	861	385	325	993	273	322	1018	455	310	995	445
Arrive On Green	0.09	0.24	0.24	0.09	0.25	0.25	0.18	0.29	0.29	0.17	0.28	0.28
Sat Flow, veh/h	3442	3539	1583	3442	3970	1090	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	251	559	122	241	895	441	284	976	224	285	814	285
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1670	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Cycle Q Clear(g_c), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	861	385	325	848	418	322	1018	455	310	995	445
V/C Ratio(X)	0.83	0.65	0.32	0.74	1.06	1.06	0.88	0.96	0.49	0.92	0.82	0.64
Avail Cap(c_a), veh/h	301	861	385	387	848	418	333	1018	455	310	995	445
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	27.2	24.8	35.3	30.0	30.0	31.9	28.0	23.7	32.4	26.8	25.2
Incr Delay (d2), s/veh	17.9	1.7	0.5	6.2	46.7	59.7	22.7	19.9	3.8	30.8	7.5	6.9
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	3.5	5.7	2.2	2.9	14.8	16.1	8.1	13.4	4.6	8.8	9.4	6.4
LnGrp Delay(d),s/veh	53.8	28.9	25.3	41.5	76.7	89.7	54.6	48.0	27.4	63.3	34.3	32.1
LnGrp LOS	D	C	C	D	F	F	D	D	C	E	C	C
Approach Vol, veh/h		932			1577			1484			1384	
Approach Delay, s/veh		35.1			75.0			46.1			39.8	
Approach LOS		D			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	27.0	11.5	23.5	18.5	26.5	11.0	24.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	23.0	9.0	18.0	15.0	22.0	7.0	20.0				
Max Q Clear Time (g_c+I1), s	14.6	23.7	7.5	13.4	14.5	19.2	7.7	22.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.8	0.0	2.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			51.1									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	2	41	2	1	18	38	1489	4	14	1277	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	68	68	68	87	87	87	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	3	61	3	1	26	48	1883	5	16	1451	23
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2532	3478	737	2740	3487	944	1474	0	0	1888	0	0
Stage 1	1494	1494	-	1981	1981	-	-	-	-	-	-	-
Stage 2	1038	1984	-	759	1506	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	6	361	9	6	263	453	-	-	313	-	-
Stage 1	129	185	-	63	106	-	-	-	-	-	-	-
Stage 2	247	105	-	365	182	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 11	5	361	6	5	263	453	-	-	313	-	-
Mov Cap-2 Maneuver	69	51	-	43	52	-	-	-	-	-	-	-
Stage 1	115	176	-	56	95	-	-	-	-	-	-	-
Stage 2	196	94	-	283	173	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	47.8			33.5			0.3			0.2		
HCM LOS	E			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	453	-	-	164	157	313	-	-				
HCM Lane V/C Ratio	0.106	-	-	0.51	0.197	0.051	-	-				
HCM Control Delay (s)	13.9	-	-	47.8	33.5	17.1	-	-				
HCM Lane LOS	B	-	-	E	D	C	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	2.5	0.7	0.2	-	-				
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	350	13	36	476	19	30	11	42	34	12	15
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	70	70	70	67	67	67	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	455	17	51	680	27	45	16	63	53	19	23
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	680	0	0	455	0	0	1285	1264	455	1303	1264	680
Stage 1	-	-	-	-	-	-	481	481	-	783	783	-
Stage 2	-	-	-	-	-	-	804	783	-	520	481	-
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	912	-	-	1106	-	-	142	169	605	138	169	451
Stage 1	-	-	-	-	-	-	566	554	-	387	404	-
Stage 2	-	-	-	-	-	-	377	404	-	539	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	912	-	-	1106	-	-	117	159	605	109	159	451
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	159	-	109	159	-
Stage 1	-	-	-	-	-	-	558	546	-	381	385	-
Stage 2	-	-	-	-	-	-	324	385	-	462	546	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			44.2			68		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	210	912	-	-	1106	-	-	145				
HCM Lane V/C Ratio	0.59	0.014	-	-	0.046	-	-	0.657				
HCM Control Delay (s)	44.2	9	-	-	8.4	-	-	68				
HCM Lane LOS	E	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	3.3	0	-	-	0.1	-	-	3.6				

HCM 2010 TWSC
10: Cottonwood Ave

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	366	528	10	0	50
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	75	75	78	78	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	488	677	13	0	54

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	690	0	1171
Stage 1	-	-	683
Stage 2	-	-	488
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	905	-	213
Stage 1	-	-	502
Stage 2	-	-	617
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	905	-	213
Mov Cap-2 Maneuver	-	-	213
Stage 1	-	-	502
Stage 2	-	-	617

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	905	-	-	-	449
HCM Lane V/C Ratio	-	-	-	-	0.121
HCM Control Delay (s)	0	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

HCM 2010 TWSC
 11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	0.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	11	0	0	43	14	1432	87	0	1334	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	0	0	47	16	1685	102	0	1569	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2446	3391	786	2554	3342	894	1573	0	0	1787	0	0
Stage 1	1571	1571	-	1769	1769	-	-	-	-	-	-	-
Stage 2	875	1820	-	785	1573	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	16	7	335	13	8	284	415	-	-	343	-	-
Stage 1	115	169	-	86	135	-	-	-	-	-	-	-
Stage 2	310	127	-	352	169	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	13	7	335	12	8	284	415	-	-	343	-	-
Mov Cap-2 Maneuver	13	7	-	12	8	-	-	-	-	-	-	-
Stage 1	111	169	-	83	130	-	-	-	-	-	-	-
Stage 2	249	122	-	333	169	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	20.2	0.1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	415	-	-	335	284	343	-	-
HCM Lane V/C Ratio	0.04	-	-	0.053	0.165	-	-	-
HCM Control Delay (s)	14	-	-	16.3	20.2	0	-	-
HCM Lane LOS	B	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.6	0	-	-

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	199	76	69	131	95	68	1280	89	121	1630	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.70	0.70	0.70	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	124	293	249	131	302	256	118	1743	780	157	1821	815
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16	0.07	0.49	0.49	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Cycle Q Clear(g_c), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	293	249	131	302	256	118	1743	780	157	1821	815
V/C Ratio(X)	0.65	0.80	0.36	0.75	0.62	0.53	0.60	0.76	0.12	0.80	0.93	0.10
Avail Cap(c_a), veh/h	145	349	296	145	349	296	145	1743	780	187	1821	815
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	34.7	32.2	38.8	33.4	32.8	38.8	17.7	11.7	38.2	19.4	10.6
Incr Delay (d2), s/veh	7.6	10.5	0.9	18.0	2.6	1.7	4.8	3.3	0.3	18.6	10.2	0.2
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	2.1	6.2	1.9	2.9	4.3	3.1	1.8	13.6	1.2	3.7	21.2	1.0
LnGrp Delay(d),s/veh	46.3	45.2	33.0	56.8	36.0	34.5	43.6	20.9	12.0	56.9	29.6	10.8
LnGrp LOS	D	D	C	E	D	C	D	C	B	E	C	B
Approach Vol, veh/h		403			422			1497			1902	
Approach Delay, s/veh		42.7			40.4			21.4			30.6	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	46.1	10.3	17.5	9.7	48.0	10.0	17.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	42.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	8.0	28.2	6.7	12.3	5.3	40.3	5.8	10.0				
Green Ext Time (p_c), s	0.0	12.9	0.0	1.1	0.0	3.6	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

3: Perris Blvd & Dracaea Ave

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔↔		↔	↔↔	↔
Volume (veh/h)	64	102	28	32	94	64	30	1340	47	79	1586	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	72	115	31	36	106	72	31	1396	49	81	1635	92
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	92	400	71	157	400	82	1653	58	149	1810	810
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.47	0.47	0.08	0.51	0.51
Sat Flow, veh/h	0	364	1583	0	619	1583	1774	3488	122	1774	3539	1583
Grp Volume(v), veh/h	187	0	31	142	0	72	31	707	738	81	1635	92
Grp Sat Flow(s),veh/h/ln	364	0	1583	619	0	1583	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.9	0.0	0.0	2.3	1.1	22.2	22.3	2.8	26.6	1.9
Cycle Q Clear(g_c), s	16.0	0.0	0.9	16.0	0.0	2.3	1.1	22.2	22.3	2.8	26.6	1.9
Prop In Lane	0.39		1.00	0.25		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	400	228	0	400	82	838	872	149	1810	810
V/C Ratio(X)	1.09	0.00	0.08	0.62	0.00	0.18	0.38	0.84	0.85	0.54	0.90	0.11
Avail Cap(c_a), veh/h	171	0	400	228	0	400	196	838	872	196	1810	810
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	18.0	20.0	0.0	18.5	29.3	14.6	14.6	27.8	14.1	8.0
Incr Delay (d2), s/veh	96.5	0.0	0.1	5.2	0.0	0.2	2.8	10.1	9.9	3.1	7.9	0.3
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	7.5	0.0	0.4	2.3	0.0	1.0	0.6	13.0	13.7	1.5	14.7	0.9
LnGrp Delay(d),s/veh	120.4	0.0	18.1	25.2	0.0	18.7	32.1	24.7	24.5	30.9	21.9	8.3
LnGrp LOS	F		B	C		B	C	C	C	C	C	A
Approach Vol, veh/h		218			214			1476			1808	
Approach Delay, s/veh		105.8			23.0			24.8			21.6	
Approach LOS		F			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	34.0		20.0	6.9	36.4		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		16.0	7.0	30.0		16.0				
Max Q Clear Time (g_c+l1), s	4.8	24.3		18.0	3.1	28.6		18.0				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.0	1.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

4: Indian St & Cottonwood Ave























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	384	162	45	303	41	88	438	60	31	374	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	452	191	55	370	50	106	528	72	33	394	49
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.82	0.82	0.82	0.83	0.83	0.83	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	544	463	125	546	464	173	996	135	88	856	106
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.10	0.32	0.32	0.05	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3132	426	1774	3171	392
Grp Volume(v), veh/h	54	452	191	55	370	50	106	298	302	33	219	224
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1788	1774	1770	1794
Q Serve(g_s), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Cycle Q Clear(g_c), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.22
Lane Grp Cap(c), veh/h	123	544	463	125	546	464	173	563	568	88	478	484
V/C Ratio(X)	0.44	0.83	0.41	0.44	0.68	0.11	0.61	0.53	0.53	0.38	0.46	0.46
Avail Cap(c_a), veh/h	210	597	508	210	597	508	210	563	568	210	478	484
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	19.6	16.9	26.4	18.5	15.3	25.7	16.6	16.6	27.3	18.0	18.1
Incr Delay (d2), s/veh	2.4	9.0	0.6	2.4	2.7	0.1	3.6	3.5	3.5	2.6	3.1	3.2
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	0.9	8.3	2.6	0.9	5.8	0.6	1.8	4.5	4.6	0.6	3.4	3.5
LnGrp Delay(d),s/veh	28.9	28.6	17.5	28.9	21.2	15.4	29.3	20.1	20.1	29.9	21.2	21.2
LnGrp LOS	C	C	B	C	C	B	C	C	C	C	C	C
Approach Vol, veh/h	697			475			706			476		
Approach Delay, s/veh	25.5			21.5			21.5			21.8		
Approach LOS	C			C			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	22.8	8.2	21.3	9.8	20.0	8.1	21.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	10.2	3.8	15.4	5.4	8.2	3.7	12.4				
Green Ext Time (p_c), s	0.0	2.9	0.0	1.9	0.0	3.7	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay	22.8											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	232	72	85	173	117	74	1244	59	235	1360	131
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	141	273	85	109	222	150	79	1323	63	250	1447	139
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.78	0.78	0.78	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	325	277	137	301	256	120	1484	664	261	1765	790
Arrive On Green	0.09	0.17	0.17	0.08	0.16	0.16	0.07	0.42	0.42	0.15	0.50	0.50
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	141	273	85	109	222	150	79	1323	63	250	1447	139
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.9	12.5	4.1	5.3	10.0	7.7	3.8	30.6	2.1	12.3	30.6	4.3
Cycle Q Clear(g_c), s	6.9	12.5	4.1	5.3	10.0	7.7	3.8	30.6	2.1	12.3	30.6	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	325	277	137	301	256	120	1484	664	261	1765	790
V/C Ratio(X)	0.88	0.84	0.31	0.79	0.74	0.59	0.66	0.89	0.09	0.96	0.82	0.18
Avail Cap(c_a), veh/h	161	359	305	141	338	287	141	1484	664	261	1765	790
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	35.2	31.8	40.0	35.2	34.3	40.1	23.8	15.5	37.3	18.8	12.2
Incr Delay (d2), s/veh	38.1	14.9	0.6	25.7	7.4	2.5	8.4	8.5	0.3	43.7	4.4	0.5
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	5.1	7.8	1.9	3.6	5.7	3.6	2.2	16.6	1.0	9.2	16.0	2.0
LnGrp Delay(d),s/veh	77.7	50.1	32.4	65.7	42.6	36.8	48.6	32.2	15.8	81.0	23.2	12.6
LnGrp LOS	E	D	C	E	D	D	D	C	B	F	C	B
Approach Vol, veh/h		499			481			1465			1836	
Approach Delay, s/veh		54.9			46.0			32.4			30.2	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	41.0	10.8	19.4	10.0	48.0	12.0	18.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	37.0	7.0	17.0	7.0	43.0	8.0	16.0				
Max Q Clear Time (g_c+l1), s	14.3	32.6	7.3	14.5	5.8	32.6	8.9	12.0				
Green Ext Time (p_c), s	0.0	4.2	0.0	0.9	0.0	9.6	0.0	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			35.6									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
























7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	264	57	31	235	43	31	355	19	39	322	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	326	70	34	255	47	35	403	22	41	339	21
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.92	0.92	0.92	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	461	392	93	491	417	96	1091	59	108	1105	68
Arrive On Green	0.04	0.25	0.25	0.05	0.26	0.26	0.05	0.32	0.32	0.06	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3414	186	1774	3387	209
Grp Volume(v), veh/h	22	326	70	34	255	47	35	208	217	41	176	184
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1830	1774	1770	1826
Q Serve(g_s), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Cycle Q Clear(g_c), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	65	461	392	93	491	417	96	565	585	108	578	596
V/C Ratio(X)	0.34	0.71	0.18	0.36	0.52	0.11	0.37	0.37	0.37	0.38	0.31	0.31
Avail Cap(c_a), veh/h	248	707	601	248	707	601	248	565	585	248	578	596
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	17.2	14.8	22.9	15.7	14.0	22.9	13.1	13.2	22.6	12.6	12.6
Incr Delay (d2), s/veh	3.0	2.0	0.2	2.4	0.9	0.1	2.3	1.8	1.8	2.2	1.4	1.3
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	0.3	4.3	0.8	0.5	3.1	0.5	0.5	2.5	2.6	0.6	2.0	2.1
LnGrp Delay(d),s/veh	26.5	19.2	15.0	25.3	16.6	14.1	25.2	15.0	15.0	24.8	14.0	14.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		418			336			460			401	
Approach Delay, s/veh		18.9			17.1			15.7			15.1	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	20.0	6.6	16.4	6.7	20.3	5.8	17.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	6.6	2.9	10.0	3.0	5.8	2.6	7.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.4	0.0	3.2	0.0	2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	52	44	21	44	47	45	1313	55	76	1414	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	30	59	50	25	52	56	48	1397	59	82	1520	34
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	104	88	69	87	94	111	1803	76	147	1917	858
Arrive On Green	0.04	0.11	0.11	0.04	0.11	0.11	0.06	0.52	0.52	0.08	0.54	0.54
Sat Flow, veh/h	1774	933	790	1774	822	885	1774	3461	146	1774	3539	1583
Grp Volume(v), veh/h	30	0	109	25	0	108	48	713	743	82	1520	34
Grp Sat Flow(s),veh/h/ln	1774	0	1723	1774	0	1707	1774	1770	1837	1774	1770	1583
Q Serve(g_s), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Cycle Q Clear(g_c), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Prop In Lane	1.00		0.46	1.00		0.52	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	80	0	193	69	0	181	111	922	957	147	1917	858
V/C Ratio(X)	0.38	0.00	0.57	0.36	0.00	0.60	0.43	0.77	0.78	0.56	0.79	0.04
Avail Cap(c_a), veh/h	190	0	422	190	0	418	190	922	957	190	1917	858
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	27.5	30.6	0.0	27.8	29.5	12.5	12.6	28.8	12.0	7.0
Incr Delay (d2), s/veh	2.9	0.0	2.6	3.1	0.0	3.1	2.7	6.3	6.1	3.3	3.5	0.1
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	0.6	0.0	2.0	0.5	0.0	2.0	0.9	11.7	12.2	1.5	11.7	0.3
LnGrp Delay(d),s/veh	33.2	0.0	30.1	33.7	0.0	31.0	32.2	18.8	18.7	32.0	15.5	7.1
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h	139				133		1504				1636	
Approach Delay, s/veh	30.7				31.5		19.2				16.1	
Approach LOS	C				C		B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	38.0	6.6	11.3	8.1	39.3	6.9	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	34.0	7.0	16.0	7.0	34.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.9	23.2	2.9	5.9	3.7	24.5	3.1	5.9				
Green Ext Time (p_c), s	0.0	10.0	0.0	0.8	0.0	8.8	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 9: Perris Blvd & Alessandro Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	508	1029	305	260	658	218	270	792	193	310	955	162
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	540	1095	324	302	765	253	297	870	212	341	1049	178
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	593	1062	475	313	829	271	290	933	417	355	1062	475
Arrive On Green	0.17	0.30	0.30	0.09	0.22	0.22	0.16	0.26	0.26	0.20	0.30	0.30
Sat Flow, veh/h	3442	3539	1583	3442	3792	1242	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	540	1095	324	302	683	335	297	870	212	341	1049	178
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1644	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	16.9	33.0	19.8	9.6	21.7	22.0	18.0	26.4	12.5	20.9	32.4	9.8
Cycle Q Clear(g_c), s	16.9	33.0	19.8	9.6	21.7	22.0	18.0	26.4	12.5	20.9	32.4	9.8
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	593	1062	475	313	741	359	290	933	417	355	1062	475
V/C Ratio(X)	0.91	1.03	0.68	0.97	0.92	0.93	1.02	0.93	0.51	0.96	0.99	0.37
Avail Cap(c_a), veh/h	594	1062	475	313	741	359	290	933	417	355	1062	475
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	38.5	33.9	49.8	42.1	42.2	46.0	39.5	34.4	43.6	38.3	30.4
Incr Delay (d2), s/veh	18.2	36.0	4.0	41.4	17.0	30.7	58.9	17.1	4.4	37.5	24.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	21.4	9.2	6.4	11.9	13.0	13.5	15.1	6.0	13.9	19.5	4.5
LnGrp Delay(d),s/veh	62.9	74.5	37.9	91.2	59.0	72.8	104.9	56.6	38.8	81.0	63.2	32.6
LnGrp LOS	E	F	D	F	E	E	F	E	D	F	E	C
Approach Vol, veh/h	1959			1320			1379			1568		
Approach Delay, s/veh	65.2			69.9			64.3			63.6		
Approach LOS	E			E			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	33.0	14.0	37.0	22.0	37.0	23.0	28.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	22.0	29.0	10.0	33.0	18.0	33.0	19.0	24.0				
Max Q Clear Time (g_c+1), s	22.9	28.4	11.6	35.0	20.0	34.4	18.9	24.0				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	65.6											
HCM 2010 LOS	E											

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	3	40	2	1	12	40	1423	2	47	1696	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	97	97	97	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	4	51	3	2	21	45	1614	2	48	1731	22
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2736	3545	877	2669	3555	808	1753	0	0	1616	0	0
Stage 1	1838	1838	-	1706	1706	-	-	-	-	-	-	-
Stage 2	898	1707	-	963	1849	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 10	6	292	11	6	324	353	-	-	399	-	-
Stage 1	78	125	-	95	145	-	-	-	-	-	-	-
Stage 2	301	145	-	274	123	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 7	5	292	7	5	324	353	-	-	399	-	-
Mov Cap-2 Maneuver	48	44	-	51	40	-	-	-	-	-	-	-
Stage 1	68	110	-	83	127	-	-	-	-	-	-	-
Stage 2	243	127	-	192	108	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	85.3			34.4			0.5			0.4		
HCM LOS	F			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	353	-	-	112	148	399	-	-				
HCM Lane V/C Ratio	0.129	-	-	0.664	0.175	0.12	-	-				
HCM Control Delay (s)	16.7	-	-	85.3	34.4	15.3	-	-				
HCM Lane LOS	C	-	-	F	D	C	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	3.4	0.6	0.4	-	-				
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	383	55	15	257	9	31	6	9	7	2	11
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	88	88	88	60	60	60	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	391	56	17	292	10	52	10	15	9	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	292	0	0	391	0	0	763	754	391	766	754	292
Stage 1	-	-	-	-	-	-	428	428	-	326	326	-
Stage 2	-	-	-	-	-	-	335	326	-	440	428	-
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	1270	-	-	1168	-	-	321	338	658	320	338	747
Stage 1	-	-	-	-	-	-	605	585	-	687	648	-
Stage 2	-	-	-	-	-	-	679	648	-	596	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1270	-	-	1168	-	-	306	328	658	299	328	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	328	-	299	328	-
Stage 1	-	-	-	-	-	-	596	577	-	677	639	-
Stage 2	-	-	-	-	-	-	653	639	-	564	577	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			18.4			13.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	345	1270	-	-	1168	-	-	452				
HCM Lane V/C Ratio	0.222	0.014	-	-	0.015	-	-	0.059				
HCM Control Delay (s)	18.4	7.9	-	-	8.1	-	-	13.5				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	469	312	11	0	60
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	91	91	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	515	385	14	0	65

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	399	0	907
Stage 1	-	-	392
Stage 2	-	-	515
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1160	-	306
Stage 1	-	-	683
Stage 2	-	-	600
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1160	-	306
Mov Cap-2 Maneuver	-	-	306
Stage 1	-	-	683
Stage 2	-	-	600

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1160	-	-	-	657
HCM Lane V/C Ratio	-	-	-	-	0.099
HCM Control Delay (s)	0	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	24.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	0	74	0	0	50	54	1374	102	0	1633	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	92	92	92	95	95	95	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	103	0	0	54	57	1446	107	0	1756	41

























Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2613	3443	898	2492	3411	777	1797	0	0	1554	0	0
Stage 1	1776	1776	-	1614	1614	-	-	-	-	-	-	-
Stage 2	837	1667	-	878	1797	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 12	7	282	15	7	340	340	-	-	422	-	-
Stage 1	86	134	-	108	161	-	-	-	-	-	-	-
Stage 2	327	152	-	309	131	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 9	6	282	8	6	340	340	-	-	422	-	-
Mov Cap-2 Maneuver	~ 9	6	-	8	6	-	-	-	-	-	-	-
Stage 1	72	134	-	90	134	-	-	-	-	-	-	-
Stage 2	229	127	-	196	131	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 719.5	17.6	0.6	0
HCM LOS	F	C		













Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	340	-	-	54	340	422	-
HCM Lane V/C Ratio	0.167	-	-	2.212	0.16	-	-
HCM Control Delay (s)	17.7	-	-	\$ 719.5	17.6	0	-
HCM Lane LOS	C	-	-	F	C	A	-
HCM 95th %tile Q(veh)	0.6	-	-	11.9	0.6	0	-

Notes			
-:	Volume exceeds capacity	\$:	Delay exceeds 300s
+:	Computation Not Defined	*:	All major volume in platoon

HCM 2010 Signalized Intersection Summary 1: Perris Blvd & Eucalyptus Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	101	41	52	81	84	58	1186	56	71	1134	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
Arrive On Green	0.08	0.12	0.12	0.07	0.11	0.11	0.08	0.47	0.47	0.08	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Cycle Q Clear(g_c), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
V/C Ratio(X)	0.50	0.51	0.25	0.48	0.47	0.57	0.48	0.79	0.08	0.53	0.75	0.09
Avail Cap(c_a), veh/h	200	480	408	200	480	408	200	1652	739	200	1683	753
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	25.8	24.9	27.6	25.8	26.1	27.5	14.0	9.2	27.3	13.3	8.9
Incr Delay (d2), s/veh	2.7	1.9	0.7	2.6	1.6	2.8	2.6	3.9	0.2	2.9	3.1	0.2
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	1.3	1.9	0.7	1.1	1.7	1.8	1.1	10.1	0.6	1.4	9.5	0.6
LnGrp Delay(d),s/veh	30.2	27.6	25.6	30.2	27.4	28.9	30.2	17.9	9.4	30.2	16.4	9.1
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	A
Approach Vol, veh/h		228			262			1429			1403	
Approach Delay, s/veh		28.0			28.7			18.1			16.8	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	33.0	8.6	11.3	8.7	33.5	8.9	11.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.7	21.3	4.1	5.5	4.1	20.0	4.3	5.8				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.1	0.0	8.1	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			19.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔↔		↔	↔↔	↔
Volume (veh/h)	78	91	28	39	65	63	46	1165	27	29	1120	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	90	105	32	45	75	72	55	1387	32	34	1302	66
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	76	444	87	106	444	127	1621	37	91	1550	694
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.07	0.46	0.46	0.05	0.44	0.44
Sat Flow, veh/h	0	270	1583	0	379	1583	1774	3536	82	1774	3539	1583
Grp Volume(v), veh/h	195	0	32	120	0	72	55	693	726	34	1302	66
Grp Sat Flow(s),veh/h/ln	270	0	1583	379	0	1583	1774	1770	1848	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	2.0	1.7	19.9	20.0	1.1	18.7	1.4
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	2.0	1.7	19.9	20.0	1.1	18.7	1.4
Prop In Lane	0.46		1.00	0.37		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	444	193	0	444	127	811	847	91	1550	694
V/C Ratio(X)	1.16	0.00	0.07	0.62	0.00	0.16	0.43	0.86	0.86	0.38	0.84	0.10
Avail Cap(c_a), veh/h	168	0	444	193	0	444	218	811	847	218	1550	694
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	15.1	17.2	0.0	15.5	25.4	13.8	13.8	26.2	14.3	9.4
Incr Delay (d2), s/veh	119.8	0.0	0.1	6.0	0.0	0.2	2.3	11.2	10.9	2.6	5.6	0.3
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	8.2	0.0	0.4	1.8	0.0	0.9	0.9	12.2	12.6	0.6	10.3	0.7
LnGrp Delay(d),s/veh	141.6	0.0	15.2	23.2	0.0	15.7	27.7	25.0	24.6	28.7	19.9	9.7
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		227			192			1474			1402	
Approach Delay, s/veh		123.8			20.4			24.9			19.6	
Approach LOS		F			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	30.2		20.0	8.1	29.0		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	3.1	22.0		18.0	3.7	20.7		18.0				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.0	4.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.2									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	271	115	49	325	26	97	278	47	22	239	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	23	347	147	58	387	31	100	287	48	24	257	24
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	468	398	131	535	455	173	1084	179	69	975	90
Arrive On Green	0.04	0.25	0.25	0.07	0.29	0.29	0.10	0.36	0.36	0.04	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3041	503	1774	3275	303
Grp Volume(v), veh/h	23	347	147	58	387	31	100	166	169	24	138	143
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1774	1774	1770	1809
Q Serve(g_s), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Cycle Q Clear(g_c), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.17
Lane Grp Cap(c), veh/h	66	468	398	131	535	455	173	630	632	69	527	538
V/C Ratio(X)	0.35	0.74	0.37	0.44	0.72	0.07	0.58	0.26	0.27	0.35	0.26	0.27
Avail Cap(c_a), veh/h	217	587	499	217	587	499	217	630	632	217	527	538
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	19.7	17.7	25.3	18.3	14.8	24.7	13.1	13.1	26.7	15.3	15.3
Incr Delay (d2), s/veh	3.1	3.8	0.6	2.3	4.0	0.1	3.0	1.0	1.0	3.0	1.2	1.2
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	0.4	5.5	2.0	1.0	6.1	0.4	1.6	2.0	2.1	0.4	1.8	1.9
LnGrp Delay(d),s/veh	29.9	23.5	18.2	27.7	22.3	14.9	27.7	14.1	14.1	29.7	16.5	16.5
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		517			476			435			305	
Approach Delay, s/veh		22.3			22.5			17.2			17.5	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	24.4	8.2	18.3	9.6	21.0	6.1	20.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	2.8	5.9	3.8	11.8	5.1	5.4	2.7	12.7				
Green Ext Time (p_c), s	0.0	2.7	0.0	2.5	0.0	2.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	111	140	65	130	200	196	87	1054	75	236	901	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	141	177	82	228	351	344	96	1158	82	271	1036	122
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	331	281	237	414	352	125	1258	563	276	1559	697
Arrive On Green	0.09	0.18	0.18	0.13	0.22	0.22	0.07	0.36	0.36	0.16	0.44	0.44
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	141	177	82	228	351	344	96	1158	82	271	1036	122
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.1	7.8	4.0	11.5	16.3	19.4	4.8	28.2	3.2	13.7	20.8	4.2
Cycle Q Clear(g_c), s	7.1	7.8	4.0	11.5	16.3	19.4	4.8	28.2	3.2	13.7	20.8	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	331	281	237	414	352	125	1258	563	276	1559	697
V/C Ratio(X)	0.89	0.53	0.29	0.96	0.85	0.98	0.77	0.92	0.15	0.98	0.66	0.17
Avail Cap(c_a), veh/h	158	331	281	237	414	352	177	1258	563	276	1559	697
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	33.6	32.1	38.8	33.5	34.8	41.1	27.8	19.7	37.9	19.9	15.3
Incr Delay (d2), s/veh	42.5	1.7	0.6	48.3	15.1	41.9	11.8	12.3	0.5	49.0	2.3	0.5
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	5.3	4.1	1.8	8.8	10.1	12.6	2.8	15.8	1.5	10.5	10.6	1.9
LnGrp Delay(d),s/veh	83.1	35.3	32.7	87.1	48.7	76.6	52.9	40.1	20.3	86.9	22.2	15.8
LnGrp LOS	F	D	C	F	D	E	D	D	C	F	C	B
Approach Vol, veh/h		400			923			1336			1429	
Approach Delay, s/veh		51.6			68.6			39.8			33.9	
Approach LOS		D			E			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	36.0	16.0	20.0	10.4	43.6	12.0	24.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	32.0	12.0	16.0	9.0	37.0	8.0	20.0				
Max Q Clear Time (g_c+l1), s	15.7	30.2	13.5	9.8	6.8	22.8	9.1	21.4				
Green Ext Time (p_c), s	0.0	1.7	0.0	2.4	0.0	11.4	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			45.4									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	221	64	10	245	31	34	206	15	28	223	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	395	114	15	360	46	40	245	18	32	256	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	594	505	46	497	422	104	1028	75	88	984	84
Arrive On Green	0.08	0.32	0.32	0.03	0.27	0.27	0.06	0.31	0.31	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3345	244	1774	3301	282
Grp Volume(v), veh/h	62	395	114	15	360	46	40	129	134	32	136	142
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1820	1774	1770	1813
Q Serve(g_s), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Cycle Q Clear(g_c), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	140	594	505	46	497	422	104	544	559	88	527	540
V/C Ratio(X)	0.44	0.66	0.23	0.32	0.72	0.11	0.38	0.24	0.24	0.36	0.26	0.26
Avail Cap(c_a), veh/h	231	659	560	231	659	560	231	544	559	231	527	540
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	15.8	13.4	25.7	17.9	14.9	24.3	13.9	13.9	24.7	14.3	14.3
Incr Delay (d2), s/veh	2.2	2.2	0.2	4.0	2.7	0.1	2.3	1.0	1.0	2.5	1.2	1.2
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	1.0	5.4	1.3	0.3	5.2	0.5	0.6	1.6	1.6	0.5	1.7	1.8
LnGrp Delay(d),s/veh	25.8	18.0	13.6	29.6	20.6	15.0	26.7	14.9	14.9	27.2	15.5	15.5
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		571			421			303			310	
Approach Delay, s/veh		18.0			20.3			16.5			16.7	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	20.5	5.4	21.1	7.1	20.0	8.2	18.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	2.9	5.0	2.4	11.8	3.2	5.2	3.8	11.4				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.8	0.0	2.2	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			18.1									
HCM 2010 LOS			B									

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 Signalized Intersection Summary
 8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	41	30	26	34	66	33	1104	39	67	1068	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	29	48	35	34	44	86	34	1150	41	75	1200	35
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	126	92	92	74	145	92	1539	55	155	1688	755
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.05	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1774	1003	731	1774	565	1103	1774	3486	124	1774	3539	1583
Grp Volume(v), veh/h	29	0	83	34	0	130	34	584	607	75	1200	35
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1668	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Cycle Q Clear(g_c), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	217	92	0	219	92	781	812	155	1688	755
V/C Ratio(X)	0.36	0.00	0.38	0.37	0.00	0.59	0.37	0.75	0.75	0.48	0.71	0.05
Avail Cap(c_a), veh/h	228	0	510	228	0	491	228	781	812	228	1688	755
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	21.8	24.9	0.0	22.2	24.9	12.7	12.7	23.6	11.3	7.6
Incr Delay (d2), s/veh	2.7	0.0	1.1	2.5	0.0	2.5	2.5	6.4	6.2	2.3	2.6	0.1
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	1.2	0.6	0.0	2.0	0.6	8.5	8.8	1.2	7.6	0.3
LnGrp Delay(d),s/veh	27.8	0.0	22.9	27.4	0.0	24.8	27.4	19.1	18.9	26.0	13.8	7.7
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		112			164			1225			1310	
Approach Delay, s/veh		24.2			25.3			19.2			14.4	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	28.0	6.8	10.8	6.8	29.9	6.5	11.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	4.2	17.0	3.0	4.4	3.0	16.6	2.9	6.0				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.8	0.0	6.5	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			17.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	375	519	232	239	489	179	308	739	140	211	693	183
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	417	577	258	278	569	208	338	812	154	229	753	199
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	765	342	360	720	257	375	1153	516	268	939	420
Arrive On Green	0.13	0.22	0.22	0.10	0.19	0.19	0.21	0.33	0.33	0.15	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	3701	1319	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	417	577	258	278	520	257	338	812	154	229	753	199
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1630	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4
Cycle Q Clear(g_c), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4
Prop In Lane	1.00		1.00	1.00		0.81	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	765	342	360	660	317	375	1153	516	268	939	420
V/C Ratio(X)	0.96	0.75	0.75	0.77	0.79	0.81	0.90	0.70	0.30	0.85	0.80	0.47
Avail Cap(c_a), veh/h	435	765	342	392	686	330	381	1153	516	292	939	420
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	29.0	29.0	34.5	30.3	30.5	30.4	23.3	19.9	32.7	27.1	24.4
Incr Delay (d2), s/veh	32.6	4.3	9.1	8.5	5.9	13.7	23.6	3.6	1.5	20.1	7.2	3.8
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	6.5	6.3	6.1	3.4	6.0	6.6	9.6	8.4	2.7	6.4	8.6	4.1
LnGrp Delay(d),s/veh	66.9	33.3	38.1	43.0	36.2	44.1	54.0	27.0	21.4	52.8	34.3	28.2
LnGrp LOS	E	C	D	D	D	D	D	C	C	D	C	C
Approach Vol, veh/h		1252			1055			1304			1181	
Approach Delay, s/veh		45.5			39.9			33.3			36.8	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	29.8	12.3	21.1	20.7	25.0	14.0	19.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	25.0	9.0	17.0	17.0	21.0	10.0	16.0				
Max Q Clear Time (g_c+l1), s	12.0	17.9	8.2	14.1	16.7	17.7	11.5	13.9				
Green Ext Time (p_c), s	0.1	5.4	0.1	2.2	0.0	2.7	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			38.8									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	4	30	3	7	15	41	1265	3	38	1170	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	72	72	72	89	89	89	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	6	46	4	10	21	51	1563	4	44	1345	22
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2331	3112	683	2430	3121	784	1367	0	0	1567	0	0
Stage 1	1443	1443	-	1667	1667	-	-	-	-	-	-	-
Stage 2	888	1669	-	763	1454	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 20	11	392	17	11	336	498	-	-	417	-	-
Stage 1	139	196	-	100	152	-	-	-	-	-	-	-
Stage 2	305	151	-	363	193	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 14	9	392	12	~ 9	336	498	-	-	417	-	-
Mov Cap-2 Maneuver	75	59	-	63	63	-	-	-	-	-	-	-
Stage 1	125	175	-	90	136	-	-	-	-	-	-	-
Stage 2	238	136	-	276	173	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	71.1			45.4			0.4			0.5		
HCM LOS	F			E								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	498	-	-	131	123	417	-	-				
HCM Lane V/C Ratio	0.102	-	-	0.634	0.282	0.105	-	-				
HCM Control Delay (s)	13	-	-	71.1	45.4	14.6	-	-				
HCM Lane LOS	B	-	-	F	E	B	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	3.3	1.1	0.3	-	-				
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection

Int Delay, s/veh 2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	343	46	3	289	4	34	4	10	2	2	10
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	58	58	58	79	79	79	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	602	81	5	498	7	43	5	13	3	3	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	498	0	0	602	0	0	1207	1198	602	1207	1198	498
Stage 1	-	-	-	-	-	-	689	689	-	509	509	-
Stage 2	-	-	-	-	-	-	518	509	-	698	689	-
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	1066	-	-	975	-	-	160	186	500	160	186	572
Stage 1	-	-	-	-	-	-	436	446	-	547	538	-
Stage 2	-	-	-	-	-	-	541	538	-	431	446	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1066	-	-	975	-	-	148	177	500	147	177	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	177	-	147	177	-
Stage 1	-	-	-	-	-	-	418	428	-	524	535	-
Stage 2	-	-	-	-	-	-	521	535	-	398	428	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	35.9	16.7
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	176	1066	-	-	975	-	-	330
HCM Lane V/C Ratio	0.345	0.041	-	-	0.005	-	-	0.065
HCM Control Delay (s)	35.9	8.5	-	-	8.7	-	-	16.7
HCM Lane LOS	E	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	0.2

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	301	367	16	0	85
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	77	77	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	391	453	20	0	92

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	473	0	854
Stage 1	-	-	463
Stage 2	-	-	391
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1089	-	329
Stage 1	-	-	634
Stage 2	-	-	683
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1089	-	329
Mov Cap-2 Maneuver	-	-	329
Stage 1	-	-	634
Stage 2	-	-	683

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	599
HCM Lane V/C Ratio	-	-	-	-	0.154
HCM Control Delay (s)	0	-	-	-	12.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	26											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	0	78	0	0	71	70	1212	139	0	1150	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	92	92	92	82	82	82	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	0	98	0	0	77	85	1478	170	0	1337	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2269	3177	691	2403	3115	824	1381	0	0	1648	0	0
Stage 1	1359	1359	-	1734	1734	-	-	-	-	-	-	-
Stage 2	910	1818	-	669	1381	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 22	10	387	17	11	316	492	-	-	388	-	-
Stage 1	157	215	-	91	141	-	-	-	-	-	-	-
Stage 2	296	128	-	413	210	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 14	8	387	11	9	316	492	-	-	388	-	-
Mov Cap-2 Maneuver	~ 14	8	-	11	9	-	-	-	-	-	-	-
Stage 1	130	215	-	75	117	-	-	-	-	-	-	-
Stage 2	185	106	-	309	210	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 675.2	20	0.7	0
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	492	-	-	58	316	388	-
HCM Lane V/C Ratio	0.174	-	-	2.134	0.244	-	-
HCM Control Delay (s)	13.8	-	-	\$ 675.2	20	0	-
HCM Lane LOS	B	-	-	F	C	A	-
HCM 95th %tile Q(veh)	0.6	-	-	12.1	0.9	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon






















HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	92	62	112	158	199	63	1394	66	78	1134	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.88	0.88	0.88	0.87	0.87	0.87	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
Arrive On Green	0.06	0.15	0.15	0.08	0.17	0.17	0.07	0.51	0.51	0.07	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Cycle Q Clear(g_c), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
V/C Ratio(X)	0.53	0.48	0.38	0.88	0.57	0.84	0.61	0.88	0.09	0.70	0.70	0.04
Avail Cap(c_a), veh/h	145	347	295	145	347	295	145	1813	811	145	1830	819
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	33.6	33.0	39.0	32.8	34.6	39.0	18.7	10.7	39.0	15.8	10.2
Incr Delay (d2), s/veh	4.0	1.3	1.0	41.4	1.8	18.2	4.9	6.7	0.2	12.0	2.3	0.1
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	1.4	3.0	2.0	4.6	4.1	6.5	1.8	18.4	1.0	2.5	12.0	0.4
LnGrp Delay(d),s/veh	43.2	34.9	34.1	80.5	34.7	52.8	43.9	25.4	11.0	51.0	18.1	10.3
LnGrp LOS	D	C	C	F	C	D	D	C	B	D	B	B
Approach Vol, veh/h		280			533			1750			1414	
Approach Delay, s/veh		36.3			53.3			25.5			19.9	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	48.0	11.0	16.7	9.7	48.4	9.2	18.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	44.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.2	36.6	8.1	7.6	5.4	25.8	4.7	13.9				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.8	0.0	16.3	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			28.0									
HCM 2010 LOS			C									

























HCM 2010 Signalized Intersection Summary

3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	74	77	50	67	102	62	47	1402	27	35	1201	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	85	89	57	89	136	83	55	1630	31	42	1430	94
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	58	375	74	68	375	118	1878	36	100	1835	821
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.07	0.53	0.53	0.06	0.52	0.52
Sat Flow, veh/h	0	243	1583	0	289	1583	1774	3553	67	1774	3539	1583
Grp Volume(v), veh/h	174	0	57	225	0	83	55	811	850	42	1430	94
Grp Sat Flow(s),veh/h/ln	243	0	1583	289	0	1583	1774	1770	1851	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	1.9	0.0	0.0	2.8	2.0	26.9	27.0	1.5	22.0	2.1
Cycle Q Clear(g_c), s	16.0	0.0	1.9	16.0	0.0	2.8	2.0	26.9	27.0	1.5	22.0	2.1
Prop In Lane	0.49		1.00	0.40		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	137	0	375	143	0	375	118	936	979	100	1835	821
V/C Ratio(X)	1.27	0.00	0.15	1.58	0.00	0.22	0.46	0.87	0.87	0.42	0.78	0.11
Avail Cap(c_a), veh/h	137	0	375	143	0	375	184	936	979	184	1835	821
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	20.4	26.7	0.0	20.7	30.3	13.8	13.9	30.8	13.1	8.3
Incr Delay (d2), s/veh	167.0	0.0	0.2	289.8	0.0	0.3	2.8	10.6	10.4	2.8	3.4	0.3
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	8.9	0.0	0.9	14.1	0.0	1.3	1.1	15.8	16.5	0.8	11.6	1.0
LnGrp Delay(d),s/veh	194.5	0.0	20.6	316.5	0.0	21.0	33.2	24.4	24.3	33.5	16.5	8.6
LnGrp LOS	F		C	F		C	C	C	C	C	B	A
Approach Vol, veh/h		231			308			1716			1566	
Approach Delay, s/veh		151.6			236.9			24.6			16.5	
Approach LOS		F			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.7		20.0	8.5	39.0		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	35.0		16.0	7.0	35.0		16.0				
Max Q Clear Time (g_c+1), s	3.5	29.0		18.0	4.0	24.0		18.0				
Green Ext Time (p_c), s	0.0	5.7		0.0	0.0	10.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay		46.1										
HCM 2010 LOS		D										

HCM 2010 Signalized Intersection Summary

4: Indian St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	333	138	49	412	92	103	330	32	59	408	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	59	392	162	64	542	121	130	418	41	68	469	60
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	567	482	134	574	488	180	920	90	139	819	104
Arrive On Green	0.07	0.30	0.30	0.08	0.31	0.31	0.10	0.28	0.28	0.08	0.26	0.26
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3258	318	1774	3159	402
Grp Volume(v), veh/h	59	392	162	64	542	121	130	226	233	68	262	267
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1807	1774	1770	1792
Q Serve(g_s), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Cycle Q Clear(g_c), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		0.22
Lane Grp Cap(c), veh/h	128	567	482	134	574	488	180	500	510	139	459	465
V/C Ratio(X)	0.46	0.69	0.34	0.48	0.94	0.25	0.72	0.45	0.46	0.49	0.57	0.58
Avail Cap(c_a), veh/h	201	574	488	201	574	488	201	500	510	201	459	465
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	18.9	16.6	27.3	20.8	16.0	26.9	18.2	18.2	27.3	19.9	19.9
Incr Delay (d2), s/veh	2.6	3.5	0.4	2.6	24.6	0.3	10.8	2.9	2.9	2.7	5.1	5.1
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	6.4	2.2	1.1	12.8	1.6	2.7	3.5	3.6	1.2	4.5	4.6
LnGrp Delay(d),s/veh	30.0	22.4	17.0	30.0	45.5	16.3	37.6	21.2	21.2	29.9	24.9	25.0
LnGrp LOS	C	C	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		613			727			589			597	
Approach Delay, s/veh		21.7			39.3			24.8			25.5	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	21.4	8.7	22.8	10.2	20.0	8.5	23.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	4.3	8.6	4.1	13.4	6.4	10.0	4.0	19.5				
Green Ext Time (p_c), s	0.0	3.4	0.0	3.0	0.0	2.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	103	195	75	104	248	207	79	1175	74	137	1108	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	129	244	94	141	335	280	96	1433	90	163	1319	117
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.74	0.74	0.74	0.82	0.82	0.82	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	350	298	158	371	315	126	1575	704	178	1679	751
Arrive On Green	0.08	0.19	0.19	0.09	0.20	0.20	0.07	0.44	0.44	0.10	0.47	0.47
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	129	244	94	141	335	280	96	1433	90	163	1319	117
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.5	11.0	4.6	7.1	15.8	15.5	4.8	34.0	3.0	8.2	28.1	3.8
Cycle Q Clear(g_c), s	6.5	11.0	4.6	7.1	15.8	15.5	4.8	34.0	3.0	8.2	28.1	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	350	298	158	371	315	126	1575	704	178	1679	751
V/C Ratio(X)	0.93	0.70	0.32	0.89	0.90	0.89	0.76	0.91	0.13	0.92	0.79	0.16
Avail Cap(c_a), veh/h	138	352	299	158	373	317	138	1575	704	178	1679	751
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	34.1	31.5	40.5	35.2	35.0	41.0	23.3	14.7	40.1	19.8	13.4
Incr Delay (d2), s/veh	56.7	5.9	0.6	42.2	24.4	24.8	20.4	9.4	0.4	44.7	3.8	0.4
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	5.3	6.2	2.1	5.3	10.6	8.9	3.1	18.6	1.4	6.2	14.4	1.7
LnGrp Delay(d),s/veh	98.0	40.0	32.1	82.8	59.6	59.8	61.4	32.7	15.1	84.7	23.6	13.9
LnGrp LOS	F	D	C	F	E	E	E	C	B	F	C	B
Approach Vol, veh/h		467			756			1619			1599	
Approach Delay, s/veh		54.4			64.0			33.4			29.1	
Approach LOS		D			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	44.0	12.0	20.9	10.4	46.6	11.0	21.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	40.0	8.0	17.0	7.0	42.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	10.2	36.0	9.1	13.0	6.8	30.1	8.5	17.8				
Green Ext Time (p_c), s	0.0	3.9	0.0	1.7	0.0	10.9	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			39.3									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	263	79	47	365	142	109	347	30	34	281	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	148	370	111	69	537	209	127	403	35	47	385	62
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.71	0.71	0.71	0.68	0.68	0.68	0.86	0.86	0.86	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	647	550	133	595	505	166	931	81	107	763	122
Arrive On Green	0.10	0.35	0.35	0.07	0.32	0.32	0.09	0.28	0.28	0.06	0.25	0.25
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3297	285	1774	3058	489
Grp Volume(v), veh/h	148	370	111	69	537	209	127	215	223	47	222	225
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1812	1774	1770	1777
Q Serve(g_s), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Cycle Q Clear(g_c), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.27
Lane Grp Cap(c), veh/h	182	647	550	133	595	505	166	500	512	107	442	443
V/C Ratio(X)	0.81	0.57	0.20	0.52	0.90	0.41	0.77	0.43	0.43	0.44	0.50	0.51
Avail Cap(c_a), veh/h	182	647	550	182	629	535	182	500	512	182	442	443
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	18.1	15.6	30.3	22.2	18.2	30.1	20.0	20.0	30.9	21.9	22.0
Incr Delay (d2), s/veh	23.5	1.2	0.2	3.1	15.9	0.5	16.1	2.7	2.7	2.8	4.0	4.1
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	3.9	5.9	1.5	1.4	12.2	3.1	3.1	3.7	3.8	0.9	4.1	4.1
LnGrp Delay(d),s/veh	53.4	19.3	15.8	33.4	38.1	18.7	46.3	22.7	22.7	33.7	26.0	26.1
LnGrp LOS	D	B	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		629			815			565			494	
Approach Delay, s/veh		26.7			32.7			28.0			26.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	23.2	9.1	27.6	10.4	21.0	11.0	25.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	23.0	7.0	17.0	7.0	23.0				
Max Q Clear Time (g_c+1), s	3.7	8.8	4.5	13.0	6.8	9.4	7.6	20.8				
Green Ext Time (p_c), s	0.0	3.1	0.0	4.5	0.0	3.0	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	52	88	44	63	104	61	1193	60	98	1068	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	122	70	119	52	74	122	66	1283	65	121	1319	102
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.74	0.74	0.74	0.85	0.85	0.85	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	115	196	114	100	165	130	1453	74	163	1567	701
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.07	0.42	0.42	0.09	0.44	0.44
Sat Flow, veh/h	1774	621	1056	1774	634	1045	1774	3428	173	1774	3539	1583
Grp Volume(v), veh/h	122	0	189	52	0	196	66	661	687	121	1319	102
Grp Sat Flow(s),veh/h/ln	1774	0	1676	1774	0	1678	1774	1770	1832	1774	1770	1583
Q Serve(g_s), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Cycle Q Clear(g_c), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Prop In Lane	1.00		0.63	1.00		0.62	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	164	0	312	114	0	265	130	750	777	163	1567	701
V/C Ratio(X)	0.75	0.00	0.61	0.46	0.00	0.74	0.51	0.88	0.88	0.74	0.84	0.15
Avail Cap(c_a), veh/h	182	0	392	182	0	393	182	750	777	182	1567	701
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	25.5	30.9	0.0	27.5	30.5	18.1	18.2	30.3	16.9	11.4
Incr Delay (d2), s/veh	14.0	0.0	1.9	2.8	0.0	4.0	3.1	14.1	13.9	13.5	5.7	0.4
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	2.9	0.0	3.4	1.0	0.0	3.8	1.3	14.3	14.8	2.8	12.2	1.2
LnGrp Delay(d),s/veh	44.2	0.0	27.4	33.7	0.0	31.5	33.6	32.3	32.1	43.7	22.6	11.8
LnGrp LOS	D		C	C		C	C	C	C	D	C	B
Approach Vol, veh/h		311			248			1414			1542	
Approach Delay, s/veh		34.0			32.0			32.2			23.5	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	33.0	8.4	16.7	9.0	34.3	10.3	14.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+l1), s	6.5	25.6	3.9	9.1	4.5	24.6	6.6	9.6				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.3	0.0	4.1	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 9: Perris Blvd & Alessandro Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	  			 			 	
Volume (veh/h)	206	458	100	205	891	245	267	917	211	239	684	239
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	251	559	122	241	1048	288	284	976	224	285	814	285
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	861	385	325	993	273	322	1018	455	310	995	445
Arrive On Green	0.09	0.24	0.24	0.09	0.25	0.25	0.18	0.29	0.29	0.17	0.28	0.28
Sat Flow, veh/h	3442	3539	1583	3442	3970	1090	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	251	559	122	241	895	441	284	976	224	285	814	285
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1670	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Cycle Q Clear(g_c), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	861	385	325	848	418	322	1018	455	310	995	445
V/C Ratio(X)	0.83	0.65	0.32	0.74	1.06	1.06	0.88	0.96	0.49	0.92	0.82	0.64
Avail Cap(c_a), veh/h	301	861	385	387	848	418	333	1018	455	310	995	445
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	27.2	24.8	35.3	30.0	30.0	31.9	28.0	23.7	32.4	26.8	25.2
Incr Delay (d2), s/veh	17.9	1.7	0.5	6.2	46.7	59.7	22.7	19.9	3.8	30.8	7.5	6.9
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	3.5	5.7	2.2	2.9	14.8	16.1	8.1	13.4	4.6	8.8	9.4	6.4
LnGrp Delay(d),s/veh	53.8	28.9	25.3	41.5	76.7	89.7	54.6	48.0	27.4	63.3	34.3	32.1
LnGrp LOS	D	C	C	D	F	F	D	D	C	E	C	C
Approach Vol, veh/h		932			1577			1484			1384	
Approach Delay, s/veh		35.1			75.0			46.1			39.8	
Approach LOS		D			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	27.0	11.5	23.5	18.5	26.5	11.0	24.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	23.0	9.0	18.0	15.0	22.0	7.0	20.0				
Max Q Clear Time (g_c+1), s	14.6	23.7	7.5	13.4	14.5	19.2	7.7	22.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.8	0.0	2.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			51.1									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	2	41	2	1	18	38	1489	4	14	1277	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	68	68	68	87	87	87	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	3	61	3	1	26	48	1883	5	16	1451	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2532	3478	737	2740	3487	944	1474	0	0	1888	0	0
Stage 1	1494	1494	-	1981	1981	-	-	-	-	-	-	-
Stage 2	1038	1984	-	759	1506	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	6	361	9	6	263	453	-	-	313	-	-
Stage 1	129	185	-	63	106	-	-	-	-	-	-	-
Stage 2	247	105	-	365	182	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 11	5	361	6	5	263	453	-	-	313	-	-
Mov Cap-2 Maneuver	69	51	-	43	52	-	-	-	-	-	-	-
Stage 1	115	176	-	56	95	-	-	-	-	-	-	-
Stage 2	196	94	-	283	173	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.8	33.5	0.3	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	453	-	-	164	157	313	-	-
HCM Lane V/C Ratio	0.106	-	-	0.51	0.197	0.051	-	-
HCM Control Delay (s)	13.9	-	-	47.8	33.5	17.1	-	-
HCM Lane LOS	B	-	-	E	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	2.5	0.7	0.2	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	350	13	36	476	19	30	11	42	34	12	15
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	70	70	70	67	67	67	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	455	17	51	680	27	45	16	63	53	19	23
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	680	0	0	455	0	0	1285	1264	455	1303	1264	680
Stage 1	-	-	-	-	-	-	481	481	-	783	783	-
Stage 2	-	-	-	-	-	-	804	783	-	520	481	-
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	912	-	-	1106	-	-	142	169	605	138	169	451
Stage 1	-	-	-	-	-	-	566	554	-	387	404	-
Stage 2	-	-	-	-	-	-	377	404	-	539	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	912	-	-	1106	-	-	117	159	605	109	159	451
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	159	-	109	159	-
Stage 1	-	-	-	-	-	-	558	546	-	381	385	-
Stage 2	-	-	-	-	-	-	324	385	-	462	546	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			44.2			68		
HCM LOS	E			E			E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	210	912	-	-	1106	-	-	145				
HCM Lane V/C Ratio	0.59	0.014	-	-	0.046	-	-	0.657				
HCM Control Delay (s)	44.2	9	-	-	8.4	-	-	68				
HCM Lane LOS	E	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	3.3	0	-	-	0.1	-	-	3.6				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	366	528	10	0	49
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	75	75	78	78	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	488	677	13	0	53

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	690	0	1171
Stage 1	-	-	683
Stage 2	-	-	488
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	905	-	213
Stage 1	-	-	502
Stage 2	-	-	617
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	905	-	213
Mov Cap-2 Maneuver	-	-	213
Stage 1	-	-	502
Stage 2	-	-	617

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	905	-	-	-	449
HCM Lane V/C Ratio	-	-	-	-	0.119
HCM Control Delay (s)	0	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	11	0	0	44	14	1430	49	39	1296	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	0	0	48	16	1682	58	46	1525	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2492	3391	764	2598	3364	870	1528	0	0	1740	0	0
Stage 1	1618	1618	-	1744	1744	-	-	-	-	-	-	-
Stage 2	874	1773	-	854	1620	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	15	7	346	12	8	295	432	-	-	358	-	-
Stage 1	108	161	-	90	139	-	-	-	-	-	-	-
Stage 2	311	134	-	320	160	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	11	6	346	10	7	295	432	-	-	358	-	-
Mov Cap-2 Maneuver	11	6	-	10	7	-	-	-	-	-	-	-
Stage 1	104	140	-	87	134	-	-	-	-	-	-	-
Stage 2	251	129	-	265	139	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	16			19.6			0.1			0.5		
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	432	-	-	346	295	358	-	-				
HCM Lane V/C Ratio	0.038	-	-	0.051	0.162	0.128	-	-				
HCM Control Delay (s)	13.7	-	-	16	19.6	16.5	-	-				
HCM Lane LOS	B	-	-	C	C	C	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.6	0.4	-	-				

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	199	76	69	131	95	68	1280	89	121	1630	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.70	0.70	0.70	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	124	293	249	131	302	256	118	1743	780	157	1821	815
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16	0.07	0.49	0.49	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Cycle Q Clear(g_c), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	293	249	131	302	256	118	1743	780	157	1821	815
V/C Ratio(X)	0.65	0.80	0.36	0.75	0.62	0.53	0.60	0.76	0.12	0.80	0.93	0.10
Avail Cap(c_a), veh/h	145	349	296	145	349	296	145	1743	780	187	1821	815
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	34.7	32.2	38.8	33.4	32.8	38.8	17.7	11.7	38.2	19.4	10.6
Incr Delay (d2), s/veh	7.6	10.5	0.9	18.0	2.6	1.7	4.8	3.3	0.3	18.6	10.2	0.2
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	2.1	6.2	1.9	2.9	4.3	3.1	1.8	13.6	1.2	3.7	21.2	1.0
LnGrp Delay(d),s/veh	46.3	45.2	33.0	56.8	36.0	34.5	43.6	20.9	12.0	56.9	29.6	10.8
LnGrp LOS	D	D	C	E	D	C	D	C	B	E	C	B
Approach Vol, veh/h		403			422			1497			1902	
Approach Delay, s/veh		42.7			40.4			21.4			30.6	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	46.1	10.3	17.5	9.7	48.0	10.0	17.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	42.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	8.0	28.2	6.7	12.3	5.3	40.3	5.8	10.0				
Green Ext Time (p_c), s	0.0	12.9	0.0	1.1	0.0	3.6	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↗		↗	↕↕	↗
Volume (veh/h)	64	102	28	32	94	64	30	1340	47	79	1586	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	72	115	31	36	106	72	31	1396	49	81	1635	92
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	92	400	71	157	400	82	1653	58	149	1810	810
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.47	0.47	0.08	0.51	0.51
Sat Flow, veh/h	0	364	1583	0	619	1583	1774	3488	122	1774	3539	1583
Grp Volume(v), veh/h	187	0	31	142	0	72	31	707	738	81	1635	92
Grp Sat Flow(s),veh/h/ln	364	0	1583	619	0	1583	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.9	0.0	0.0	2.3	1.1	22.2	22.3	2.8	26.6	1.9
Cycle Q Clear(g_c), s	16.0	0.0	0.9	16.0	0.0	2.3	1.1	22.2	22.3	2.8	26.6	1.9
Prop In Lane	0.39		1.00	0.25		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	400	228	0	400	82	838	872	149	1810	810
V/C Ratio(X)	1.09	0.00	0.08	0.62	0.00	0.18	0.38	0.84	0.85	0.54	0.90	0.11
Avail Cap(c_a), veh/h	171	0	400	228	0	400	196	838	872	196	1810	810
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	18.0	20.0	0.0	18.5	29.3	14.6	14.6	27.8	14.1	8.0
Incr Delay (d2), s/veh	96.5	0.0	0.1	5.2	0.0	0.2	2.8	10.1	9.9	3.1	7.9	0.3
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	7.5	0.0	0.4	2.3	0.0	1.0	0.6	13.0	13.7	1.5	14.7	0.9
LnGrp Delay(d),s/veh	120.4	0.0	18.1	25.2	0.0	18.7	32.1	24.7	24.5	30.9	21.9	8.3
LnGrp LOS	F		B	C		B	C	C	C	C	C	A
Approach Vol, veh/h		218			214			1476			1808	
Approach Delay, s/veh		105.8			23.0			24.8			21.6	
Approach LOS		F			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	34.0		20.0	6.9	36.4		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		16.0	7.0	30.0		16.0				
Max Q Clear Time (g_c+l1), s	4.8	24.3		18.0	3.1	28.6		18.0				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.0	1.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	384	162	45	303	41	88	438	60	31	374	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	452	191	55	370	50	106	528	72	33	394	49
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.82	0.82	0.82	0.83	0.83	0.83	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	544	463	125	546	464	173	996	135	88	856	106
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.10	0.32	0.32	0.05	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3132	426	1774	3171	392
Grp Volume(v), veh/h	54	452	191	55	370	50	106	298	302	33	219	224
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1788	1774	1770	1794
Q Serve(g_s), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Cycle Q Clear(g_c), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.22
Lane Grp Cap(c), veh/h	123	544	463	125	546	464	173	563	568	88	478	484
V/C Ratio(X)	0.44	0.83	0.41	0.44	0.68	0.11	0.61	0.53	0.53	0.38	0.46	0.46
Avail Cap(c_a), veh/h	210	597	508	210	597	508	210	563	568	210	478	484
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	19.6	16.9	26.4	18.5	15.3	25.7	16.6	16.6	27.3	18.0	18.1
Incr Delay (d2), s/veh	2.4	9.0	0.6	2.4	2.7	0.1	3.6	3.5	3.5	2.6	3.1	3.2
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	0.9	8.3	2.6	0.9	5.8	0.6	1.8	4.5	4.6	0.6	3.4	3.5
LnGrp Delay(d),s/veh	28.9	28.6	17.5	28.9	21.2	15.4	29.3	20.1	20.1	29.9	21.2	21.2
LnGrp LOS	C	C	B	C	C	B	C	C	C	C	C	C
Approach Vol, veh/h		697			475			706			476	
Approach Delay, s/veh		25.5			21.5			21.5			21.8	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	22.8	8.2	21.3	9.8	20.0	8.1	21.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	10.2	3.8	15.4	5.4	8.2	3.7	12.4				
Green Ext Time (p_c), s	0.0	2.9	0.0	1.9	0.0	3.7	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			22.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	232	72	85	173	115	74	1244	59	190	1385	131
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	141	273	85	109	222	147	79	1323	63	202	1473	139
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.78	0.78	0.78	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	326	277	137	300	255	121	1530	685	236	1761	788
Arrive On Green	0.09	0.17	0.17	0.08	0.16	0.16	0.07	0.43	0.43	0.13	0.50	0.50
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	141	273	85	109	222	147	79	1323	63	202	1473	139
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.9	12.5	4.1	5.3	10.0	7.5	3.8	29.8	2.1	9.8	31.5	4.2
Cycle Q Clear(g_c), s	6.9	12.5	4.1	5.3	10.0	7.5	3.8	29.8	2.1	9.8	31.5	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	326	277	137	300	255	121	1530	685	236	1761	788
V/C Ratio(X)	0.87	0.84	0.31	0.79	0.74	0.58	0.65	0.86	0.09	0.85	0.84	0.18
Avail Cap(c_a), veh/h	161	360	306	141	339	288	141	1530	685	242	1761	788
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	35.0	31.6	39.9	35.1	34.1	39.9	22.6	14.7	37.3	19.0	12.2
Incr Delay (d2), s/veh	37.2	14.7	0.6	25.5	7.3	2.2	8.3	6.8	0.3	24.1	4.9	0.5
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	5.0	7.7	1.9	3.6	5.7	3.5	2.1	16.0	1.0	6.4	16.3	2.0
LnGrp Delay(d),s/veh	76.7	49.8	32.2	65.4	42.4	36.3	48.2	29.4	15.0	61.4	23.9	12.6
LnGrp LOS	E	D	C	E	D	D	D	C	B	E	C	B
Approach Vol, veh/h		499			478			1465			1814	
Approach Delay, s/veh		54.4			45.8			29.8			27.2	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	42.0	10.8	19.4	10.0	47.7	12.0	18.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	38.0	7.0	17.0	7.0	43.0	8.0	16.0				
Max Q Clear Time (g_c+l1), s	11.8	31.8	7.3	14.5	5.8	33.5	8.9	12.0				
Green Ext Time (p_c), s	0.0	5.9	0.0	0.9	0.0	8.9	0.0	1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			33.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	264	57	31	235	43	31	355	19	39	322	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	326	70	34	255	47	35	403	22	41	339	21
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.92	0.92	0.92	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	461	392	93	491	417	96	1091	59	108	1105	68
Arrive On Green	0.04	0.25	0.25	0.05	0.26	0.26	0.05	0.32	0.32	0.06	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3414	186	1774	3387	209
Grp Volume(v), veh/h	22	326	70	34	255	47	35	208	217	41	176	184
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1830	1774	1770	1826
Q Serve(g_s), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Cycle Q Clear(g_c), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	65	461	392	93	491	417	96	565	585	108	578	596
V/C Ratio(X)	0.34	0.71	0.18	0.36	0.52	0.11	0.37	0.37	0.37	0.38	0.31	0.31
Avail Cap(c_a), veh/h	248	707	601	248	707	601	248	565	585	248	578	596
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	17.2	14.8	22.9	15.7	14.0	22.9	13.1	13.2	22.6	12.6	12.6
Incr Delay (d2), s/veh	3.0	2.0	0.2	2.4	0.9	0.1	2.3	1.8	1.8	2.2	1.4	1.3
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	0.3	4.3	0.8	0.5	3.1	0.5	0.5	2.5	2.6	0.6	2.0	2.1
LnGrp Delay(d),s/veh	26.5	19.2	15.0	25.3	16.6	14.1	25.2	15.0	15.0	24.8	14.0	14.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		418			336			460			401	
Approach Delay, s/veh		18.9			17.1			15.7			15.1	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	20.0	6.6	16.4	6.7	20.3	5.8	17.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	6.6	2.9	10.0	3.0	5.8	2.6	7.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.4	0.0	3.2	0.0	2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	52	44	21	44	47	45	1313	55	76	1414	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	30	59	50	25	52	56	48	1397	59	82	1520	34
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	104	88	69	87	94	111	1803	76	147	1917	858
Arrive On Green	0.04	0.11	0.11	0.04	0.11	0.11	0.06	0.52	0.52	0.08	0.54	0.54
Sat Flow, veh/h	1774	933	790	1774	822	885	1774	3461	146	1774	3539	1583
Grp Volume(v), veh/h	30	0	109	25	0	108	48	713	743	82	1520	34
Grp Sat Flow(s),veh/h/ln	1774	0	1723	1774	0	1707	1774	1770	1837	1774	1770	1583
Q Serve(g_s), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Cycle Q Clear(g_c), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Prop In Lane	1.00		0.46	1.00		0.52	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	80	0	193	69	0	181	111	922	957	147	1917	858
V/C Ratio(X)	0.38	0.00	0.57	0.36	0.00	0.60	0.43	0.77	0.78	0.56	0.79	0.04
Avail Cap(c_a), veh/h	190	0	422	190	0	418	190	922	957	190	1917	858
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	27.5	30.6	0.0	27.8	29.5	12.5	12.6	28.8	12.0	7.0
Incr Delay (d2), s/veh	2.9	0.0	2.6	3.1	0.0	3.1	2.7	6.3	6.1	3.3	3.5	0.1
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	0.6	0.0	2.0	0.5	0.0	2.0	0.9	11.7	12.2	1.5	11.7	0.3
LnGrp Delay(d),s/veh	33.2	0.0	30.1	33.7	0.0	31.0	32.2	18.8	18.7	32.0	15.5	7.1
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		139			133			1504			1636	
Approach Delay, s/veh		30.7			31.5			19.2			16.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	38.0	6.6	11.3	8.1	39.3	6.9	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	34.0	7.0	16.0	7.0	34.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.9	23.2	2.9	5.9	3.7	24.5	3.1	5.9				
Green Ext Time (p_c), s	0.0	10.0	0.0	0.8	0.0	8.8	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	508	1029	305	260	658	218	270	792	193	310	955	162
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	540	1095	324	302	765	253	297	870	212	341	1049	178
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	563	1062	475	313	862	282	290	933	417	355	1062	475
Arrive On Green	0.16	0.30	0.30	0.09	0.23	0.23	0.16	0.26	0.26	0.20	0.30	0.30
Sat Flow, veh/h	3442	3539	1583	3442	3792	1242	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	540	1095	324	302	683	335	297	870	212	341	1049	178
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1644	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	17.1	33.0	19.8	9.6	21.5	21.7	18.0	26.4	12.5	20.9	32.4	9.8
Cycle Q Clear(g_c), s	17.1	33.0	19.8	9.6	21.5	21.7	18.0	26.4	12.5	20.9	32.4	9.8
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	563	1062	475	313	770	374	290	933	417	355	1062	475
V/C Ratio(X)	0.96	1.03	0.68	0.97	0.89	0.90	1.02	0.93	0.51	0.96	0.99	0.37
Avail Cap(c_a), veh/h	563	1062	475	313	770	374	290	933	417	355	1062	475
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	38.5	33.9	49.8	41.1	41.2	46.0	39.5	34.4	43.6	38.3	30.4
Incr Delay (d2), s/veh	27.8	36.0	4.0	41.4	12.1	23.3	58.9	17.1	4.4	37.5	24.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	21.4	9.2	6.4	11.4	12.3	13.5	15.1	6.0	13.9	19.5	4.5
LnGrp Delay(d),s/veh	73.5	74.5	37.9	91.2	53.3	64.5	104.9	56.6	38.8	81.0	63.2	32.6
LnGrp LOS	E	F	D	F	D	E	F	E	D	F	E	C
Approach Vol, veh/h		1959			1320			1379			1568	
Approach Delay, s/veh		68.1			64.8			64.3			63.6	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	33.0	14.0	37.0	22.0	37.0	22.0	29.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	22.0	29.0	10.0	33.0	18.0	33.0	18.0	25.0				
Max Q Clear Time (g_c+I1), s	22.9	28.4	11.6	35.0	20.0	34.4	19.1	23.7				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			65.4									
HCM 2010 LOS			E									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	3	40	2	1	12	40	1423	2	47	1696	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	97	97	97	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	4	51	3	2	21	45	1614	2	48	1731	22
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2736	3545	877	2669	3555	808	1753	0	0	1616	0	0
Stage 1	1838	1838	-	1706	1706	-	-	-	-	-	-	-
Stage 2	898	1707	-	963	1849	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 10	6	292	11	6	324	353	-	-	399	-	-
Stage 1	78	125	-	95	145	-	-	-	-	-	-	-
Stage 2	301	145	-	274	123	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 7	5	292	7	5	324	353	-	-	399	-	-
Mov Cap-2 Maneuver	48	44	-	51	40	-	-	-	-	-	-	-
Stage 1	68	110	-	83	127	-	-	-	-	-	-	-
Stage 2	243	127	-	192	108	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	85.3			34.4			0.5			0.4		
HCM LOS	F			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	353	-	-	112	148	399	-	-				
HCM Lane V/C Ratio	0.129	-	-	0.664	0.175	0.12	-	-				
HCM Control Delay (s)	16.7	-	-	85.3	34.4	15.3	-	-				
HCM Lane LOS	C	-	-	F	D	C	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	3.4	0.6	0.4	-	-				
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	383	55	15	257	9	31	6	9	7	2	11
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	88	88	88	60	60	60	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	391	56	17	292	10	52	10	15	9	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	292	0	0	391	0	0	763	754	391	766	754	292
Stage 1	-	-	-	-	-	-	428	428	-	326	326	-
Stage 2	-	-	-	-	-	-	335	326	-	440	428	-
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	1270	-	-	1168	-	-	321	338	658	320	338	747
Stage 1	-	-	-	-	-	-	605	585	-	687	648	-
Stage 2	-	-	-	-	-	-	679	648	-	596	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1270	-	-	1168	-	-	306	328	658	299	328	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	328	-	299	328	-
Stage 1	-	-	-	-	-	-	596	577	-	677	639	-
Stage 2	-	-	-	-	-	-	653	639	-	564	577	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			18.4			13.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	345	1270	-	-	1168	-	-	452				
HCM Lane V/C Ratio	0.222	0.014	-	-	0.015	-	-	0.059				
HCM Control Delay (s)	18.4	7.9	-	-	8.1	-	-	13.5				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	469	312	11	0	58
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	91	91	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	515	385	14	0	63

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	399	0	907
Stage 1	-	-	392
Stage 2	-	-	515
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1160	-	306
Stage 1	-	-	683
Stage 2	-	-	600
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1160	-	306
Mov Cap-2 Maneuver	-	-	306
Stage 1	-	-	683
Stage 2	-	-	600

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1160	-	-	-	657
HCM Lane V/C Ratio	-	-	-	-	0.096
HCM Control Delay (s)	0	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	33.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	0	74	0	0	52	54	1372	57	45	1588	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	92	92	92	95	95	95	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	103	0	0	57	57	1444	60	48	1708	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2661	3443	874	2539	3433	752	1748	0	0	1504	0	0
Stage 1	1825	1825	-	1588	1588	-	-	-	-	-	-	-
Stage 2	836	1618	-	951	1845	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 11	7	293	14	7	353	355	-	-	441	-	-
Stage 1	80	127	-	113	166	-	-	-	-	-	-	-
Stage 2	328	161	-	279	124	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 7	5	293	7	5	353	355	-	-	441	-	-
Mov Cap-2 Maneuver	~ 7	5	-	7	5	-	-	-	-	-	-	-
Stage 1	67	113	-	95	139	-	-	-	-	-	-	-
Stage 2	231	135	-	161	111	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 971.4	17.1	0.6	0.4
HCM LOS	F	C		

























Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	355	-	-	44	353	441	-	-
HCM Lane V/C Ratio	0.16	-	-	2.715	0.16	0.11	-	-
HCM Control Delay (s)	17.1	-	-	\$ 971.4	17.1	14.2	-	-
HCM Lane LOS	C	-	-	F	C	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	12.9	0.6	0.4	-	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	101	41	52	81	84	58	1186	56	71	1134	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
Arrive On Green	0.08	0.12	0.12	0.07	0.11	0.11	0.08	0.47	0.47	0.08	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Cycle Q Clear(g_c), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
V/C Ratio(X)	0.50	0.51	0.25	0.48	0.47	0.57	0.48	0.79	0.08	0.53	0.75	0.09
Avail Cap(c_a), veh/h	200	480	408	200	480	408	200	1652	739	200	1683	753
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	25.8	24.9	27.6	25.8	26.1	27.5	14.0	9.2	27.3	13.3	8.9
Incr Delay (d2), s/veh	2.7	1.9	0.7	2.6	1.6	2.8	2.6	3.9	0.2	2.9	3.1	0.2
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	1.3	1.9	0.7	1.1	1.7	1.8	1.1	10.1	0.6	1.4	9.5	0.6
LnGrp Delay(d),s/veh	30.2	27.6	25.6	30.2	27.4	28.9	30.2	17.9	9.4	30.2	16.4	9.1
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	A
Approach Vol, veh/h		228			262			1429			1403	
Approach Delay, s/veh		28.0			28.7			18.1			16.8	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	33.0	8.6	11.3	8.7	33.5	8.9	11.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.7	21.3	4.1	5.5	4.1	20.0	4.3	5.8				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.1	0.0	8.1	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			19.1									
HCM 2010 LOS			B									

























HCM 2010 Signalized Intersection Summary 3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	78	91	28	39	65	63	46	1165	27	29	1120	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	90	105	32	45	75	72	55	1387	32	34	1302	66
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	76	444	87	106	444	127	1621	37	91	1550	694
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.07	0.46	0.46	0.05	0.44	0.44
Sat Flow, veh/h	0	270	1583	0	379	1583	1774	3536	82	1774	3539	1583
Grp Volume(v), veh/h	195	0	32	120	0	72	55	693	726	34	1302	66
Grp Sat Flow(s),veh/h/ln	270	0	1583	379	0	1583	1774	1770	1848	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	2.0	1.7	19.9	20.0	1.1	18.7	1.4
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	2.0	1.7	19.9	20.0	1.1	18.7	1.4
Prop In Lane	0.46		1.00	0.37		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	444	193	0	444	127	811	847	91	1550	694
V/C Ratio(X)	1.16	0.00	0.07	0.62	0.00	0.16	0.43	0.86	0.86	0.38	0.84	0.10
Avail Cap(c_a), veh/h	168	0	444	193	0	444	218	811	847	218	1550	694
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	15.1	17.2	0.0	15.5	25.4	13.8	13.8	26.2	14.3	9.4
Incr Delay (d2), s/veh	119.8	0.0	0.1	6.0	0.0	0.2	2.3	11.2	10.9	2.6	5.6	0.3
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	8.2	0.0	0.4	1.8	0.0	0.9	0.9	12.2	12.6	0.6	10.3	0.7
LnGrp Delay(d),s/veh	141.6	0.0	15.2	23.2	0.0	15.7	27.7	25.0	24.6	28.7	19.9	9.7
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		227			192			1474			1402	
Approach Delay, s/veh		123.8			20.4			24.9			19.6	
Approach LOS		F			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	30.2		20.0	8.1	29.0		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	3.1	22.0		18.0	3.7	20.7		18.0				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.0	4.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.2									
HCM 2010 LOS			C									

























HCM 2010 Signalized Intersection Summary 4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	271	115	49	325	26	97	278	47	22	239	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	23	347	147	58	387	31	100	287	48	24	257	24
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	468	398	131	535	455	173	1084	179	69	975	90
Arrive On Green	0.04	0.25	0.25	0.07	0.29	0.29	0.10	0.36	0.36	0.04	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3041	503	1774	3275	303
Grp Volume(v), veh/h	23	347	147	58	387	31	100	166	169	24	138	143
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1774	1774	1770	1809
Q Serve(g_s), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Cycle Q Clear(g_c), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.17
Lane Grp Cap(c), veh/h	66	468	398	131	535	455	173	630	632	69	527	538
V/C Ratio(X)	0.35	0.74	0.37	0.44	0.72	0.07	0.58	0.26	0.27	0.35	0.26	0.27
Avail Cap(c_a), veh/h	217	587	499	217	587	499	217	630	632	217	527	538
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	19.7	17.7	25.3	18.3	14.8	24.7	13.1	13.1	26.7	15.3	15.3
Incr Delay (d2), s/veh	3.1	3.8	0.6	2.3	4.0	0.1	3.0	1.0	1.0	3.0	1.2	1.2
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	0.4	5.5	2.0	1.0	6.1	0.4	1.6	2.0	2.1	0.4	1.8	1.9
LnGrp Delay(d),s/veh	29.9	23.5	18.2	27.7	22.3	14.9	27.7	14.1	14.1	29.7	16.5	16.5
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		517			476			435			305	
Approach Delay, s/veh		22.3			22.5			17.2			17.5	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	24.4	8.2	18.3	9.6	21.0	6.1	20.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	2.8	5.9	3.8	11.8	5.1	5.4	2.7	12.7				
Green Ext Time (p_c), s	0.0	2.7	0.0	2.5	0.0	2.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	111	140	65	130	200	193	87	1054	75	174	936	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	141	177	82	228	351	339	96	1158	82	200	1076	122
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	327	278	258	416	354	126	1305	584	234	1520	680
Arrive On Green	0.10	0.18	0.18	0.15	0.22	0.22	0.07	0.37	0.37	0.13	0.43	0.43
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	141	177	82	228	351	339	96	1158	82	200	1076	122
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.0	7.7	4.0	11.3	16.1	18.9	4.8	27.5	3.1	9.9	22.3	4.3
Cycle Q Clear(g_c), s	7.0	7.7	4.0	11.3	16.1	18.9	4.8	27.5	3.1	9.9	22.3	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	327	278	258	416	354	126	1305	584	234	1520	680
V/C Ratio(X)	0.82	0.54	0.30	0.88	0.84	0.96	0.76	0.89	0.14	0.86	0.71	0.18
Avail Cap(c_a), veh/h	178	333	283	258	416	354	139	1305	584	238	1520	680
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	33.6	32.1	37.5	33.3	34.3	40.8	26.5	18.8	38.0	20.9	15.8
Incr Delay (d2), s/veh	24.2	1.7	0.6	28.4	14.6	36.8	19.9	9.2	0.5	24.7	2.8	0.6
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	4.6	4.1	1.8	7.5	10.0	11.9	3.0	15.0	1.4	6.4	11.4	2.0
LnGrp Delay(d),s/veh	63.8	35.3	32.7	65.9	47.8	71.2	60.8	35.7	19.3	62.8	23.7	16.4
LnGrp LOS	E	D	C	E	D	E	E	D	B	E	C	B
Approach Vol, veh/h		400			918			1336			1398	
Approach Delay, s/veh		44.8			60.9			36.5			28.7	
Approach LOS		D			E			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	37.0	17.0	19.7	10.4	42.4	12.7	24.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	33.0	13.0	16.0	7.0	38.0	9.0	20.0				
Max Q Clear Time (g_c+l1), s	11.9	29.5	13.3	9.7	6.8	24.3	9.0	20.9				
Green Ext Time (p_c), s	0.0	3.2	0.0	2.4	0.0	11.2	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			40.2									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	221	64	10	245	31	34	206	15	28	223	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	395	114	15	360	46	40	245	18	32	256	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	594	505	46	497	422	104	1028	75	88	984	84
Arrive On Green	0.08	0.32	0.32	0.03	0.27	0.27	0.06	0.31	0.31	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3345	244	1774	3301	282
Grp Volume(v), veh/h	62	395	114	15	360	46	40	129	134	32	136	142
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1820	1774	1770	1813
Q Serve(g_s), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Cycle Q Clear(g_c), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	140	594	505	46	497	422	104	544	559	88	527	540
V/C Ratio(X)	0.44	0.66	0.23	0.32	0.72	0.11	0.38	0.24	0.24	0.36	0.26	0.26
Avail Cap(c_a), veh/h	231	659	560	231	659	560	231	544	559	231	527	540
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	15.8	13.4	25.7	17.9	14.9	24.3	13.9	13.9	24.7	14.3	14.3
Incr Delay (d2), s/veh	2.2	2.2	0.2	4.0	2.7	0.1	2.3	1.0	1.0	2.5	1.2	1.2
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	1.0	5.4	1.3	0.3	5.2	0.5	0.6	1.6	1.6	0.5	1.7	1.8
LnGrp Delay(d),s/veh	25.8	18.0	13.6	29.6	20.6	15.0	26.7	14.9	14.9	27.2	15.5	15.5
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		571			421			303			310	
Approach Delay, s/veh		18.0			20.3			16.5			16.7	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	20.5	5.4	21.1	7.1	20.0	8.2	18.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	2.9	5.0	2.4	11.8	3.2	5.2	3.8	11.4				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.8	0.0	2.2	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			18.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	41	30	26	34	66	33	1104	39	67	1068	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	29	48	35	34	44	86	34	1150	41	75	1200	35
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	126	92	92	74	145	92	1539	55	155	1688	755
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.05	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1774	1003	731	1774	565	1103	1774	3486	124	1774	3539	1583
Grp Volume(v), veh/h	29	0	83	34	0	130	34	584	607	75	1200	35
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1668	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Cycle Q Clear(g_c), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	217	92	0	219	92	781	812	155	1688	755
V/C Ratio(X)	0.36	0.00	0.38	0.37	0.00	0.59	0.37	0.75	0.75	0.48	0.71	0.05
Avail Cap(c_a), veh/h	228	0	510	228	0	491	228	781	812	228	1688	755
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	21.8	24.9	0.0	22.2	24.9	12.7	12.7	23.6	11.3	7.6
Incr Delay (d2), s/veh	2.7	0.0	1.1	2.5	0.0	2.5	2.5	6.4	6.2	2.3	2.6	0.1
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	1.2	0.6	0.0	2.0	0.6	8.5	8.8	1.2	7.6	0.3
LnGrp Delay(d),s/veh	27.8	0.0	22.9	27.4	0.0	24.8	27.4	19.1	18.9	26.0	13.8	7.7
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		112			164			1225			1310	
Approach Delay, s/veh		24.2			25.3			19.2			14.4	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	28.0	6.8	10.8	6.8	29.9	6.5	11.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.2	17.0	3.0	4.4	3.0	16.6	2.9	6.0				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.8	0.0	6.5	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			17.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	375	519	232	239	489	179	308	739	140	211	693	183
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	417	577	258	278	569	208	338	812	154	229	753	199
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	765	342	360	720	257	375	1153	516	268	939	420
Arrive On Green	0.13	0.22	0.22	0.10	0.19	0.19	0.21	0.33	0.33	0.15	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	3701	1319	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	417	577	258	278	520	257	338	812	154	229	753	199
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1630	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4
Cycle Q Clear(g_c), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4
Prop In Lane	1.00		1.00	1.00		0.81	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	765	342	360	660	317	375	1153	516	268	939	420
V/C Ratio(X)	0.96	0.75	0.75	0.77	0.79	0.81	0.90	0.70	0.30	0.85	0.80	0.47
Avail Cap(c_a), veh/h	435	765	342	392	686	330	381	1153	516	292	939	420
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	29.0	29.0	34.5	30.3	30.5	30.4	23.3	19.9	32.7	27.1	24.4
Incr Delay (d2), s/veh	32.6	4.3	9.1	8.5	5.9	13.7	23.6	3.6	1.5	20.1	7.2	3.8
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	6.5	6.3	6.1	3.4	6.0	6.6	9.6	8.4	2.7	6.4	8.6	4.1
LnGrp Delay(d),s/veh	66.9	33.3	38.1	43.0	36.2	44.1	54.0	27.0	21.4	52.8	34.3	28.2
LnGrp LOS	E	C	D	D	D	D	D	C	C	D	C	C
Approach Vol, veh/h		1252			1055			1304			1181	
Approach Delay, s/veh		45.5			39.9			33.3			36.8	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	29.8	12.3	21.1	20.7	25.0	14.0	19.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	25.0	9.0	17.0	17.0	21.0	10.0	16.0				
Max Q Clear Time (g_c+1), s	12.0	17.9	8.2	14.1	16.7	17.7	11.5	13.9				
Green Ext Time (p_c), s	0.1	5.4	0.1	2.2	0.0	2.7	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			38.8									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	4	30	3	7	15	41	1265	3	38	1170	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	72	72	72	89	89	89	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	6	46	4	10	21	51	1563	4	44	1345	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2331	3112	683	2430	3121	784	1367	0	0	1567	0	0
Stage 1	1443	1443	-	1667	1667	-	-	-	-	-	-	-
Stage 2	888	1669	-	763	1454	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 20	11	392	17	11	336	498	-	-	417	-	-
Stage 1	139	196	-	100	152	-	-	-	-	-	-	-
Stage 2	305	151	-	363	193	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 14	9	392	12	~ 9	336	498	-	-	417	-	-
Mov Cap-2 Maneuver	75	59	-	63	63	-	-	-	-	-	-	-
Stage 1	125	175	-	90	136	-	-	-	-	-	-	-
Stage 2	238	136	-	276	173	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	71.1	45.4	0.4	0.5
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	498	-	-	131	123	417	-
HCM Lane V/C Ratio	0.102	-	-	0.634	0.282	0.105	-
HCM Control Delay (s)	13	-	-	71.1	45.4	14.6	-
HCM Lane LOS	B	-	-	F	E	B	-
HCM 95th %tile Q(veh)	0.3	-	-	3.3	1.1	0.3	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	343	46	3	289	4	34	4	10	2	2	10
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	58	58	58	79	79	79	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	602	81	5	498	7	43	5	13	3	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	498	0	0	602	0	0	1207	1198	602	1207	1198	498
Stage 1	-	-	-	-	-	-	689	689	-	509	509	-
Stage 2	-	-	-	-	-	-	518	509	-	698	689	-
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	1066	-	-	975	-	-	160	186	500	160	186	572
Stage 1	-	-	-	-	-	-	436	446	-	547	538	-
Stage 2	-	-	-	-	-	-	541	538	-	431	446	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1066	-	-	975	-	-	148	177	500	147	177	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	177	-	147	177	-
Stage 1	-	-	-	-	-	-	418	428	-	524	535	-
Stage 2	-	-	-	-	-	-	521	535	-	398	428	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.1			35.9			16.7		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	176	1066	-	-	975	-	-	330				
HCM Lane V/C Ratio	0.345	0.041	-	-	0.005	-	-	0.065				
HCM Control Delay (s)	35.9	8.5	-	-	8.7	-	-	16.7				
HCM Lane LOS	E	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	301	367	16	0	82
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	77	77	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	391	453	20	0	89

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	473	0	854
Stage 1	-	-	463
Stage 2	-	-	391
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1089	-	329
Stage 1	-	-	634
Stage 2	-	-	683
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1089	-	329
Mov Cap-2 Maneuver	-	-	329
Stage 1	-	-	634
Stage 2	-	-	683

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	599
HCM Lane V/C Ratio	-	-	-	-	0.149
HCM Control Delay (s)	0	-	-	-	12.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 36.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	0	78	0	0	74	70	1209	78	62	1088	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	92	92	92	82	82	82	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	0	98	0	0	80	85	1474	95	72	1265	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2339	3171	655	2470	3146	785	1309	0	0	1570	0	0
Stage 1	1431	1431	-	1693	1693	-	-	-	-	-	-	-
Stage 2	908	1740	-	777	1453	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 19	10	409	15	11	336	524	-	-	416	-	-
Stage 1	141	198	-	97	147	-	-	-	-	-	-	-
Stage 2	296	140	-	356	194	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	~ 11	7	409	9	8	336	524	-	-	416	-	-
Mov Cap-2 Maneuver	~ 11	7	-	9	8	-	-	-	-	-	-	-
Stage 1	118	164	-	81	123	-	-	-	-	-	-	-
Stage 2	189	117	-	224	160	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 924.1	19.1	0.7	0.8
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	524	-	-	47 336	416	-	-
HCM Lane V/C Ratio	0.163	-	-	2.633 0.239	0.173	-	-
HCM Control Delay (s)	13.2	-	-	\$ 924.1 19.1	15.5	-	-
HCM Lane LOS	B	-	-	F C	C	-	-
HCM 95th %tile Q(veh)	0.6	-	-	13.1 0.9	0.6	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary

1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	92	62	112	158	199	63	1394	66	78	1134	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.88	0.88	0.88	0.87	0.87	0.87	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
Arrive On Green	0.06	0.15	0.15	0.08	0.17	0.17	0.07	0.51	0.51	0.07	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	57	133	90	127	180	226	72	1602	76	89	1289	36
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Cycle Q Clear(g_c), s	2.7	5.6	4.4	6.1	7.6	11.9	3.4	34.6	2.1	4.2	23.8	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	276	235	145	315	268	119	1813	811	127	1830	819
V/C Ratio(X)	0.53	0.48	0.38	0.88	0.57	0.84	0.61	0.88	0.09	0.70	0.70	0.04
Avail Cap(c_a), veh/h	145	347	295	145	347	295	145	1813	811	145	1830	819
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	33.6	33.0	39.0	32.8	34.6	39.0	18.7	10.7	39.0	15.8	10.2
Incr Delay (d2), s/veh	4.0	1.3	1.0	41.4	1.8	18.2	4.9	6.7	0.2	12.0	2.3	0.1
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	1.4	3.0	2.0	4.6	4.1	6.5	1.8	18.4	1.0	2.5	12.0	0.4
LnGrp Delay(d),s/veh	43.2	34.9	34.1	80.5	34.7	52.8	43.9	25.4	11.0	51.0	18.1	10.3
LnGrp LOS	D	C	C	F	C	D	D	C	B	D	B	B
Approach Vol, veh/h		280			533			1750			1414	
Approach Delay, s/veh		36.3			53.3			25.5			19.9	
Approach LOS		D			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	48.0	11.0	16.7	9.7	48.4	9.2	18.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	44.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.2	36.6	8.1	7.6	5.4	25.8	4.7	13.9				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.8	0.0	16.3	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			28.0									
HCM 2010 LOS			C									

























HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	74	77	50	67	102	62	34	1402	27	35	1201	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	85	89	57	89	136	83	40	1630	31	42	1430	94
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	58	379	75	70	379	97	1862	35	101	1861	833
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.05	0.52	0.52	0.06	0.53	0.53
Sat Flow, veh/h	0	243	1583	0	294	1583	1774	3553	67	1774	3539	1583
Grp Volume(v), veh/h	174	0	57	225	0	83	40	811	850	42	1430	94
Grp Sat Flow(s),veh/h/ln	243	0	1583	294	0	1583	1774	1770	1851	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	1.9	0.0	0.0	2.8	1.5	26.9	27.0	1.5	21.5	2.0
Cycle Q Clear(g_c), s	16.0	0.0	1.9	16.0	0.0	2.8	1.5	26.9	27.0	1.5	21.5	2.0
Prop In Lane	0.49		1.00	0.40		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	138	0	379	146	0	379	97	927	970	101	1861	833
V/C Ratio(X)	1.26	0.00	0.15	1.55	0.00	0.22	0.41	0.87	0.88	0.42	0.77	0.11
Avail Cap(c_a), veh/h	138	0	379	146	0	379	186	927	970	186	1861	833
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	20.0	26.3	0.0	20.4	30.5	14.0	14.0	30.4	12.6	8.0
Incr Delay (d2), s/veh	161.5	0.0	0.2	276.7	0.0	0.3	2.8	11.2	11.0	2.7	3.1	0.3
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	8.7	0.0	0.8	13.8	0.0	1.2	0.8	15.7	16.4	0.8	11.1	0.9
LnGrp Delay(d),s/veh	188.6	0.0	20.2	302.9	0.0	20.7	33.3	25.2	25.0	33.2	15.7	8.3
LnGrp LOS	F		C	F		C	C	C	C	C	B	A
Approach Vol, veh/h		231			308			1701			1566	
Approach Delay, s/veh		147.0			226.9			25.3			15.7	
Approach LOS		F			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.0		20.0	7.7	39.1		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	35.0		16.0	7.0	35.0		16.0				
Max Q Clear Time (g_c+1), s	3.5	29.0		18.0	3.5	23.5		18.0				
Green Ext Time (p_c), s	0.0	5.7		0.0	0.0	10.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			45.1									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
4: Indian St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	333	138	49	412	92	103	330	32	59	408	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	59	392	162	64	542	121	130	418	41	68	469	60
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	567	482	134	574	488	180	920	90	139	819	104
Arrive On Green	0.07	0.30	0.30	0.08	0.31	0.31	0.10	0.28	0.28	0.08	0.26	0.26
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3258	318	1774	3159	402
Grp Volume(v), veh/h	59	392	162	64	542	121	130	226	233	68	262	267
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1807	1774	1770	1792
Q Serve(g_s), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Cycle Q Clear(g_c), s	2.0	11.4	4.9	2.1	17.5	3.5	4.4	6.5	6.6	2.3	7.9	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		0.22
Lane Grp Cap(c), veh/h	128	567	482	134	574	488	180	500	510	139	459	465
V/C Ratio(X)	0.46	0.69	0.34	0.48	0.94	0.25	0.72	0.45	0.46	0.49	0.57	0.58
Avail Cap(c_a), veh/h	201	574	488	201	574	488	201	500	510	201	459	465
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	18.9	16.6	27.3	20.8	16.0	26.9	18.2	18.2	27.3	19.9	19.9
Incr Delay (d2), s/veh	2.6	3.5	0.4	2.6	24.6	0.3	10.8	2.9	2.9	2.7	5.1	5.1
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	6.4	2.2	1.1	12.8	1.6	2.7	3.5	3.6	1.2	4.5	4.6
LnGrp Delay(d),s/veh	30.0	22.4	17.0	30.0	45.5	16.3	37.6	21.2	21.2	29.9	24.9	25.0
LnGrp LOS	C	C	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		613			727			589			597	
Approach Delay, s/veh		21.7			39.3			24.8			25.5	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	21.4	8.7	22.8	10.2	20.0	8.5	23.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	4.3	8.6	4.1	13.4	6.4	10.0	4.0	19.5				
Green Ext Time (p_c), s	0.0	3.4	0.0	3.0	0.0	2.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.4									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	91	207	75	104	248	205	79	1175	74	163	1084	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	114	259	94	141	335	277	96	1433	90	194	1290	117
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.74	0.74	0.74	0.82	0.82	0.82	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	331	281	158	352	299	125	1573	704	197	1716	768
Arrive On Green	0.08	0.18	0.18	0.09	0.19	0.19	0.07	0.44	0.44	0.11	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	114	259	94	141	335	277	96	1433	90	194	1290	117
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	12.0	4.7	7.1	16.0	15.5	4.8	34.0	3.0	9.8	26.6	3.7
Cycle Q Clear(g_c), s	5.7	12.0	4.7	7.1	16.0	15.5	4.8	34.0	3.0	9.8	26.6	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	331	281	158	352	299	125	1573	704	197	1716	768
V/C Ratio(X)	0.83	0.78	0.33	0.89	0.95	0.93	0.77	0.91	0.13	0.98	0.75	0.15
Avail Cap(c_a), veh/h	138	331	281	158	352	299	138	1573	704	197	1716	768
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	35.3	32.3	40.6	36.1	35.9	41.1	23.3	14.7	39.9	18.8	12.9
Incr Delay (d2), s/veh	32.0	11.5	0.7	42.5	35.5	33.3	20.5	9.5	0.4	59.3	3.1	0.4
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	4.0	7.2	2.1	5.3	11.7	9.5	3.1	18.6	1.4	8.0	13.6	1.7
LnGrp Delay(d),s/veh	72.9	46.8	33.0	83.1	71.6	69.2	61.6	32.8	15.1	99.3	21.9	13.3
LnGrp LOS	E	D	C	F	E	E	E	C	B	F	C	B
Approach Vol, veh/h		467			753			1619			1601	
Approach Delay, s/veh		50.4			72.9			33.5			30.6	
Approach LOS		D			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	44.0	12.0	20.0	10.4	47.6	11.0	21.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	10.0	40.0	8.0	16.0	7.0	43.0	7.0	17.0				
Max Q Clear Time (g_c+I1), s	11.8	36.0	9.1	14.0	6.8	28.6	7.7	18.0				
Green Ext Time (p_c), s	0.0	3.8	0.0	1.0	0.0	12.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			40.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	263	79	47	365	142	109	347	30	34	281	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	148	370	111	69	537	209	127	403	35	47	385	62
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.71	0.71	0.71	0.68	0.68	0.68	0.86	0.86	0.86	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	647	550	133	595	505	166	931	81	107	763	122
Arrive On Green	0.10	0.35	0.35	0.07	0.32	0.32	0.09	0.28	0.28	0.06	0.25	0.25
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3297	285	1774	3058	489
Grp Volume(v), veh/h	148	370	111	69	537	209	127	215	223	47	222	225
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1812	1774	1770	1777
Q Serve(g_s), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Cycle Q Clear(g_c), s	5.6	11.0	3.4	2.5	18.8	7.1	4.8	6.8	6.8	1.7	7.3	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.27
Lane Grp Cap(c), veh/h	182	647	550	133	595	505	166	500	512	107	442	443
V/C Ratio(X)	0.81	0.57	0.20	0.52	0.90	0.41	0.77	0.43	0.43	0.44	0.50	0.51
Avail Cap(c_a), veh/h	182	647	550	182	629	535	182	500	512	182	442	443
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	18.1	15.6	30.3	22.2	18.2	30.1	20.0	20.0	30.9	21.9	22.0
Incr Delay (d2), s/veh	23.5	1.2	0.2	3.1	15.9	0.5	16.1	2.7	2.7	2.8	4.0	4.1
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	3.9	5.9	1.5	1.4	12.2	3.1	3.1	3.7	3.8	0.9	4.1	4.1
LnGrp Delay(d),s/veh	53.4	19.3	15.8	33.4	38.1	18.7	46.3	22.7	22.7	33.7	26.0	26.1
LnGrp LOS	D	B	B	C	D	B	D	C	C	C	C	C
Approach Vol, veh/h		629			815			565			494	
Approach Delay, s/veh		26.7			32.7			28.0			26.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	23.2	9.1	27.6	10.4	21.0	11.0	25.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	23.0	7.0	17.0	7.0	23.0				
Max Q Clear Time (g_c+1), s	3.7	8.8	4.5	13.0	6.8	9.4	7.6	20.8				
Green Ext Time (p_c), s	0.0	3.1	0.0	4.5	0.0	3.0	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			29.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 8: Perris Blvd & Bay Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	52	88	44	63	104	61	1193	60	98	1068	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	122	70	119	52	74	122	66	1283	65	121	1319	102
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.74	0.74	0.74	0.85	0.85	0.85	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	115	196	114	100	165	130	1453	74	163	1567	701
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.07	0.42	0.42	0.09	0.44	0.44
Sat Flow, veh/h	1774	621	1056	1774	634	1045	1774	3428	173	1774	3539	1583
Grp Volume(v), veh/h	122	0	189	52	0	196	66	661	687	121	1319	102
Grp Sat Flow(s),veh/h/ln	1774	0	1676	1774	0	1678	1774	1770	1832	1774	1770	1583
Q Serve(g_s), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Cycle Q Clear(g_c), s	4.6	0.0	7.1	1.9	0.0	7.6	2.5	23.5	23.6	4.5	22.6	2.6
Prop In Lane	1.00		0.63	1.00		0.62	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	164	0	312	114	0	265	130	750	777	163	1567	701
V/C Ratio(X)	0.75	0.00	0.61	0.46	0.00	0.74	0.51	0.88	0.88	0.74	0.84	0.15
Avail Cap(c_a), veh/h	182	0	392	182	0	393	182	750	777	182	1567	701
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	25.5	30.9	0.0	27.5	30.5	18.1	18.2	30.3	16.9	11.4
Incr Delay (d2), s/veh	14.0	0.0	1.9	2.8	0.0	4.0	3.1	14.1	13.9	13.5	5.7	0.4
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	2.9	0.0	3.4	1.0	0.0	3.8	1.3	14.3	14.8	2.8	12.2	1.2
LnGrp Delay(d),s/veh	44.2	0.0	27.4	33.7	0.0	31.5	33.6	32.3	32.1	43.7	22.6	11.8
LnGrp LOS	D		C	C		C	C	C	C	D	C	B
Approach Vol, veh/h		311			248			1414			1542	
Approach Delay, s/veh		34.0			32.0			32.2			23.5	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	33.0	8.4	16.7	9.0	34.3	10.3	14.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	6.5	25.6	3.9	9.1	4.5	24.6	6.6	9.6				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.3	0.0	4.1	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

HCM 2010 Signalized Intersection Summary

9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	206	458	100	205	891	245	267	917	211	239	684	239
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	251	559	122	241	1048	288	284	976	224	285	814	285
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	861	385	325	993	273	322	1018	455	310	995	445
Arrive On Green	0.09	0.24	0.24	0.09	0.25	0.25	0.18	0.29	0.29	0.17	0.28	0.28
Sat Flow, veh/h	3442	3539	1583	3442	3970	1090	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	251	559	122	241	895	441	284	976	224	285	814	285
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1670	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Cycle Q Clear(g_c), s	5.7	11.4	5.1	5.5	20.0	20.0	12.5	21.7	9.4	12.6	17.2	12.6
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	861	385	325	848	418	322	1018	455	310	995	445
V/C Ratio(X)	0.83	0.65	0.32	0.74	1.06	1.06	0.88	0.96	0.49	0.92	0.82	0.64
Avail Cap(c_a), veh/h	301	861	385	387	848	418	333	1018	455	310	995	445
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	27.2	24.8	35.3	30.0	30.0	31.9	28.0	23.7	32.4	26.8	25.2
Incr Delay (d2), s/veh	17.9	1.7	0.5	6.2	46.7	59.7	22.7	19.9	3.8	30.8	7.5	6.9
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	3.5	5.7	2.2	2.9	14.8	16.1	8.1	13.4	4.6	8.8	9.4	6.4
LnGrp Delay(d),s/veh	53.8	28.9	25.3	41.5	76.7	89.7	54.6	48.0	27.4	63.3	34.3	32.1
LnGrp LOS	D	C	C	D	F	F	D	D	C	E	C	C
Approach Vol, veh/h		932			1577			1484			1384	
Approach Delay, s/veh		35.1			75.0			46.1			39.8	
Approach LOS		D			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	27.0	11.5	23.5	18.5	26.5	11.0	24.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	23.0	9.0	18.0	15.0	22.0	7.0	20.0				
Max Q Clear Time (g_c+l1), s	14.6	23.7	7.5	13.4	14.5	19.2	7.7	22.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	3.8	0.0	2.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			51.1									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	2	41	2	1	18	38	1489	4	14	1277	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	68	68	68	87	87	87	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	3	61	3	1	26	48	1883	5	16	1451	23
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2532	3478	737	2740	3487	944	1474	0	0	1888	0	0
Stage 1	1494	1494	-	1981	1981	-	-	-	-	-	-	-
Stage 2	1038	1984	-	759	1506	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	6	361	9	6	263	453	-	-	313	-	-
Stage 1	129	185	-	63	106	-	-	-	-	-	-	-
Stage 2	247	105	-	365	182	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 11	5	361	6	5	263	453	-	-	313	-	-
Mov Cap-2 Maneuver	69	51	-	43	52	-	-	-	-	-	-	-
Stage 1	115	176	-	56	95	-	-	-	-	-	-	-
Stage 2	196	94	-	283	173	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	47.8			33.5			0.3			0.2		
HCM LOS	E			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	453	-	-	164	157	313	-	-				
HCM Lane V/C Ratio	0.106	-	-	0.51	0.197	0.051	-	-				
HCM Control Delay (s)	13.9	-	-	47.8	33.5	17.1	-	-				
HCM Lane LOS	B	-	-	E	D	C	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	2.5	0.7	0.2	-	-				
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	350	13	36	476	19	30	11	42	34	12	15
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	70	70	70	67	67	67	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	455	17	51	680	27	45	16	63	53	19	23
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	680	0	0	455	0	0	1285	1264	455	1303	1264	680
Stage 1	-	-	-	-	-	-	481	481	-	783	783	-
Stage 2	-	-	-	-	-	-	804	783	-	520	481	-
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	912	-	-	1106	-	-	142	169	605	138	169	451
Stage 1	-	-	-	-	-	-	566	554	-	387	404	-
Stage 2	-	-	-	-	-	-	377	404	-	539	554	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	912	-	-	1106	-	-	117	159	605	109	159	451
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	159	-	109	159	-
Stage 1	-	-	-	-	-	-	558	546	-	381	385	-
Stage 2	-	-	-	-	-	-	324	385	-	462	546	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			44.2			68		
HCM LOS	E			E			E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	210	912	-	-	1106	-	-	145				
HCM Lane V/C Ratio	0.59	0.014	-	-	0.046	-	-	0.657				
HCM Control Delay (s)	44.2	9	-	-	8.4	-	-	68				
HCM Lane LOS	E	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	3.3	0	-	-	0.1	-	-	3.6				

HCM 2010 TWSC

10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	23	353	528	10	13	47
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	75	75	78	78	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	471	677	13	14	51

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	690	0	683
Stage 1	-	-	683
Stage 2	-	-	532
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	905	-	449
Stage 1	-	-	502
Stage 2	-	-	589
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	905	-	449
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	502
Stage 2	-	-	562

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	905	-	-	-	347
HCM Lane V/C Ratio	0.034	-	-	-	0.188
HCM Control Delay (s)	9.1	0	-	-	17.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

HCM 2010 TWSC
11: Perris Blvd & Driveway

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	11	0	0	34	14	1428	64	0	1331	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	0	0	37	16	1680	75	0	1566	4

























Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2441	3356	785	2534	3320	878	1569	0	0	1755	0	0
Stage 1	1568	1568	-	1751	1751	-	-	-	-	-	-	-
Stage 2	873	1788	-	783	1569	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	16	8	336	14	8	291	417	-	-	353	-	-
Stage 1	116	170	-	89	138	-	-	-	-	-	-	-
Stage 2	311	132	-	353	170	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	14	8	336	13	8	291	417	-	-	353	-	-
Mov Cap-2 Maneuver	14	8	-	13	8	-	-	-	-	-	-	-
Stage 1	112	170	-	86	133	-	-	-	-	-	-	-
Stage 2	261	127	-	334	170	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	19.2	0.1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	417	-	-	336	291	353	-
HCM Lane V/C Ratio	0.039	-	-	0.053	0.127	-	-
HCM Control Delay (s)	14	-	-	16.3	19.2	0	-
HCM Lane LOS	B	-	-	C	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.4	0	-

HCM 2010 Signalized Intersection Summary























1: Perris Blvd & Eucalyptus Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	199	76	69	131	95	68	1280	89	121	1630	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.70	0.70	0.70	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	124	293	249	131	302	256	118	1743	780	157	1821	815
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16	0.07	0.49	0.49	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	80	234	89	99	187	136	71	1333	93	126	1698	78
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Cycle Q Clear(g_c), s	3.8	10.3	4.3	4.7	8.0	6.7	3.3	26.2	2.7	6.0	38.3	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	293	249	131	302	256	118	1743	780	157	1821	815
V/C Ratio(X)	0.65	0.80	0.36	0.75	0.62	0.53	0.60	0.76	0.12	0.80	0.93	0.10
Avail Cap(c_a), veh/h	145	349	296	145	349	296	145	1743	780	187	1821	815
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	34.7	32.2	38.8	33.4	32.8	38.8	17.7	11.7	38.2	19.4	10.6
Incr Delay (d2), s/veh	7.6	10.5	0.9	18.0	2.6	1.7	4.8	3.3	0.3	18.6	10.2	0.2
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	2.1	6.2	1.9	2.9	4.3	3.1	1.8	13.6	1.2	3.7	21.2	1.0
LnGrp Delay(d),s/veh	46.3	45.2	33.0	56.8	36.0	34.5	43.6	20.9	12.0	56.9	29.6	10.8
LnGrp LOS	D	D	C	E	D	C	D	C	B	E	C	B
Approach Vol, veh/h		403			422			1497			1902	
Approach Delay, s/veh		42.7			40.4			21.4			30.6	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	46.1	10.3	17.5	9.7	48.0	10.0	17.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	42.0	7.0	16.0	7.0	44.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	8.0	28.2	6.7	12.3	5.3	40.3	5.8	10.0				
Green Ext Time (p_c), s	0.0	12.9	0.0	1.1	0.0	3.6	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 3: Perris Blvd & Dracaea Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	102	28	32	94	64	16	1340	47	79	1586	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	72	115	31	36	106	72	17	1396	49	81	1635	92
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	92	400	71	157	400	51	1653	58	149	1873	838
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.47	0.47	0.08	0.53	0.53
Sat Flow, veh/h	0	364	1583	0	619	1583	1774	3488	122	1774	3539	1583
Grp Volume(v), veh/h	187	0	31	142	0	72	17	707	738	81	1635	92
Grp Sat Flow(s),veh/h/ln	364	0	1583	619	0	1583	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.9	0.0	0.0	2.3	0.6	22.2	22.3	2.8	25.6	1.8
Cycle Q Clear(g_c), s	16.0	0.0	0.9	16.0	0.0	2.3	0.6	22.2	22.3	2.8	25.6	1.8
Prop In Lane	0.39		1.00	0.25		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	400	228	0	400	51	838	872	149	1873	838
V/C Ratio(X)	1.09	0.00	0.08	0.62	0.00	0.18	0.34	0.84	0.85	0.54	0.87	0.11
Avail Cap(c_a), veh/h	171	0	400	228	0	400	196	838	872	196	1873	838
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	18.0	20.0	0.0	18.5	30.2	14.6	14.6	27.8	13.0	7.4
Incr Delay (d2), s/veh	96.5	0.0	0.1	5.2	0.0	0.2	3.8	10.1	9.9	3.1	6.0	0.3
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	7.5	0.0	0.4	2.3	0.0	1.0	0.3	13.0	13.7	1.5	13.8	0.9
LnGrp Delay(d),s/veh	120.4	0.0	18.1	25.2	0.0	18.7	34.0	24.7	24.5	30.9	19.0	7.7
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		218			214			1462			1808	
Approach Delay, s/veh		105.8			23.0			24.7			19.0	
Approach LOS		F			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	34.0		20.0	5.8	37.5		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	30.0		16.0	7.0	30.0		16.0				
Max Q Clear Time (g_c+1), s	4.8	24.3		18.0	2.6	27.6		18.0				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.0	2.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			26.6									
HCM 2010 LOS			C									

























HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	384	162	45	303	41	88	438	60	31	374	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	452	191	55	370	50	106	528	72	33	394	49
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.82	0.82	0.82	0.83	0.83	0.83	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	544	463	125	546	464	173	996	135	88	856	106
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.10	0.32	0.32	0.05	0.27	0.27
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3132	426	1774	3171	392
Grp Volume(v), veh/h	54	452	191	55	370	50	106	298	302	33	219	224
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1788	1774	1770	1794
Q Serve(g_s), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Cycle Q Clear(g_c), s	1.7	13.4	5.8	1.8	10.4	1.4	3.4	8.2	8.2	1.1	6.1	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.22
Lane Grp Cap(c), veh/h	123	544	463	125	546	464	173	563	568	88	478	484
V/C Ratio(X)	0.44	0.83	0.41	0.44	0.68	0.11	0.61	0.53	0.53	0.38	0.46	0.46
Avail Cap(c_a), veh/h	210	597	508	210	597	508	210	563	568	210	478	484
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	19.6	16.9	26.4	18.5	15.3	25.7	16.6	16.6	27.3	18.0	18.1
Incr Delay (d2), s/veh	2.4	9.0	0.6	2.4	2.7	0.1	3.6	3.5	3.5	2.6	3.1	3.2
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	0.9	8.3	2.6	0.9	5.8	0.6	1.8	4.5	4.6	0.6	3.4	3.5
LnGrp Delay(d),s/veh	28.9	28.6	17.5	28.9	21.2	15.4	29.3	20.1	20.1	29.9	21.2	21.2
LnGrp LOS	C	C	B	C	C	B	C	C	C	C	C	C
Approach Vol, veh/h		697			475			706			476	
Approach Delay, s/veh		25.5			21.5			21.5			21.8	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	22.8	8.2	21.3	9.8	20.0	8.1	21.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+l1), s	3.1	10.2	3.8	15.4	5.4	8.2	3.7	12.4				
Green Ext Time (p_c), s	0.0	2.9	0.0	1.9	0.0	3.7	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			22.8									
HCM 2010 LOS			C									






















HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	107	245	72	85	173	112	74	1244	59	221	1360	131
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	126	288	85	109	222	144	79	1323	63	235	1447	139
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.78	0.78	0.78	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	335	285	137	315	268	120	1474	659	260	1753	784
Arrive On Green	0.09	0.18	0.18	0.08	0.17	0.17	0.07	0.42	0.42	0.15	0.50	0.50
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	126	288	85	109	222	144	79	1323	63	235	1447	139
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.2	13.3	4.1	5.4	10.0	7.4	3.9	30.9	2.1	11.6	31.0	4.3
Cycle Q Clear(g_c), s	6.2	13.3	4.1	5.4	10.0	7.4	3.9	30.9	2.1	11.6	31.0	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	335	285	137	315	268	120	1474	659	260	1753	784
V/C Ratio(X)	0.81	0.86	0.30	0.79	0.71	0.54	0.66	0.90	0.10	0.91	0.83	0.18
Avail Cap(c_a), veh/h	160	356	303	140	335	285	140	1474	659	260	1753	784
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	35.3	31.6	40.3	34.8	33.7	40.4	24.2	15.8	37.3	19.1	12.4
Incr Delay (d2), s/veh	24.9	17.9	0.6	26.0	6.1	1.7	8.7	9.0	0.3	32.2	4.6	0.5
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	4.1	8.5	1.9	3.6	5.7	3.4	2.2	16.9	1.0	8.0	16.2	2.0
LnGrp Delay(d),s/veh	64.7	53.3	32.2	66.3	41.0	35.5	49.2	33.1	16.0	69.5	23.7	12.9
LnGrp LOS	E	D	C	E	D	D	D	C	B	E	C	B
Approach Vol, veh/h		499			475			1465			1821	
Approach Delay, s/veh		52.6			45.1			33.2			28.8	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	41.0	10.9	20.0	10.0	48.0	11.8	19.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	37.0	7.0	17.0	7.0	43.0	8.0	16.0				
Max Q Clear Time (g_c+l1), s	13.6	32.9	7.4	15.3	5.9	33.0	8.2	12.0				
Green Ext Time (p_c), s	0.0	3.9	0.0	0.7	0.0	9.2	0.0	1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			34.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	264	57	31	235	43	31	355	19	39	322	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	326	70	34	255	47	35	403	22	41	339	21
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.92	0.92	0.92	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	461	392	93	491	417	96	1091	59	108	1105	68
Arrive On Green	0.04	0.25	0.25	0.05	0.26	0.26	0.05	0.32	0.32	0.06	0.33	0.33
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3414	186	1774	3387	209
Grp Volume(v), veh/h	22	326	70	34	255	47	35	208	217	41	176	184
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1830	1774	1770	1826
Q Serve(g_s), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Cycle Q Clear(g_c), s	0.6	8.0	1.7	0.9	5.9	1.1	1.0	4.5	4.6	1.1	3.7	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	65	461	392	93	491	417	96	565	585	108	578	596
V/C Ratio(X)	0.34	0.71	0.18	0.36	0.52	0.11	0.37	0.37	0.37	0.38	0.31	0.31
Avail Cap(c_a), veh/h	248	707	601	248	707	601	248	565	585	248	578	596
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	17.2	14.8	22.9	15.7	14.0	22.9	13.1	13.2	22.6	12.6	12.6
Incr Delay (d2), s/veh	3.0	2.0	0.2	2.4	0.9	0.1	2.3	1.8	1.8	2.2	1.4	1.3
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	0.3	4.3	0.8	0.5	3.1	0.5	0.5	2.5	2.6	0.6	2.0	2.1
LnGrp Delay(d),s/veh	26.5	19.2	15.0	25.3	16.6	14.1	25.2	15.0	15.0	24.8	14.0	14.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		418			336			460			401	
Approach Delay, s/veh		18.9			17.1			15.7			15.1	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	20.0	6.6	16.4	6.7	20.3	5.8	17.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	3.1	6.6	2.9	10.0	3.0	5.8	2.6	7.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.4	0.0	3.2	0.0	2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			16.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	52	44	21	44	47	45	1313	55	76	1414	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	30	59	50	25	52	56	48	1397	59	82	1520	34
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	104	88	69	87	94	111	1803	76	147	1917	858
Arrive On Green	0.04	0.11	0.11	0.04	0.11	0.11	0.06	0.52	0.52	0.08	0.54	0.54
Sat Flow, veh/h	1774	933	790	1774	822	885	1774	3461	146	1774	3539	1583
Grp Volume(v), veh/h	30	0	109	25	0	108	48	713	743	82	1520	34
Grp Sat Flow(s),veh/h/ln	1774	0	1723	1774	0	1707	1774	1770	1837	1774	1770	1583
Q Serve(g_s), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Cycle Q Clear(g_c), s	1.1	0.0	3.9	0.9	0.0	3.9	1.7	21.1	21.2	2.9	22.5	0.7
Prop In Lane	1.00		0.46	1.00		0.52	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	80	0	193	69	0	181	111	922	957	147	1917	858
V/C Ratio(X)	0.38	0.00	0.57	0.36	0.00	0.60	0.43	0.77	0.78	0.56	0.79	0.04
Avail Cap(c_a), veh/h	190	0	422	190	0	418	190	922	957	190	1917	858
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	27.5	30.6	0.0	27.8	29.5	12.5	12.6	28.8	12.0	7.0
Incr Delay (d2), s/veh	2.9	0.0	2.6	3.1	0.0	3.1	2.7	6.3	6.1	3.3	3.5	0.1
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	0.6	0.0	2.0	0.5	0.0	2.0	0.9	11.7	12.2	1.5	11.7	0.3
LnGrp Delay(d),s/veh	33.2	0.0	30.1	33.7	0.0	31.0	32.2	18.8	18.7	32.0	15.5	7.1
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		139			133			1504			1636	
Approach Delay, s/veh		30.7			31.5			19.2			16.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	38.0	6.6	11.3	8.1	39.3	6.9	10.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	34.0	7.0	16.0	7.0	34.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.9	23.2	2.9	5.9	3.7	24.5	3.1	5.9				
Green Ext Time (p_c), s	0.0	10.0	0.0	0.8	0.0	8.8	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 9: Perris Blvd & Alessandro Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	508	1029	305	260	658	218	270	792	193	310	955	162
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	540	1095	324	302	765	253	297	870	212	341	1049	178
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	563	1062	475	313	862	282	290	933	417	355	1062	475
Arrive On Green	0.16	0.30	0.30	0.09	0.23	0.23	0.16	0.26	0.26	0.20	0.30	0.30
Sat Flow, veh/h	3442	3539	1583	3442	3792	1242	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	540	1095	324	302	683	335	297	870	212	341	1049	178
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1644	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	17.1	33.0	19.8	9.6	21.5	21.7	18.0	26.4	12.5	20.9	32.4	9.8
Cycle Q Clear(g_c), s	17.1	33.0	19.8	9.6	21.5	21.7	18.0	26.4	12.5	20.9	32.4	9.8
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	563	1062	475	313	770	374	290	933	417	355	1062	475
V/C Ratio(X)	0.96	1.03	0.68	0.97	0.89	0.90	1.02	0.93	0.51	0.96	0.99	0.37
Avail Cap(c_a), veh/h	563	1062	475	313	770	374	290	933	417	355	1062	475
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	38.5	33.9	49.8	41.1	41.2	46.0	39.5	34.4	43.6	38.3	30.4
Incr Delay (d2), s/veh	27.8	36.0	4.0	41.4	12.1	23.3	58.9	17.1	4.4	37.5	24.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	21.4	9.2	6.4	11.4	12.3	13.5	15.1	6.0	13.9	19.5	4.5
LnGrp Delay(d),s/veh	73.5	74.5	37.9	91.2	53.3	64.5	104.9	56.6	38.8	81.0	63.2	32.6
LnGrp LOS	E	F	D	F	D	E	F	E	D	F	E	C
Approach Vol, veh/h		1959			1320			1379			1568	
Approach Delay, s/veh		68.1			64.8			64.3			63.6	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	33.0	14.0	37.0	22.0	37.0	22.0	29.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	22.0	29.0	10.0	33.0	18.0	33.0	18.0	25.0				
Max Q Clear Time (g_c+l1), s	22.9	28.4	11.6	35.0	20.0	34.4	19.1	23.7				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			65.4									
HCM 2010 LOS			E									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	3	40	2	1	12	40	1423	2	47	1696	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	97	97	97	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	4	51	3	2	21	45	1614	2	48	1731	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2736	3545	877	2669	3555	808	1753	0	0	1616	0	0
Stage 1	1838	1838	-	1706	1706	-	-	-	-	-	-	-
Stage 2	898	1707	-	963	1849	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 10	6	292	11	6	324	353	-	-	399	-	-
Stage 1	78	125	-	95	145	-	-	-	-	-	-	-
Stage 2	301	145	-	274	123	-	-	-	-	-	-	-
Platoon blocked, %							-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 7	5	292	7	5	324	353	-	-	399	-	-
Mov Cap-2 Maneuver	48	44	-	51	40	-	-	-	-	-	-	-
Stage 1	68	110	-	83	127	-	-	-	-	-	-	-
Stage 2	243	127	-	192	108	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	85.3	34.4	0.5	0.4
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	353	-	-	112	148	399	-
HCM Lane V/C Ratio	0.129	-	-	0.664	0.175	0.12	-
HCM Control Delay (s)	16.7	-	-	85.3	34.4	15.3	-
HCM Lane LOS	C	-	-	F	D	C	-
HCM 95th %tile Q(veh)	0.4	-	-	3.4	0.6	0.4	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
6: Crape Myrtle Dr & Cottonwood Ave

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	383	55	15	257	9	31	6	9	7	2	11
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	88	88	88	60	60	60	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	391	56	17	292	10	52	10	15	9	3	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	292	0	0	391	0	0	763	754	391	766	754	292
Stage 1	-	-	-	-	-	-	428	428	-	326	326	-
Stage 2	-	-	-	-	-	-	335	326	-	440	428	-
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	1270	-	-	1168	-	-	321	338	658	320	338	747
Stage 1	-	-	-	-	-	-	605	585	-	687	648	-
Stage 2	-	-	-	-	-	-	679	648	-	596	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1270	-	-	1168	-	-	306	328	658	299	328	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	328	-	299	328	-
Stage 1	-	-	-	-	-	-	596	577	-	677	639	-
Stage 2	-	-	-	-	-	-	653	639	-	564	577	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	18.4	13.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	345	1270	-	-	1168	-	-	452
HCM Lane V/C Ratio	0.222	0.014	-	-	0.015	-	-	0.059
HCM Control Delay (s)	18.4	7.9	-	-	8.1	-	-	13.5
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.2

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	28	455	312	11	14	55
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	91	91	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	500	385	14	15	60

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	399	0	954
Stage 1	-	-	392
Stage 2	-	-	562
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1160	-	287
Stage 1	-	-	683
Stage 2	-	-	571
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1160	-	276
Mov Cap-2 Maneuver	-	-	276
Stage 1	-	-	683
Stage 2	-	-	550

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1160	-	-	-	513
HCM Lane V/C Ratio	0.027	-	-	-	0.146
HCM Control Delay (s)	8.2	0	-	-	13.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	24.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	0	74	0	0	40	54	1369	73	0	1628	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	92	92	92	95	95	95	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	103	0	0	43	57	1441	77	0	1751	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2605	3403	896	2468	3384	759	1791	0	0	1518	0	0
Stage 1	1771	1771	-	1593	1593	-	-	-	-	-	-	-
Stage 2	834	1632	-	875	1791	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 12	7	283	15	7	349	342	-	-	436	-	-
Stage 1	86	135	-	112	165	-	-	-	-	-	-	-
Stage 2	329	158	-	310	132	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 9	6	283	8	6	349	342	-	-	436	-	-
Mov Cap-2 Maneuver	~ 9	6	-	8	6	-	-	-	-	-	-	-
Stage 1	72	135	-	93	138	-	-	-	-	-	-	-
Stage 2	240	132	-	197	132	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 719.5	16.8	0.6	0
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	342	-	-	54 349	436	-	-
HCM Lane V/C Ratio	0.166	-	-	2.212 0.125	-	-	-
HCM Control Delay (s)	17.6	-	-	\$ 719.5 16.8	0	-	-
HCM Lane LOS	C	-	-	F C	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	11.9 0.4	0	-	-

Notes






















-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary

























1: Perris Blvd & Eucalyptus Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	101	41	52	81	84	58	1186	56	71	1134	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.91	0.91	0.91	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
Arrive On Green	0.08	0.12	0.12	0.07	0.11	0.11	0.08	0.47	0.47	0.08	0.48	0.48
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	70	112	46	63	98	101	64	1303	62	79	1260	64
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Cycle Q Clear(g_c), s	2.3	3.5	1.6	2.1	3.1	3.8	2.1	19.3	1.3	2.7	18.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	218	185	133	210	178	134	1652	739	149	1683	753
V/C Ratio(X)	0.50	0.51	0.25	0.48	0.47	0.57	0.48	0.79	0.08	0.53	0.75	0.09
Avail Cap(c_a), veh/h	200	480	408	200	480	408	200	1652	739	200	1683	753
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	25.8	24.9	27.6	25.8	26.1	27.5	14.0	9.2	27.3	13.3	8.9
Incr Delay (d2), s/veh	2.7	1.9	0.7	2.6	1.6	2.8	2.6	3.9	0.2	2.9	3.1	0.2
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	1.3	1.9	0.7	1.1	1.7	1.8	1.1	10.1	0.6	1.4	9.5	0.6
LnGrp Delay(d),s/veh	30.2	27.6	25.6	30.2	27.4	28.9	30.2	17.9	9.4	30.2	16.4	9.1
LnGrp LOS	C	C	C	C	C	C	C	B	A	C	B	A
Approach Vol, veh/h		228			262			1429			1403	
Approach Delay, s/veh		28.0			28.7			18.1			16.8	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	33.0	8.6	11.3	8.7	33.5	8.9	11.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	16.0	7.0	29.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.7	21.3	4.1	5.5	4.1	20.0	4.3	5.8				
Green Ext Time (p_c), s	0.0	7.0	0.0	1.1	0.0	8.1	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			19.1									
HCM 2010 LOS			B									

























HCM 2010 Signalized Intersection Summary
 3: Perris Blvd & Dracaea Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	78	91	28	39	65	63	26	1165	27	29	1120	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	90	105	32	45	75	72	31	1387	32	34	1302	66
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	77	453	89	109	453	85	1582	36	91	1596	714
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	0	270	1583	0	379	1583	1774	3536	82	1774	3539	1583
Grp Volume(v), veh/h	195	0	32	120	0	72	31	693	726	34	1302	66
Grp Sat Flow(s),veh/h/ln	270	0	1583	379	0	1583	1774	1770	1848	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	1.9	0.9	19.9	19.9	1.0	17.9	1.3
Cycle Q Clear(g_c), s	16.0	0.0	0.8	16.0	0.0	1.9	0.9	19.9	19.9	1.0	17.9	1.3
Prop In Lane	0.46		1.00	0.37		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	453	197	0	453	85	792	827	91	1596	714
V/C Ratio(X)	1.14	0.00	0.07	0.61	0.00	0.16	0.37	0.88	0.88	0.37	0.82	0.09
Avail Cap(c_a), veh/h	171	0	453	197	0	453	222	792	827	222	1596	714
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	14.5	16.7	0.0	14.9	25.8	14.0	14.0	25.6	13.3	8.8
Incr Delay (d2), s/veh	110.5	0.0	0.1	5.3	0.0	0.2	2.6	13.0	12.7	2.5	4.7	0.3
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	7.8	0.0	0.4	1.7	0.0	0.8	0.5	12.5	13.0	0.6	9.5	0.6
LnGrp Delay(d),s/veh	131.8	0.0	14.6	22.0	0.0	15.1	28.4	27.0	26.7	28.1	18.0	9.0
LnGrp LOS	F		B	C		B	C	C	C	C	B	A
Approach Vol, veh/h		227			192			1450			1402	
Approach Delay, s/veh		115.3			19.4			26.9			17.9	
Approach LOS		F			B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	29.0		20.0	6.7	29.2		20.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		16.0	7.0	25.0		16.0				
Max Q Clear Time (g_c+1), s	3.0	21.9		18.0	2.9	19.9		18.0				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.0	4.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 4: Indian St & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	271	115	49	325	26	97	278	47	22	239	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	23	347	147	58	387	31	100	287	48	24	257	24
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.78	0.78	0.78	0.84	0.84	0.84	0.97	0.97	0.97	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	468	398	131	535	455	173	1084	179	69	975	90
Arrive On Green	0.04	0.25	0.25	0.07	0.29	0.29	0.10	0.36	0.36	0.04	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3041	503	1774	3275	303
Grp Volume(v), veh/h	23	347	147	58	387	31	100	166	169	24	138	143
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1774	1774	1770	1809
Q Serve(g_s), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Cycle Q Clear(g_c), s	0.7	9.8	4.4	1.8	10.7	0.8	3.1	3.8	3.9	0.8	3.4	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.17
Lane Grp Cap(c), veh/h	66	468	398	131	535	455	173	630	632	69	527	538
V/C Ratio(X)	0.35	0.74	0.37	0.44	0.72	0.07	0.58	0.26	0.27	0.35	0.26	0.27
Avail Cap(c_a), veh/h	217	587	499	217	587	499	217	630	632	217	527	538
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	19.7	17.7	25.3	18.3	14.8	24.7	13.1	13.1	26.7	15.3	15.3
Incr Delay (d2), s/veh	3.1	3.8	0.6	2.3	4.0	0.1	3.0	1.0	1.0	3.0	1.2	1.2
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	0.4	5.5	2.0	1.0	6.1	0.4	1.6	2.0	2.1	0.4	1.8	1.9
LnGrp Delay(d),s/veh	29.9	23.5	18.2	27.7	22.3	14.9	27.7	14.1	14.1	29.7	16.5	16.5
LnGrp LOS	C	C	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		517			476			435			305	
Approach Delay, s/veh		22.3			22.5			17.2			17.5	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	24.4	8.2	18.3	9.6	21.0	6.1	20.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	17.0	7.0	18.0	7.0	17.0	7.0	18.0				
Max Q Clear Time (g_c+1), s	2.8	5.9	3.8	11.8	5.1	5.4	2.7	12.7				
Green Ext Time (p_c), s	0.0	2.7	0.0	2.5	0.0	2.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									






















HCM 2010 Signalized Intersection Summary
 5: Perris Blvd & Cottonwood Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	93	158	65	130	200	189	87	1054	75	216	901	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	118	200	82	228	351	332	96	1158	82	248	1036	122
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.79	0.79	0.79	0.57	0.57	0.57	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	314	267	259	431	366	127	1233	552	279	1537	688
Arrive On Green	0.08	0.17	0.17	0.15	0.23	0.23	0.07	0.35	0.35	0.16	0.43	0.43
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	118	200	82	228	351	332	96	1158	82	248	1036	122
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	5.8	8.9	4.0	11.2	15.9	18.1	4.7	28.2	3.2	12.2	20.8	4.2
Cycle Q Clear(g_c), s	5.8	8.9	4.0	11.2	15.9	18.1	4.7	28.2	3.2	12.2	20.8	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	147	314	267	259	431	366	127	1233	552	279	1537	688
V/C Ratio(X)	0.80	0.64	0.31	0.88	0.81	0.91	0.76	0.94	0.15	0.89	0.67	0.18
Avail Cap(c_a), veh/h	160	335	285	259	440	374	199	1233	552	279	1537	688
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	34.5	32.5	37.2	32.4	33.3	40.6	28.1	19.9	36.7	20.1	15.4
Incr Delay (d2), s/veh	23.1	3.6	0.6	27.4	11.1	24.7	8.9	14.7	0.6	27.4	2.4	0.6
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	3.8	4.9	1.8	7.5	9.5	10.4	2.6	16.2	1.5	8.1	10.6	1.9
LnGrp Delay(d),s/veh	63.1	38.1	33.1	64.6	43.5	58.0	49.5	42.7	20.5	64.1	22.5	16.0
LnGrp LOS	E	D	C	E	D	E	D	D	C	E	C	B
Approach Vol, veh/h		400			911			1336			1406	
Approach Delay, s/veh		44.5			54.0			41.9			29.3	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	35.0	17.0	19.0	10.3	42.7	11.4	24.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	31.0	13.0	16.0	10.0	35.0	8.0	21.0				
Max Q Clear Time (g_c+I1), s	14.2	30.2	13.2	10.9	6.7	22.8	7.8	20.1				
Green Ext Time (p_c), s	0.0	0.8	0.0	2.1	0.1	10.0	0.0	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			40.5									
HCM 2010 LOS			D									
























HCM 2010 Signalized Intersection Summary 7: Kitching St & Cottonwood Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	221	64	10	245	31	34	206	15	28	223	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	395	114	15	360	46	40	245	18	32	256	22
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.56	0.56	0.56	0.68	0.68	0.68	0.84	0.84	0.84	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	594	505	46	497	422	104	1028	75	88	984	84
Arrive On Green	0.08	0.32	0.32	0.03	0.27	0.27	0.06	0.31	0.31	0.05	0.30	0.30
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3345	244	1774	3301	282
Grp Volume(v), veh/h	62	395	114	15	360	46	40	129	134	32	136	142
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1820	1774	1770	1813
Q Serve(g_s), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Cycle Q Clear(g_c), s	1.8	9.8	2.8	0.4	9.4	1.2	1.2	2.9	3.0	0.9	3.1	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	140	594	505	46	497	422	104	544	559	88	527	540
V/C Ratio(X)	0.44	0.66	0.23	0.32	0.72	0.11	0.38	0.24	0.24	0.36	0.26	0.26
Avail Cap(c_a), veh/h	231	659	560	231	659	560	231	544	559	231	527	540
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	15.8	13.4	25.7	17.9	14.9	24.3	13.9	13.9	24.7	14.3	14.3
Incr Delay (d2), s/veh	2.2	2.2	0.2	4.0	2.7	0.1	2.3	1.0	1.0	2.5	1.2	1.2
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	1.0	5.4	1.3	0.3	5.2	0.5	0.6	1.6	1.6	0.5	1.7	1.8
LnGrp Delay(d),s/veh	25.8	18.0	13.6	29.6	20.6	15.0	26.7	14.9	14.9	27.2	15.5	15.5
LnGrp LOS	C	B	B	C	C	B	C	B	B	C	B	B
Approach Vol, veh/h		571			421			303			310	
Approach Delay, s/veh		18.0			20.3			16.5			16.7	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	20.5	5.4	21.1	7.1	20.0	8.2	18.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	16.0	7.0	19.0	7.0	16.0	7.0	19.0				
Max Q Clear Time (g_c+1), s	2.9	5.0	2.4	11.8	3.2	5.2	3.8	11.4				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.8	0.0	2.2	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			18.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 8: Perris Blvd & Bay Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	41	30	26	34	66	33	1104	39	67	1068	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	29	48	35	34	44	86	34	1150	41	75	1200	35
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.77	0.77	0.77	0.96	0.96	0.96	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	126	92	92	74	145	92	1539	55	155	1688	755
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.05	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1774	1003	731	1774	565	1103	1774	3486	124	1774	3539	1583
Grp Volume(v), veh/h	29	0	83	34	0	130	34	584	607	75	1200	35
Grp Sat Flow(s),veh/h/ln	1774	0	1734	1774	0	1668	1774	1770	1841	1774	1770	1583
Q Serve(g_s), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Cycle Q Clear(g_c), s	0.9	0.0	2.4	1.0	0.0	4.0	1.0	14.9	15.0	2.2	14.6	0.6
Prop In Lane	1.00		0.42	1.00		0.66	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	217	92	0	219	92	781	812	155	1688	755
V/C Ratio(X)	0.36	0.00	0.38	0.37	0.00	0.59	0.37	0.75	0.75	0.48	0.71	0.05
Avail Cap(c_a), veh/h	228	0	510	228	0	491	228	781	812	228	1688	755
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	21.8	24.9	0.0	22.2	24.9	12.7	12.7	23.6	11.3	7.6
Incr Delay (d2), s/veh	2.7	0.0	1.1	2.5	0.0	2.5	2.5	6.4	6.2	2.3	2.6	0.1
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	1.2	0.6	0.0	2.0	0.6	8.5	8.8	1.2	7.6	0.3
LnGrp Delay(d),s/veh	27.8	0.0	22.9	27.4	0.0	24.8	27.4	19.1	18.9	26.0	13.8	7.7
LnGrp LOS	C		C	C		C	C	B	B	C	B	A
Approach Vol, veh/h		112			164			1225			1310	
Approach Delay, s/veh		24.2			25.3			19.2			14.4	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	28.0	6.8	10.8	6.8	29.9	6.5	11.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	7.0	16.0	7.0	24.0	7.0	16.0				
Max Q Clear Time (g_c+1), s	4.2	17.0	3.0	4.4	3.0	16.6	2.9	6.0				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.8	0.0	6.5	0.0	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			17.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
 9: Perris Blvd & Alessandro Blvd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	375	519	232	239	489	179	308	739	140	211	693	183
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	417	577	258	278	569	208	338	812	154	229	753	199
Adj No. of Lanes	2	2	1	2	3	0	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	765	342	360	720	257	375	1153	516	268	939	420
Arrive On Green	0.13	0.22	0.22	0.10	0.19	0.19	0.21	0.33	0.33	0.15	0.27	0.27
Sat Flow, veh/h	3442	3539	1583	3442	3701	1319	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	417	577	258	278	520	257	338	812	154	229	753	199
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1695	1630	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4
Cycle Q Clear(g_c), s	9.5	12.1	12.1	6.2	11.5	11.9	14.7	15.9	5.7	10.0	15.7	8.4
Prop In Lane	1.00		1.00	1.00		0.81	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	765	342	360	660	317	375	1153	516	268	939	420
V/C Ratio(X)	0.96	0.75	0.75	0.77	0.79	0.81	0.90	0.70	0.30	0.85	0.80	0.47
Avail Cap(c_a), veh/h	435	765	342	392	686	330	381	1153	516	292	939	420
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	29.0	29.0	34.5	30.3	30.5	30.4	23.3	19.9	32.7	27.1	24.4
Incr Delay (d2), s/veh	32.6	4.3	9.1	8.5	5.9	13.7	23.6	3.6	1.5	20.1	7.2	3.8
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	6.5	6.3	6.1	3.4	6.0	6.6	9.6	8.4	2.7	6.4	8.6	4.1
LnGrp Delay(d),s/veh	66.9	33.3	38.1	43.0	36.2	44.1	54.0	27.0	21.4	52.8	34.3	28.2
LnGrp LOS	E	C	D	D	D	D	D	C	C	D	C	C
Approach Vol, veh/h		1252			1055			1304			1181	
Approach Delay, s/veh		45.5			39.9			33.3			36.8	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	29.8	12.3	21.1	20.7	25.0	14.0	19.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	25.0	9.0	17.0	17.0	21.0	10.0	16.0				
Max Q Clear Time (g_c+I1), s	12.0	17.9	8.2	14.1	16.7	17.7	11.5	13.9				
Green Ext Time (p_c), s	0.1	5.4	0.1	2.2	0.0	2.7	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			38.8									
HCM 2010 LOS			D									

HCM 2010 TWSC

2: Perris Blvd & Atwood Ave

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	4	30	3	7	15	41	1265	3	38	1170	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	72	72	72	89	89	89	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	6	46	4	10	21	51	1563	4	44	1345	22
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2331	3112	683	2430	3121	784	1367	0	0	1567	0	0
Stage 1	1443	1443	-	1667	1667	-	-	-	-	-	-	-
Stage 2	888	1669	-	763	1454	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 20	11	392	17	11	336	498	-	-	417	-	-
Stage 1	139	196	-	100	152	-	-	-	-	-	-	-
Stage 2	305	151	-	363	193	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 14	9	392	12	~ 9	336	498	-	-	417	-	-
Mov Cap-2 Maneuver	75	59	-	63	63	-	-	-	-	-	-	-
Stage 1	125	175	-	90	136	-	-	-	-	-	-	-
Stage 2	238	136	-	276	173	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	71.1			45.4			0.4			0.5		
HCM LOS	F			E								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	498	-	-	131	123	417	-	-				
HCM Lane V/C Ratio	0.102	-	-	0.634	0.282	0.105	-	-				
HCM Control Delay (s)	13	-	-	71.1	45.4	14.6	-	-				
HCM Lane LOS	B	-	-	F	E	B	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	3.3	1.1	0.3	-	-				
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 2010 TWSC

6: Crape Myrtle Dr & Cottonwood Ave

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	343	46	3	289	4	34	4	10	2	2	10
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	60	-	0	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	58	58	58	79	79	79	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	602	81	5	498	7	43	5	13	3	3	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	498	0	0	602	0	0	1207	1198	602	1207	1198	498
Stage 1	-	-	-	-	-	-	689	689	-	509	509	-
Stage 2	-	-	-	-	-	-	518	509	-	698	689	-
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	1066	-	-	975	-	-	160	186	500	160	186	572
Stage 1	-	-	-	-	-	-	436	446	-	547	538	-
Stage 2	-	-	-	-	-	-	541	538	-	431	446	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1066	-	-	975	-	-	148	177	500	147	177	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	177	-	147	177	-
Stage 1	-	-	-	-	-	-	418	428	-	524	535	-
Stage 2	-	-	-	-	-	-	521	535	-	398	428	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.1			35.9			16.7		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	176	1066	-	-	975	-	-	330				
HCM Lane V/C Ratio	0.345	0.041	-	-	0.005	-	-	0.065				
HCM Control Delay (s)	35.9	8.5	-	-	8.7	-	-	16.7				
HCM Lane LOS	E	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	0.2				

HCM 2010 TWSC
10: Cottonwood Ave & Driveway

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	39	281	367	16	20	78
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	77	77	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	365	453	20	22	85

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	473	0	463
Stage 1	-	-	463
Stage 2	-	-	466
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1089	-	599
Stage 1	-	-	634
Stage 2	-	-	632
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1089	-	599
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	634
Stage 2	-	-	595

Approach	EB	WB	SB
HCM Control Delay, s	1	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	485
HCM Lane V/C Ratio	0.047	-	-	-	0.22
HCM Control Delay (s)	8.5	0	-	-	14.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

HCM 2010 TWSC

11: Perris Blvd & Driveway

Intersection												
Int Delay, s/veh	22.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	0	78	0	0	57	70	1205	100	0	1143	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	92	92	92	82	82	82	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	0	98	0	0	62	85	1470	122	0	1329	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2256	3113	687	2366	3074	796	1373	0	0	1591	0	0
Stage 1	1351	1351	-	1701	1701	-	-	-	-	-	-	-
Stage 2	905	1762	-	665	1373	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 22	11	389	18	12	330	496	-	-	408	-	-
Stage 1	158	217	-	95	146	-	-	-	-	-	-	-
Stage 2	298	136	-	416	212	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 16	9	389	12	10	330	496	-	-	408	-	-
Mov Cap-2 Maneuver	~ 16	9	-	12	10	-	-	-	-	-	-	-
Stage 1	131	217	-	79	121	-	-	-	-	-	-	-
Stage 2	201	113	-	312	212	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 561.8	18.4	0.7	0
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	496	-	-	65	330	408	-
HCM Lane V/C Ratio	0.172	-	-	1.904	0.188	-	-
HCM Control Delay (s)	13.8	-	-	\$ 561.8	18.4	0	-
HCM Lane LOS	B	-	-	F	C	A	-
HCM 95th %tile Q(veh)	0.6	-	-	11.4	0.7	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Queuing and Blocking Report Cumulative WP AM

2/8/2016

Intersection: 10: Cottonwood Ave

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	181	264	70
Average Queue (ft)	7	39	21
95th Queue (ft)	30	179	50
Link Distance (ft)	163	1161	109
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	5		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	52	151	53	56	21	224	463	205
Average Queue (ft)	14	65	13	2	1	25	42	18
95th Queue (ft)	42	142	42	19	7	95	210	102
Link Distance (ft)	116	136		291	291		450	450
Upstream Blk Time (%)		12					0	
Queuing Penalty (veh)		0					0	
Storage Bay Dist (ft)			100			200		
Storage Blk Time (%)							2	
Queuing Penalty (veh)							1	

Zone Summary

Zone wide Queuing Penalty: 6

Queuing and Blocking Report Cumulative WP PM

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	159	31	75
Average Queue (ft)	14	1	19
95th Queue (ft)	74	11	46
Link Distance (ft)	161	1162	58
Upstream Blk Time (%)	0		0
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	TR
Maximum Queue (ft)	180	151	71	22	54	465	341
Average Queue (ft)	129	132	29	1	20	148	79
95th Queue (ft)	159	173	63	11	54	344	262
Link Distance (ft)	116	136		291		450	450
Upstream Blk Time (%)	90	90				0	
Queuing Penalty (veh)	0	0				0	
Storage Bay Dist (ft)			100		200		
Storage Blk Time (%)						7	
Queuing Penalty (veh)						3	

Zone Summary

Zone wide Queuing Penalty: 3

Queuing and Blocking Report Cumulative WP Sunday

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	138	91	51
Average Queue (ft)	30	7	22
95th Queue (ft)	98	38	42
Link Distance (ft)	159	1163	26
Upstream Blk Time (%)			8
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	151	151	125	308	299	94	257	216
Average Queue (ft)	77	146	53	17	8	27	34	17
95th Queue (ft)	140	180	99	122	78	65	160	101
Link Distance (ft)	116	136		291	291		450	450
Upstream Blk Time (%)	33	93		0	0			
Queuing Penalty (veh)	0	0		1	1			
Storage Bay Dist (ft)			100			200		
Storage Blk Time (%)			6				1	
Queuing Penalty (veh)			45				1	

Zone Summary

Zone wide Queuing Penalty: 48

Queuing and Blocking Report
Cumulative WP Alternative 1 AM

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	500	67
Average Queue (ft)	93	24
95th Queue (ft)	347	50
Link Distance (ft)	1161	109
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR	T	TR
Maximum Queue (ft)	50	74	31	50	76	286	211
Average Queue (ft)	8	31	8	2	3	88	29
95th Queue (ft)	31	55	29	17	26	234	134
Link Distance (ft)	116	136		291	291	450	450
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100				
Storage Blk Time (%)						2	
Queuing Penalty (veh)						0	

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report
Cumulative WP Alternative 1 PM

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	320	75
Average Queue (ft)	34	37
95th Queue (ft)	172	65
Link Distance (ft)	1162	58
Upstream Blk Time (%)		9
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR	T	TR
Maximum Queue (ft)	132	105	123	161	180	484	491
Average Queue (ft)	104	37	40	6	7	260	191
95th Queue (ft)	165	74	86	54	62	497	425
Link Distance (ft)	116	136		291	291	450	450
Upstream Blk Time (%)	60					4	3
Queuing Penalty (veh)	0					0	0
Storage Bay Dist (ft)			100				
Storage Blk Time (%)			4			21	
Queuing Penalty (veh)			27			0	

Zone Summary

Zone wide Queuing Penalty: 27

Queuing and Blocking Report
Cumulative WP Alternative 1 Sunday

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	372	60
Average Queue (ft)	57	33
95th Queue (ft)	237	50
Link Distance (ft)	1163	26
Upstream Blk Time (%)		27
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR
Maximum Queue (ft)	140	72	72	502	465
Average Queue (ft)	84	27	35	99	70
95th Queue (ft)	154	53	66	371	308
Link Distance (ft)	116	136		450	450
Upstream Blk Time (%)	37			2	1
Queuing Penalty (veh)	0			0	0
Storage Bay Dist (ft)			100		
Storage Blk Time (%)				12	
Queuing Penalty (veh)				0	

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report

Cumulative WP Alternative 2 AM

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	465	124
Average Queue (ft)	73	38
95th Queue (ft)	274	90
Link Distance (ft)	1161	109
Upstream Blk Time (%)		9
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	L	T	TR
Maximum Queue (ft)	30	74	55	55	54	252	241
Average Queue (ft)	11	29	12	2	17	37	24
95th Queue (ft)	34	59	38	19	44	146	121
Link Distance (ft)	116	136		291		450	450
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100		200		
Storage Blk Time (%)						1	
Queuing Penalty (veh)						0	

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report

Cumulative WP Alternative 2 PM

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	116	75
Average Queue (ft)	14	30
95th Queue (ft)	65	57
Link Distance (ft)	1162	58
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	L	T	TR
Maximum Queue (ft)	169	54	102	224	358	313
Average Queue (ft)	123	33	38	32	89	50
95th Queue (ft)	149	60	84	97	264	202
Link Distance (ft)	116	136			450	450
Upstream Blk Time (%)	97					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)			100	200		
Storage Blk Time (%)			3		2	
Queuing Penalty (veh)			23		1	

Zone Summary

Zone wide Queuing Penalty: 24

Queuing and Blocking Report

Cumulative WP Alternative 2 Sunday

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	258	51
Average Queue (ft)	32	31
95th Queue (ft)	149	48
Link Distance (ft)	1163	26
Upstream Blk Time (%)		22
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	TR
Maximum Queue (ft)	156	122	96	22	76	182	21
Average Queue (ft)	88	38	36	1	36	14	1
95th Queue (ft)	151	76	72	10	74	90	7
Link Distance (ft)	116	136		291		450	450
Upstream Blk Time (%)	32	0					
Queuing Penalty (veh)	0	0					
Storage Bay Dist (ft)			100		200		
Storage Blk Time (%)			0			0	
Queuing Penalty (veh)			0			0	

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report
Cumulative WP Alternative 3 AM

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	164	261	73
Average Queue (ft)	26	22	25
95th Queue (ft)	103	128	59
Link Distance (ft)	163	1161	109
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	4		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR
Maximum Queue (ft)	94	71	31	285	238
Average Queue (ft)	17	24	9	62	41
95th Queue (ft)	61	54	31	227	170
Link Distance (ft)	116	136		1114	1114
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		
Storage Blk Time (%)				2	
Queuing Penalty (veh)				0	

Zone Summary

Zone wide Queuing Penalty: 4

Queuing and Blocking Report

Cumulative WP Alternative 3 PM

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	162	94	52
Average Queue (ft)	23	4	29
95th Queue (ft)	80	34	55
Link Distance (ft)	161	1162	58
Upstream Blk Time (%)	0		0
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR
Maximum Queue (ft)	180	115	72	489	484
Average Queue (ft)	116	31	36	248	186
95th Queue (ft)	158	76	71	520	480
Link Distance (ft)	116	136		450	450
Upstream Blk Time (%)	55			7	3
Queuing Penalty (veh)	0			0	0
Storage Bay Dist (ft)			100		
Storage Blk Time (%)				21	
Queuing Penalty (veh)				0	

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report

Cumulative WP Alternative 3 Sunday

2/8/2016

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	160	205	51
Average Queue (ft)	29	21	31
95th Queue (ft)	102	113	46
Link Distance (ft)	159	1163	26
Upstream Blk Time (%)	0		22
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Perris Blvd & Driveway

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR
Maximum Queue (ft)	180	72	72	152	142
Average Queue (ft)	79	35	37	15	10
95th Queue (ft)	148	58	62	85	63
Link Distance (ft)	116	136		1114	1114
Upstream Blk Time (%)	30				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)			100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 0

APPENDIX E

SIGNAL WARRANT WORKSHEETS

Perris/Atwood

Figure 4C-3. Warrant 3, Peak Hour

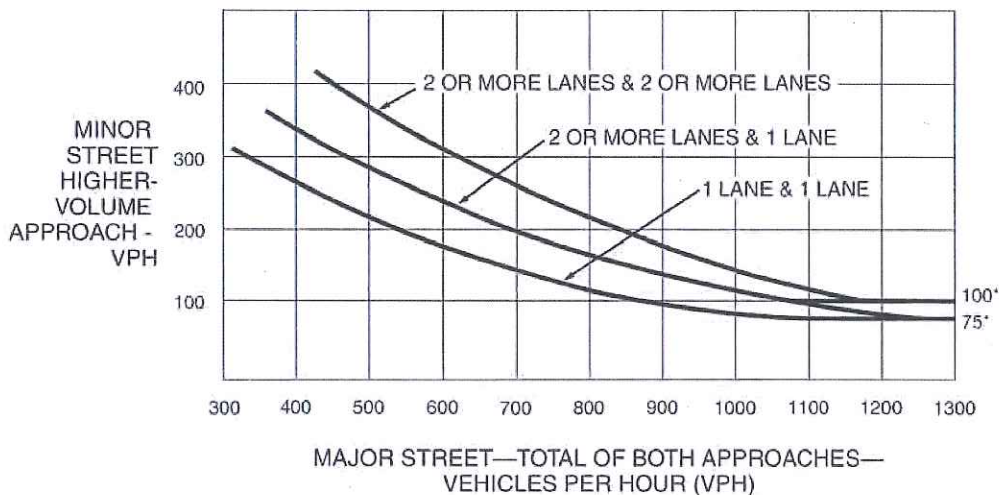


*
Not warranted

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*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.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*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.

Attachment: Traffic Impact Study (3180) : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

APPENDIX F
ADDITIONAL INFORMATION



ST. CHRISTOPHER CATHOLIC CHURCH
PARISH MASTER PLAN
25075 COTTONWOOD AVENUE, MORENO VALLEY, CA 92553



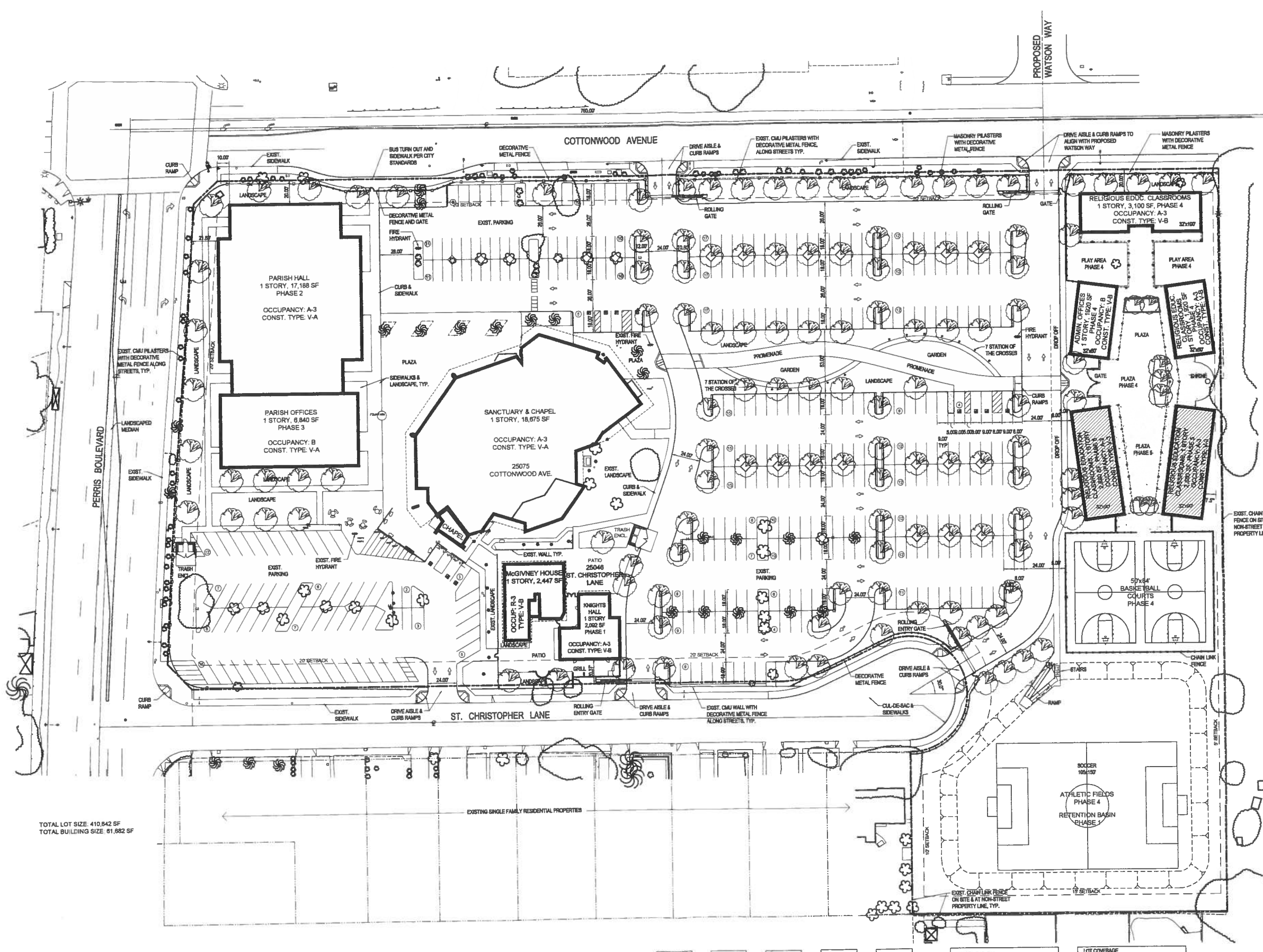
No.	Issue	Date
1	CIP SUBMITTAL #1	04/20/12
2	CIP SUBMITTAL #2	11/12

Sheet Title: MASTER SITE PLAN - PHASE 5
NEW CLASSROOM BUILDINGS

Project Architect: BENNETT LORD
Project Number: 1011-101

Sheet Number: AS-1.7

CASE #P12-051



TOTAL LOT SIZE: 410,842 SF
TOTAL BUILDING SIZE: 61,882 SF

MASTER SITE PLAN - PHASE 5
1" = 30'-0"

- NEW BUILDING
- NEW AC PAVING
- NEW CONCRETE PAVING
- EXIST. TREES & LANDSCAPE
- NEW TREES

PHASE 5 PARKING
PARKING REQUIRED: 321 SPACES
(BASED ON SANCTUARY ASSEMBLY)
PARKING PROVIDED: 317 SPACES

LOT COVERAGE
SITE AREA: 410,842 SF (9.43 ACRES)
BUILDING AREA: 61,882 SF = 14.9%
LANDSCAPE AREA: 121,880 SF = 29.7%
OPEN AREA: 227,080 SF = 55.3%

FINAL-PHASE 5
7
FIGURE 6

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Donuts Moreno Valley, a service station with convenience store

By using the new Sanctuary size of 18.675 K from Figure 2, and by adding 3.2 K of additional assembly area because of the increased size of the new Parish Hall as discussed under Phase 2, Figure 3, the Total additional Sunday Peak Hour traffic due to the Master Plan, was determined as shown in Table 2

Table 2

St. Christopher Church Master Plan Sunday Peak Hour Traffic Generation

	Size	Rate / K		Peak Hour Vehicles	
		INBOUND	OUTBOUND	INBOUND	OUTBOUND
Improved Sanctuary	18.675 K				
New Parish Hall	9.400 K*				
Assembly Area					
Total =	28.075 K	16.87 K	17.68 K	474	496
Combined Master Plan Plus Existing Vehicles				474	496
Existing Peak Hour Vehicles				<u>418</u>	<u>438</u>
Vehicles added by Master Plan				56	58

*Old Parish Hall = 6200 K

Note that the Parish Master Plan will add 56 inbound and 58 outbound new, Sunday peak hour trips to the existing ones counted and shown on Figure 7.

Project Traffic Distribution And Assignment

Before starting on this study, this consultant, in a meeting with the City of Moreno Valley, Transportation Engineer, agreed that the volumes of the existing Sunday peak hour traffic counts would be used to estimate the future Sunday peak hour Master Plan distribution of new, forecasted, peak hour trips. Therefore, the peak hour volumes of Figure 7 were used for this future trip distribution. Figure 8 shows those trip distribution percentages on the various streets and intersections while Figure 9 shows the new trips, generated by the Master Plan, assigned to the streets and future driveways of the church campus.

COTTONWOOD AVE.



NOT TO SCALE

FUTURE WATSON WAY

3.0% ↓
 9.6% ↘
 9% ↖
 23% ←
 32.0% ←
 17.7% →
 5.7% ↓
 4.6% ↘
 13.0% ↓
 27.2% →

← 36.4%
 → 27.4%

PERRIS BOULEVARD

ST. CHRISTOPHER CHURCH CAMPUS
MORENO VALLEY, CALIFORNIA

8.7% ↓
 17.6% ↖
 23.0% ↘
 40.6% ←
 27.7% ↖
 23.0% ↓
 36.4 →

ST. CHRISTOPHER LANE

ESTIMATED DISTRIBUTION OF MASTER PLAN TRAFFIC
SUNDAY, SEPTEMBER 9, 2012 1:15 PM to 2:15 PM

FROM EXISTING = 418 INBOUND & 438 OUTBOUND TRIPS

FIG. 8

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store an)

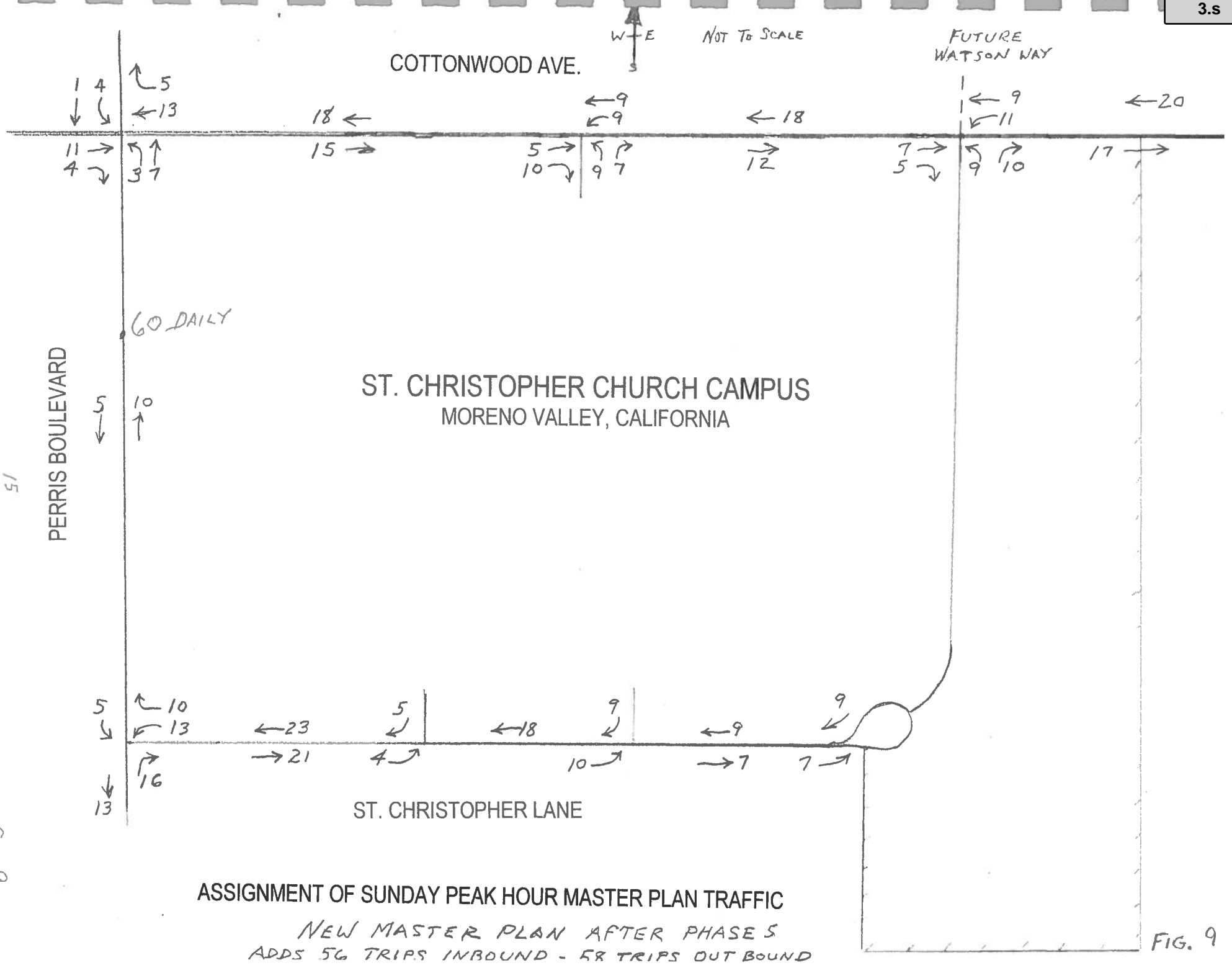


FIG. 9

Attachment: Traffic Impact Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store an)



February 27, 2017

Ahmad Ghaderi
A & S Engineering, Inc.
28405 Sand Canyon Rd., Suite "B"
Canyon Country, CA 91387

Subject: *Planning Case No. PA15-0030 Supplemental Traffic Assessment*

Dear Mr. Ghaderi:

This memorandum has been prepared to supplement the Traffic Impact Study, dated April 2016, for the Yum Yum Donut Shop and Gas Station with Car Wash Project ("the Project") at the northeast corner of Perris Boulevard and Cottonwood Avenue. The project application was previously submitted to City of Moreno Valley staff and included plans to develop this particular land use.

At the time the traffic study was prepared, the Project was a standalone component to an overall larger site. There are currently no immediate plans to develop the remainder of the property, which extends to the north and encompasses the adjacent northerly parcel. However, the applicant is requesting a zone change from the current Office Commercial (OC) zoning to Community Commercial (CC) zoning. At the request of City staff, this memorandum will assess the implications of this zone change on the current proposed land use, as well as on the remainder of the undeveloped site. This memorandum will discuss permitted uses under each zoning category, per the City of Moreno Valley Municipal Code, and will also provide a general trip generation characteristics of various land uses permitted within each zoning category for informational purposes.

DISCUSSION

Per Section 9.02.020 of the City of Moreno Valley Municipal Code, the permitted uses for each zoning district type are indicated. The Project is currently in compliance with both the existing OC and proposed CC zoning districts. Both zoning districts permit the development of automobile service stations with accessory uses, including convenience stores and car washes. Therefore, a zone change would not cause the Project to deviate from a permitted use.

There are no defined plans to develop the remaining portion of the site at this time. While the OC and CC zoning types districts permit similar uses, such as sit-down restaurants, medical clinics, hotels, and various stores, there are several additional uses that would be permitted only within a CC zone. For instance, fast-food with drive-through establishments are not allowed within an OC zone. The following section provides a trip generation comparison for various permitted uses.

TRIP GENERATION ASSESSMENT

A trip generation comparison has been prepared to provide, for informational purposes, the trip generating potential of various land use types within each district. Trip generation estimates are based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition* (2012) and are shown in Table 1.

TABLE 1 COMPARISON OF TRIP GENERATION RATES									
Land Use	ITE Code	Unit	Trip Generation Rates ¹						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Office Commercial (OC) District									
Gasoline Station w/ Conv. Mkt. & Car Wash	946	Fueling Position	152.84	6.038	5.802	11.84	7.069	6.791	13.86
Medical-Dental Office Building	720	KSF	36.13	1.888	0.502	2.39	1.000	2.570	3.57
High-Turnover (Sit- Down) Restaurant	932	KSF	127.15	5.946	4.865	10.81	5.910	3.940	9.85
Community Commercial (CC) District									
Fast-Food Restaurant w/ Drive-Through	934	KSF	496.12	23.164	22.256	45.42	16.978	15.672	32.65
Shopping Center	820	KSF	42.70	0.595	0.365	0.96	1.781	1.929	3.71
Apparel Store	876	KSF	66.40	0.800	0.200	1.00	1.915	1.915	3.83
¹ Source: Institute of Transportation Engineers (ITE) <u>Trip Generation Manual</u> , 9th Edition									

The trip generation rates in Table 1 show a general picture of possible land uses to be developed on the vacant site. A gas station, which is permitted under both uses, generates a large amount of traffic; locations with up to 12 or 16 fueling positions is commonplace. A fast-food with drive-through restaurant, which would be exclusive to the CC district and which would have a generally small building footprint, would generate a similar or lower amount of traffic to a gas station. For instance, in a case where a fast-food restaurant is 3,000 square-feet, a gas station with twelve pumps would generate significantly more traffic on a daily and peak hour basis.

A full assessment would not be detailed without a planned development in mind. However, looking at and comparing the higher-generating land uses permitted under both zoning district shows similarities in trip generating potential.

FINDINGS AND CONCLUSIONS

The Project falls within a permitted use in both the existing OC and proposed CC zoning designations. The previously prepared traffic study would be consistent with the General Plan, and no new impacts are anticipated outside of what was analyzed.

The zone change from an OC to a CC district would provide greater options for the development of the remaining areas. However, there are numerous commercial land uses that are common amongst permitted uses in both zoning designations. Due to the uncertainty in defining land uses for the undeveloped portions of the site, traffic conditions should be assessed on an individual basis when subsequent project applications are submitted to the City.



June 8, 2018

Eric Lewis
 City of Moreno Valley
 14177 Frederick Street
 Moreno Valley, CA 92553

Attn: Vincent Tran

Subject: *Planning Case No. PA15-0030 – Cottonwood Avenue Striping Concept*

Dear Mr. Lewis:

This letter has been prepared to supplement the Traffic Impact Study for the Yum Yum Donut Shop and Gas Station with Car Wash Project (“the Project”) at the northeast corner of Perris Boulevard and Cottonwood Avenue. This letter will provide an assessment of queues on Cottonwood Avenue along the project frontage, and will provide a conceptual striping layout to facilitate site access from Cottonwood Avenue in the eastbound direction.

Queueing was based on volumes established in the Traffic Impact Study for the Cumulative (Opening Year 2020) scenario with Alternative 3 implemented. Average and Ninety-fifth percentile queueing were checked and reported for the westbound left-turn movement at the Perris Avenue and Cottonwood Avenue intersection, and for the eastbound left-turn movement turning into the proposed project site. The 95th-percentile queue is defined to be the queue length (in feet per lane) that has only a 5-percent probability of being exceeded during the analysis time period. It is a useful parameter for determining the appropriate length of turn pockets, but it is not typical of what an average driver would experience. Vehicle queueing was analyzed using the SimTraffic Software assuming each vehicle occupies a space of 25 feet. The queueing analysis worksheets are attached to this letter.

Table 1. Queueing Summary

	Queue Length (ft)		
	AM Peak	PM Peak	Sunday
Perris Boulevard/Cottonwood Avenue Intersection (Westbound Left)			
Average Queue	68	62	78
95 th Percentile Queue	146	130	154
Cottonwood Avenue Driveway (Eastbound Left)			
Average Queue	11	8	15
95 th Percentile Queue	38	33	44

Based on this queueing information, a conceptual striping exhibit was prepared and is shown on Figure 1. The westbound left-turn pocket at the intersection of Perris Boulevard and Cottonwood Avenue was sized to maximize the available storage length between the intersection and the project driveway. The eastbound left-turn movement into the project site was striped to accommodate approximately 40 feet of storage.

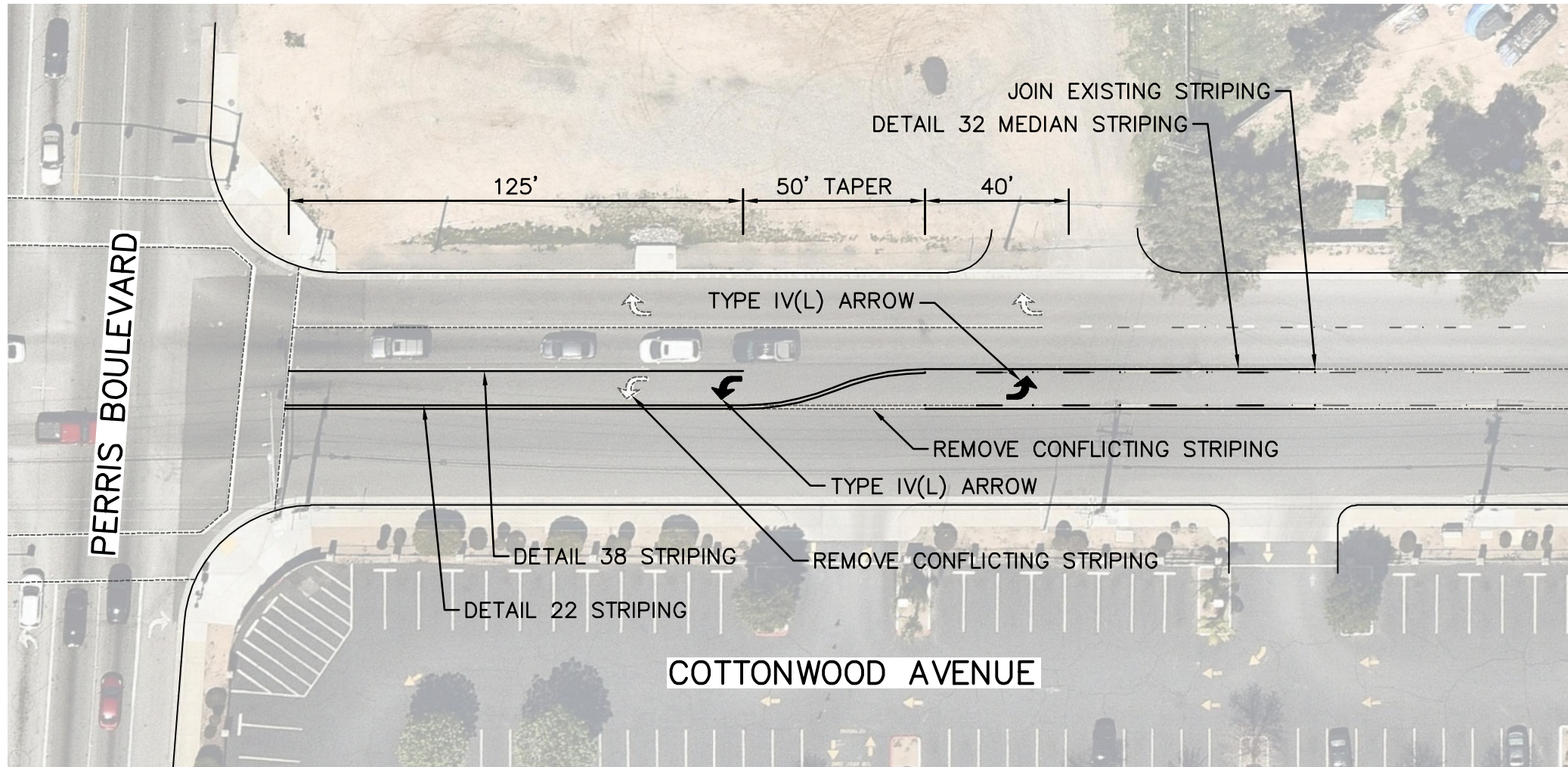
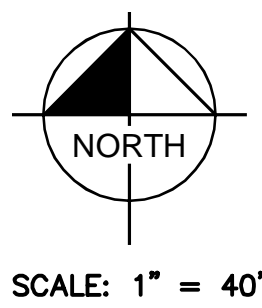


FIGURE 1
COTTONWOOD AVENUE STRIPING CONCEPT



APPENDIX

Queuing and Blocking Report

Cumulative WP Alternative 3 AM

AM
06/08/2018

Intersection: 5: Perris Blvd & Cottonwood Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	124	338	70	172	220	176	120	579	534	125	225	425
Average Queue (ft)	68	122	23	68	119	61	75	328	276	39	130	235
95th Queue (ft)	131	262	52	146	215	132	136	549	496	118	233	391
Link Distance (ft)		1274	1274		204	204		617	617			404
Upstream Blk Time (%)					4	0		1	1			2
Queuing Penalty (veh)					14	1		0	0			0
Storage Bay Dist (ft)	100			125			95			100	200	
Storage Blk Time (%)	5	13		3	13		6	43	29	0	2	11
Queuing Penalty (veh)	13	12		12	19		33	34	22	0	14	19

Intersection: 5: Perris Blvd & Cottonwood Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	378	120
Average Queue (ft)	180	48
95th Queue (ft)	320	127
Link Distance (ft)	404	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		95
Storage Blk Time (%)	18	0
Queuing Penalty (veh)	18	0

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	EB	WB	WB	B4	SB
Directions Served	L	T	T	TR	T	LR
Maximum Queue (ft)	51	4	122	36	46	66
Average Queue (ft)	11	0	12	1	1	31
95th Queue (ft)	38	0	69	10	23	60
Link Distance (ft)		204	119	119	437	43
Upstream Blk Time (%)			1			6
Queuing Penalty (veh)			0			0
Storage Bay Dist (ft)	40					
Storage Blk Time (%)	1	0				
Queuing Penalty (veh)	4	0				

Network Summary

Network wide Queuing Penalty: 215

Queuing and Blocking Report
Cumulative WP Alternative 3 PM

PM
06/08/2018

Intersection: 5: Perris Blvd & Cottonwood Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	124	526	79	165	215	123	120	622	606	125	225	437
Average Queue (ft)	85	202	27	62	92	38	71	374	329	34	176	311
95th Queue (ft)	150	464	62	130	177	88	136	630	590	113	269	481
Link Distance (ft)		1274	1274		207	207		617	617			404
Upstream Blk Time (%)					1			7	5			11
Queuing Penalty (veh)					1			0	0			0
Storage Bay Dist (ft)	100			125			95			100	200	
Storage Blk Time (%)	9	28		1	6		7	46	34	0	10	17
Queuing Penalty (veh)	24	32		3	8		42	34	20	0	71	37

Intersection: 5: Perris Blvd & Cottonwood Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	423	120
Average Queue (ft)	261	56
95th Queue (ft)	444	137
Link Distance (ft)	404	
Upstream Blk Time (%)	6	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		95
Storage Blk Time (%)	26	0
Queuing Penalty (veh)	34	1

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	50	25	2	64
Average Queue (ft)	8	1	0	31
95th Queue (ft)	33	12	2	56
Link Distance (ft)		121	121	43
Upstream Blk Time (%)				3
Queuing Penalty (veh)				0
Storage Bay Dist (ft)	40			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	2			

Network Summary

Network wide Queuing Penalty: 311

Queuing and Blocking Report
Cumulative WP Alternative 3 Sunday

Sunday
06/07/2018

Intersection: 5: Perris Blvd & Cottonwood Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	124	213	80	174	218	164	120	597	555	125	224	390
Average Queue (ft)	64	93	22	78	99	55	73	315	262	42	143	193
95th Queue (ft)	125	175	52	154	191	124	136	557	508	123	239	338
Link Distance (ft)		1274	1274		206	206		617	617			404
Upstream Blk Time (%)					1	0		4	3			0
Queuing Penalty (veh)					4	0		0	0			0
Storage Bay Dist (ft)	100			125			95			100	200	
Storage Blk Time (%)	3	8		5	7		6	43	28	0	4	5
Queuing Penalty (veh)	6	8		16	15		30	38	21	0	20	11

Intersection: 5: Perris Blvd & Cottonwood Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	314	120
Average Queue (ft)	143	47
95th Queue (ft)	261	121
Link Distance (ft)	404	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		95
Storage Blk Time (%)	12	0
Queuing Penalty (veh)	14	0

Intersection: 10: Cottonwood Ave & Driveway

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	52	64	6	64
Average Queue (ft)	15	2	0	39
95th Queue (ft)	44	21	3	63
Link Distance (ft)		117	117	43
Upstream Blk Time (%)		0		7
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)	40			
Storage Blk Time (%)	1			
Queuing Penalty (veh)	4			

Network Summary

Network wide Queuing Penalty: 188

**Noise Mitigation Analysis for
The Proposed Yum Yum Donuts Car Wash
City of Moreno Valley, California**

**Project #0110.0026.001.0001
February 14, 2018**

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NOISE MITIGATION ANALYSIS FOR THE PROPOSED YUM YUM DONUTS CAR WASH CITY OF MORENO VALLEY

1.0 INTRODUCTION

A car wash is being proposed at the northeast corner of Perris Boulevard and Cottonwood Avenue in Moreno Valley, as shown in Exhibit 1. The car wash will be “self-serve” and is planned to be open 24 hours per day. The purpose of this report is to determine whether the noise levels from the proposed car wash will be consistent with the Noise Ordinance adopted by the City of Moreno Valley. The project calls for the addition of a tunnel-type car wash. The developer is planning to design and construct this car wash very similar to an existing car wash facility located in the City of San Diego. This report presents the results of the car wash noise measurements at the existing San Diego car wash, and determines whether that design is acceptable for the planned Yum Yum Donuts car wash in Moreno Valley.

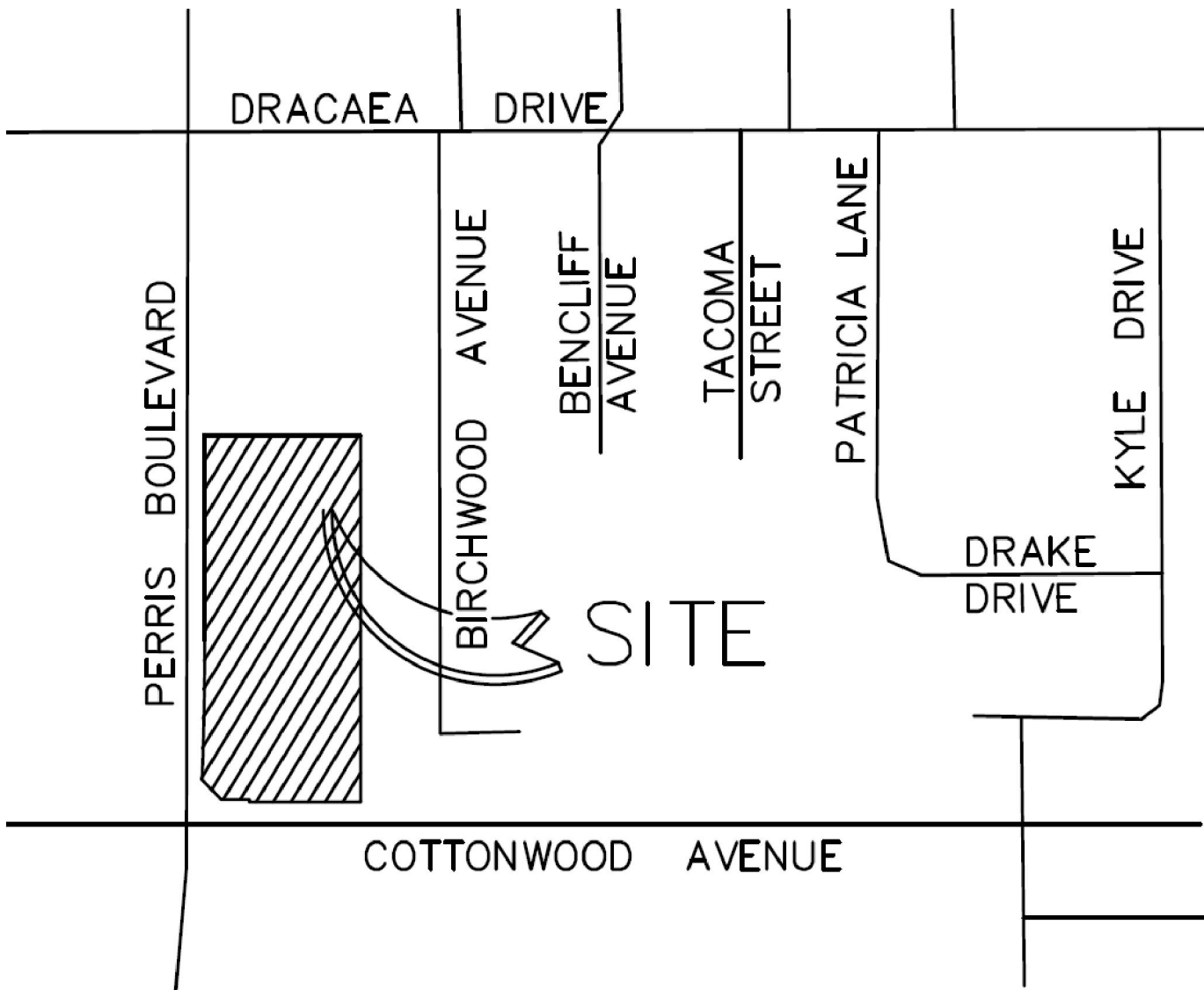
The site plan is shown in Exhibit 2. The nearest residences are located directly to the east. Other residential areas are located much farther from the facility. The potential noise impacts on the nearest residential area are addressed in this report, and any required mitigation measures are identified.

2.0 BACKGROUND INFORMATION ON NOISE

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the “A-weighted decibel” abbreviated dBA. Exhibit 3 provides examples of various noises and their typical A-weighted noise level.

Two commonly used metrics to describe fluctuating noise levels are Leq and Lmax. These metrics are described below. The noise level limits set forth in the City’s Noise Ordinance are specified in terms of these metrics.

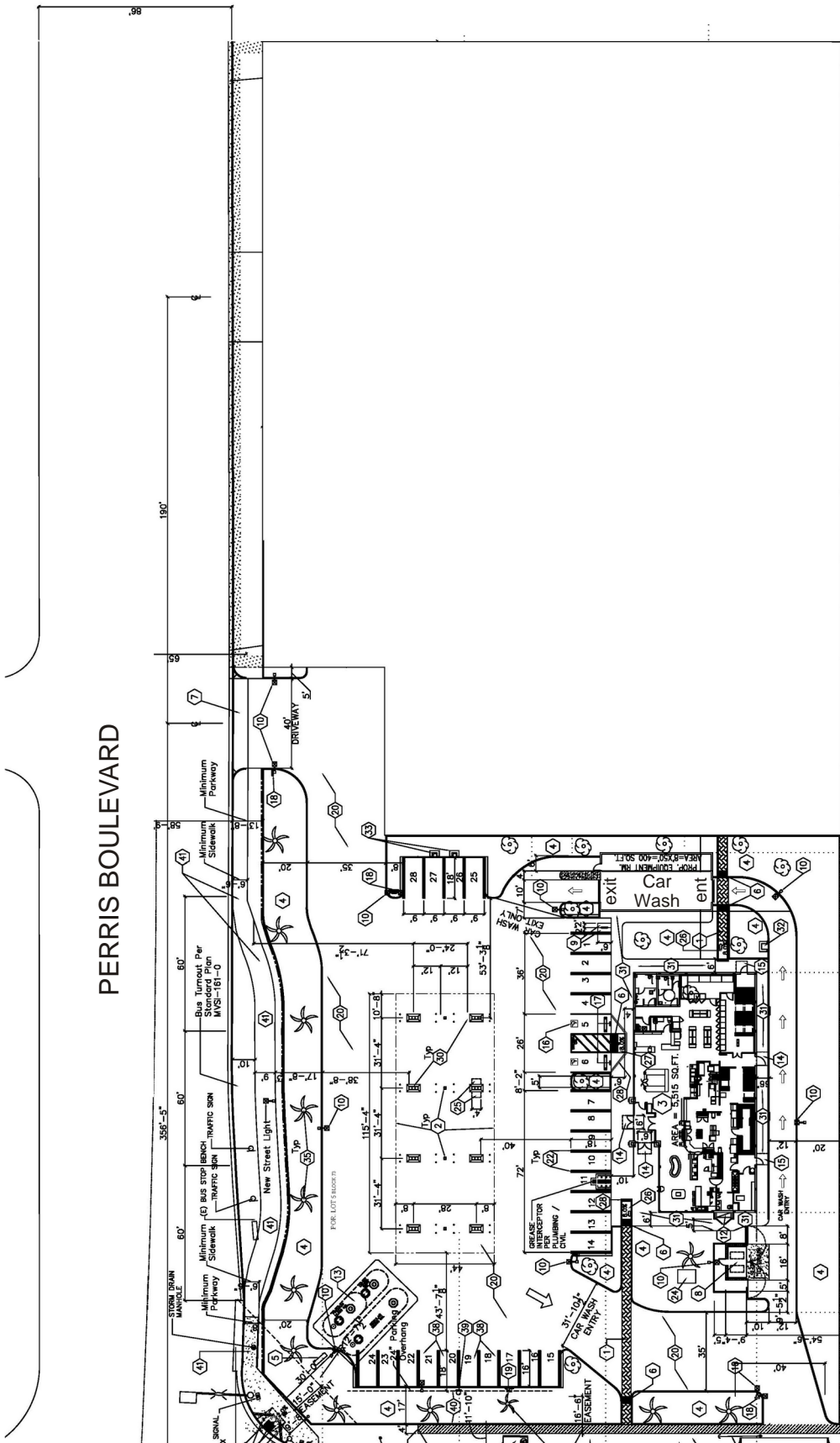


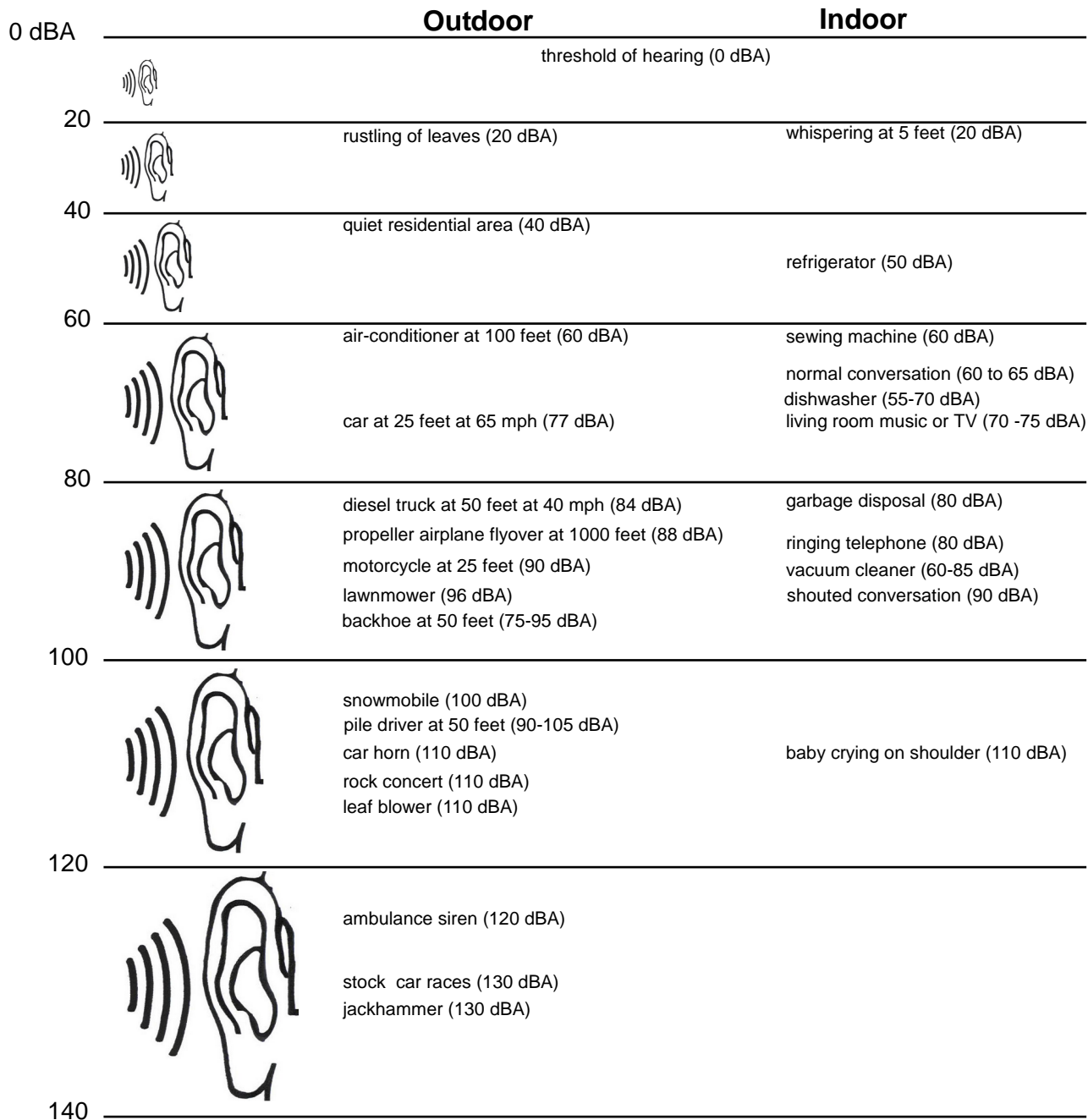


PERRIS BOULEVARD

COTTONWOOD AVENUE

Residential Area





Sources: League for the Hard Of Hearing, www.lhh.org
 Handbook of Noise Control, McGraw Hill, Edited by Cyril Harris, 1979
 Measurements by Landrum & Brown

Attachment: Noise Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store an)

Leq is the sound level corresponding to a steady-state sound level that would contain the same total energy as the time-varying signal over a given sample period. Leq is the “energy” average noise level during the time period of the sample. It is the energy average of all the events and background noise levels that occur during that time period.

Lmax is the loudest sound level measured during the time period of the sample.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption and ground attenuation. As the sound wave travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Intervening topography or sound walls can also have a substantial effect on the effective perceived noise levels.

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance. Each of these potential noise impacts on people are briefly discussed in the following narratives:

HEARING LOSS is not a concern in community noise situations of this type. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.

SPEECH INTERFERENCE is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA, and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

SLEEP INTERFERENCE is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

PHYSIOLOGICAL RESPONSES are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are signs of harm.

ANNOYANCE is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

3.0 MORENO VALLEY NOISE ORDINANCE STANDARDS

Noise ordinances are designed to protect adjacent noise-sensitive land uses from non-transportation related noise sources operating on private property (e.g., manufacturing facilities, music, and mechanical equipment). Many communities have developed noise ordinances to control these types of non-transportation related noise.

The City's noise level limits for car wash noise are shown in Section 9.10.140 of the City's Noise Ordinance. These standards are given in terms of maximum allowable noise levels. Higher noise levels are permitted during the daytime hours (8 a.m. to 10 p.m.) than are during nighttime hours (10 p.m. to 8 a.m.). The City of Moreno Valley Noise Ordinance levels are contained in Table 1, and they show the acceptable levels at outdoor residential land uses during each time period. The Lmax criterion applies to the highest noise level experienced at the receptor site.

**Table 1
CITY OF MORENO VALLEY
EXTERIOR NOISE ORDINANCE STANDARDS**

LAND USE	NOISE METRIC	NOISE LEVEL NOT TO BE EXCEEDED	
		Daytime 8 a.m. to 10 p.m.	Nighttime 10 p.m. to 8 a.m.
Residential	Lmax	60 dBA	55 dBA

As the car wash is expected to operate 24 hours a day, the projected noise levels will be compared to the nighttime criteria, since meeting the nighttime criteria ensures that the daytime criteria will also be met. The City's Noise Ordinance does not contain any indoor noise standards. Therefore, compliance with the nighttime Lmax exterior standard in the Noise Ordinance is addressed.

4.0 PROJECTED CAR WASH NOISE LEVELS

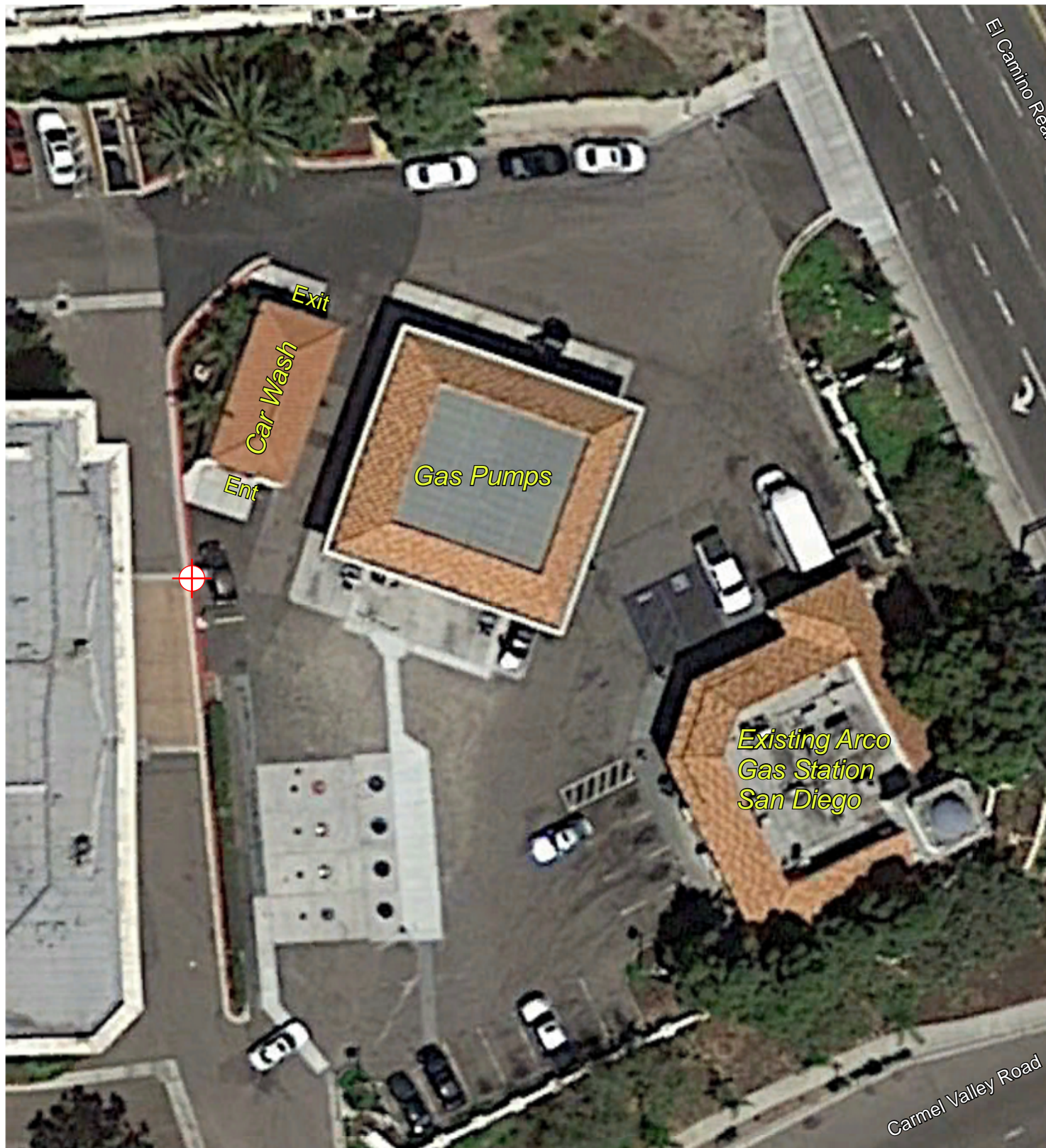
The projected noise levels from the planned Yum Yum Donuts car wash are based on the measured noise levels at the existing Arco car wash facility at 3170 Carmel Valley Road in San Diego. This car wash is equipped with automatic doors at both the entrance and exit ends, and these doors are essential in reducing the noise levels from the car wash facility when they are closed. The noise levels at this facility were measured on August 12, 2016. Measurements were performed on-axis with the tunnel at a distance of 25 feet from the entrance end with both car wash doors closed. The measurements at this location were used to determine the noise levels at the nearest noise-sensitive receptors at the Moreno Valley site. The measurement site is shown in Exhibit 4. The car wash operations of interest (wash cycle, rinse cycle, and dry cycle) were measured. Truck passes in the parking lot passes were not able to be excluded from the measurements, and were edited out of the data in order to assess the car wash noise levels alone.

The sound level meter used for the measurements was a Brüel and Kjær Model 2236 sound level meter. This meter conforms to American National Standards Institute (ANSI) Type 1 specifications. The meter and calibrator are laboratory calibrated and certified annually with calibration traceable to the National Institute of Standards and Technology (NIST). The meter was field calibrated before and after the measurement period using a Brüel and Kjær Model 4231 acoustical calibrator. The measured L_{max} was 65.7 dBA at a distance of 25 feet from the entrance end of the tunnel with the car wash doors closed.

Based upon the measured car wash source noise data and the proposed site plan, the noise level was calculated for the nearest observer at the adjacent residential area, at a distance of 57 feet from the entrance end of the tunnel. The resulting unmitigated noise level at the residential area is 58.5 dBA. This noise level would exceed the nighttime noise standard of 55 dBA. The developer plans to construct a 6-foot high masonry wall at the east property line. The wall will need to wrap around the northeast corner of the project and extend westward to the car wash tunnel. The required barrier location is shown in Exhibit 5. With this noise barrier, the resulting projected noise level is shown below in Table 2.

**Table 2
PROJECTED NOISE LEVELS (dBA)**

Location	Projected Noise Level (L _{max})	Comparison To Noise Level Limit
<u>With Yum Yum Donuts car wash designed like existing Arco facility and 6.0'-high noise barrier</u>		
Nearest Residence	49.4	Meets Ordinance



 - Measurement Location

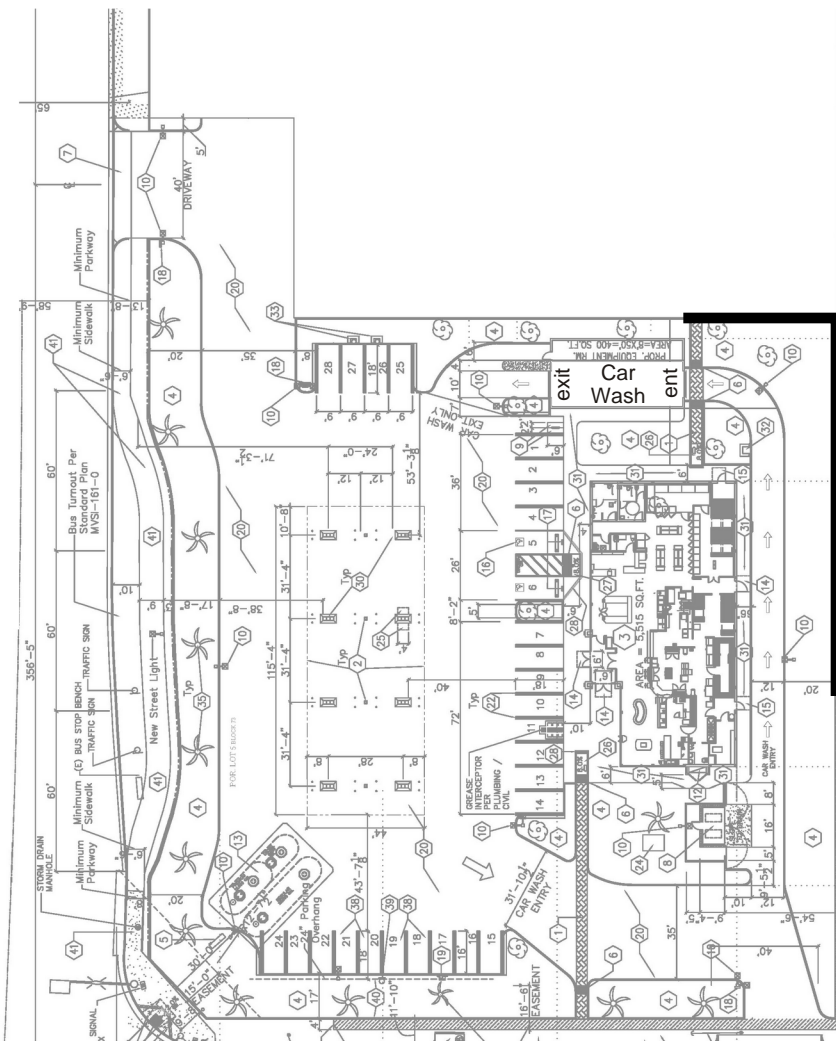


Existing Car Wash Measurement Locations

Exhibit 4

Requires 6.0'-High Noise Barrier

PERRIS BOULEVARD



Residential Area

COTTONWOOD AVENUE



The projected Lmax at the nearest residential receiver from the proposed car wash is 49.4 dBA. This meets the City's nighttime exterior Noise Ordinance limit of 55 dBA. The results of the analysis indicate that with the car wash designed like the existing Arco facility, the Lmax noise levels at all the nearest residential areas are projected to meet the daytime and nighttime Noise Ordinance limits. The proposed car wash must be designed, constructed, and operated the same as the existing Arco car wash in order for the noise level limits to be met. This includes such items as equipment types and locations, door types and configuration, and operational parameters such as when the doors open and close.

6.0 DESIGN MEASURES

Calculations have shown that with the car wash designed and operated like the existing Arco facility, the project will meet the City's daytime and nighttime Noise Ordinance limits. The following design items must be adhered to in order for the noise level limits to be met.

- The car wash equipment shall be the same as that used at the Arco facility, and placed in the same locations within the tunnel as at the Arco facility.
- The building design (walls and roof) shall be the same materials as used at the Arco facility.
- The roll-up doors shall be the same type, and shall be installed the same as the Arco facility.
- Both the entrance end and exit end doors need to be in the closed position when a car is being washed and dried.
- A noise barrier shall be constructed that meets or exceeds the barrier shown in Exhibit 5.
- The noise barrier must have a surface density of at least 3.5 pounds per square foot, and shall have no openings or gaps. The wall may be constructed of stud and stucco, 3/8-inch plate glass, 5/8-inch Plexiglas, any masonry material, or a combination of these materials.

With these design measures in place, the noise levels at the nearest homes will meet the City's daytime and nighttime Noise Ordinance limits.

APPENDIX
Calculation Spreadsheets

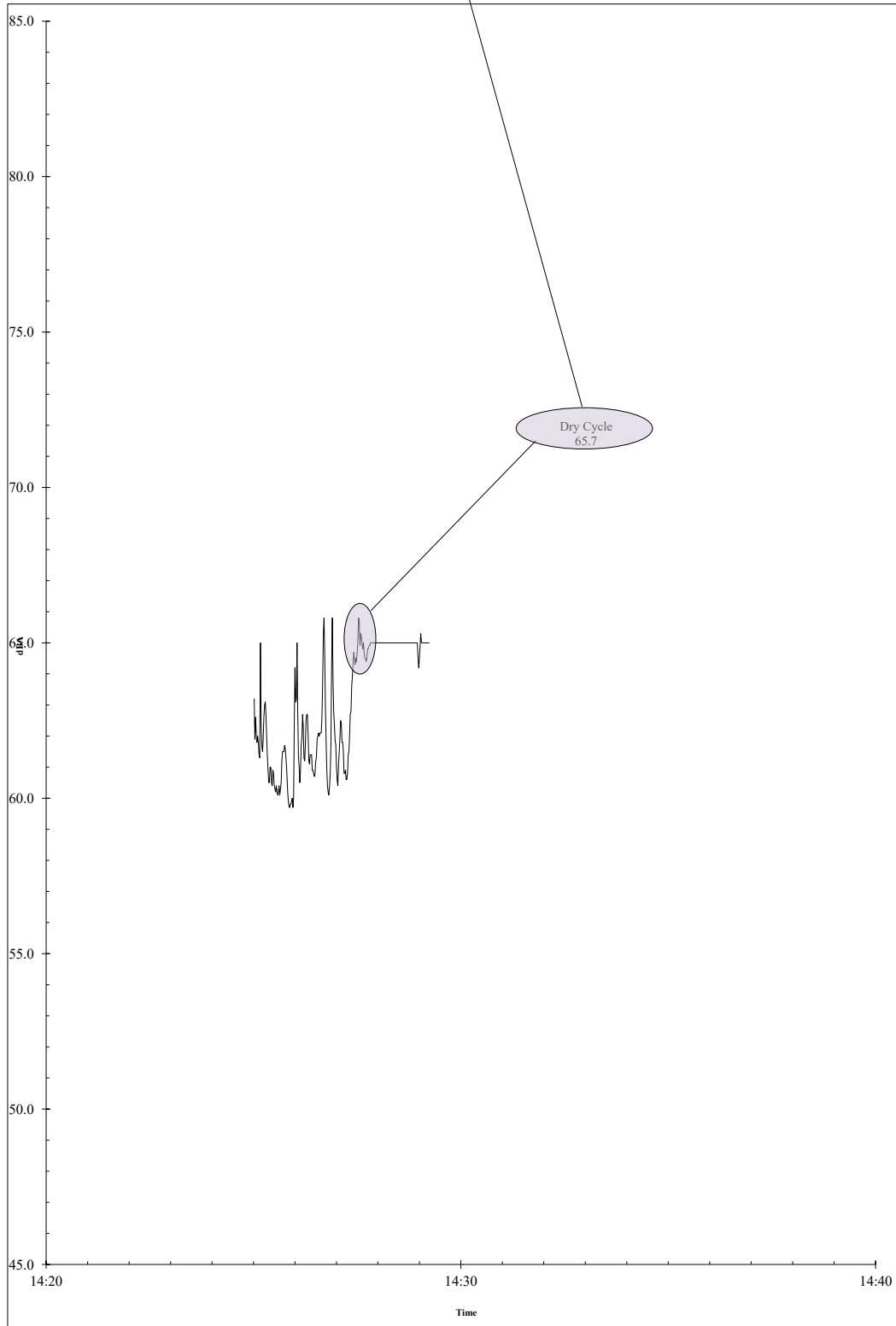
Attachment: Noise Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store an)

Arco Car Wash
3170 Carmel Valley Road
San Diego
25' from Entrance End, Doors Closed
8-12-16

ref at 25' Distance, On-Axis

Metric	Level	at 57'
LEQ	63.0	
Lmax	65.7	58.5 no wall
L1.7	65.3	
L8.3	65.0	
L25	#NUM!	
L50	62.7	
L90	60.4	
Lmin	59.7	

Night STD = 55



Attachment: Noise Study (3180 : Conditional Use Permit for Yum Yum Donuts Moreno Valley, a service station with convenience store an

Source: Arco Car Wash SD, Entrance End, Door Closed
Reference Frequency (Hz): 500

Nighttime Lmax Standard
55

Residential property to the east

Source Height	Source Elevation	Source Level	Reference Distance	Source to Barrier	Barrier Height	Barrier Elevation	Barrier to Receiver	Receiver Height	Receiver Elevation	Barrier Reduction	Lmax (dBA)
8	0	65.7	25	57	0.0	0	1	5	0	0.000	58.4
8	0	65.7	25	57	6.0 planned	0	1	5	0	9.139	49.2