URBAN CROSSROADS

Legacy Park (Tentative Tract Map No. 36760)

TRAFFIC IMPACT ANALYSIS

CITY OF MORENO VALLEY

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
FHWA	Federal Highway Administration
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
MUTCD	Manual on Uniform Traffic Control Devices
N/A	Not Applicable
NP	No Project (or Without Project)
PHF	Peak Hour Factor
Project	Indian Street Commerce Center
RCTC	Riverside County Transportation Commission
RTA	Riverside Transit Authority
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
TIA	Traffic Impact Analysis
TUMF	Transportation Uniform Mitigation Fee
WP	With Project
WRCOG	Western Riverside Council of Governments
V/C	Volume to Capacity

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Legacy Park (Tentative Tract Map No. 36760) development ("Project") located on the southeast corner of Indian Street and Gentian Avenue in the City of Moreno Valley as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. This traffic study has been prepared in accordance with the City of Moreno Valley Transportation Engineering Division's *Traffic Impact Analysis Preparation Guide* (August 2007) and consultation with City of Moreno Valley staff during the scoping process. (1) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 PROJECT OVERVIEW

The Project is proposed to consist of a total of 221 single family detached residential dwelling units. Per the City's traffic study guidelines, the Opening Year will have a 5-year minimum horizon from baseline conditions. As such, the Opening Year analysis will assess 2021 traffic conditions.

Vehicular access will be provided via the following driveways (see Exhibit 1-1):

- Gentian Avenue via Street J and Street L – Full access driveways. Both driveways are proposed to align with future driveways on the north side of Gentian Avenue.
- Santiago Drive West via Street N – Knuckle from Street N into the Santiago Drive West
- Santiago Drive East via Street L – Knuckle from Street L into Santiago Drive East. Project is proposing to prohibit access to the existing Emma Lane (south of Santiago Drive).

Regional access to the project site is provided via the I-215 Freeway at Cactus Avenue interchange.

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition, 2012. (2) The Project is estimated to generate a net total of 2,104 trip-ends per day on a typical weekday with approximately 166 net AM peak hour trips and 221 net PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

EXHIBIT 1-1: TENTATIVE TRACT MAP NO. 36760

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1.2 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2016) (1 scenario)
- Existing plus Project (E+P) (1 scenario)
- Opening Year Cumulative (2021), Without and With Project (2 scenarios)
- General Plan Buildout (2040), Without and With Project (2 scenarios)

1.2.1 EXISTING (2016) CONDITIONS

Information for Existing (2016) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.2.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

1.2.3 OPENING YEAR CUMULATIVE (2020) CONDITIONS

To account for growth in traffic between Existing Conditions (2016) and the Project Opening Year (2021), a compounded annual traffic growth rate of 2 percent was assumed (10.41 percent aggregate growth in background traffic for the period 2016—2021). The 2 percent annual growth rate is intended to capture non-specific ambient traffic growth.

In context, the TIA's assumed 2 percent compounded annual growth rate is considered a reasonable approximation of future traffic growth when compared to demographic projections reflected in other local and regional growth modeling efforts. More specifically, the Southern California Association of Governments (SCAG) 2016—2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) growth forecasts for the City of Moreno Valley assume the City population to increase from 197,600 in 2012 to 256,600 by the year 2040, or an approximate 0.94 percent growth rate compounded annually. The RTP/SCS assumed growth in households over the same 28-year period reflects an increase from 51,800 households to 73,000 households; a rate of 1.23 percent compounded annually. At the upper end of assumed RTP/SCS growth rates, employment over the same 28-year period is projected to increase from 31,400 jobs to 83,200 jobs; a rate of approximately 3.54 percent compounded annually. (3) The 2 percent compounded annual traffic growth rate employed in the TIA reflects the fact that not all persons comprising population growth, household growth, or employment growth would translate on a one to one basis as a new vehicle trip in the region; and establishes a judicious midrange estimate lying between the RTP/SCS assumed regional population growth rate (0.94 percent) and the RTP/SCS assumed regional employment growth rate (3.54 percent).

Conservatively, the TIA estimates of area traffic growth then add traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed annual 2 percent ambient growth in traffic noted above; and in some instances these related projects would likely not be implemented and operational within the 2021 Opening Year time frame assumed for the Project. The resultant assumed traffic growth rate employed in the TIA (2 percent annual ambient growth + traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic impacts under 2021 conditions

The Opening Year Cumulative (2021) Without and With Project traffic conditions analyses will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Transportation Uniform Mitigation Fee (TUMF) and Development Impact Fee (DIF) programs, or other approved funding mechanism can accommodate the near-term cumulative traffic at the target level of service (LOS) identified in the City of Moreno Valley General Plan. (4) If the "funded" improvements can provide the target LOS, then the Project's payment into TUMF and/or DIF will be considered as near-term cumulative mitigation through the conditions of approval. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF facilities) are identified as such.

1.2.4 General Plan Buildout (2040) Conditions

At the City's direction, the evaluation of General Plan Buildout (2040) traffic conditions was contemplated for the purposes of this TIA. The development of the proposed Project (R5 land use designation) is anticipated to generate 1,799 fewer trip-ends per day with 135 fewer AM peak hour trips and 156 fewer PM peak hour trips, as compared to the currently adopted General Plan land uses (R5 and R30 land use designation). As such, evaluation of long-range traffic conditions was determined to be unnecessary as the proposed General Plan Amendment is anticipated to reduce the trips generated by the site. E+P and Opening Year Cumulative traffic conditions have been evaluated as part of this TIA in an effort to identify the near-term Project impacts, however, long-range traffic impacts are anticipated to be consistent with or less than those identified by the City's currently adopted General Plan.

1.3 Study Area

To ensure that this TIA satisfies the City of Moreno Valley's traffic study requirements, Urban Crossroads, Inc. prepared a project traffic study scoping package for review by City of Moreno Valley staff prior to the preparation of this report. The scoping agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology and is included in Appendix 1.1.

1.3.1 INTERSECTIONS

The 13 study area intersections shown on Exhibit 1-2 and listed at Table 1-1 were selected for this TIA based on the City of Moreno Valley's Traffic Study Guidelines and in consultation with City of Moreno Valley staff. Pursuant to the Traffic Study Guidelines, the City requires analysis of intersections where the Project would contribute 50 or more peak hour trips.[1]

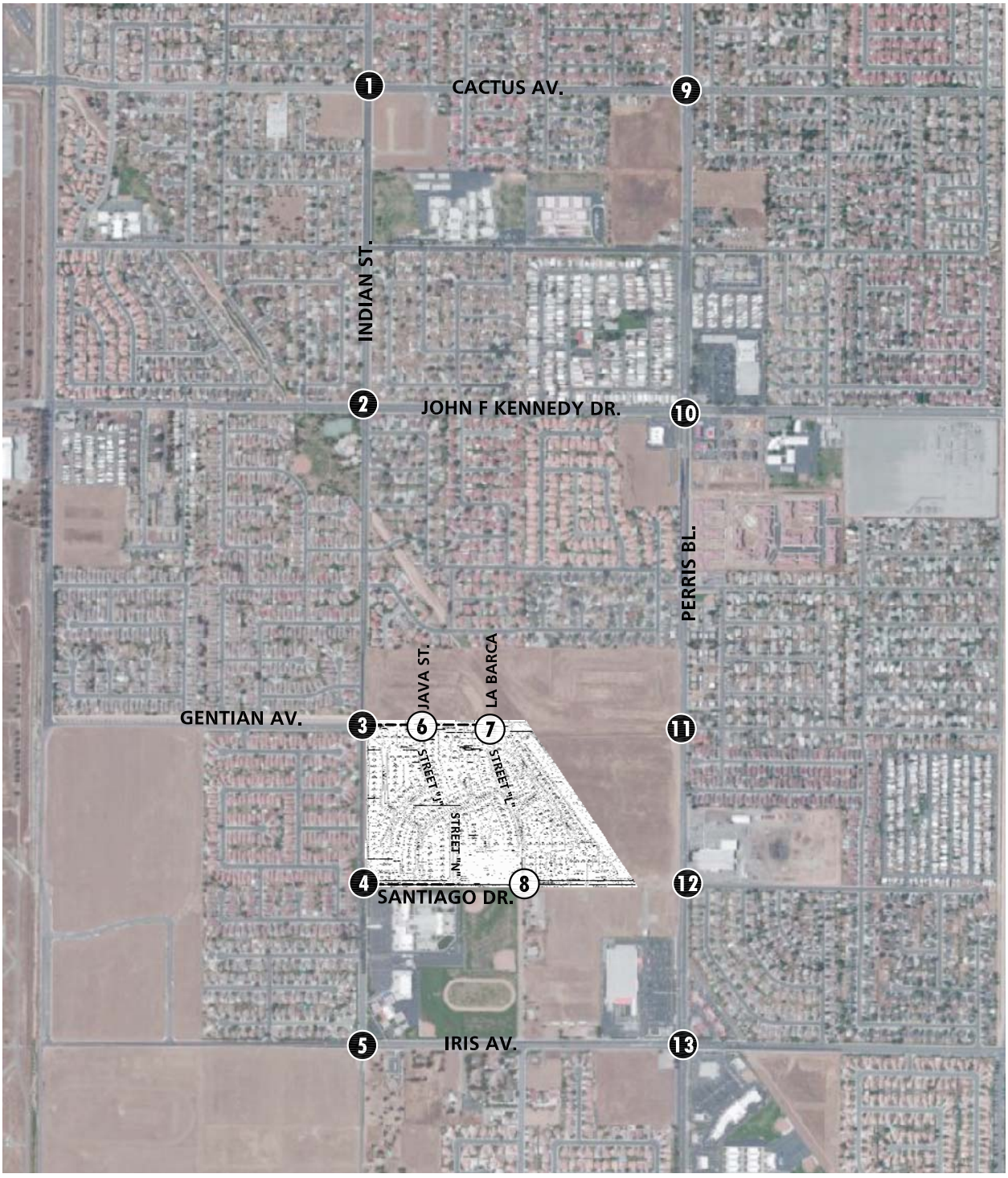
TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Indian St. / Cactus Av.	Moreno Valley	No
2	Indian St. / John F. Kennedy Dr.	Moreno Valley	No
3	Indian St. / Gentian Av.	Moreno Valley	No
4	Indian St. / Santiago Dr.	Moreno Valley	No
5	Indian St. / Iris Av.	Moreno Valley	No
6	Street J/Java Street / Gentian Av.	Moreno Valley	No
7	Street L/La Barca / Gentian Av.	Moreno Valley	No
8	Street L / Santiago Dr.	Moreno Valley	No
9	Perris Bl. / Cactus Av.	Moreno Valley	No
10	Perris Bl. / John F. Kennedy Dr.	Moreno Valley	No
11	Perris Bl. / Gentian Av.	Moreno Valley	No
12	Perris Bl. / Santiago Dr.	Moreno Valley	No
13	Perris Bl. / Iris Av.	Moreno Valley	No

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently in 2011. The Riverside County Transportation Commission (RCTC) adopted the 2011 CMP for the County of Riverside in December 2011. (5) There are no study area intersections identified as CMP facilities.

[1] The "50 or more peak hour trips" intersection analytic protocol stipulated in the City Traffic Study Guidelines is consistent with standard industry practice. It is noted further that the 50 peak hour trip threshold is employed by other agencies throughout southern California including Caltrans, County of Riverside, County of San Bernardino, and the County of Orange.

EXHIBIT 1-2: LOCATION MAP



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1.3.2 ROADWAY SEGMENTS

The roadway segment study area utilized for this analysis is based on a review of the key roadway segments in which the Project is anticipated to contribute 50 or more peak hour trips. The study area identifies a total of 10 existing/future roadway segments. The roadway segments include the segments on either side of the study area intersections and are listed in Table 1-2 and are identified on Exhibit 1-2.

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Street	Segment	Jurisdiction
1	Indian Street	Cactus Av. to John F. Kennedy Dr.	Moreno Valley
2		John F. Kennedy Dr. to Gentian Av.	Moreno Valley
3		Santiago Dr. to Iris Av.	Moreno Valley
4	Gentian Avenue	Indian St. to Street J/Java St.	Moreno Valley
5		Street J/Java St. to Street L/La Barca	Moreno Valley
6		West of Perris Bl.	Moreno Valley
7	Santiago Drive	East of Indian St.	Moreno Valley
8		West of Perris Bl.	Moreno Valley
9	Perris Boulevard	Cactus Av. to John F. Kennedy Dr.	Moreno Valley
10		John F. Kennedy Dr. to Gentian Av.	Moreno Valley

1.4 SUMMARY OF INTERSECTION ANALYSIS

1.4.1 INTERSECTIONS

A summary of the operationally deficient study area intersections and recommended improvements required to achieve acceptable circulation system operational conditions are described in detail within Section 3.0 *Existing Conditions*, Section 5.0 *E+P Traffic Conditions*, and Section 6.0 *Opening Year Cumulative (2021) Traffic Conditions* of this report. The peak hour intersection LOS are summarized on Table 1-3 for each of the analysis scenarios.

1.4.2 ROADWAY SEGMENTS

A summary of the operationally deficient study area roadway segments and recommended improvements required to achieve acceptable circulation system operational conditions are described in detail within Section 3.0 *Existing Conditions*, Section 5.0 *E+P Traffic Conditions*, and Section 6.0 *Opening Year Cumulative (2021) Traffic Conditions* of this report. The roadway segment LOS are summarized on Table 1-4 for each of the analysis scenarios.

1.5 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements throughout the City of Moreno Valley are funded through a combination of project mitigation, fair share contributions or development impact fee programs, such as Transportation Uniform Mitigation Fee (TUMF) program or the City's Development Impact Fee (DIF) program.

Table 1-3

Summary of Intersection Operations by Analysis Scenario

#	Intersection	Traffic Control [1]	Existing (2016)				E+P				2021 NP				2021 WP			
			Delay		LOS[2]		Delay		LOS[2]		Delay		LOS[2]		Delay		LOS[2]	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Indian St / Cactus Av	TS	28.4	27.2	C	C	29.5	28.7	C	C	31.7	32.8	C	C	**37.6**	**37.3**	**D**	**D**
2	Indian St / John F. Kennedy Dr	TS	26.5	24.6	C	C	26.5	24.9	C	C	26.7	25.2	C	C	26.7	25.2	C	C
3	Indian St / Gentian Av	CSS	20.0	15.1	C	C	28.6	21.0	D	C	30.7	20.2	D	C	**36.5**	23.1	**E**	C
4	Indian St / Santiago Dr	TS	14.7	2.6	B	A	15.8	4.7	B	A	15.5	2.8	B	A	16.6	4.8	B	A
5	Indian St / Iris Av	TS	44.8	30.6	D	C	49.9	31.6	D	C	47.4	31.7	D	C	48.8	34.6	D	C
6	Street J / Gentian Av	**CSS**	Does Not Exist				8.8	8.9	A	A	8.6	8.7	A	A	8.8	9.1	A	A
7	Street L / Gentian Av	**CSS**	Does Not Exist				8.6	8.6	A	A	8.7	8.7	A	A	9.0	9.3	A	A
8	Street L / Santiago Dr	**CSS**	Does Not Exist				0.0	0.0	A	A	Does Not Exist				0.0	0.0	A	A
9	Perris Bl / Cactus Av	TS	25.2	33.6	C	C	32.2	35.9	C	D	33.8	42.7	C	D	35.9	45.8	D	D
10	Perris Bl / John F. Kennedy Dr	TS	40.9	44.7	D	D	41.4	45.9	D	D	43.9	50.1	D	D	44.0	54.5	D	D
11	Perris Bl / Gentian Av	TS	5.9	4.9	A	A	5.9	4.9	A	A	6.0	5.1	A	A	6.0	5.1	A	A
12	Perris Bl / Santiago Dr	CSS	**47.4**	**43.7**	**E**	**E**	**48.9**	**57.1**	**E**	**F**	**>100.0**	**>100.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**
13	Perris Bl / Iris Av	TS	44.5	36.2	D	D	45.0	36.3	D	D	46.5	48.6	D	D	48.4	49.9	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

-- = Not Applicable/Future Intersection

[1] CSS = Cross-street Stop; TS = Traffic Signal; CSS = Improvement

[2] LOS = Level of Service

Table 1-4

Summary of Roadway Segment Level of Service

#	Roadway	Segment Limits	Roadway Section	Existing V/C[1]	Existing LOS[2]	E+P V/C[1]	E+P LOS[2]	2021 NP V/C[1]	2021 NP LOS[2]	2021 WP V/C[1]	2021 WP LOS[2]	Acceptable LOS[2]
1	Indian Street	Cactus Avenue to John F. Kennedy Dr.	4D	0.23	A	0.25	A	0.26	A	0.27	A	C
2		John F. Kennedy Dr. to Gentian Av.	4D	0.25	A	0.27	A	0.28	A	0.29	A	C
3		Santiago Dr. to Iris Av.	2U	0.73	C	0.77	C	0.82	D	0.86	D	D
4	Gentian Avenue	Indian St. to Street J/Java St.	**2U**	N/A	N/A	0.07	A	N/A	N/A	0.03	A	C
5		Street J/Java St. to Street L/La Barca	**2U**	N/A	N/A	0.03	A	N/A	N/A	0.03	A	C
6		West of Perris Bl.	**2U**	N/A	N/A	N/A	N/A	N/A	N/A	0.05	A	C
7	Santiago Drive	East of Indian St.	2U	0.07	A	0.12	A	0.07	A	0.11	A	C
8		West of Perris Bl.	2U	0.00	A	0.05	A	0.52	A	0.56	A	C
9	Perris Boulevard	Cactus Avenue and John F. Kennedy Dr.	6D	0.46	A	0.47	A	0.65	B	0.66	B	D
10		John F. Kennedy Dr. to Gentian Av.	6D	0.53	A	0.54	A	0.77	C	0.79	C	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] V/C = Volume to Capacity Ratio

[2] LOS = Level of Service

1.5.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The Western Riverside Council of Governments (WRCOG) is responsible for establishing and updating TUMF rates. The County may grant to developers a credit against the specific components of fees for the dedication of land or the construction of facilities identified in the list of improvements funded by each of these fee programs. Fees are based upon projected land uses and a related transportation need to address growth based upon a 2009 Nexus study.

TUMF is an ambitious regional program created to address cumulative impacts of growth throughout western Riverside County. Program guidelines are being handled on an iterative basis. Exemptions, credits, reimbursements and local administration are being deferred to primary agencies. The County of Riverside serves this function for the proposed Project. Fees submitted to the County are passed on to the WRCOG as the ultimate program administrator.

TUMF guidelines empower a local zone committee to prioritize and arbitrate certain projects. The Project is located in the Central Zone. The zone has developed a 5-year capital improvement program to prioritize public construction of certain roads. TUMF is focused on improvements necessitated by regional growth. The Perris Boulevard is a designated TUMF roadway/facility within the Project's traffic study area.

1.5.2 CITY OF MORENO VALLEY DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The City of Moreno Valley has created its own local Development Impact Fee (DIF) program to impose and collect fees from new residential, commercial and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. The City's DIF program includes facilities that are not part of, or which may exceed improvements identified and covered by the TUMF program. As a result, the pairing of the regional and local fee programs provides a more comprehensive funding and implementation plan to ensure an adequate and interconnected transportation system. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of implementing the improvements listed in its facilities list.

The Project Applicant would pay requisite DIF pursuant to incumbent City ordinance requirements. Payment of requisite DIF would satisfy the Applicant's mitigation responsibilities for potentially significant impacts affecting DIF-funded facilities.

1.5.3 FAIR SHARE FEES

The Project Applicant's mitigation responsibilities may also be may be fulfilled through payment of fair-share fees. Fair share fees would be paid in instances where required traffic facilities are not otherwise funded by TUMF and/or DIF programs noted above.

1.6 PROJECT IMPACTS AND MITIGATION MEASURES

Based on the assessment of E+P traffic conditions, the intersection of Perris Boulevard and Santiago Drive is anticipated to be cumulatively impacted by the Project. Section 5 *E+P Traffic Analysis* includes the detailed analysis results.

1.7 CUMULATIVE IMPACTS AND MITIGATION MEASURES

This section provides a summary of recommended improvements and associated fee assessments necessary to address the Project's contributions to study area cumulative traffic impacts.

Table 1-5 lists the recommended improvements necessary to reduce the identified intersection LOS deficiencies, by analysis scenario. Street and intersection improvements that may be funded though the TUMF and/or DIF programs are noted. If a particular facility tentatively listed in Table 1-5 is ultimately excluded from the TUMF and/or DIF programs, the Project would be responsible for, and would be required to pay, fair share fees for improvement of affected facilities. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases. Alternatively, minor fair share responsibilities may be waived when collection is infeasible or where other mitigation assignments substantially exceed the Project's demonstrated impacts.

Improvements included in a defined program and constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate. Tables 1-5 also summarizes the applicable fair share percentage associated with each of the recommended improvements. Detailed fair share calculations, for each peak hour, has been provided on Table 1-6 for the applicable deficient intersections shown previously on Table 1-5.

Mitigation Measure 1.1 – Prior to the issuance of building permits, the Project applicant shall participate in the City's DIF and County TUMF fee programs by paying the requisite fees at the time of building permit, and in addition pay the Project's fair share amount of $35,361 for the improvements identified in Table 1-5 that are consistent with the improvements shown on Table 6-3, or as otherwise agreed to by the City and Project Applicant. Project fair share payment shall only be collected if the City creates a fee program that includes the improvements the fair share contribution is intended to construct.

Table 1-5

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	Recommended Improvements[1]				Improvements in DIF, TUMF, etc.[1]	Total Cost[2]	Fair Share %[3]	Fair Share Cost[3]
			Existing (2016)	E+P	2021 Without Project	2021 With Project				
1	Indian St / Cactus Av	Moreno Valley	None	None	None	EB right turn lane	No	$90,390	13.9%	$12,586
							TOTAL	**$90,390**		**$0**
3	Indian St / Gentian Av	Moreno Valley	None	None	None	NB left turn lane	No	$90,390	34.2%	$30,911
						2nd NB through lane[4]	No	$0		$0
						SB left turn lane[4]	No	$0		$0
						2nd SB through lane[4]	No	$0		$0
						WB shared left-through-right turn lane[4]	No	$0		$0
							TOTAL	**$90,390**		**$30,911**
12	Perris Bl / Santiago Dr	Moreno Valley	Traffic Signal	Same	Same	Same	Yes[5]	$0	4.9%	$0
					EB left turn lane	Same	No	$90,390		$4,450
							TOTAL	**$90,390**		**$4,450**
Total Project Fair Share Contribution to the City of Moreno Valley (non-DIF/TUMF)[6]								**$271,170**		**$35,361**

[1] Improvements included in TUMF Nexus or City of Moreno Valley DIF programs.

[2] Costs have been estimated using the data provided in Appendix G of the San Bernardino County CMP (2003 Update) for preliminary construction costs. Appendix G costs escalated by a factor of 1.8078 to reflect 2021 conditions, except for T

[3] Program improvements constructed by project may be eligible for fee credit. In lieu fee payment is at discretion of City. Represents the fair share percentage for the Project during the most impacted peak hour.

[4] Improvements to be constructed by the Project as part of site adjacent or site access improvements.

[5] Fair share percentage is not applicable as the recommended improvements at this location are included in a pre-existing fee program.

[6] Total project fair share contribution consists of the improvements which are not already included in the City-wide DIF/County TUMF for those intersections wholly or partially within the City of Moreno Valley.

Table 1-6

Project Fair Share Calculations

#	Intersection		Existing	Project	2021 With Project	Total New Traffic	Project Fair Share[1]
1	Indian St / Cactus Av						
		AM:	2,669	49	3,077	408	12.0%
		PM:	2,430	66	2,904	474	**13.9%**
3	Indian St / Gentian Av						
		AM:	779	48	939	160	30.0%
		PM:	821	66	1,014	193	**34.2%**
12	Perris Bl / Santiago Dr						
		AM:	1,677	32	2,327	650	**4.9%**
		PM:	1,997	44	3,236	1,239	3.6%

* Highest fair share percentage represented in **BOLD** and shown on Table 1-5.

[1] Fair share based on net new traffic which is calculated from Opening Year Cumulative (2021) with Project traffic volumes less Existing (2016) traffic volumes.

1.8 SITE ADJACENT ROADWAY AND SITE ACCESS IMPROVEMENTS

This section summarizes Project site access and on-site circulation recommendations. The Project is proposed to have access on Gentian Avenue via Street J and Street L and Santiago Drive via Street N and Street L. All driveways are assumed to allow full-access, with the exception of the intersections on Santiago Drive, which are both knuckles. Regional access to the project site is provided via the I-215 Freeway at Cactus Avenue interchange.

Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements are required to be in place prior to occupancy. Exhibit 1-3 illustrates the site-adjacent roadway improvement recommendations and site access improvements. Construction of on-site and site adjacent improvements are recommended to occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

1.8.1 SITE ADJACENT ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. These improvements need to be incorporated into the project description prior to Project approval or imposed as conditions of approval as part of the Project approval. Exhibit 1-3 illustrates the site-adjacent roadway improvement recommendations.

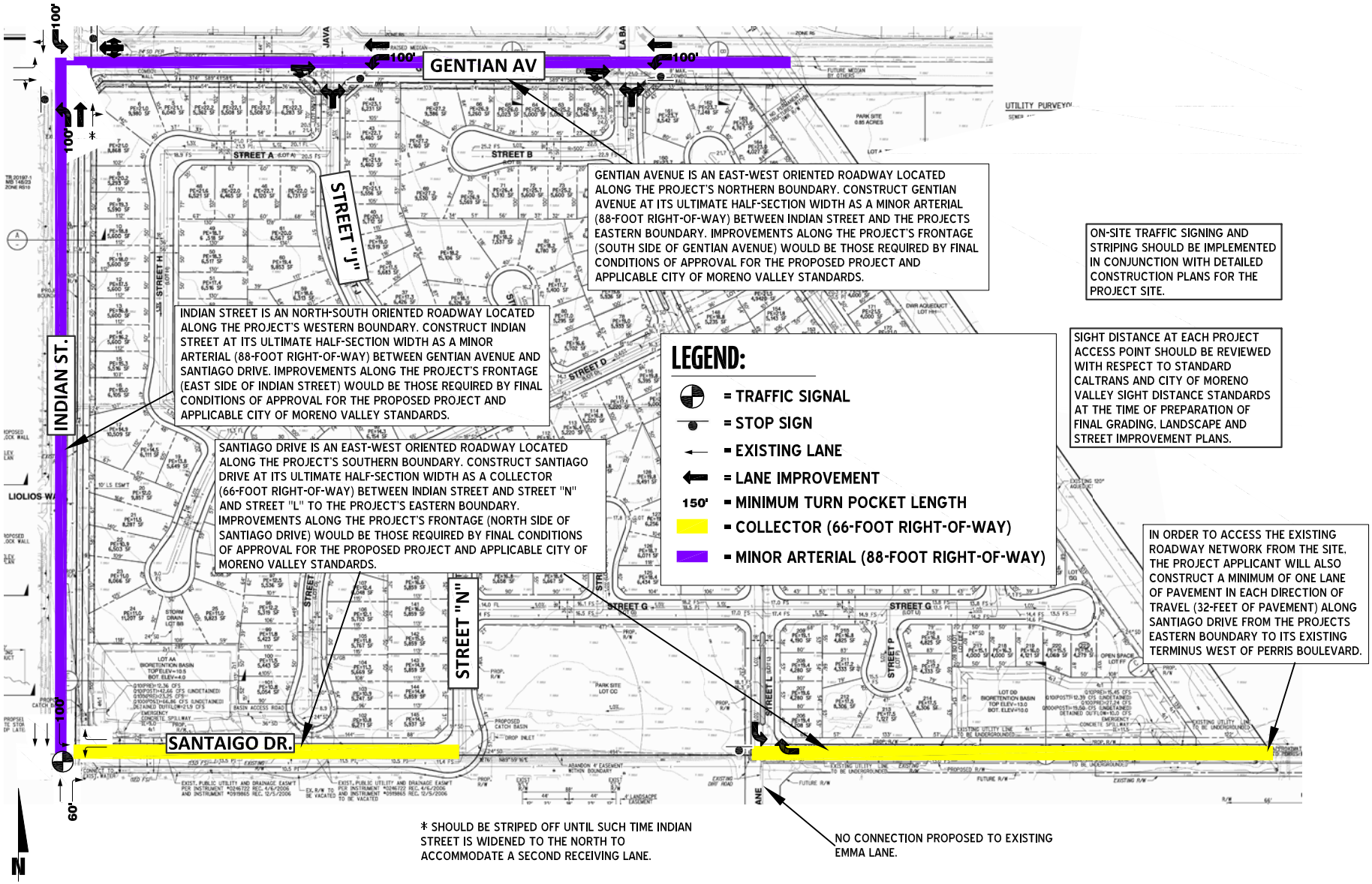
Gentian Avenue – Gentian Avenue is an east-west oriented roadway located along the Project's northern boundary. Construct Gentian Avenue at its ultimate half-section width as a minor arterial (88-foot right-of-way) between Indian Street and the Project's eastern boundary. Improvements along the Project's frontage (south side of Gentian Avenue) would be those required by final conditions of approval for the proposed Project and applicable City of Moreno Valley standards.

Indian Street – Indian Street is a north-south oriented roadway located along the Project's western boundary. Construct Indian Street at its ultimate half-section width as a minor arterial (88-foot right-of-way) between Gentian Avenue and Santiago Drive. Improvements along the Project's frontage (east side of Indian Street) would be those required by final conditions of approval for the proposed Project and applicable City of Moreno Valley standards.

Santiago Drive – Santiago Drive is an east-west oriented roadway located along the Project's southern boundary. Construct Santiago Drive at its ultimate half-section width as a collector (66-foot right-of-way) between Indian Street and Street N and Street L to the Project's eastern boundary. Improvements along the Project's frontage (north side of Santiago Drive) would be those required by final conditions of approval for the proposed Project and applicable City of Moreno Valley standards.

In order to access the existing roadway network from the site, the Project Applicant will also construct a minimum of one lane of pavement in each direction of travel (32-feet of pavement) along Santiago Drive from the Project's eastern boundary to its existing terminus west of Perris Boulevard.

EXHIBIT 1-3: SITE ACCESS AND SITE ADJACENT ROADWAY RECOMMENDATIONS



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1.8.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-3 illustrates the on-site and site adjacent recommended intersection lane improvements. Construction of on-site and site adjacent improvements are recommended to occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

The following intersection recommendations represent the minimum lanes that must be provided to achieve acceptable peak hour operations. As there is not anticipated to be sufficient receiving lanes beyond the Project, a minimum of one lane should be provided in each direction of travel until such time that the adjacent roadways are also widened to their ultimate General Plan roadway classification. However, the site adjacent roadways will be improved consistent with Section 1.8.1 *Site Adjacent Roadway Improvements* of this report.

Indian Street & Gentian Avenue (#3) – Install a stop control on the westbound approach and construct the intersection with the following geometrics:

Northbound Approach: One left turn lane with a minimum of 100-feet of storage, one through lane, and one shared through right turn lane. The second northbound through lane should not be striped until such time Indian Street is widened to the north to accommodate a second receiving lane.

Southbound Approach: One left turn lane with a minimum of 100-feet of storage and one shared through-right turn lane.

Eastbound Approach: One left turn lane and restripe the right turn lane as a shared through-right turn lane.

Westbound Approach: One shared left-through-right turn lane.

Indian Street & Santiago Drive (#4) – Maintain the existing traffic signal control and the following existing geometrics:

Northbound Approach: One through lane and one right turn lane with 60-feet of storage.

Southbound Approach: One left turn lane with 100-feet of storage and two through lanes.

Eastbound Approach: Not Applicable (N/A)

Westbound Approach: One left turn lane and one right turn lane.

Street J & Gentian Avenue (#6) – Intersection is proposed to align with the future Java Street to the north. Install a stop control on the northbound approach and construct the intersection with the following geometrics:

Northbound Approach: One shared left-right turn lane.

Southbound Approach: N/A

Eastbound Approach: One shared through-right turn lane.

Westbound Approach: One left turn lane with a minimum of 100-feet of storage and one through lane.

Street L & Gentian Avenue (#7) – Intersection is proposed to align with the future La Barca to the north. Install a stop control on the northbound approach and construct the intersection with the following geometrics:

Northbound Approach: One shared left-right turn lane.

Southbound Approach: N/A

Eastbound Approach: One shared through-right turn lane.

Westbound Approach: One left turn lane with a minimum of 100-feet of storage and one through lane.

Street L & Santiago Drive (#8) – No connection is proposed from Street L to the existing Emma Lane. Install a stop control on the southbound approach and construct the intersection with the following geometrics:

Northbound Approach: N/A

Southbound Approach: One left turn lane.

Eastbound Approach: N/A

Westbound Approach: One right turn lane.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Moreno Valley sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

1.9 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted along the site adjacent roadways of Gentian Avenue, Indian Street, and Santiago Drive for Opening Year Cumulative (2021) traffic conditions to determine the turn pocket lengths necessary to accommodate near term 95th percentile queues. The analysis was conducted for both the weekday AM and weekday PM peak hours.

The traffic modeling and signal timing optimization software package Synchro (Version 9) has been utilized to assess queues at the Project access points. Synchro is a macroscopic traffic software program that is based on the signalized and unsignalized intersection capacity analyses as specified in the HCM. SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations.

SimTraffic has been utilized to assess peak hour queuing at the site access driveways for Opening Year Cumulative With Project traffic conditions. The random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each turn lane. A SimTraffic simulation has been recorded 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 30-minute periods with 60-minute recording intervals.

A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. Although only the 95th percentile queue has been utilized for purposes of determining the necessary turn pocket storage lengths, the 50th percentile queues are also reported. The 50th percentile queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. In other words, if traffic were observed for 100 cycles, the 95th percentile queue would be the queue experienced with the 95th busiest cycle (or 5% of the time). The 50th percentile, or average, queue represents the typical queue length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed, it is simply based on statistical calculations. The average queue is the average of all the two-minute maximum queues observed by SimTraffic. The maximum back of queue observed for every two-minute period is recorded by SimTraffic. However, many jurisdictions utilize the 95th percentile queues for design purposes.

The storage length recommendations for the turning movements at the Project were shown previously on Exhibit 1-3 for Opening Year Cumulative traffic conditions. Queuing results are provided in Appendix 1.2.

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with City of Moreno Valley. (1)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The *Highway Capacity Manual* (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (6) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

City of Moreno Valley

The City of Moreno Valley requires signalized intersection operations analysis based on the methodology described in the HCM. (6) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. Study area intersections have been evaluated using the Synchro (Version 9) analysis software package.

Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows, while lower PHF values are indicative of greater variability of flow during the peak hour. (6)

2.2.2 UNSIGNALIZED INTERSECTIONS

All unsignalized intersections in the study area are located within the City of Moreno Valley. The City of Moreno Valley requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. (6) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the City of Moreno Valley Daily Roadway Capacity Values provided in the *City of Moreno Valley Transportation Engineering Division Traffic Impact Analysis (TIA) Preparation Guide* (1). Per the City of Moreno Valley TIA guidelines, roadway segments within the study area should maintain the LOS capacities illustrated on Exhibit 2-1. The daily roadway segment capacities for each type of roadway are summarized in Table 2-3. These roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic), and pedestrian bicycle traffic. As such, where the average daily traffic (ADT) based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

EXHIBIT 2-1: CITY OF MORENO VALLEY LEVEL OF SERVICE (LOS) STANDARDS

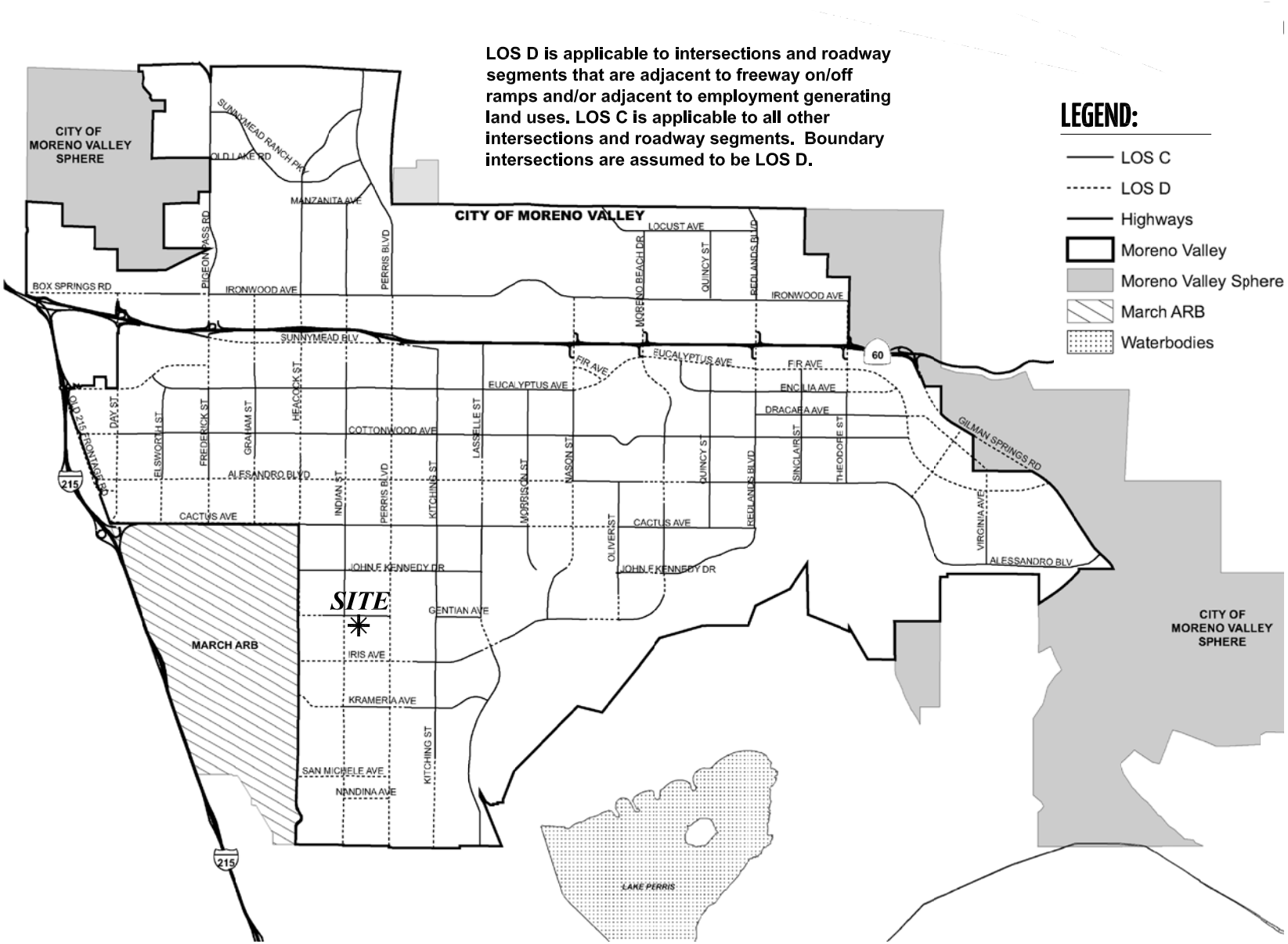

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TABLE 2-3: ROADWAY SEGMENT CAPACITY LOS THRESHOLDS[1]

Facility Type	Level of Service Capacity[1]				
	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

[1] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's TIA Preparation Guidelines (August 2007). These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS E service volumes are estimated maximum daily capacity for respective roadway classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

2.4 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the California Department of Transportation (Caltrans) and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)*, as amended by *the MUTCD 2014 California Supplement*, for all study area intersections. (7)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. Both the FHWA's *MUTCD* and the *MUTCD 2014 California Supplement* indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (7) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 criteria are basically identical for both the FHWA's *MUTCD* and the *MUTCD 2014 California Supplement*. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future unsignalized intersections, that currently do not exist, have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

Traffic signal warrant analyses were performed for the following unsignalized study area intersections during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips:

- Indian Street / Gentian Avenue (#3)
- Street J / Gentian Avenue (#6)
- Street L / Gentian Avenue (#7)
- Street L / Santiago Drive (#8)
- Perris Boulevard / Santiago Drive (#12)

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Analysis,* and Section 6 *Opening Year Cumulative (2021) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.5 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from each of the applicable surrounding jurisdictions.

2.5.1 CITY OF MORENO VALLEY

The definition of an intersection deficiency in the City of Moreno Valley is based on the City of Moreno Valley General Plan Circulation Element. The City of Moreno Valley General Plan states that target LOS C or LOS D be maintained along City roads (including intersections) wherever possible. Exhibit 2-1 depicts the level of service standards within the City.

2.5.2 CMP

In an effort to more directly link land use, transportation and air quality and promote reasonable growth, the County of Riverside adopted a CMP (December 2011). The RCTC monitors the CMP roadway network system to minimize LOS deficiencies. Within the project study area, the I-215 Freeway is recognized as a key transportation facility within the CMP system. Although Caltrans utilizes LOS D as their stated threshold, RCTC has adopted LOS E as the minimum standard for intersections and segments along the CMP System of Highways and Roadways. There are no CMP intersections within the study area.

2.6 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the City of Moreno Valley's DIF program and WRCOG TUMF, will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share financial contribution based on the Project's fair share

impact may be imposed in order to mitigate the Project's share of impacts in lieu of construction.

If the intersection is currently operating at acceptable LOS under Existing traffic conditions, the Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (2020 With Project Total Traffic – Existing Traffic)

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Moreno Valley General Plan Circulation Network, and a review of existing peak hour intersection operations, roadway segment, and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with City of Moreno Valley staff (Appendix 1.1), the study area includes a total of 13 existing and future intersections as shown previously on Exhibit 1-2 where the Project is anticipated to contribute 50 or more peak hour trips. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF MORENO VALLEY GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Moreno Valley. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Moreno Valley General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Moreno Valley General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Moreno Valley General Plan roadway cross-sections.

3.3 TRANSIT SERVICE

The study area is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the unincorporated Riverside County region. As shown on Exhibit 3-4, RTA Route 19 is the only existing bus route that serves a roadway within the study area in close proximity to the proposed Project. RTA Route 19 serves Perris Boulevard throughout the study area. However, Route 11 and Route 20 could also potentially serve the Project if extended to run along Indian Street.

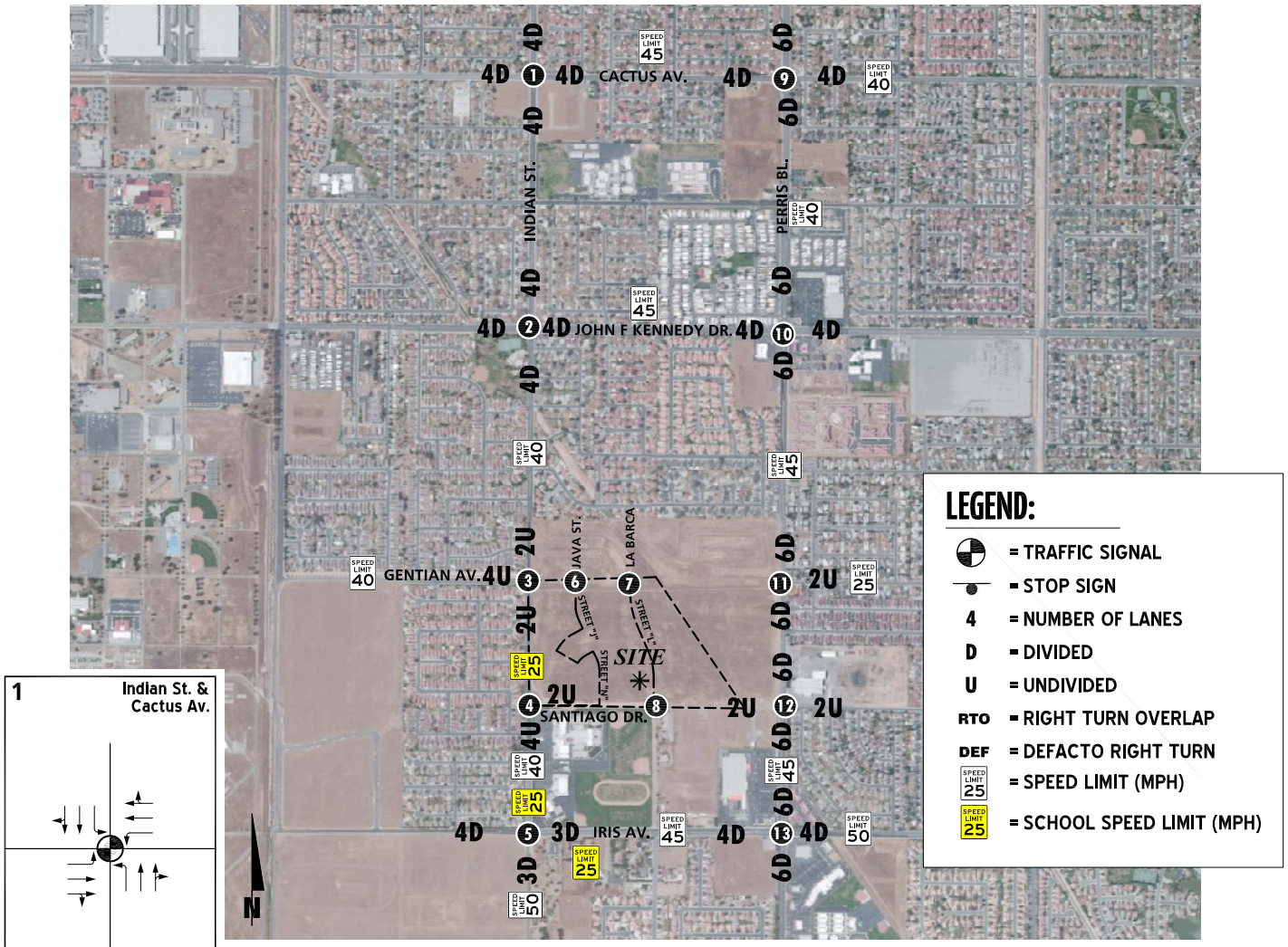
Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demands Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.4 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the City of Moreno Valley also includes a trails and bikeway system. The City of Moreno Valley trails and bikeway system are shown on Exhibit 3-5 and Exhibit 3-6. The Juan Bautista de Anza (Aqueduct Trail) bike trail is adjacent to the eastern boundary of the Project and crosses Gentian Avenue. Indian Street and Gentian Avenue are both Class II bike routes.

Field observations conducted in April 2016 indicate nominal pedestrian and bicycle activity within the study area. Exhibit 3-7 illustrates the existing pedestrian facilities, including sidewalks and crosswalk locations.

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



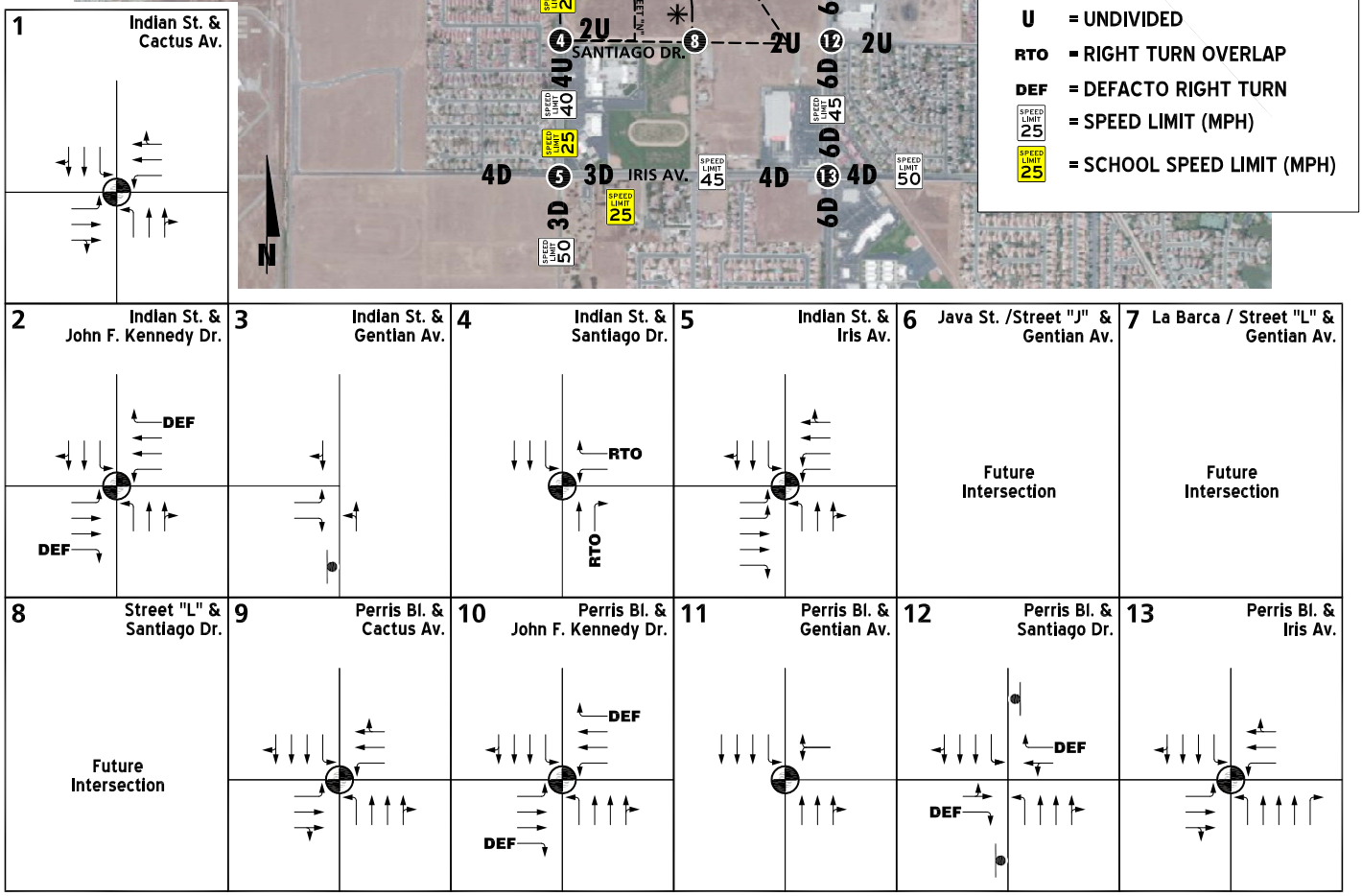


EXHIBIT 3-2: CITY OF MORENO VALLEY GENERAL PLAN CIRCULATION ELEMENT

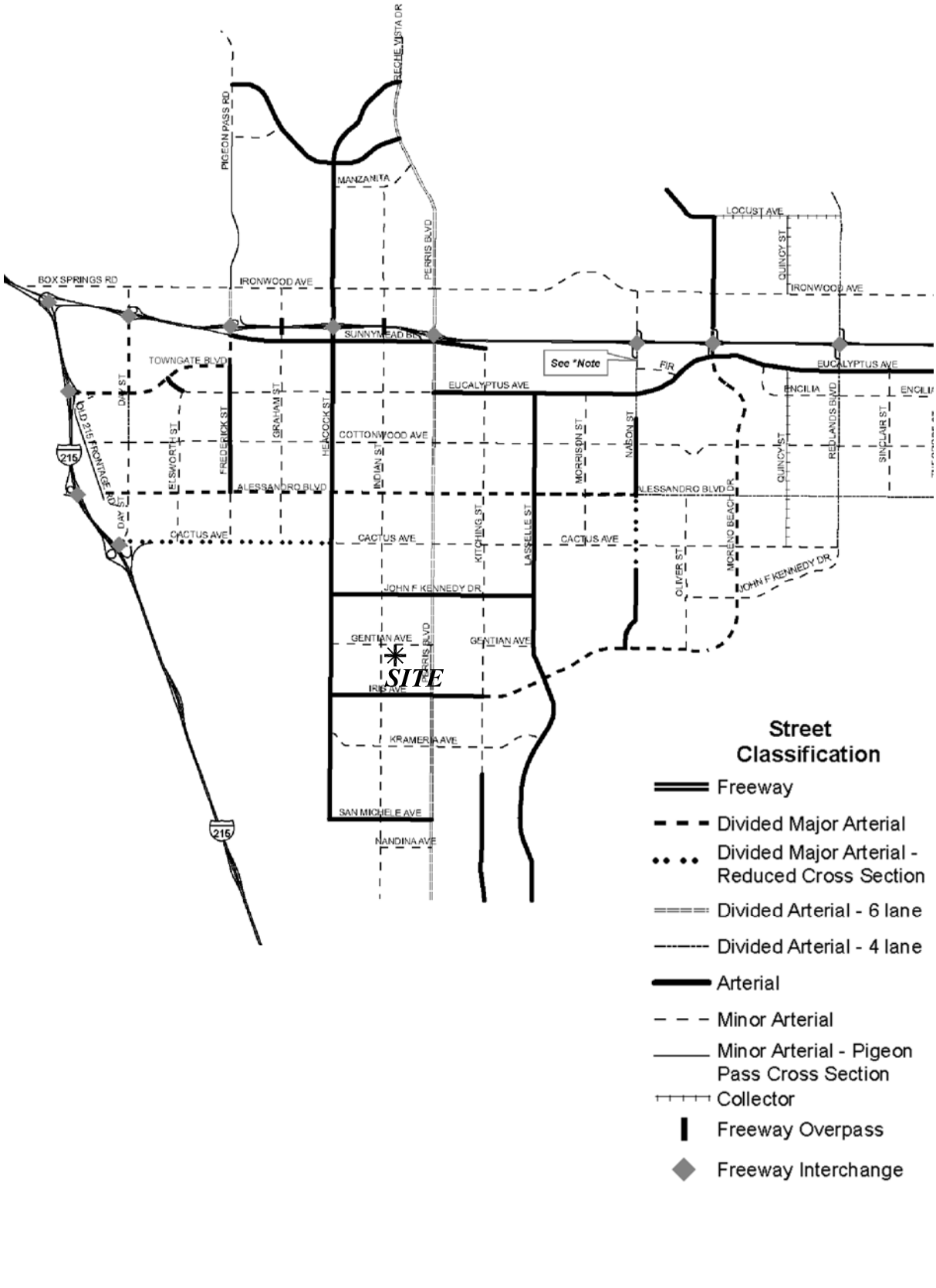


EXHIBIT 3-3: CITY OF MORENO VALLEY GENERAL PLAN ROADWAY CROSS-SECTIONS

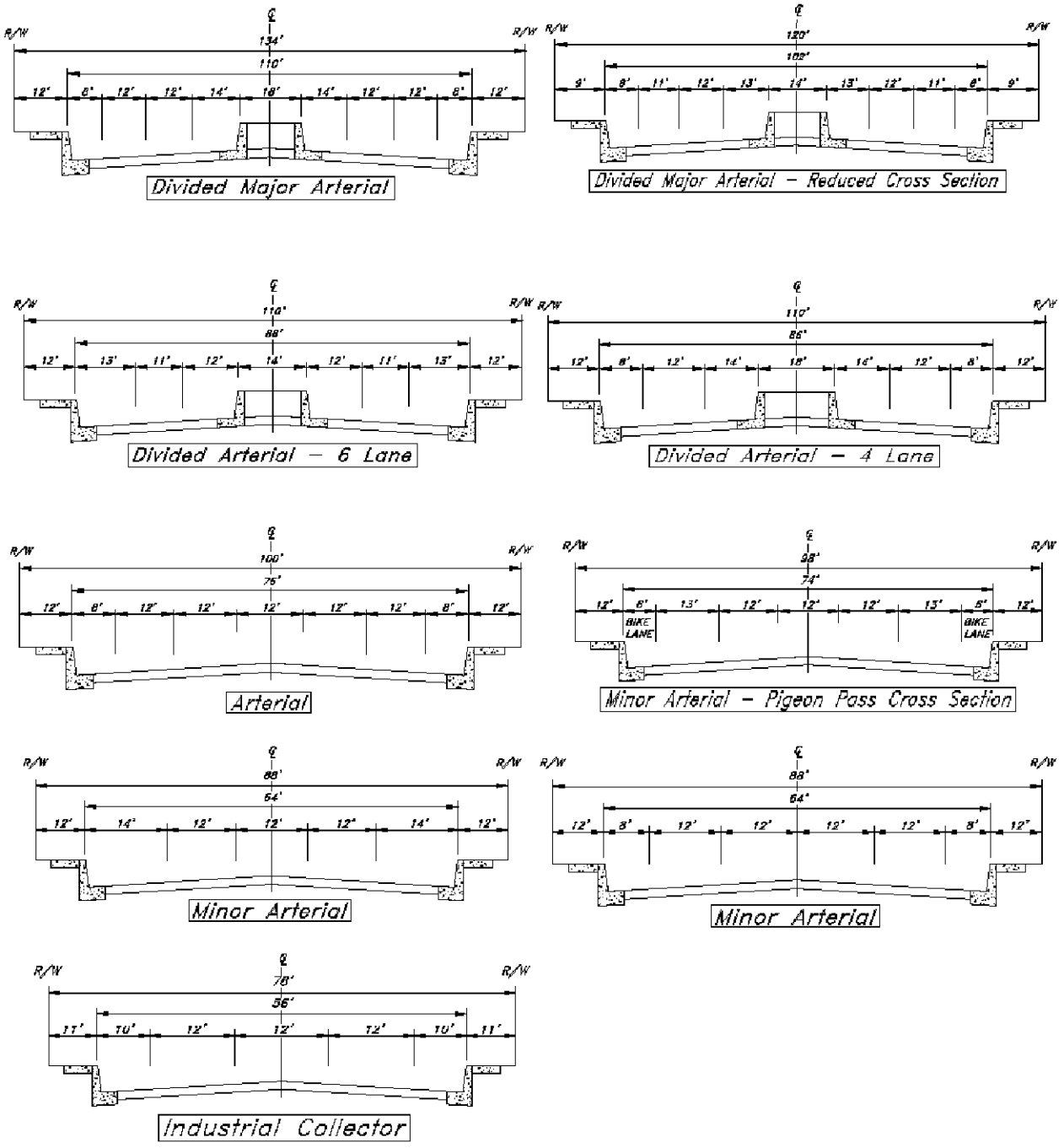


EXHIBIT 3-4: EXISTING TRANSIT

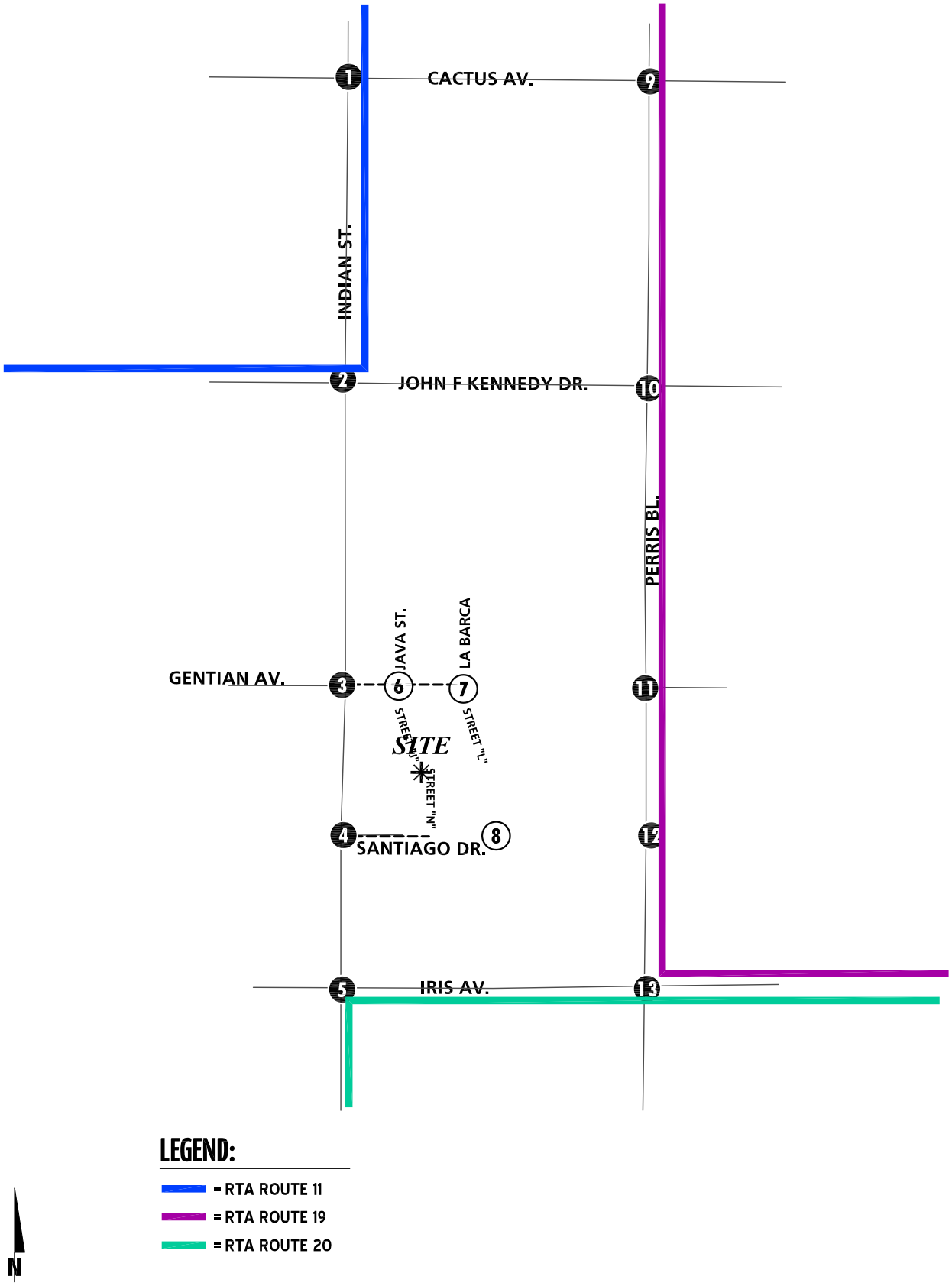


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EXHIBIT 3-5: CITY OF MORENO VALLEY MASTER PLAN OF TRAILS

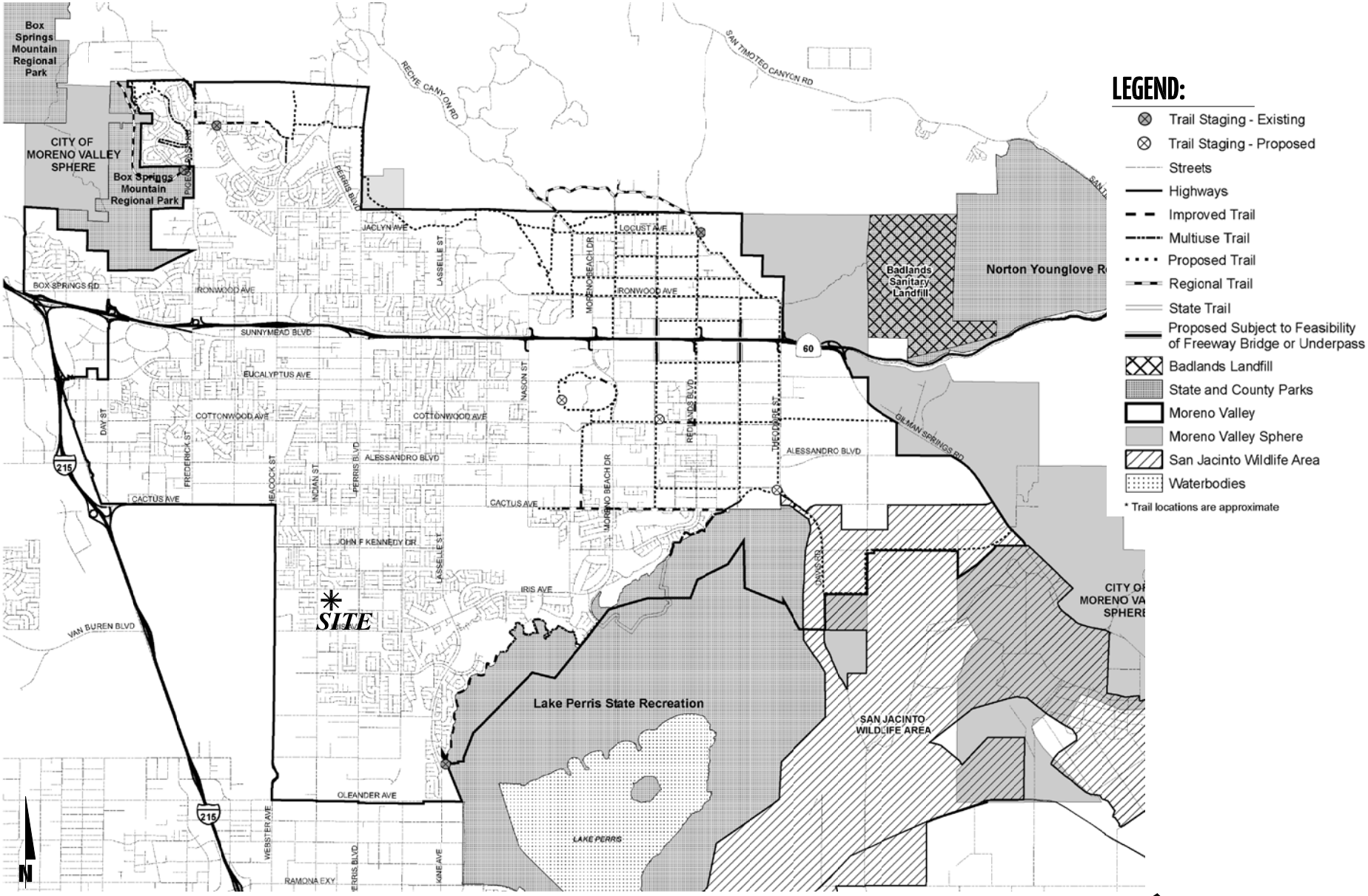
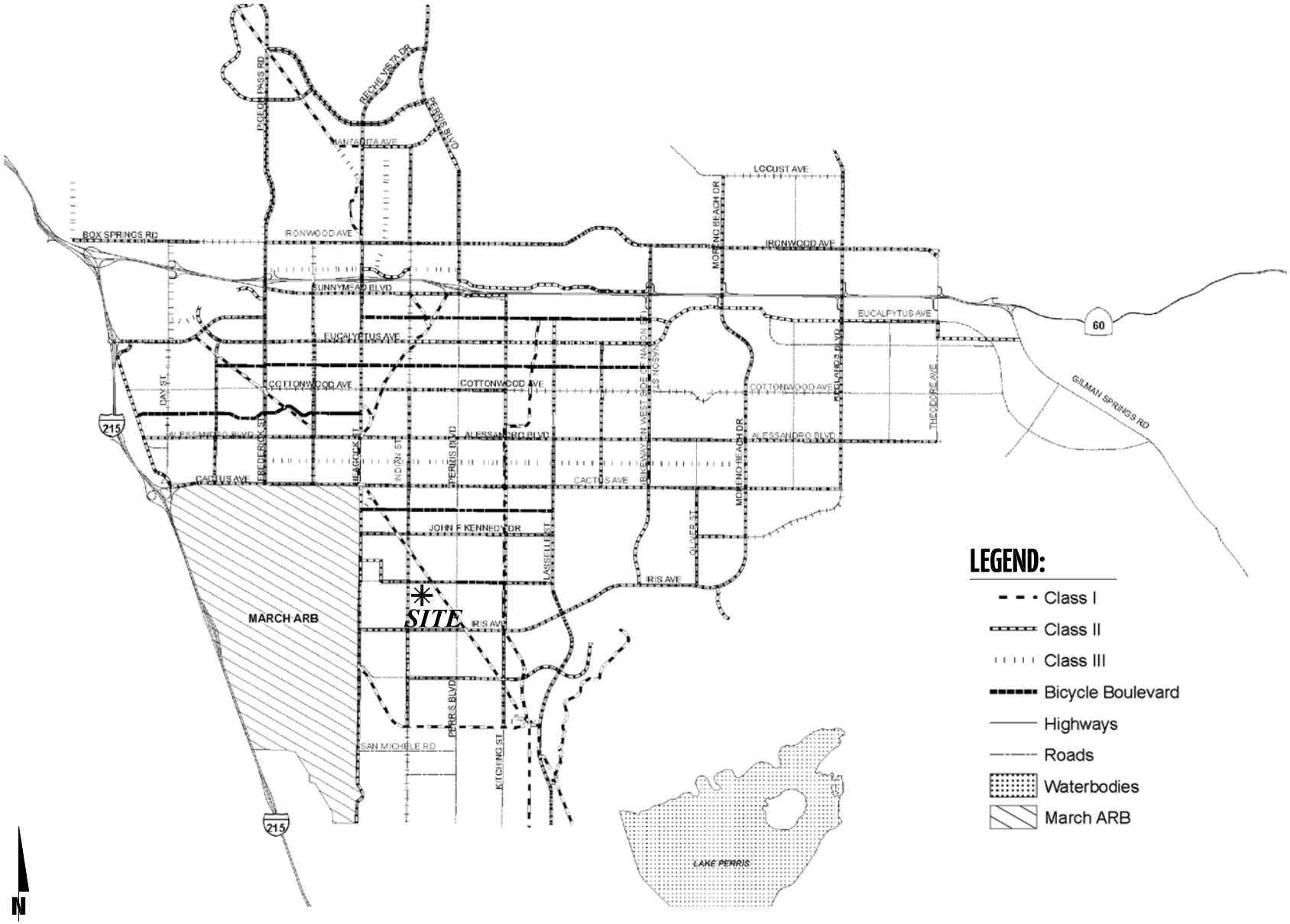
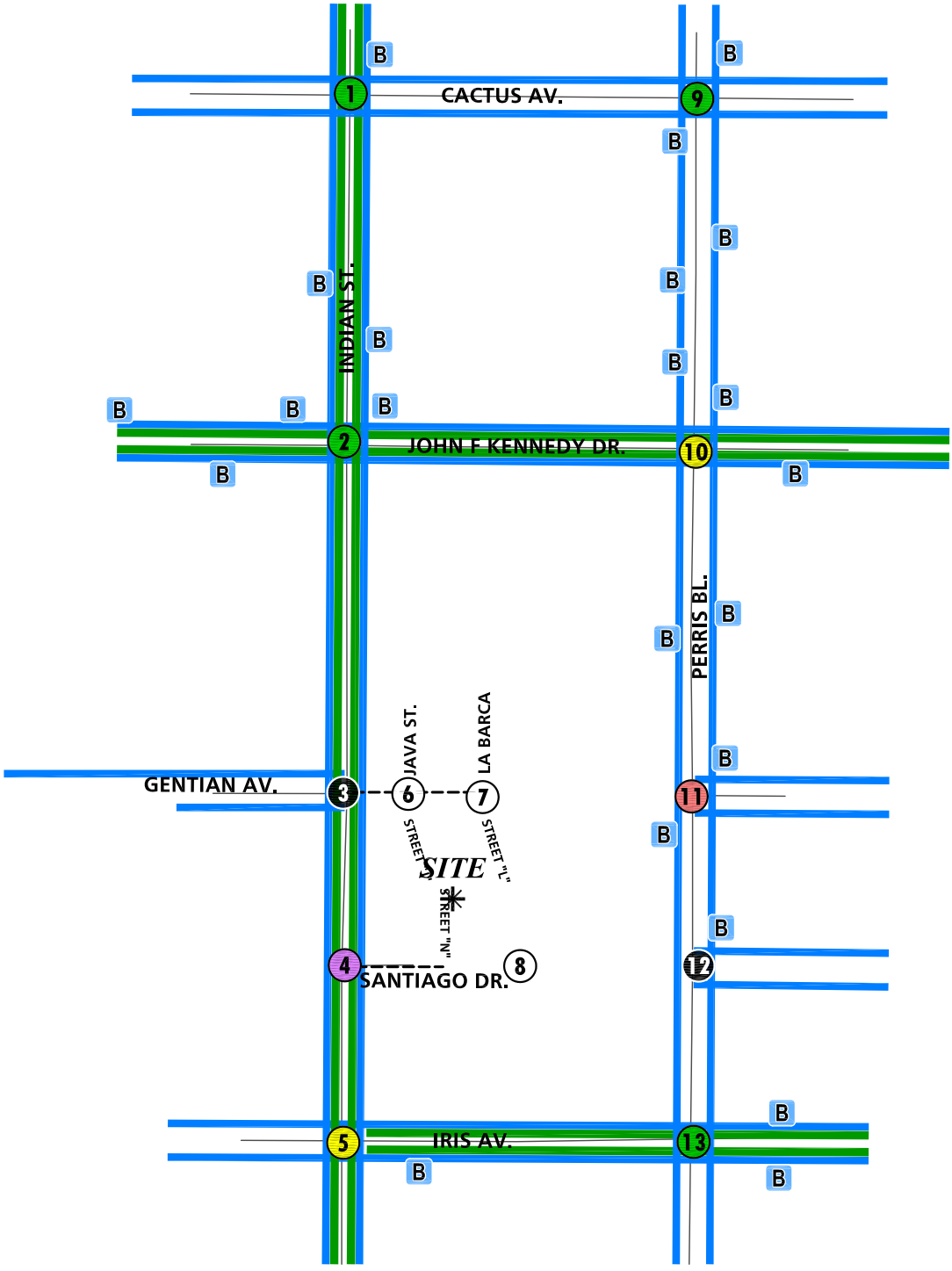


EXHIBIT 3-6: CITY OF MORENO VALLEY BIKE PLAN



URBAN CROSSROADS

EXHIBIT 3-7: EXISTING PEDESTRIAN FACILITIES



LEGEND:

- = SIDEWALK
- = BIKE LANE
- B = BUS STOP
- 0 = NO CROSSWALK
- 0 = FUTURE INTERSECTION
- 0 = CROSSWALK ON ALL APPROACHES
- 0 = CROSSWALK ON TWO APPROACHES
- 0 = SCHOOL CROSSWALK ON TWO APPROACHES
- 0 = SCHOOL CROSSWALK ON FOUR APPROACHES

N

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URBAN CROSSROADS

3.5 EXISTING (2016) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in April 2016. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules.

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access, and where there are currently no uses generating traffic (e.g., between ramp-to-arterial intersections, etc.).

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-8. The ADT volumes shown are based on 24-hour tube count data collected in April 2016. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-8.

3.6 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1 which indicates that all of the study area intersections are currently operating at an acceptable LOS during the peak hours, with the exception of the following intersection:

- Perris Boulevard / Santiago Drive (#12)

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-9. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

EXHIBIT 3-8: EXISTING (2016) TRAFFIC VOLUMES

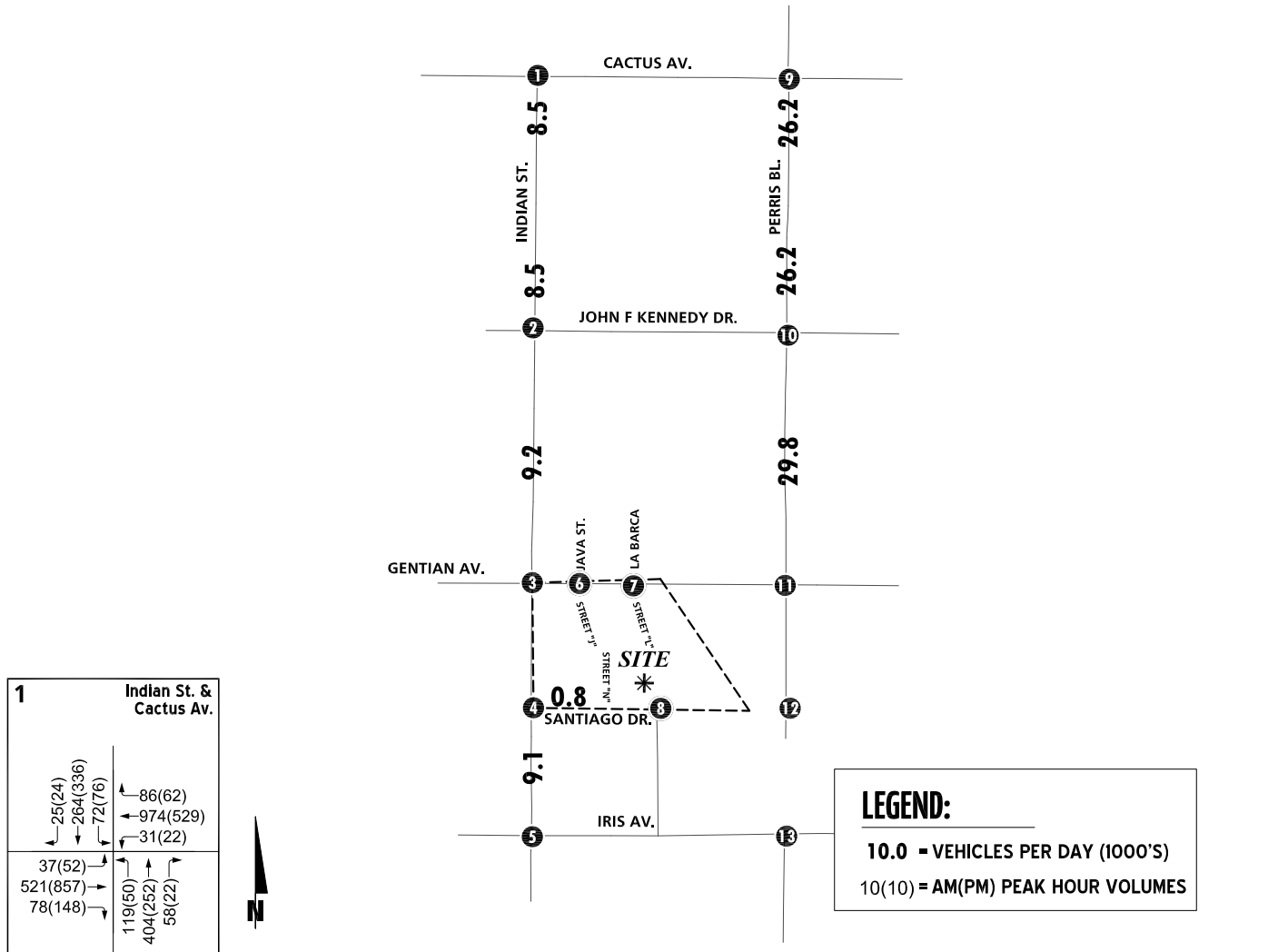
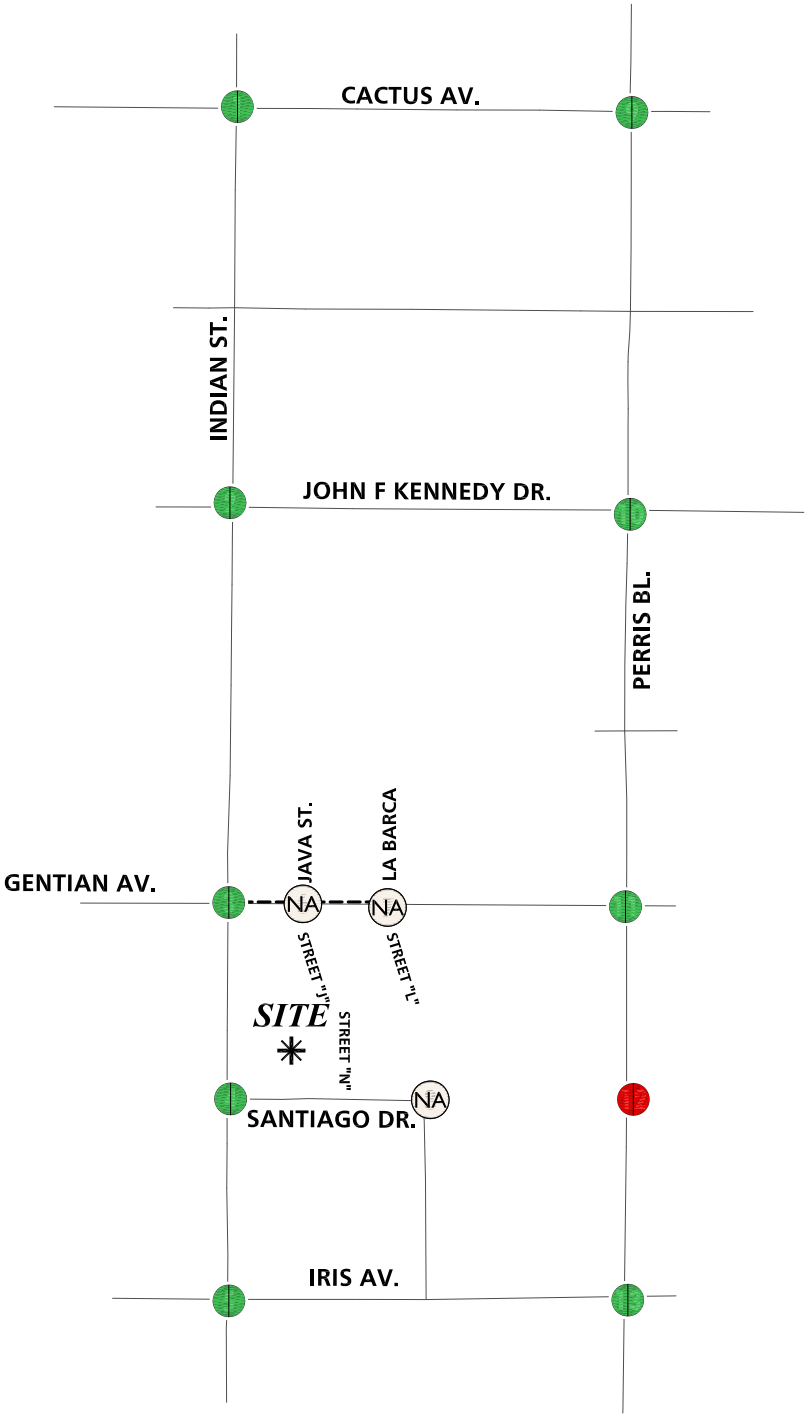


EXHIBIT 3-9: EXISTING (2016) SUMMARY OF LOS



LEGEND:

- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS
- (NA) = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

N

Table 3-1

Intersection Analysis for Existing (2016) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Indian St / Cactus Av	TS	1	2	0	1	2	0	1	2	0	1	2	0	28.4	27.2	C	C
2	Indian St / John F. Kennedy Dr	TS	1	2	0	1	2	0	1	2	d	1	2	d	26.5	24.6	C	C
3	Indian St / Gentian Av	CSS	0	1	0	0	1	0	1	0	1	0	0	0	20.0	15.1	C	C
4	Indian St / Santiago Dr	TS	0	1	1>	1	2	0	0	0	0	1	0	1>	14.7	2.6	B	A
5	Indian St / Iris Av	TS	1	2	0	1	2	0	2	2	1	2	2	0	44.8	30.6	D	C
6	Street J / Gentian Av		Future Intersection															
7	Street L / Gentian Av		Future Intersection															
8	Street L / Santiago Dr		Future Intersection															
9	Perris Bl / Cactus Av	TS	1	3	0	1	3	0	1	2	0	1	2	0	25.2	33.6	C	C
10	Perris Bl / John F. Kennedy Dr	TS	1	3	0	1	3	0	1	2	d	1	2	d	40.9	44.7	D	D
11	Perris Bl / Gentian Av	TS	0	3	0	1	3	0	0	0	0	0	1	0	5.9	4.9	A	A
12	Perris Bl / Santiago Dr	CSS	1	3	0	1	3	0	0	1	d	0	1	d	**47.4**	**43.7**	**E**	**E**
13	Perris Bl / Iris Av	TS	1	3	1	1	3	0	1	2	0	1	2	0	44.5	36.2	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. 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; > = Right-Turn Overlap Phasing; d= Defacto Right Turn Lane

[2] Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal

3.7 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Moreno Valley General Plan Circulation Element provides roadway volume capacity values presented previously on Table 2-3. The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2016) conditions roadway segment capacity analysis based on the City of Moreno Valley and City of Perris General Plan Circulation Element Roadway Segment Capacity/ LOS Thresholds identified previously on Table 2-3. As shown on Table 3-2, all the study area roadway segments currently operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds (i.e., LOS C or better).

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. The following study area intersection currently warrants a traffic signal for Existing traffic conditions:

- Perris Boulevard / Santiago Drive (#12)

Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

3.9 RECOMMENDED IMPROVEMENTS

3.9.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient to reduce each location's peak hour delay and improve the associated LOS grade to an acceptable LOS (LOS D or better). The effectiveness of the proposed recommended improvements is presented in Table 3-3 for Existing traffic conditions. Recommended improvements to address deficiencies for Existing traffic conditions are described below and analysis worksheets are provided in Appendix 3.4.

Recommended Improvement –Perris Boulevard / Santiago Drive (#12)

- Install a traffic signal.

3.9.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

All study area roadway segments are anticipated to operate at acceptable LOS (LOS C or better) for Existing (2016) traffic conditions. As such, no roadway improvements have been recommended.

Table 3-2

Roadway Segment Capacity Analysis for Existing (2016) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing (2016)	V/C	LOS	Acceptable LOS
1	Indian Street	Cactus Avenue to John F. Kennedy Dr.	4D	37,500	8,525	0.23	A	C
2		John F. Kennedy Dr. to Gentian Av.	4D	37,500	9,215	0.25	A	C
3		Santiago Dr. to Iris Av.	2U	12,500	9,105	0.73	C	D
4	Gentian Avenue	Indian St. to Street J/Java St.	--	--	N/A	N/A	N/A	C
5		Street J/Java St. to Street L/La Barca	--	--	N/A	N/A	N/A	C
6		West of Perris Bl.	--	--	N/A	N/A	N/A	C
7	Santiago Drive	East of Indian St.	2U	12,500	842	0.07	A	C
8		West of Perris Bl.	2U	12,500	13	0.00	A	C
9	Perris Boulevard	Cactus Avenue and John F. Kennedy Dr.	6D	56,300	26,172	0.46	A	D
10		John F. Kennedy Dr. to Gentian Av.	6D	56,300	29,801	0.53	A	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

N/A = Not Applicable; Segment does not exist.

[1] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's Traffic Impact Analysis Transportation Division's Traffic Impact Analysis Preparation Guidelines (August 2007). These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS E service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

Table 3-3

Intersection Analysis for Existing (2016) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
12	Perris Bl / Santiago Dr																	
	- Without Improvements	CSS	1	3	0	1	3	0	0	1	d	0	1	d	**47.4**	**43.7**	**E**	**E**
	- With Improvements	**TS**	1	3	0	1	3	0	0	1	d	0	1	d	9.1	8.3	A	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for righ turning vehicles to travel outside the through lanes

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; d= Defacto Right Turn Lane

[2] Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal o all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (o movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment, onto the study area roadway network. The Project is proposed to consist of a total of 221 single family detached residential dwelling units. Per the City's traffic study guidelines, the Opening Year will have a 5-year minimum horizon. As such, the Opening Year analysis will assess 2021 traffic conditions.

The Project is proposed to have access on Gentian Avenue via Street J and Street L and Santiago Drive via Street N and Street L. All driveways are assumed to allow full-access, with the exception of the intersections on Santiago Drive, which are both knuckles. Regional access to the project site is provided via the I-215 Freeway at Cactus Avenue interchange.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. The trip generation rates used for this assessment are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation manual (9th Edition, 2012). The ITE Trip Generation manual is a nationally recognized source for estimating site specific trip generation.

4.1.1 PROPOSED PROJECT: R5 RESIDENTIAL

The Single Family Residential land use (ITE Land Use Code 210) has been utilized for the purposes of this trip generation evaluation. The Project is proposing to develop the entire site (approximately 52.94 acres) per the R5 Residential General Plan Land Use designation, allowing up to 5 dwelling units per acre. Specifically, the Project is proposing 221 dwelling units, or approximately 4.2 dwelling units per acre. Trip generation rates and the daily and peak hour trip generation for proposed Project are also shown in Table 4-1. The proposed Project is anticipated to generate a net total of approximately 2,104 based trip-ends per day with 166 based AM peak hour trips and 221 based PM peak hour trips.

4.1.2 CURRENTLY ADOPTED GENERAL PLAN: R5 AND R30 RESIDENTIAL

Table 4-2 summarizes the resulting trip generation estimates based on the Currently Adopted General Plan approved land use (R5 and R30 Residential). 37.88 acres of the site is currently designated with the R5 residential land use, however, the remaining 15.06 acres is designated with the R30 land use with an allowable density of 24 to 30 dwelling units per acre. Based on the currently adopted General Plan land use designations, the site currently allows for the development of up to 551 dwelling units. The currently adopted land use is anticipated to generate a net total of approximately 3,903 trip-ends per day with 301 AM peak hour trips and 377 PM peak hour trips.

Table 4-1

Proposed Project Trip Generation Summary

Land Use	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates [1]									
Single Family Detatched Residential	DU	210	0.19	0.56	0.75	0.63	0.37	1.00	9.52

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Proposed Project Trip Generation Summary									
Single Family Detatched Residential	221	DU	42	124	166	139	82	221	2,104

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).

[2] DU = Dwelling Units

Table 4-2

Currently Adopted General Plan Land Use Trip Generation Summary

Land Use	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates [1]									
Single Family Detatched Residential	DU	210	0.19	0.56	0.75	0.63	0.37	1.00	9.52
Condo/Townhomes	DU	230	0.07	0.37	0.44	0.35	0.17	0.52	5.81

Land Use	Acres	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
Currently Adopted Trip Generation Summary										
Single Family Detatched Residential (R5)[3]	37.88	189	DU	36	106	142	119	70	189	1,803
Condo/Townhomes (R30)[4]	15.06	361	DU	25	134	159	127	61	188	2,100
Total	**52.94**	**551**	**DU**	**61**	**240**	**301**	**246**	**131**	**377**	**3,903**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).

[2] DU = Dwelling Units

[3] Allowable density: 5 dwelling units per acre.

[4] Allowable density: 24-30 dwelling units per acre.

4.1.3 TRIP GENERATION COMPARISON

As shown in Table 4-2, the development of the proposed Project is anticipated to generate 1,799 fewer trip-ends per day with 135 fewer AM peak hour trips and 156 fewer PM peak hour trips as compared to the currently adopted General Plan land uses. As such, evaluation of long-range traffic conditions was determined to be unnecessary as the proposed General Plan Amendment is anticipated to reduce the trips generated by the site. E+P and Opening Year Cumulative traffic conditions have been evaluated as part of this TIA in an effort to identify the near-term Project impacts, however, long-range traffic impacts are anticipated to be consistent with or less than those identified by the City's General Plan.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute.

The Project trip distribution was developed based on anticipated travel patterns to and from the Project site for both passenger cars and truck traffic. The truck trip distribution patterns have been developed based on the anticipated travel patterns for the high-cube warehousing trucks. The Project trip distribution patterns for both passenger cars and trucks were developed based on an understanding of existing travel patterns in the area, the geographical location of the site, and the site's proximity to the regional arterial and state highway system.

The trip distributions utilized for the purposes of this analysis are shown on Exhibit 4-1 and Exhibit 4-2. E+P conditions will assume Gentian Avenue to connect to the west at Indian Street only (see Exhibit 4-1). The trip distribution patterns assume that Gentian Avenue will be in place from the Project boundary east to Perris Boulevard for Opening Year Cumulative conditions only (see Exhibit 4-2). It is our understanding that the Project would have access to Indian Street via Santiago Drive and also Perris Boulevard via Santiago Drive. As such, this connection is assumed for both E+P and Opening Year Cumulative traffic conditions.

4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TIA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3 for E+P and Exhibit 4-4 for Opening Year Cumulative traffic conditions.

Table 4-3

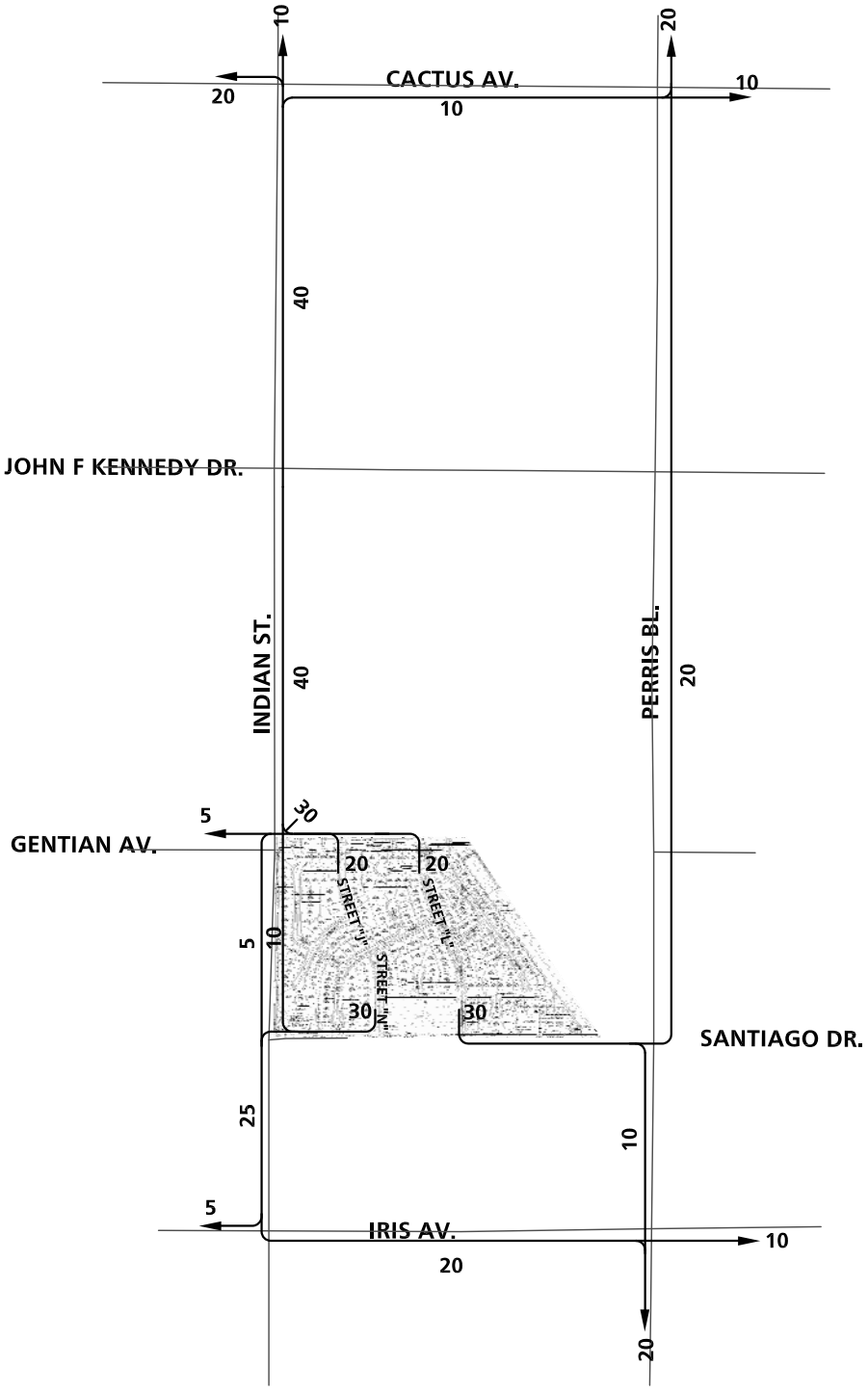
Trip Generation Comparison

Land Use	Acres	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
Proposed Project	52.94	221	DU	42	124	166	139	82	221	2,104
Currently Adopted	52.94	265	DU	61	240	301	246	131	377	3,903
Variance (Proposed - Currently Adopted)				**-19**	**-116**	**-135**	**-107**	**-49**	**-156**	**-1,799**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).

[2] DU = Dwelling Units

EXHIBIT 4-1: PROJECT (E+P) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

NOTE: PROJECT DISTRIBUTION ASSUMES SANTIAGO DRIVE IS IN PLACE BETWEEN THE PROJECT AND PERRIS BOULEVARD.

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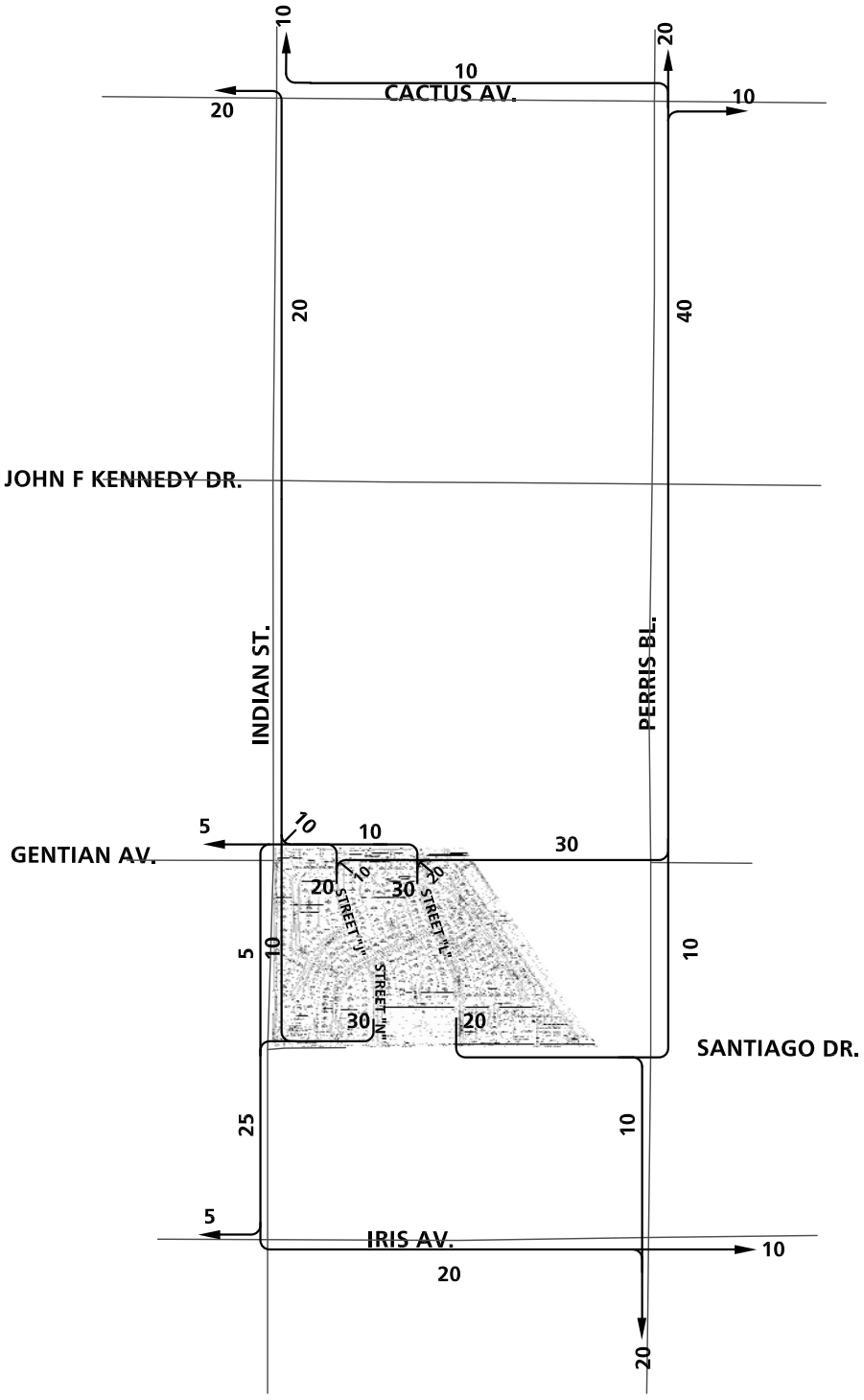
EXHIBIT 4-2: PROJECT (OPENING YEAR CUMULATIVE) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

NOTE: PROJECT DISTRIBUTION ASSUMES GENTIAN AVENUE AND SANTIAGO DRIVE ARE IN PLACE BETWEEN THE PROJECT AND PERRIS BOULEVARD.

N

EXHIBIT 4-3: PROJECT ONLY (E+P) TRAFFIC VOLUMES

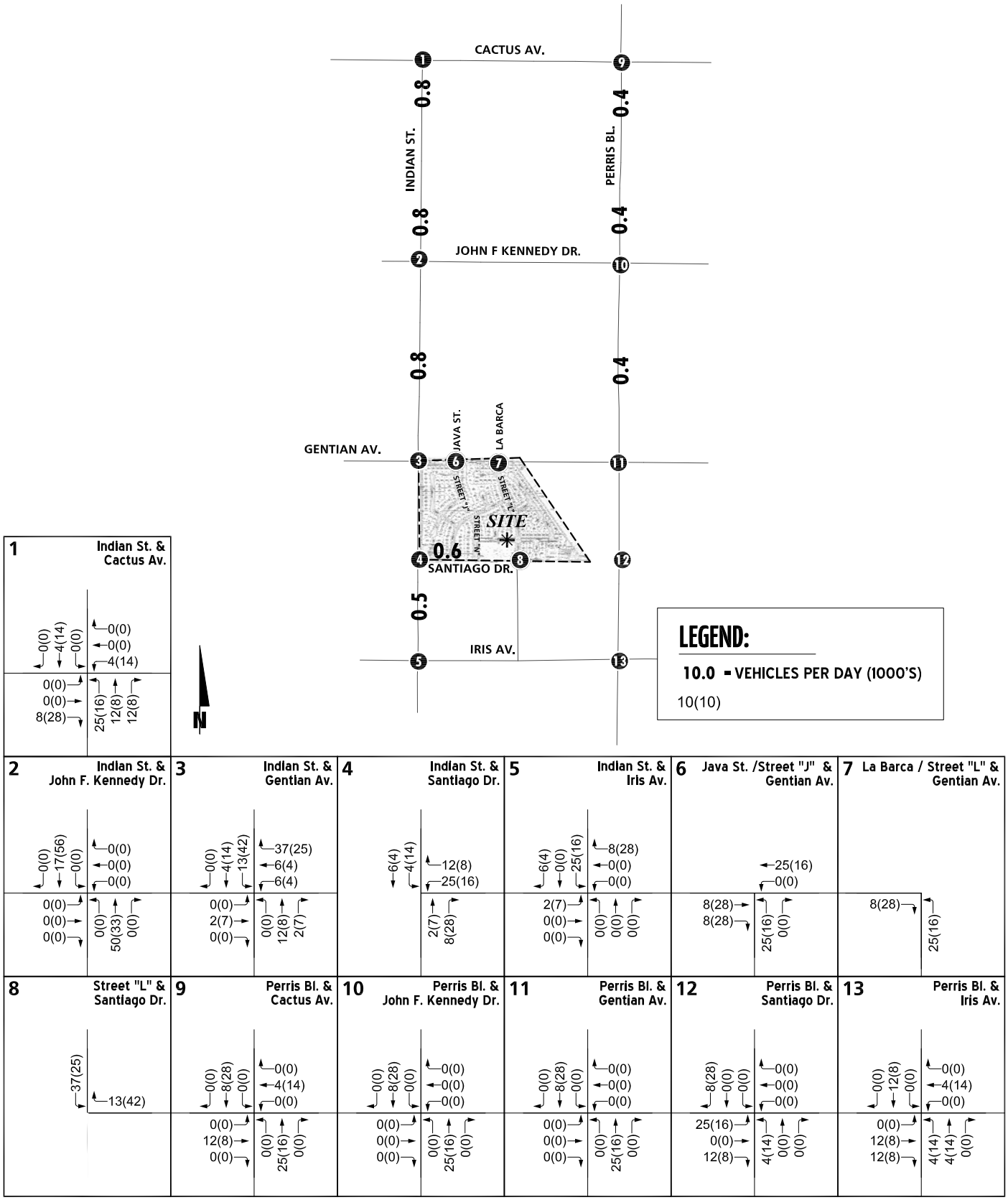
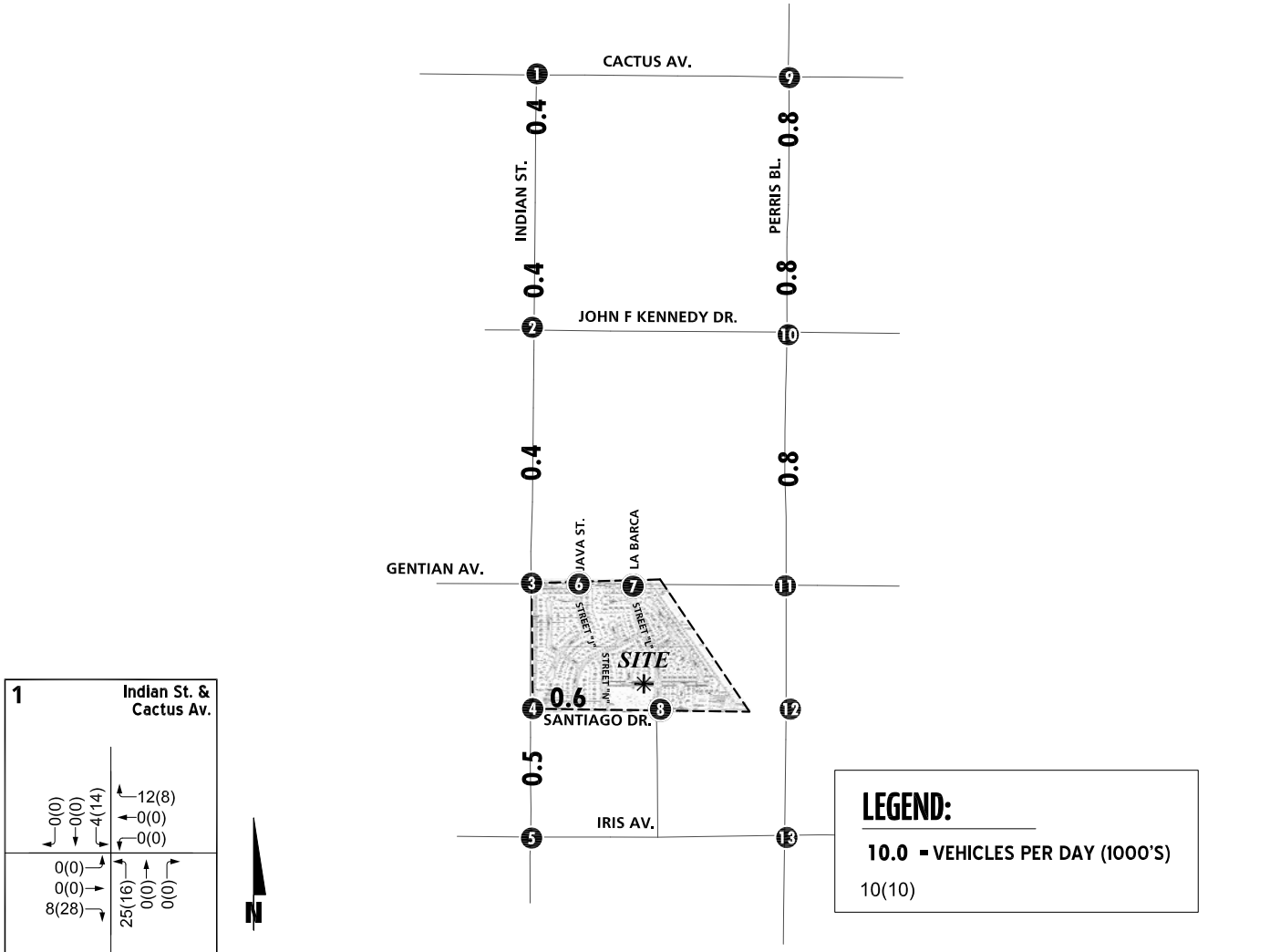
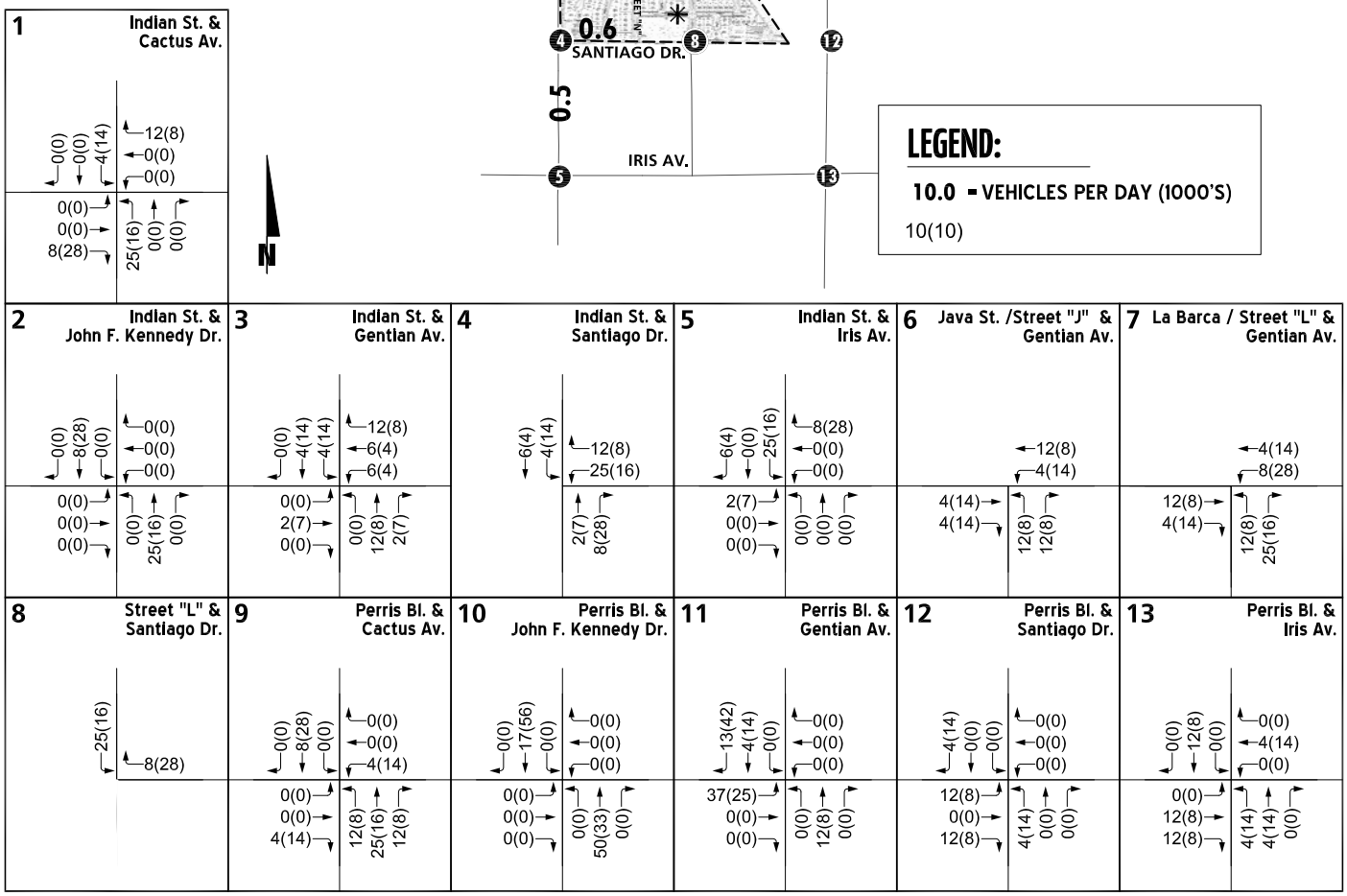


EXHIBIT 4-4: PROJECT ONLY (OPENING YEAR CUMULATIVE) TRAFFIC VOLUMES





4.5 BACKGROUND TRAFFIC

To account for growth in traffic between Existing Conditions (2016) and the Project Opening Year (2021), a compounded annual traffic growth rate of 2 percent was assumed (10.41 percent aggregate growth in background traffic for the period 2016—2021). The 2 percent annual growth rate is intended to capture non-specific ambient traffic growth.

In context, the TIA's assumed 2 percent compounded annual growth rate is considered a reasonable approximation of future traffic growth when compared to demographic projections reflected in other local and regional growth modeling efforts. More specifically, the Southern California Association of Governments (SCAG) 2016—2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) growth forecasts for the City of Moreno Valley assume the City population to increase from 197,600 in 2012 to 256,600 by the year 2040, or an approximate 0.94 percent growth rate compounded annually. The RTP/SCS assumed growth in households over the same 28-year period reflects an increase from 51,800 households to 73,000 households; a rate of 1.23 percent compounded annually. At the upper end of assumed RTP/SCS growth rates, employment over the same 28-year period is projected to increase from 31,400 jobs to 83,200 jobs; a rate of approximately 3.54 percent compounded annually. (3) The 2 percent compounded annual traffic growth rate employed in the TIA reflects the fact that not all persons comprising population growth, household growth, or employment growth would translate on a one to one basis as a new vehicle trip in the region; and establishes a judicious midrange estimate lying between the RTP/SCS assumed regional population growth rate (0.94 percent) and the RTP/SCS assumed regional employment growth rate (3.54 percent).

Conservatively, the TIA estimates of area traffic growth then add traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed annual 2 percent ambient growth in traffic noted above; and in some instances these related projects would likely not be implemented and functional within the 2021 Opening Year time frame assumed for the Project. The resultant assumed traffic growth rate employed in the TIA (2 percent annual ambient growth plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic impacts under 2021 conditions.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

The California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Moreno Valley. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. The cumulative projects provided by each of the applicable surrounding agencies are provided in Appendix 4.1.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e. 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year Cumulative forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-5, listed on Table 4-4, and have been considered for inclusion.

Although it is unlikely that these cumulative projects would be fully built and occupied by Year 2021, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic impacts.

Any other cumulative projects that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative development project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5.

4.7 NEAR-TERM TRAFFIC FORECASTS

To provide a comprehensive assessment of potential transportation network deficiencies, the "buildup" analysis was performed in support of this work effort. The "buildup" method was used to approximate the Opening Year Cumulative traffic forecasts, and is intended to identify the cumulative impacts on both the existing and planned near-term circulation system. The Opening Year Cumulative traffic forecasts include background traffic, traffic generated by other cumulative development projects within the study area, and the traffic generated by the proposed Project.

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the near-term 2020 traffic conditions. An ambient growth factor of 10.41% (2021) accounts for background (area-wide) traffic increases that occur over time, up to the year 2021 from the year 2016 (compounded two percent per year growth over a 5-year period). Traffic volumes generated by the Project are then added to assess the Opening Year Cumulative traffic conditions. The 2021 roadway network is similar to the existing conditions roadway network with the exception of future roadways and intersections proposed to be developed by the Project.

EXHIBIT 4-5: CUMULATIVE DEVELOPMENT PROJECTS LOCATION MAP

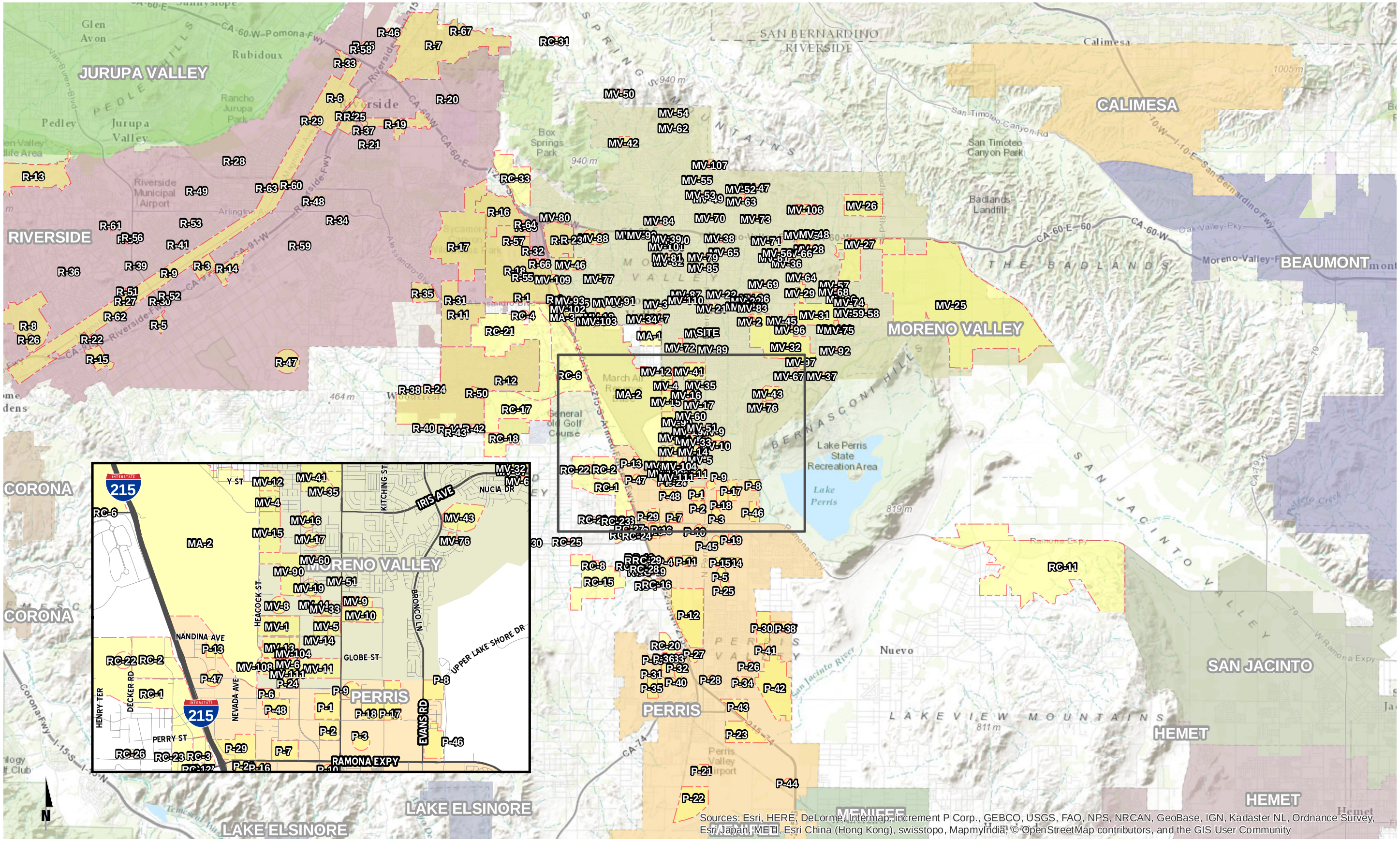


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EXHIBIT 4-6: CUMULATIVE DEVELOPMENT ONLY TRAFFIC VOLUMES

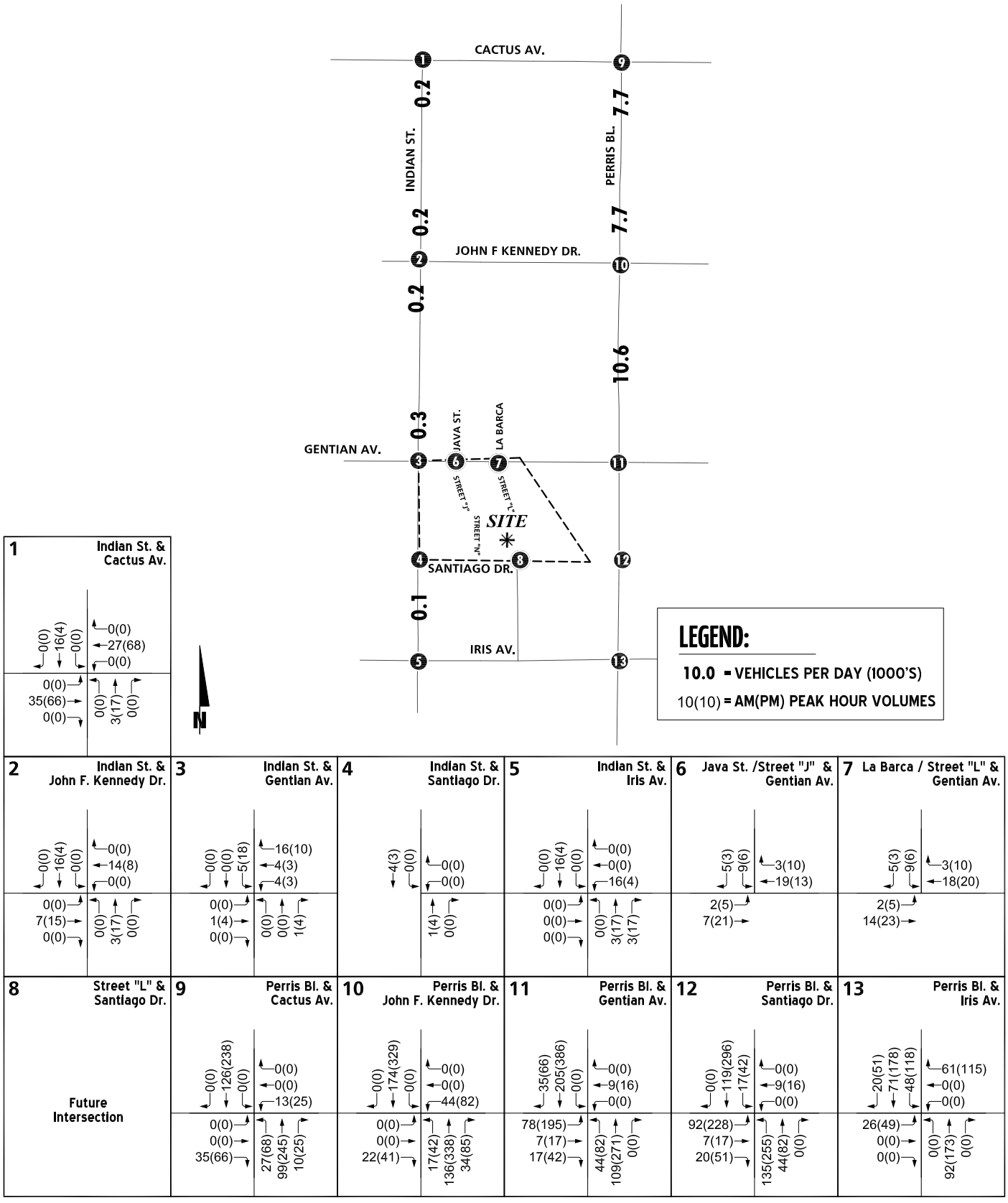

Table 4-4

Cumulative Development Land Use Summary

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
CITY OF MORENO VALLEY				
MV-1	PA 06-0152 & PA 06-0153 (First Park Nandina I & II)	High-Cube Warehouse	483.767	TSF
MV-2	Bella Vista Apartments	Apartments	220.00	DU
MV-3	PA 04-0063 (Centerpointe Buildings 8 and 9)	General Light Industrial	361.384	TSF
MV-4	PA 07-0035; PA 07-0039 (Moreno Valley Industrial Park)	General Light Industrial	204.657	TSF
		High-Cube Warehouse	409.920	TSF
MV-5	First Inland Logistics Center	High-Cube Warehouse	400.130	TSF
MV-6	Indian Street Commerce Center Project	High-Cube Warehouse	436.350	TSF
MV-7	PA 08-0093 (Centerpointe Business Park II)	General Light Industrial	99.988	TSF
MV-8	PA 06-0021; PA 06-0022; PA 06-0048; PA 06-0049 (Komar Investments)	Warehousing	287.100	TSF
MV-9	PA 06-0017 (Ivan Devries)	Industrial Park	569.200	TSF
MV-10	Modular Logistics (Dorado Property)	High-Cube Warehouse	1109.378	TSF
MV-11	PA 09-0004 (Vogel)	High-Cube Warehouse	800.000	TSF
	Sares Regis	High-Cube Warehouse	1600.000	TSF
MV-12	TM 34748	SFDR	135	DU
MV-13	First Nandina Logistics Center	High-Cube Warehouse	1450.000	TSF
MV-14	First Park Nandina III	High-Cube Warehouse	691.960	TSF
	Moreno Valley Commerce Park	High-Cube Warehouse	354.321	TSF
MV-15	March Business Center	General Light Industrial	16.732	TSF
		Warehousing	87.429	TSF
		High-Cube Warehouse	1380.246	TSF
MV-16	TM 33810	SFDR	16	DU
MV-17	TM 34151	SFDR	37	DU
MV-18	373K Industrial Facility	High-Cube Warehouse	373.030	TSF
MV-19	TM 32716	SFDR	57	DU
MV-20	TM 33417	Condo/Townhomes	60	DU
MV-21	TM 34988	Condo/Townhomes	271	DU
MV-22	TM 34216	Condo/Townhomes	39	DU
MV-23	TM 34681	Condo/Townhomes	49	DU
MV-24	PA 08-0079-0081 (WinCo Foods)	Discount Supermarket	95.440	TSF
		Specialty Retail	14.800	TSF
MV-25	Moreno Beach Marketplace (Lowe's)	Commercial Retail	175.000	TSF
	Auto Mall Specific Plan (Planning Area C)	Commercial Retail	304.500	TSF
	Westridge	High-Cube Warehouse	937.260	TSF
	ProLogis	High-Cube Warehouse	1916.190	TSF
		Warehousing	328.448	TSF
	World Logistics Center	High-Cube Warehouse	41400.000	TSF
		Warehousing	200.000	TSF
		Gas Station w/ Market	12	VFP
		Existing SFDR	7	DU
MV-26	a TR 32460 (Sussex Capital)	SFDR	57	DU
	b TR 32459 (Sussex Capital)	SFDR	11	DU
	c TR 30411 (Pacific Communities)	SFDR	24	DU
	d TR 33962 (Pacific Scene Homes)	SFDR	31	DU
	e TR 30998 (Pacific Communities)	SFDR	47	DU
MV-27	a P06-158 (Gascon)	Commercial Retail	116.360	TSF
	b Auto Mall Specific Plan (PAC)	Commercial Retail	304.500	TSF
	c ProLogis	SFDR	126	DU
		High-Cube Warehouse	1529.498	TSF
	d TR 35823 (Stowe Passco)	SFDR	261	DU
		Apartments	216	DU
MV-28	TR 36340	SFDR	275	DU
MV-29	a TR 31771 (Sanchez)	SFDR	25	DU
	b TR 34397 (Winchester Associates)	SFDR	52	DU
	c TR 32645 (Winchester Associates)	SFDR	53	DU
MV-30	Lowe's (Moreno Beach Marketplace)	Home Improvement Store	175.000	TSF
MV-31	a Senior Assisted Living	Assisted Living Units	139	DU
	b TR 31590 (Winchester Associates)	SFDR	96	DU
	c TR 32548 (Gabel, Cook & Associates)	SFDR	107	DU
	d TR 32218 (Whitney)	SFDR	63	DU
	e Medical Plaza	Medical Offices	311.633	TSF
MV-32	a Moreno Medical Campus	Medical Offices	80.000	TSF
	b Aqua Bella Specific Plan	SFDR	2,922	DU
	c TR 34329 (Granite Capitol)	SFDR	90	DU
	d Cresta Bella	General Office	30.000	TSF

Table 4-4

Cumulative Development Land Use Summary

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
MV-33	Moreno Valley Industrial Center (Industrial Area SP)	General Light Industrial	354.810	TSF
MV-34	Centerpointe Business Park	General Light Industrial	356.000	TSF
MV-35	Moreno Valley Shopping Center	Free Standing Discount Store	189.520	TSF
		Gas Station w/ Market / Car Wash	16	VFP
MV-36	TR 31305 / Richmond American	Residential	87	DU
MV-37	TR 34329 / Granite Capitol	Residential	90	DU
MV-38	TR 31814 / Moreno Valley Investors	Residential	60	DU
MV-39	TR 33771 / Creative Design Associates	Residential	12	DU
MV-40	TR 35663 / Kha	Residential	12	DU
MV-41	TR 22180 / Young Homes	Residential	140	DU
MV-42	TR 32515	Residential	161	DU
MV-43	TR 32142	Residential	81	DU
MV-44	San Michele Industrial Center (Industrial Area SP)	General Light Industrial	865.960	TSF
MV-45	Commercial Medical Plaza	Medical Offices	311.633	TSF
MV-46	Edgemont Street, South of Eucalyptus Av. (PA14-0042)	Apartments	112	DU
MV-47	28860 Professor's Fun IV, LLC/Winchester Associates, Inc.	SFDR	9	DU
MV-48	20636 Pacific Communities	SFDR	67	DU
MV-49	31297 Randy McFarland	SFDR	7	DU
MV-50	31394 Pigeon Pass, Ltd.	SFDR	78	DU
MV-51	31442 SKG Pacific Enterprises Inc.	SFDR	63	DU
MV-52	31517 Professors Prop Six/Winchester Assoc.	SFDR	83	DU
MV-53	31621 Peter Sanchez	SFDR	25	DU
MV-54	32005 Red Hill Village, LLC	SFDR	214	DU
MV-55	32126 Salvador Torres	SFDR	35	DU
MV-56	32194 Arman Pezeshkifar	SFDR	32	DU
MV-57	32408 Sanstone Inc.	SFDR	80	DU
MV-58	32844 Winchester Associates	SFDR	17	DU
MV-59	32978 Focus Estates	SFDR	19	DU
MV-60	33024 Adam Wislar	SFDR	8	DU
MV-61	33275 Jose Guzman	SFDR	4	DU
MV-62	33388 SCH Development, LLC	SFDR	16	DU
MV-63	33436 Winchester Associates	SFDR	105	DU
MV-64	33963 Rance Garrett	SFDR	31	DU
MV-65	34043 RM3 Building and Development	SFDR	12	DU
MV-66	31621 Beazer Homes	SFDR	274	DU
MV-67	30268 Pacific Communities	SFDR	83	DU
MV-68	31414 GRF - Majestic Hills	SFDR	31	DU
	Tract 31618	SFDR	55	DU
MV-69	31494 Winchester Associates	SFDR	12	DU
MV-70	32715 GFR - Trinity	SFDR	30	DU
MV-71	33256 Granite Homes	SFDR	79	DU
MV-72	32711 Isaac Genah	SFDR	9	DU
MV-73	35530 Moreno Gilman 650, LLC-Quail Ranch	SFDR	1,105	DU
MV-74	35534 Leedco Engineers	SFDR	12	DU
MV-75	36436 CV Communities	SFDR	159	DU
MV-76	36401 Continental East Fund III, LLC	SFDR	92	DU
MV-77	32215 Winchester Associates "Scottish Village"	MFDR	194	DU
MV-78	32756 Jimmy Lee	MFDR	24	DU
MV-79	35369 Tason Myers Property	MFDR	12	DU
MV-80	35414 Lincoln Property Co. Southwest	MFDR	266	DU
MV-81	35769 Michael Chen	MFDR	16	DU
MV-82	PA09-0006 Jim Nydam	MFDR	15	DU
MV-83	35861 Frederick Homes	MFDR	24	DU
MV-84	36038 Alessandro Village Plaza, LLC	MFDR	96	DU
MV-85	35304 Jimmy Lee	MFDR	12	DU
MV-86	Alessandro & Lasselle	Shopping Center	140.000	TSF
MV-87	Food 4 Less - Fueling Station	Gas Station with Convenience Market	16	VFP
MV-88	El Paso (food court)	Fast Food no Drive Thru	--	TSF
MV-89	O'Reilly Automotive	Automobile Parts Sale	7.500	TSF
	PA15-004	Retail/Restaurant/Fast Food	2.973	TSF
MV-90	Moreno Valley Logistics	High-Cube Warehouse	1351.770	TSF
		Light Industrial	385.748	TSF
MV-91	Restaurant	Restaurant	9.000	TSF
MV-92	Rancho Belago Plaza - Retail	Retail	14.000	TSF
MV-93	Yum Yum Donut Shop	Coffee/Donut Shop w/o Drive-Thru	4.351	TSF

Cumulative Development Land Use Summary

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
MV-94	Hawthorn Inn & Suites	Hotel	79	RMS
MV-95	Sleep Inn Suites	Hotel	66	RMS
MV-96	Integrated Care Communities	Nursing Home	44.000	TSF
MV-97	Kaiser Permanente - Emergency Room Expansion	Medical Offices	--	TSF
MV-98	Moreno Valley Professional Center	General Office	84.000	TSF
MV-99	Olivewood Plaza - Office Building	General Office	23.000	TSF
MV-100	Renaissance Village of Moreno Valley	Senior Adult Housing-Attached	44	DU
MV-101	Riverside County Office Building	General Office	52.000	TSF
MV-102	Gateway Business Park	Residential Condo/Townhouse	34	DU
MV-103	Shaw Development	High-Cube Warehouse	367.000	TSF
MV-104	IDS/Real Estate Group - Nandina Distribution Center	High-Cube Warehouse	697.000	TSF
MV-105	Stoneridge Town Centre - Vacant Restaurant	Restaurant	5700.000	TSF
MV-106	Ironwood Residential	SFDR	144	DU
MV-107	TTM 31592 (P 13-078) Covey Ranch	SFDR	115	DU
MV-108	PA 06-0014 (Pierce Hardy Limited Partnership)	Lumbar Yard	67.000	TSF
MV-109	P06-1408	Retail	75.300	TSF
MV-110	PA13-009	Gas Station	16	VFP
MV-111	Moval Assemblage	High-Cube Warehouse	459.945	TSF
MARCH JOINT POWERS AUTHORITY				
MA-1	March Lifecare Campus Specific Plan[4]	Medical Offices	190.000	TSF
		Commercial Retail	210.000	TSF
		Research & Education	200.000	TSF
		Hospital	50	Beds
		Institutional Residential	660	Beds
MA-2	Airport Master Plan	Airport Use	559.000	TSF
MA-3	Freeway Business Center (March JPA)	High-Cube Warehouse	710.083	TSF
COUNTY OF RIVERSIDE				
RC-1	SP 341; PP 21552 (Majestic Freeway Business Center)	High-Cube Warehouse	6100.715	TSF
RC-2	PP 20699 (Oleander Business Park)	Warehousing	1206.710	TSF
RC-3	Ramona Metrolink Station	Light Rail Transit Station	300	SP
RC-4	PP 22925 (Amstar/Kaliber Development)	Office (258.102 TSF)	258.102	TSF
		Warehousing	409.312	TSF
		General Light Industrial	42.222	TSF
		Retail	10.000	TSF
RC-5	Alessandro Metrolink Station	Light Rail Transit Station	300	SP
RC-6	Meridian Business Park North	Industrial Park	5985.000	TSF
RC-7	PP 18908	General Light Industrial	133.000	TSF
RC-8	Tract 33869	SFDR	39.000	DU
RC-9	PP 16976	General Light Industrial	85.000	TSF
RC-10	PP 21144	Industrial Park	190.802	TSF
RC-11	a Villages of Lakeview	SFDR	860	DU
		Condo/Townhomes	1,920	DU
		Elementary School	1,200	STU
		Commercial Retail	100.000	TSF
		Soccer Complex	12	Fields
		City Park	8.9	AC
		County Park	8.1	AC
		Regional Park	107.1	AC
	b Motte Lakeview Ranch	SFDR	847	DU
		Condo/Townhomes	686	DU
		Apartments	467	DU
		Elementary School	650	STU
		Middle School	300	STU
		Commercial Retail	120.000	TSF
		Regional Park	177.0	AC
RC-12	CUP03315	Gas Station w/ Market	17	VFP
		Fast Food w/o Drive Thru	5.600	TSF
		High-Turnover Restaurant	6.500	TSF
RC-13	PP23342	Industrial Park	180.600	TSF
RC-14	TR30592	SFDR	131	DU
RC-15	Rider Street Quarry	Quarry	2500.0	AC
RC-16	PP 20711	Manufacturing	20.0	AC
	Yocum Baldwin	Warehousing	46.8	AC

Table 4-4

Cumulative Development Land Use Summary

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
RC-17	March Business Center - South Campus	Shopping Center	108.900	TSF
		Industrial Park	1336.700	TSF
		Large Industrial Park	3269.000	TSF
		General Office Building	140.600	TSF
		Manufacturing	215.600	TSF
		Warehousing	1379.200	TSF
		Park	50.0	AC
		R&D	1611.800	TSF
RC-18	Ben Clark Training Facility	Students	5,045	STU
		Employees	354	EMP
RC-19	PP 20103	Gen. Light Industrial	290.985	TSF
RC-20	Nuevo Business Park	Gen. Light Industrial	357.156	TSF
		Warehousing	1767.618	TSF
RC-21	Meridian (March Business Park SP)	Business Park	41917.000	TSF
RC-22	Blanding Assemblage	High-Cube Warehouse	707.880	TSF
RC-23	CUP 03527	Warehousing	8.000	TSF
RC-24	CUP 03599	Hotel	52.798	TSF
RC-25	PP 24608	Retail	9.280	TSF
RC-26	PM 32699	SFDR	2.00	DU
RC-27	PP 25699	Fast-Food w/Drive Thru	2.800	TSF
		Retail	19.000	TSF
RC-28	TR 30592	SFDR	131.00	DU
RC-29	PP 25768	Manufacturing	52.450	TSF
RC-30	CUP 03620R1	Gas Station w/ Market	8.00	VFP
RC-31	TTM 33410 Box Springs	SFDR	142	DU
RC-32	Knox Logistics	High-Cube Warehouse	1,259.050	TSF
RC-33	University Highlands	SFDR	405	DU
		Condo/Townhomes	320	DU
		Apartments	1,475	DU
		Shopping Center	50.0	TSF
		Parks	42.4	AC
CITY OF RIVERSIDE				
R-1	P07-1028 (Alessandro Business Park)	General Light Industrial	662.018	TSF
	Alessandro and Gorgonio	Fast Food w/Drive Thru	4.050	TSF
R-2	Alessandro Bl. (APN 263-091-008; 263-100-019; 263-100-005; P14-0841 to 0848)	Commercial and Industrial Complex	101.580	TSF
R-3	California Baptist University Specific Plan	University	157.0	AC
R-4	Canyon Springs Specific Plan	Hospital	280	BEDS
		Medical-Dental Office	370.000	TSF
		Senior Adult Housing-Attached	234	DU
		Assisted Living	267	BEDS
R-5	Citrus Business Park Specific Plan	Industrial Business Park	49.0	AC
R-6	Downtown Specific Plan	Residential	5,000	DU
R-7	Hunter Business Park	Industrial	1300.0	AC
R-8	La Sierra University Specific Plan	Mixed-Use		
R-9	Magnolia Avenue Specific Plan	Mixed-Use/Very High Residential	1473.0	AC
R-10	Marketplace Specific Plan	Commercial Retail/Office	200.0	AC
R-11	Mission Grove Specific Plan	Business/Office Park	56.8	AC
		Commercial Retail	68.1	AC
		High Density Residential	53.8	AC
		Low Density Residential	78.4	AC
		Medium Density Residential	155.3	AC
R-12	Orangecrest Specific Plan	Rural Residential	2.1	AC
		Business/Office Park	2.7	AC
		Commercial Retail	139.0	AC
		High Density Residential	13.7	AC
		Low Density Residential	540.8	AC
		Medium Density Residential	1217.8	AC
		Public Facilities/Institutions	121.6	AC
		Public Park	59.5	AC
R-13	Rancho La Sierra Specific Plan	SFDR	598	DU
R-14	Riverside Auto Center Specific Plan	Auto Center		
R-15	Riverwalk Vista Specific Plan	Residential	402	DU

Table 4-4

Cumulative Development Land Use Summary

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
R-16	Sycamore Canyon Specific Plan	Hillside Residential	41.8	AC
		Low Density Residential	97.3	AC
		Medium Density Residential	14.8	AC
		Very Low Density Residential	884.2	AC
		Public Park	27.9	AC
R-17	Sycamore Canyon Business Park Specific Plan	Business/Office Park	847.2	AC
		Commercial Retail	10.3	AC
R-18	Sycamore-Highlands Specific Plan	Commercial Retail	14.6	AC
		High Density Residential	52.2	AC
		Medium Density Residential	99.1	AC
		Public Facilities	1.6	AC
			144.2	AC
		Very Low Density Residential	49.1	AC
R-19	University Avenue Specific Plan	Mixed-Use	Varies	
R-20	807 Blaine Street (P09-0717; P09-0718)	Apartments	55	DU
R-21	2340 Fourteenth Street (P09-0808; P08-0809)	Senior Housing	134	BEDS
R-22	Park Sierra Avenue (P14-0026; P14-0027)	Fast Food w/Drive Thru	3.500	TSF
R-23	6287 Day Street (P10-0090; P10-0091)	Gas Station	2	VFP
	2570 Canyon Springs Parkway (P08-0274; P08-0275)	Bank w/ Drive Thru	2.746	TSF
	6211 Valley Springs Parkway (Steak 'N Shake Restaurant; P14-0536)	Fast Food w/Drive Thru	3.750	TSF
R-24	N. of Van Buren Boulevard; W. of Wood Street (P10-0808; P10-0708)	Fast Food w/Drive Thru	2.361	TSF
R-25	E. of Commerce St., between Mission Inn Av. and Ninth St. (P14-0045; P14-0046; P14-0047; P14-0048; P14-0049)	Apartments	208	DU
R-26	NWC of Riverwalk Parkway and Flat Rock Drive (P12-0019; P12-0156; P12-0158)	Convenience Store	2.400	TSF
		Coffee Shop	3.946	TSF
R-27	3875 Dawes Street (P10-0438; Magnolia Garden Condominiums)	Condo/Townhomes	62	DU
R-28	5938-5944 Grand Avenue (P12-0266; P12-0267; P12-0268)	Senior Housing	37	DU
R-29	4445 Magnolia Avenue (P13-0207; P13-0208; P13-0209; P13-0210; P13-0211)	Hospital Expansion	Varies	
R-30	SR-91/Van Buren Commercial	Commercial Retail	23.565	TSF
R-31	360 Alessandro Boulevard (P12-0419; P12-0557; P12-0558; P12-0559)	Bank	3.858	TSF
R-32	6465 Sycamore Canyon Boulevard	Health Club	4.000	TSF
R-33	2450 Market Street (P13-0087; P13-0262)	Apartments	77	DU
R-34	6091 Victoria Avenue (P13-0432)	Day Care	1.831	TSF
R-35	14601 Dauchy Av. - TM 36370 (P12-0601; P12-0697; P12-0698)	SFDR	10	DU
	TM 32180 (P07-1073)	SFDR	9	DU
	18875 Moss Road	SFDR	8	DU
	South of Clarke St., west of Crystal View Terrace (PM 34583' {09-0141; P09-173)	SFDR	3	DU
R-36	4824 Jones Avenue (P13-0181; P13-0182)	Church	23.124	TSF
R-37	2586 University avenue (P13-0650; P13-0651)	Bed and Breakfast	3.618	TSF
R-38	18580 Van Buren Boulevard (P08-0402; P13-0822)	Auto Repair Shop	8.142	TSF
R-39	4247 Van Buren Boulevard (P13-0785; P13-0787)	Church Expansion	12.166	TSF
R-40	SWC of Lurin Avenue and Wood Road (P06-0900; P08-0269; P08-0270; TTM 32301)	SFDR	20	DU
R-41	8616 California Avenue (P08-0084; PM 35852)	Condo/Townhomes	21	DU
R-42	19811 Lurin Avenue (P06-1355; TM 33480)	SFDR	32	DU
R-43	APN:266140029, 030 (P06-1396; Mariposa Avenue; TM 33481)	SFDR	25	DU
R-44	APN:266140002, 021, 022 (P06-1404; Lurin Avenue; TM 33482)	SFDR	29	DU
R-45	3719 Strong Street (P05-0269; P08-0416; TM 33550)	SFDR	9	DU
R-46	1006 & 1008 Clark Street (P06-0782; TM 34908)	SFDR	15	DU
R-47	E. of Gratton St., W. of Corsica Av., N. of Van Buren Bl. (P05-1528; P09-0087; TM 34509)	SFDR	50	DU
R-48	NWC of Dominion Avenue and Division Street (P08-0396; P08-0397; P08-0398; P08-0399; TM 35620)	Condo/Townhomes	36	DU
R-49	6639 Hillside Avenue (P08-0727; PM 35901)	Industrial	5	LOTS
R-50	19985 Van Buren Boulevard (P10-0118; Gless Ranch)	Commercial Retail	425.447	TSF
R-51	3990 Reynolds Road (P12-0021; P12-0022; P12-0074; PM 36442)	Condo/Townhomes	102	DU
R-52	NEC of Martha Way & Everest Avenue (P13-0389; TM 36579)	SFDR	5	DU
R-53	4325, 4335, 4345, 4355, 4375 Adams Street (P13-0723; P13-0724; P13-0725; TM 36654)	SFDR	62	DU
R-54	5200 Van Buren Boulevard (P09-0600; P09-0601; Walmart Expansion)	Free Standing Discount Store	22.272	TSF
R-55	P06-0160	Gen. Light Industrial	316.224	TSF
	P06-1281	Warehousing	107.732	TSF

Cumulative Development Land Use Summary

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
R-56	9241 & 9265 Audrey Avenue (P12-0184; P12-0185; P12-0187; Azar Plaza)	Commercial Retail	6.150	TSF
R-57	Office, Magnon & Panattoni	Office	131.000	TSF
		Warehousing	1400.000	TSF
		Warehousing	300.000	TSF
		Warehousing	216.000	TSF
R-58	1710 Main Street (P12-0717)	Family Dollar Store	8.039	TSF
R-59	2861 Mary Street (P12-0442; P12-0443; P12-0444)	Shopping Center	56.101	TSF
R-60	3545 Central Avenue (P12-0741; P12-0743)	Riverside Plaza Renovations	35.0	AC
R-61	5731, 5741, 5761 & 5797 Pickler Street (P13-0198; P13-0199; P13-0200; P13-0201)	Apartments	30	DU
R-62	3705 Tyler Street (P13-0501; P13-0502)	Restaurant	6.000	TSF
R-63	6570 Magnolia Avenue; 3739 & 3747 Central Avenue (P13-0196; P13-0197)	Fast Food w/Drive Thru	3.795	TSF
R-64	5940-5980 Sycamore Canyon Boulevard (P13-0553; P13-0554; P13-0583; P14-0065)	Apartments	275	DU
R-65	SEC Sycamore Canyon Boulevard & Box Springs Road (P13-0607; P13-0608; P0609; P13-0854)	General Light Industrial	171.616	TSF
R-66	P06-0591	Office	37.939	TSF
		Warehousing	782.188	TSF
		Manufacturing	168.294	TSF
R-67	474 Palmyrita Avenue (P13-0956; P13-0959; P13-0960; P13-0963; P13-0964; P13-0965; P13-0966)	High-Cube Warehouse	1461.449	TSF
	CITY OF PERRIS			
P-1	P 05-0113 (IDI)	High-Cube Warehouse	1750.000	TSF
P-2	P 05-0192 (Oakmont I)	High-Cube Warehouse	697.600	TSF
P-3	P 05-0477	High-Cube Warehouse	462.692	TSF
P-4	Rados Distribution Center	High-Cube Warehouse	1200.000	TSF
P-5	Investment Development Services (IDS) II	High-Cube Warehouse	350.000	TSF
P-6	P 07-09-0018	Warehousing	170.000	TSF
P-7	P 07-07-0029 (Oakmont II)	High-Cube Warehouse	1600.000	TSF
P-8	TR 32707	SFDR	137	DU
P-9	TR 34716	SFDR	318	DU
P-10	P 05-0493 (Ridge I)	High-Cube Warehouse	700.000	TSF
P-11	Ridge II	High-Cube Warehouse	2000.000	TSF
P-12	Harvest Landing Specific Plan	SFDR	717	DU
		Condo/Townhomes	1,139	DU
		Sports Park	16.7	AC
		Business Park	1233.401	TSF
		Shopping Center	73.181	TSF
	Perris Marketplace	Shopping Center	450.000	TSF
P-13	P 06-0411 (Concrete Batch Plant)	Manufacturing	2.000	TSF
P-14	Jordan Distribution	High-Cube Warehouse	378.000	TSF
P-15	Aiere	High-Cube Warehouse	642.000	TSF
P-16	P 08-11-0005; P 08-11-0006 (Starcrest)	High-Cube Warehouse	454.088	TSF
P-17	Stratford Ranch Specific Plan	High-Cube Warehouse	1725.411	TSF
P-18	Stratford Ranch Specific Plan	High-Cube Warehouse	480.000	TSF
		General Light Industrial	120.000	TSF
P-19	P05-0493	Logistics	597.370	TSF
P-20	Starcrest, P011-0005; 08-11-0006	General Light Industrial	454.088	TSF
P-21	South Perris Industrial Phase 1	Logistics	787.700	TSF
P-22	South Perris Industrial Phase 2	Logistics	3448.734	TSF
P-23	South Perris Industrial Phase 3	Logistics	3166.857	TSF
P-24	P 04-0343	Warehousing	41.650	TSF
P-25	P 06-0228	General Light Industrial	149.738	TSF
P-26	P 06-0378	Senior Housing	429	DU
P-27	P 11-09-0011	Retail	80.000	TSF
P-28	P 12-05-0013	Apartments	75	DU
P-29	P 12-10-0005	High-Cube Warehouse	1463.887	TSF
P-30	TR 30850	Residential	496	DU
P-31	TR 30973	Residential	35	DU
P-32	TR 31225	Residential	57	DU
P-33	TR 31226	Residential	82	DU
P-34	TR 31240	Residential	114	DU
P-35	TR 31407	Residential	243	DU

Table 4-4

Cumulative Development Land Use Summary

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
P-36	TR 31650	SFDR	61	DU
P-37	TR 31659	SFDR	161	DU
P-38	TR 32041	Residential	122	DU
P-39	TR 32406	SFDR	15	DU
P-40	TR 33193	Townhomes	94	DU
P-41	TR 33338	Residential	75	DU
P-42	Park West Specific Plan	SFDR	521	DU
		Elementary School	750	STU
		Neighborhood Park	5.0	AC
P-43	The Venue	Commercial Retail	642.627	TSF
	Retail on San Jacinto	Commercial Retail	217.800	TSF
	Retail on Redlands	Fast Food w/ Drive Thru	4.500	TSF
		Pharmacy w/ Drive Thru	14.000	TSF
		Specialty Retail	31.500	TSF
P-44	South Perris Metrolink Station	Light Rail Transit Station	680	SP
P-45	IDS 04-0464	High-Cube Warehouse	1686.760	TSF
P-46	TTM 32708 (50% Complete)	SFDR	238	DU
P-47	PM 34199	Gen. Light Industrial	46.500	TSF
	DPR 05-0387	Gen. Light Industrial	9.854	TSF
	DPR 05-0452	Warehousing	31.200	TSF
	TPM 34697	Gen. Light Industrial	47.400	TSF
	DPR 06-0396	Warehousing	159.823	TSF
P-48	Integra Pacific Industrial Facility	High-Cube Warehouse	880.000	TSF

[1] SFDR = Single Family Detached Residential ; MFDR = Multi-Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet; SP = Spaces; VFP = Vehicle Fueling Positions; RMS = Rooms; AC = Acres; EMP = Employees

[3] Source: Cactus Avenue and Commerce Center Drive Commercial Center TIA, Urban Crossroads, Inc., December 9, 2008 (Revised).

[4] Source: March Lifecare Campus Specific Plan Traffic Impact Analysis, Mountain Pacific, Inc., May 2009 (Revised).

As noted previously, an analysis of the proposed Project at various development tiers has been assessed for the purposes of this traffic study. The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year Cumulative (2021)
    - Existing 2016 counts
    - Ambient growth traffic (10.41%)
    - Cumulative Development Project traffic
    - Project traffic

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5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations, roadway segment, and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. Exhibit 5-1 shows the ADT and peak hour intersection turning movement volumes, which can be expected for E+P traffic conditions.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicate that consistent with Existing traffic conditions, the following study area intersection is anticipated to operate at an unacceptable LOS:

Exhibit 5-2 summarizes the weekday AM and PM peak hour study area intersection LOS under E+P traffic conditions, consistent with the summary provided in Table 5-1. The intersection operations analysis worksheets are included in Appendix 5.1 of this TIA.

5.4 ROADWAY SEGMENT CAPACITY ANALYSIS

As noted previously, the City of Moreno Valley stated roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet future traffic demand.

Table 5-2 provides a summary of the E+P conditions roadway segment capacity analysis based on the City of Moreno Valley General Plan Circulation Element Roadway Segment Capacity/LOS Thresholds identified previously on Table 2-3. As shown on Table 5-2, there are no roadway segments that are anticipated to operate at an unacceptable LOS under E+P traffic conditions, consistent with Existing traffic conditions.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES

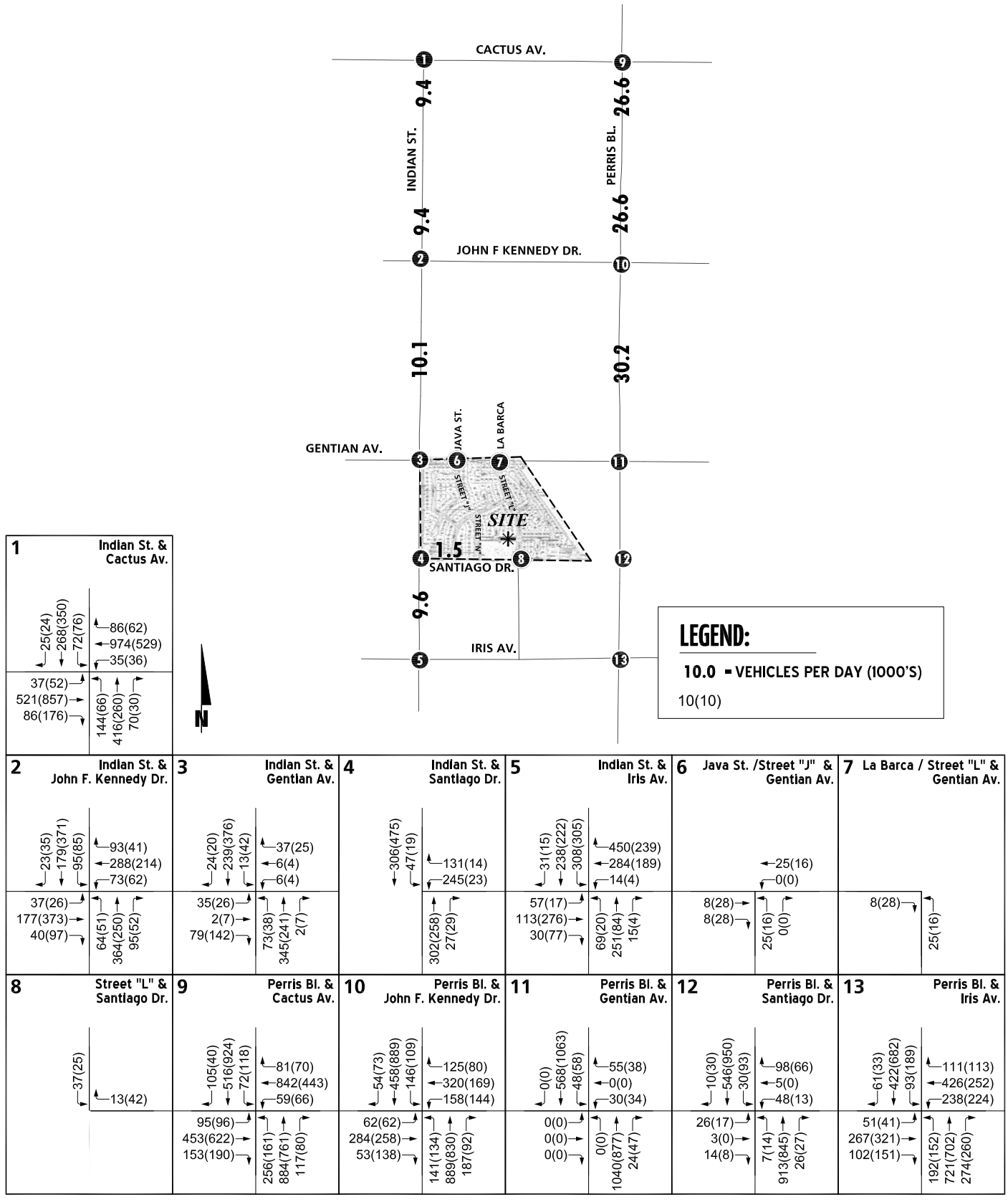

EXHIBIT 5-2: E+P SUMMARY OF LOS

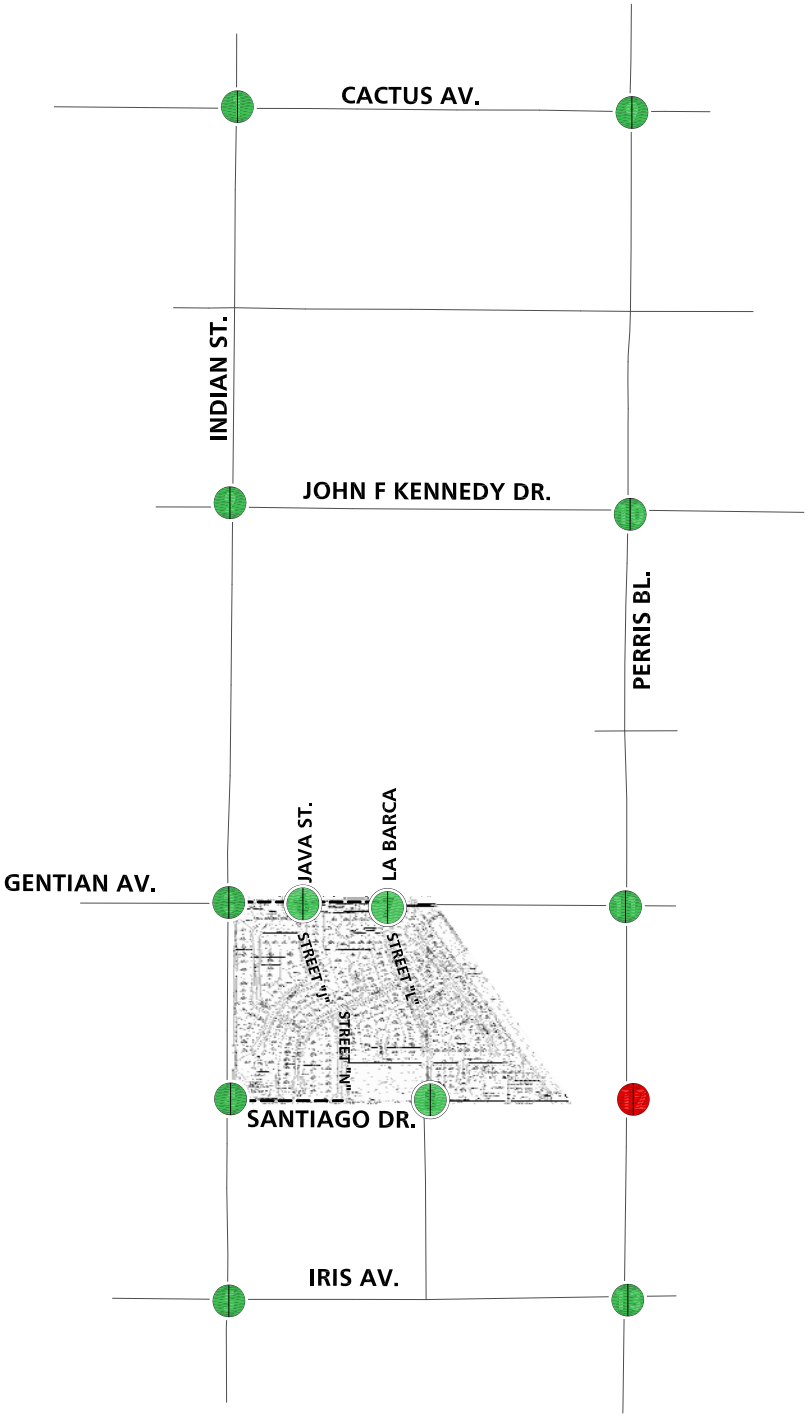

Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control [2]	Existing (2016)				E+P			
			Delay [1] (secs.)		Level of Service		Delay [1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Indian St / Cactus Av	TS	28.4	27.2	C	C	29.5	28.7	C	C
2	Indian St / John F. Kennedy Dr	TS	26.5	24.6	C	C	26.5	24.9	C	C
3	Indian St / Gentian Av	CSS	20.0	15.1	C	C	28.6	21.0	D	C
4	Indian St / Santiago Dr	TS	14.7	2.6	B	A	15.8	4.7	B	A
5	Indian St / Iris Av	TS	44.8	30.6	D	C	49.9	31.6	D	C
6	Street J / Gentian Av	**CSS**	Future Intersection				8.8	8.9	A	A
7	Street L / Gentian Av	**CSS**	Future Intersection				8.6	8.6	A	A
8	Street L / Santiago Dr	**CSS**	Future Intersection				0.0	0.0	A	A
9	Perris Bl / Cactus Av	TS	25.2	33.6	C	C	32.2	35.9	C	D
10	Perris Bl / John F. Kennedy Dr	TS	40.9	44.7	D	D	41.4	45.9	D	D
11	Perris Bl / Gentian Av	TS	5.9	4.9	A	A	5.9	4.9	A	A
12	Perris Bl / Santiago Dr	CSS	**47.4**	**43.7**	**E**	**E**	**48.9**	**57.1**	**E**	**F**
13	Perris Bl / Iris Av	TS	44.5	36.2	D	D	45.0	36.3	D	D

[1] Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

Table 5-2

Roadway Segment Capacity Analysis for E+P Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing (2016)	V/C	LOS	E+P	V/C	LOS	Acceptable LOS
1	Indian Street	Cactus Avenue to John F. Kennedy Dr.	4D	37,500	8,525	0.23	A	9,367	0.25	A	C
2		John F. Kennedy Dr. to Gentian Av.	4D	37,500	9,215	0.25	A	10,057	0.27	A	C
3		Santiago Dr. to Iris Av.	2U	12,500	9,105	0.73	C	9,631	0.77	C	D
4	Gentian Avenue	Indian St. to Street J/Java St.	**2U**	12,500	N/A	N/A	N/A	840	0.07	A	C
5		Street J/Java St. to Street L/La Barca	**2U**	12,500	N/A	N/A	N/A	420	0.03	A	C
6		West of Perris Bl.	--	--	N/A	N/A	N/A	N/A	N/A	N/A	C
7	Santiago Drive	East of Indian St.	2U	12,500	842	0.07	A	1,474	0.12	A	C
8		West of Perris Bl.	2U	12,500	13	0.00	A	643	0.05	A	C
9	Perris Boulevard	Cactus Avenue and John F. Kennedy Dr.	6D	56,300	26,172	0.46	A	26,592	0.47	A	D
10		John F. Kennedy Dr. to Gentian Av.	6D	56,300	29,801	0.53	A	30,221	0.54	A	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

N/A = Not Applicable; Segment does not exist.

[1] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's Traffic Impact Analysis Transportation Division's Traffic Impact Analysis Preparation Guidelines (August 2007). These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS E service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

5.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no additional study area intersections anticipated to meet either peak hour or planning level (ADT) volume based traffic signal warrants under E+P traffic conditions, in addition to those previously warranted under Existing traffic conditions (see Appendix 5.2).

5.6 RECOMMENDED IMPROVEMENTS

5.6.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient to reduce each location's peak hour delay and improve the associated LOS grade to an acceptable LOS (i.e., LOS D or better). The effectiveness of the proposed recommended improvements is presented in Table 5-3 for E+P traffic conditions. Recommended improvements to address deficiencies for E+P traffic conditions are described below. All recommended improvements are consistent with Existing (2016) traffic conditions (see Table 3-3).

Recommended Improvement – Perris Boulevard / Santiago Drive (#12)

- Install a traffic signal.

Worksheets for E+P conditions, with improvements, HCM calculations are provided in Appendix 5.3.

5.6.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

All study area roadway segments are anticipated to operate at acceptable LOS (LOS C or better) for E+P traffic conditions. As such, no roadway improvements have been recommended.

Table 5-3

Intersection Analysis for E+P Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
12	Perris Bl / Santiago Dr																	
	Existing (2016):																	
	Without Improvements	CSS	1	3	0	1	3	0	0	1	d	0	1	d	**47.4**	**43.7**	**E**	**E**
	With Improvements	**TS**	1	3	0	1	3	0	0	1	d	0	1	d	9.1	8.3	A	A
	E+P:																	
	Without Improvements	CSS	1	3	0	1	3	0	0	1	d	0	1	d	**48.9**	**57.1**	**E**	**F**
	With Improvements	**TS**	1	3	0	1	3	0	0	1	d	0	1	d	19.3	11.3	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for righ turning vehicles to travel outside the through lanes

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; d= Defacto Right Turn Lane

[2] Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal o all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (o movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal

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6 OPENING YEAR CUMULATIVE (2021) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2021) traffic forecasts and the resulting intersection operations, roadway segment, and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2021) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

6.2 OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 10.41% of ambient growth for Opening Year Cumulative traffic conditions. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2021) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2021) WITH PROJECT TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 10.41% of ambient growth for Opening Year Cumulative traffic conditions in conjunction with traffic associated with the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2021) With Project traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT TRAFFIC VOLUMES

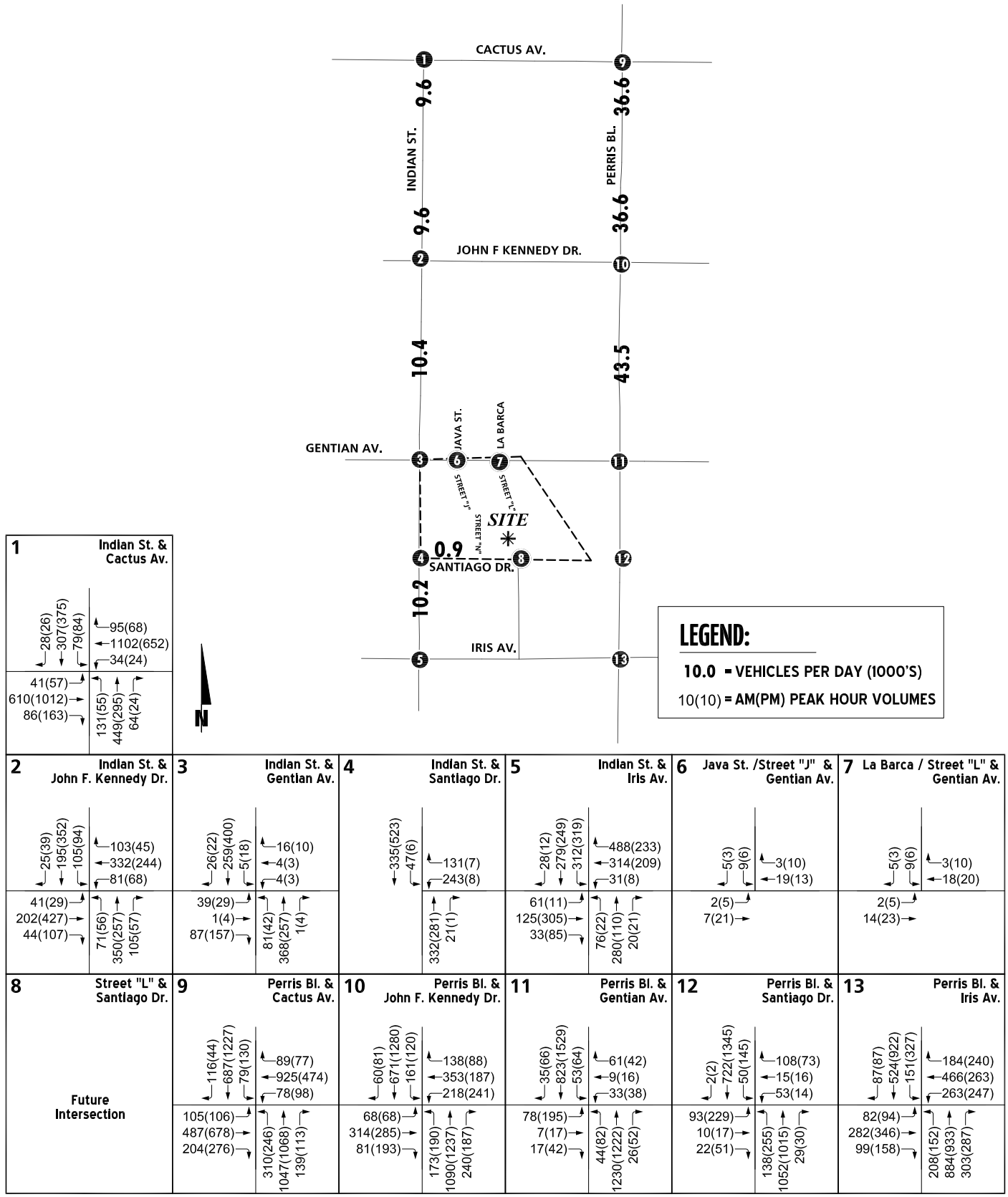
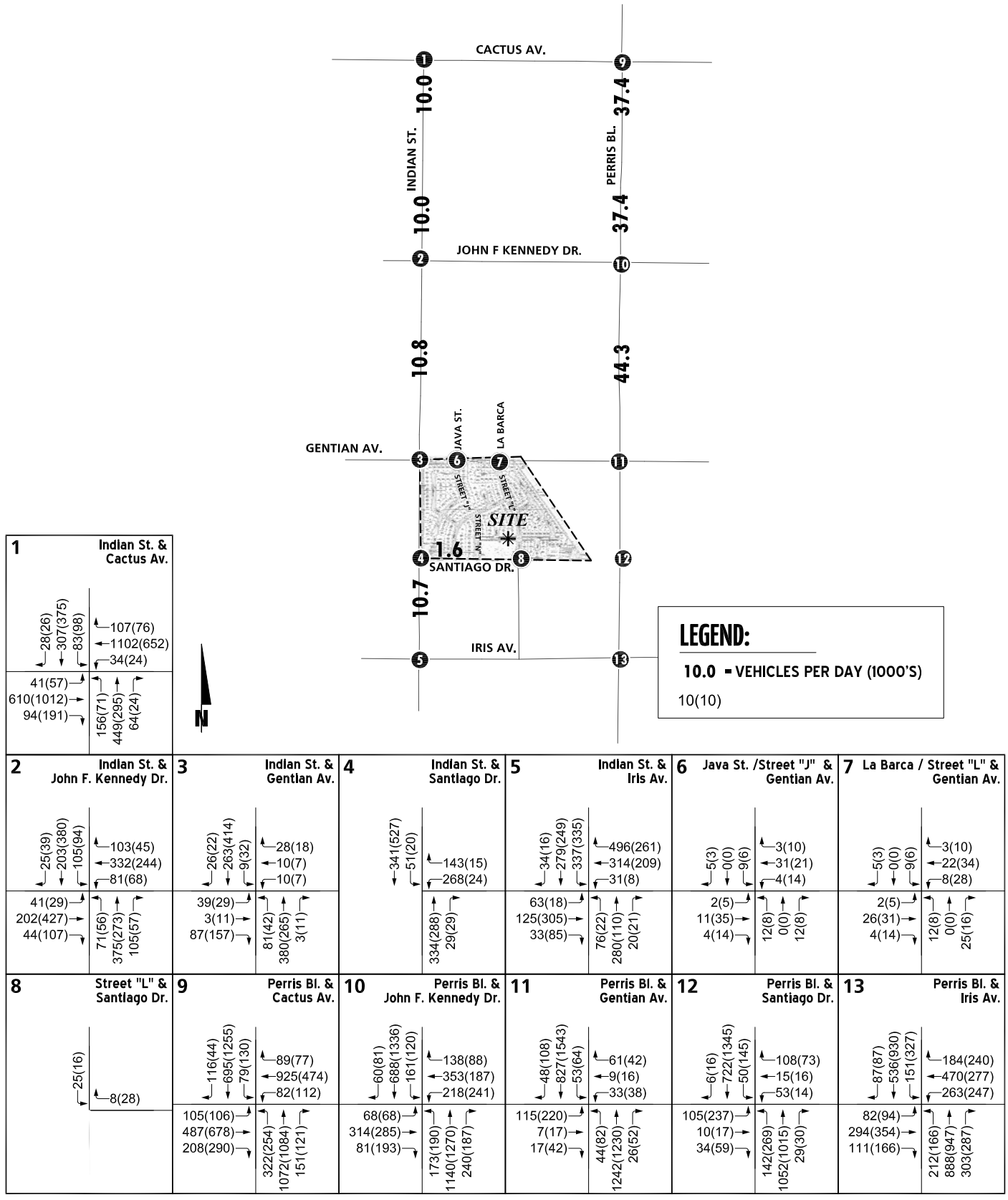


EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2021) WITH PROJECT TRAFFIC VOLUMES



6.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, there are no study area intersections are anticipated to operate at unacceptable LOS during the peak hours under Opening Year Cumulative (2021) without Project traffic conditions, in addition to the location previously identified under Existing (2016) traffic conditions.

The following additional study area intersections are anticipated to operate at unacceptable LOS with the addition of Project traffic, in addition to those previously identified for Opening Year Cumulative Without Project traffic conditions:

- Indian Street / Cactus Avenue (#1)
- Indian Street / Gentian Avenue (#3)

A summary of the peak hour intersection LOS for Opening Year Cumulative (2021) Without Project conditions are shown on Exhibit 6-3 and on Exhibit 6-4 for Opening Year Cumulative (2021) With Project traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2021) Without and With Project traffic conditions are included in Appendix 6.1 and Appendix 6.2 of this TIA, respectively. Measures to address near-term cumulative deficiencies for Opening Year Cumulative traffic conditions are discussed in Section 6.7 *Recommended Improvements.*

6.5 ROADWAY SEGMENT CAPACITY ANALYSIS

As noted previously, the roadway segment capacities are approximate figures only, and are typically used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet future forecasted traffic demand. Table 6-2 provides a summary of the Opening Year Cumulative (2021) conditions roadway segment capacity analysis based on the City of Moreno Valley General Plan Circulation Element Roadway Segment Capacity/LOS Thresholds identified previously on Table 2-3. As shown on Table 6-2, there are no roadway segments that are anticipated to operate at an unacceptable LOS under Opening Year Cumulative Without and With Project traffic conditions, consistent with Existing traffic conditions.

Table 6-1

Intersection Analysis for Opening Year Cumulative (2021) Conditions

#	Intersection	Traffic Control [2]	2021 Without Project				2021 With Project			
			Delay [1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Indian St / Cactus Av	TS	31.7	32.8	C	C	**37.6**	**37.3**	**D**	**D**
2	Indian St / John F. Kennedy Dr	TS	26.7	25.2	C	C	26.7	25.2	C	C
3	Indian St / Gentian Av	CSS	30.7	20.2	D	C	**36.5**	23.1	**E**	C
4	Indian St / Santiago Dr	TS	15.5	2.8	B	A	16.6	4.8	B	A
5	Indian St / Iris Av	TS	47.4	31.7	D	C	48.8	34.6	D	C
6	Street J / Gentian Av	**CSS**	8.6	8.7	A	A	8.8	9.1	A	A
7	Street L / Gentian Av	**CSS**	8.7	8.7	A	A	9.0	9.3	A	A
8	Street L / Santiago Dr	**CSS**	Future Intersection				0.0	0.0	A	A
9	Perris Bl / Cactus Av	TS	33.8	42.7	C	D	35.9	45.8	D	D
10	Perris Bl / John F. Kennedy Dr	TS	43.9	50.1	D	D	44.0	54.5	D	D
11	Perris Bl / Gentian Av	TS	6.0	5.1	A	A	6.0	5.1	A	A
12	Perris Bl / Santiago Dr	CSS	**>100.0**	**>100.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**
13	Perris Bl / Iris Av	TS	46.5	48.6	D	D	48.4	49.9	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

Table 6-2

Roadway Segment Capacity Analysis for Opening Year Cumulative (2021) Conditions

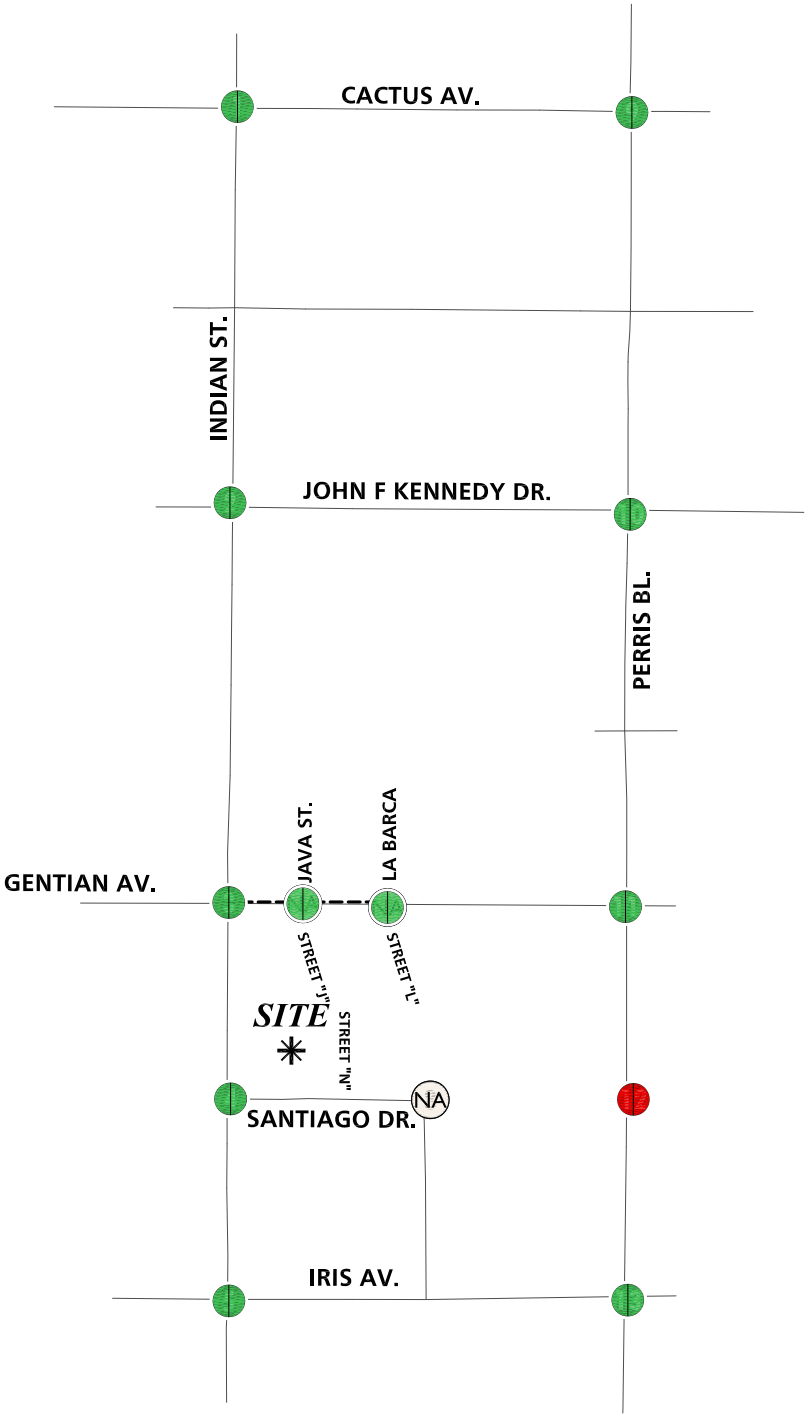
#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2021 NP	V/C	LOS	2021 WP	V/C	LOS	Acceptable LOS
1	Indian Street	Cactus Avenue to John F. Kennedy Dr.	4D	37,500	9,588	0.26	A	10,008	0.27	A	C
2		John F. Kennedy Dr. to Gentian Av.	4D	37,500	10,350	0.28	A	10,770	0.29	A	C
3		Santiago Dr. to Iris Av.	2U	12,500	10,229	0.82	D	10,755	0.86	D	D
4	Gentian Avenue	Indian St. to Street J/Java St.	**2U**	12,500	N/A	N/A	N/A	420	0.03	A	C
5		Street J/Java St. to Street L/La Barca	**2U**	12,500	N/A	N/A	N/A	420	0.03	A	C
6		West of Perris Bl.	**2U**	12,500	N/A	N/A	N/A	632	0.05	A	C
7	Santiago Drive	East of Indian St.	2U	12,500	930	0.07	A	1,350	0.11	A	C
8		West of Perris Bl.	2U	12,500	6,559	0.52	A	6,979	0.56	A	C
9	Perris Boulevard	Cactus Avenue and John F. Kennedy Dr.	6D	56,300	36,597	0.65	B	37,439	0.66	B	D
10		John F. Kennedy Dr. to Gentian Av.	6D	56,300	43,490	0.77	C	44,332	0.79	C	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

N/A = Not Applicable; Segment does not exist.

[1] These maximum roadway capacities have been extracted from the City of Moreno Valley's Transportation Division's Traffic Impact Analysis Transportation Division's Traffic Impact Analysis Preparation Guidelines (August 2007). These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS E service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT SUMMARY OF LOS



LEGEND:

- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

N

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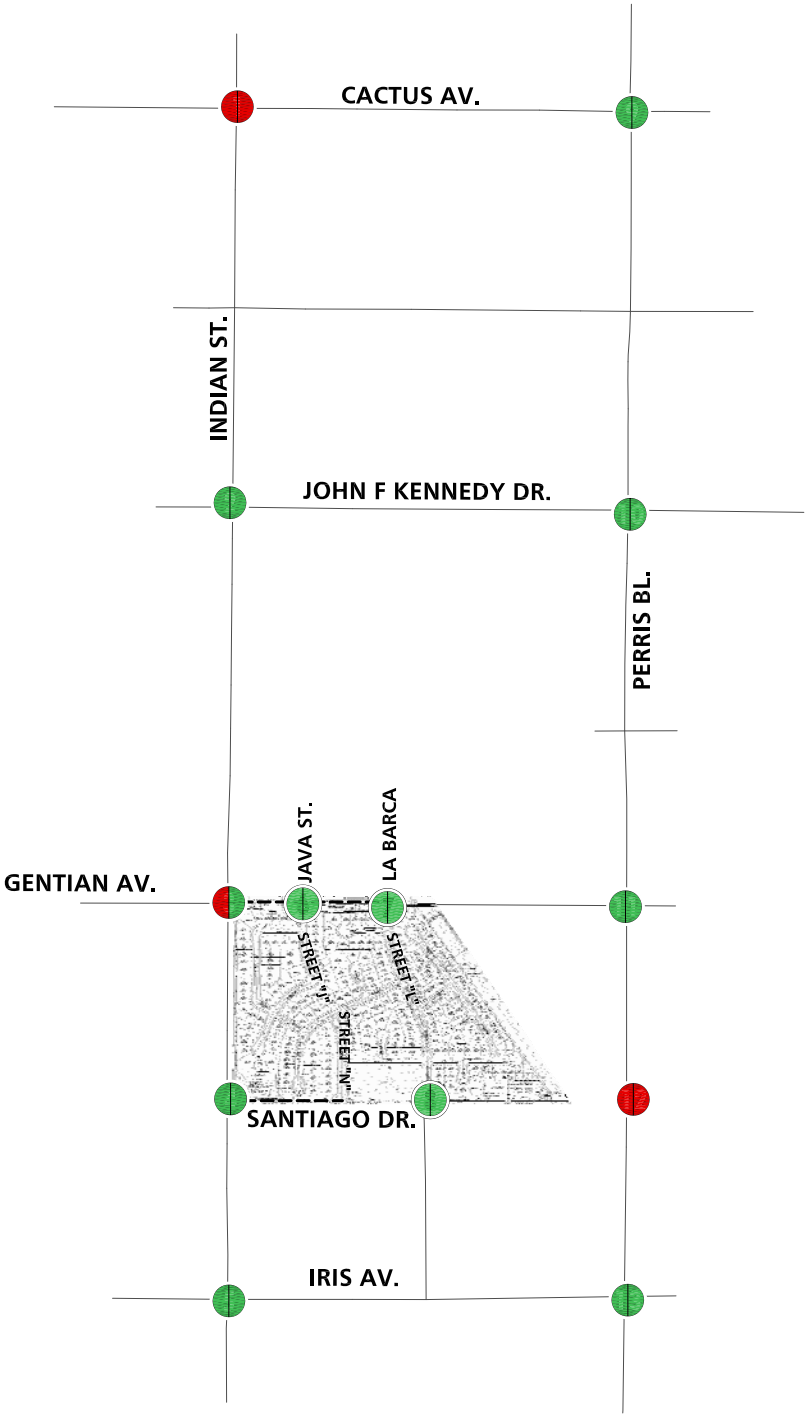
EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2021) WITH PROJECT SUMMARY OF LOS



6.6 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no additional study area intersections that are anticipated to meet either peak hour or planning level (ADT) volume based traffic signal warrants for Opening Year Cumulative traffic conditions (see Appendix 6.3 and Appendix 6.4).

6.7 OPENING YEAR CUMULATIVE DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

6.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to an acceptable LOS (LOS D or better). The effectiveness of the recommended improvement strategies discussed below to address Opening Year Cumulative traffic deficiencies is presented in Table 6-3.

The applicant shall participate in the funding of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of Western Riverside County TUMF, City DIF, or a fair share contribution as directed by the City. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases. Each of the improvements discussed above have been identified as being included as part of TUMF fee program, DIF fee program, or fair share contribution in Section 1.5 *Local and Regional Funding Mechanisms* of this TIA.

Worksheets for Opening Year Cumulative (2021) Without and With Project traffic conditions, with improvements, HCM calculation worksheets are provided in Appendix 6.5 and Appendix 6.6, respectively.

6.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

All study area roadway segments are anticipated to operate at acceptable LOS (LOS D or better) for Opening Year Cumulative traffic conditions. As such, no roadway improvements have been recommended.

Table 6-3

Intersection Analysis for Opening Year Cumulative (2021) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Indian St / Cactus Av																	
	2021 Without Project:																	
	Without Improvements	TS	1	2	0	1	2	0	1	2	0	1	2	0	31.7	32.8	C	C
	With Improvements		Not Applicable															
	2021 With Project:																	
	Without Improvements	TS	1	2	0	1	2	0	1	2	0	1	2	0	**37.6**	**37.3**	**D**	**D**
	With Improvements	TS	1	2	0	1	2	0	1	2	**1**	1	2	0	32.5	26.9	C	C
3	Indian St / Gentian Av																	
	2021 Without Project:																	
	Without Improvements	CSS	0	1	0	0	1	0	1	**1**	**0**	0	**1**	0	30.7	20.2	D	C
	With Improvements		Not Applicable															
	2021 With Project:																	
	Without Improvements	CSS	0	1	0	0	1	0	1	0	1	0	0	0	**36.5**	23.1	**E**	C
	With Improvements	CSS	**1**	**2**	0	**1**	**2**	0	1	**1**	**0**	0	**1**	0	18.1	17.5	C	C
12	Perris Bl / Santiago Dr																	
	2021 Without Project:																	
	Without Improvements	CSS	1	3	0	1	3	0	0	1	d	0	1	d	**>100.0**	**>100.0**	**F**	**F**
	With Improvements	**TS**	1	3	0	1	3	0	**1**	1	**0**	0	1	d	15.4	26.2	B	C
	2021 With Project:																	
	Without Improvements	CSS	1	3	0	1	3	0	0	1	d	0	1	d	**>100.0**	**>100.0**	**F**	**F**
	With Improvements	**TS**	1	3	0	1	3	0	**1**	1	**0**	0	1	d	18.2	26.9	B	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for righ turning vehicles to travel outside the through lanes

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; d= Defacto Right Turn Lane

[2] Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal o all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (o movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal

7 REFERENCES

1. **City of Moreno Valley Transportation Engineering Division.** *Traffic Impact Analysis Preparation Guide.* Moreno Valley : s.n., August 2007.

2. **Institute of Transportation Engineers.** *Trip Generation.* 9th Edition. 2012.

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7. **Federal Highway Administration.** Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.

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