URBAN | CROSSROADS

PATTERSON & HARVILL WAREHOUSE (PPT220026)

TRAFFIC ANALYSIS

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Reference Number	Agency	Date
14443-05 TA Report	County of Riverside	January 23, 2023

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
EAP	Existing Plus Ambient Growth Plus Project
EAPC	Existing Plus Ambient Growth Plus Project Plus Cumulative
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
OPR	Office of Planning and Research
PHF	Peak Hour Factor
Project	Patterson & Harvill Warehouse
RCTC	Riverside County Transportation Commission
RTA	Riverside Transit Authority
SCAG	Southern California Association of Governments
sf	Square Feet
SHS	State Highway System
TA	Traffic Analysis
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Riverside Council of Governments
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
vphgpl	Vehicles per Hour Green per Lane

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1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for Patterson & Harvill Warehouse development ("Project"), which is located between Old Cajalco Road and Rider Street between Patterson Avenue and Harvill Avenue in the County of Riverside, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with the County's General Plan level of service goals and policies. This TA has been prepared in accordance with the County of Riverside's Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled (December 2020) and through consultation with County of Riverside staff during the scoping process. (1) The Project traffic study scoping agreement is provided in Appendix 1.1 of this TA, which has been reviewed and approved by the County of Riverside.

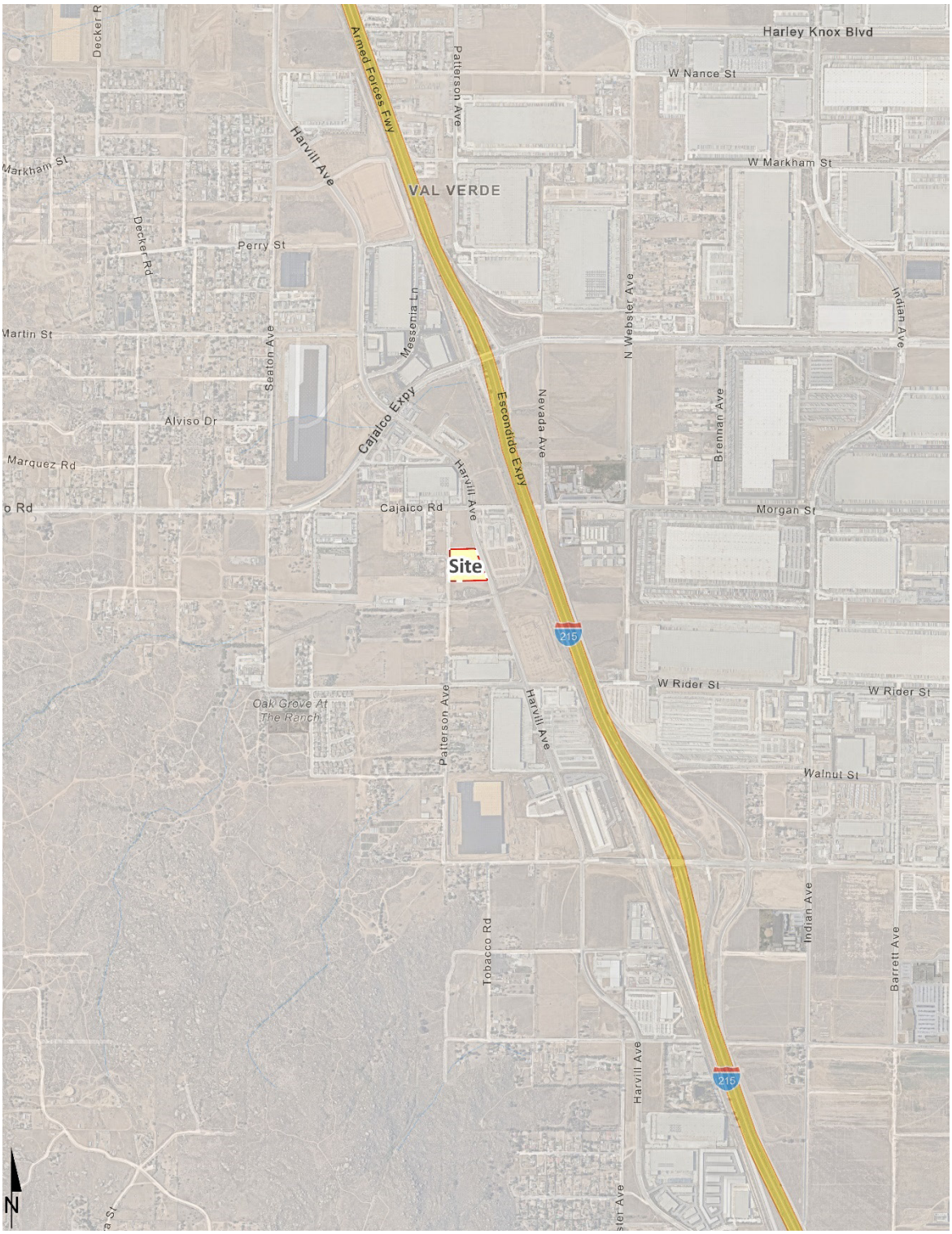
1.1 SUMMARY OF FINDINGS

The Project is to construct the following improvements as design features in conjunction with development of the site:

- Harvill Avenue is currently built to its ultimate cross-section as a Major Highway (118-foot right-of-way) along the Project's frontage between Perry Street and Martin Street consistent with the County's standards. This includes the construction of a raised median at Driveway 4 in order to prohibit left turns into and out of the driveway.
- Patterson Avenue is not designated as a General Plan roadway adjacent to the Project, however, it is recommended that Patterson Avenue be constructed as an Industrial Collector (78-foot right-of-way). The Project should construct its ultimate half-section along its frontage between the northern and southern Project boundaries. Frontage improvements include pavement, curb-and-gutter, sidewalk, and landscaping improvements.
- Project to install stop controls for all egress traffic from each Project driveway. All driveways will allow full turning movements with the exception of Driveway 4 on Harvill Avenue which will be restricted to right-in/right-out access only (and will serve passenger cars only). Driveway 2 is the only driveway proposed to serve trucks. All other driveways will provide access for passenger cars only.

Additional details and intersection lane geometrics are provided in Section 1.6 Recommendations of this report. The proposed Project is not anticipated to require the construction of any off-site improvements but would need to contribute to improvement needs identified at off-site intersections for future near-term cumulative traffic conditions. As such, the Project Applicant's responsibility for the Project's contributions towards deficient off-site intersections is fulfilled through payment into pre-existing fee programs (if applicable) and/or fair share contributions that would be assigned to the future construction of the identified recommended improvements. The Project Applicant would be required to pay requisite fees consistent with the County's requirements (see Section 7 Local and Regional Funding Mechanisms).

EXHIBIT 1-1: LOCATION MAP



1.2 PROJECT OVERVIEW

A preliminary site plan for the proposed Project is shown on Exhibit 1-2. The Project is proposed to consist of the development of a 100,924 square foot warehouse building. For the purposes of this analysis, the Project will evaluate 20% of the building square footage assuming high-cube (cold storage) warehouse use (20,185 square feet) and 80% of the building square footage assuming general warehousing (80,739 square feet). Access is accommodated off of Patterson Avenue via two driveways and two driveways off of Harvill Avenue. Auto access will be accommodated off of Patterson Avenue and both driveways on Harvill Avenue while truck access will be limited to the southerly driveway on Patterson Avenue only. The southerly driveway on Harvill Avenue (Driveway 4) assumes right-in/right-out access only. Access to the I-215 Freeway is anticipated to occur via Placentia Avenue to the south, where a new interchange at the I-215 Freeway will be completed by Fall 2022, or via Cajalco Expressway/Ramona Expressway to the north. The Project is anticipated to have an Opening Year of 2024.

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual for the proposed high-cube transload and short-term storage warehouse land use. (2) The Project is anticipated to generate a net total of 182 two-way trips per day with 15 AM peak hour trips and 15 PM peak hour trips (actual vehicles). 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.

1.3 ANALYSIS SCENARIOS

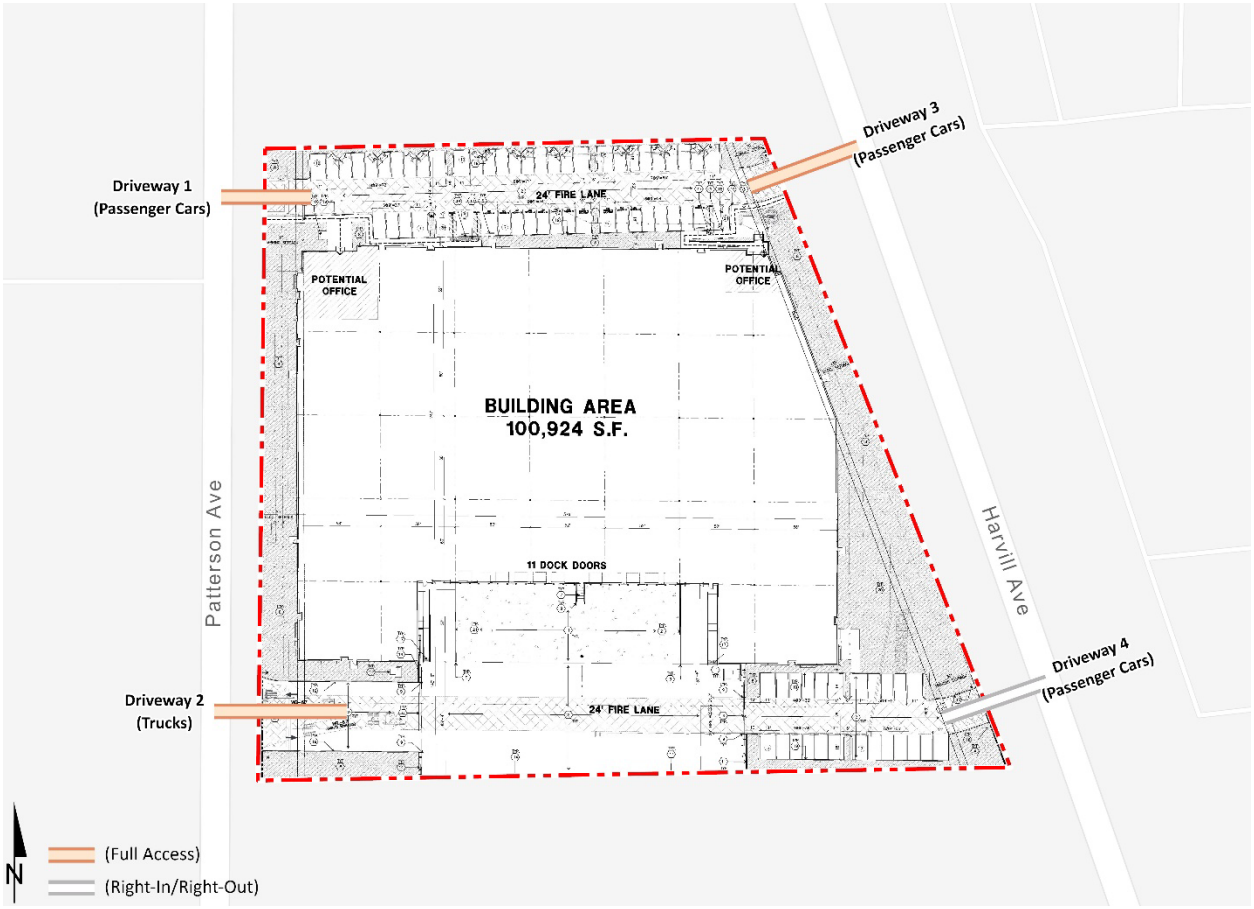
For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2022) Conditions
- Existing plus Ambient Growth plus Project (EAP) (2024) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2024) Conditions

1.3.1 EXISTING (2022) CONDITIONS

Information for Existing (2022) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. For a detailed discussion on the existing traffic counts, see Section 3.7 Existing Traffic Counts.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



1.3.2 EAP (2024) CONDITIONS

The EAP (2024) conditions analysis determines the potential circulation system deficiencies based on a comparison of the EAP traffic conditions to Existing conditions. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. To account for background traffic growth, an ambient growth factor from Existing (2022) conditions of 4.04% (2 percent per year, compounded over 2 years) is included for EAP (2024) traffic conditions. The assumed ambient growth factor is based on the requirements per the County of Riverside traffic study guidelines. Consistent with County traffic study guidelines, the EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area.

1.3.3 EAPC (2024) CONDITIONS

The EAPC (2024) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. To account for background traffic growth, an ambient growth factor from Existing (2022) conditions of 4.04% (2 percent per year, compounded over 2 years) is included for EAPC (2024) traffic. Conservatively, this TA estimates the area ambient traffic growth and then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed ambient growth rates; and some of these related projects may not be implemented and operational within the 2024 Opening Year time frame assumed for the Project. The resulting traffic growth utilized in the TA (ambient growth factor plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic deficiencies under 2024 conditions.

1.4 STUDY AREA

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

The 6 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with County of Riverside staff. At a minimum, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the County's Guidelines. (1) The "50 peak hour trip" criterion represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and used throughout the County for the purposes of estimating a potential area of influence (i.e., study area).

EXHIBIT 1-3: STUDY AREA



TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersection	Jurisdiction	CMP?
1	Patterson Av. & Driveway 1	County of Riverside	No
2	Patterson Av. & Driveway 2	County of Riverside	No
3	Harvill Av. & Old Cajalco Rd.	County of Riverside	No
4	Harvill Av. & Driveway 3	County of Riverside	No
5	Harvill Av. & Driveway 4	County of Riverside	No
6	Harvill Av. & Rider St.	County of Riverside	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 deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and most recently updated in 2019 as part of the Riverside County Long Range Transportation Study. The Riverside County Transportation Commission (RCTC) adopted the 2019 CMP for the County of Riverside in December 2019. (3) There are no study area intersections identified as a Riverside County CMP intersection.

1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 Methodologies provides information on the methodologies used in the analysis and Section 5 EAP (2024) Traffic Conditions and Section 6 EAPC (2024) Traffic Conditions include the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-2.

TABLE 1-2: SUMMARY OF LOS

		Existing		EAP		EAPC	
#	Intersection	AM	PM	AM	PM	AM	PM
1	Patterson Av. & Driveway 1	N/A	N/A	●	●	●	●
2	Patterson Av. & Driveway 2	N/A	N/A	●	●	●	●
3	Harvill Av. & Old Cajalco Rd.	●	●	●	●	●	●
4	Harvill Av. & Driveway 3	N/A	N/A	●	●	●	●
5	Harvill Av. & Driveway 4	N/A	N/A	●	●	●	●
6	Harvill Av. & Rider St.	●	●	●	●	●	●

● = A - D ● = E ● = F

1.5.1 EXISTING (2022) CONDITIONS

The study area intersections are currently operating at an acceptable LOS during the peak hours.

1.5.2 EAP (2024) CONDITIONS

The study area intersections are anticipated to continue to operate at an acceptable LOS with the addition of Project traffic under EAP (2024) traffic conditions.

1.5.3 EAPC (2024) CONDITIONS

The following study area intersection is anticipated to operate at an unacceptable LOS under EAPC (2024) traffic conditions:

- Harvill Av. & Rider St. (#6) – LOS F AM and PM peak hour

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the minimum improvements needed to accommodate site access and maintain acceptable peak hour operations for the proposed Project. The site adjacent recommendations are shown on Exhibit 1-4.

Recommendation 1 **–** Patterson Avenue & Driveway 1 (#1) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the westbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will allow full access and will serve passenger cars only.
- Project southbound left turn stacking at Driveway 1 to be accommodated within the proposed painted median.

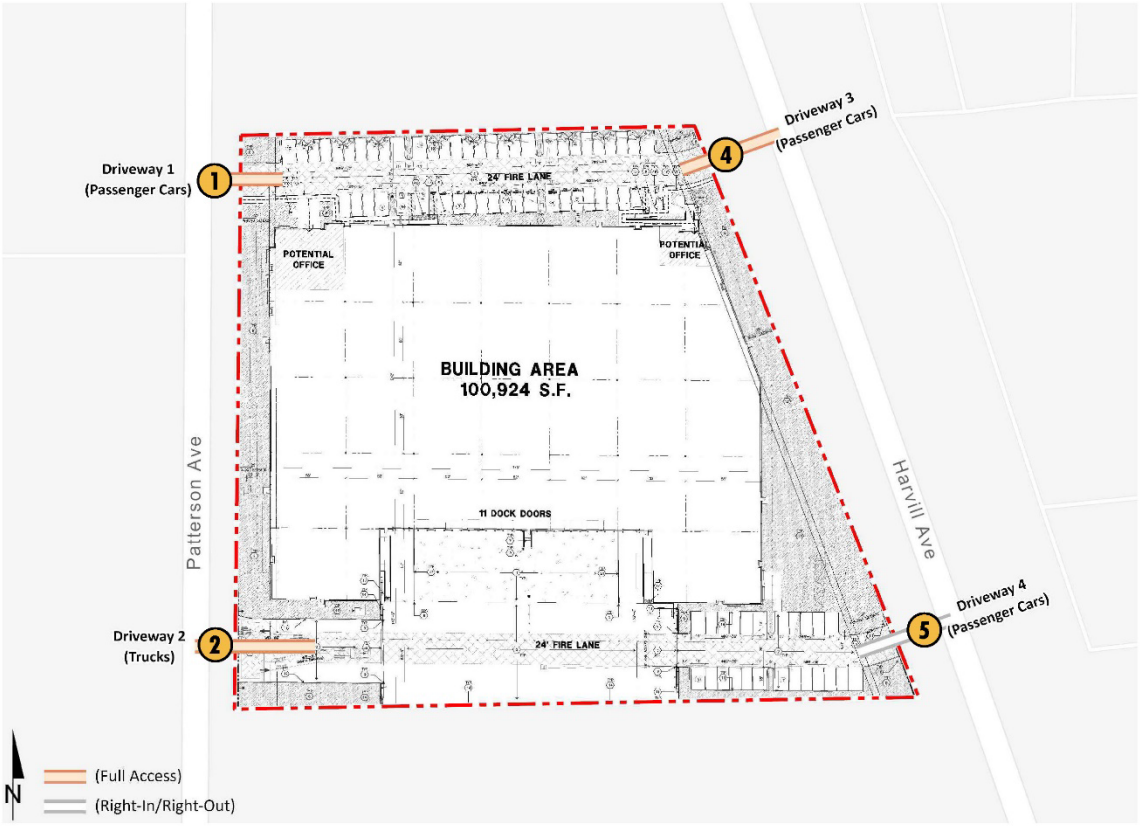
Recommendation 2 **–** Patterson Avenue & Driveway 2 (#2) – The following improvements are necessary to accommodate site access:

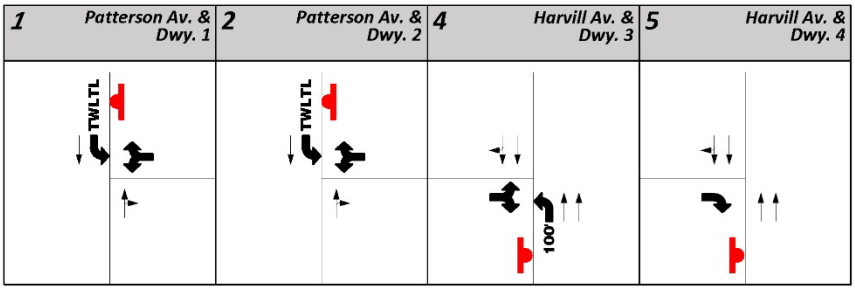
- Project to install a stop control on the westbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will allow full access and will serve trucks only.
- Project southbound left turn stacking at Driveway 2 to be accommodated within the proposed painted median.

Recommendation 3 **–** Harvill Avenue & Driveway 3 (#4) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the eastbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will allow full access and will serve passenger cars only.
- Project northbound left turn stacking at Driveway 3 to be accommodated within the existing painted median and should accommodate a minimum of 100-feet of storage.

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS





= Stop Sign Improvement
= Existing Lane
= Lane Improvement
100' = Recommended Turn Pocket Length
100' = Minimum Turn Pocket Length
TWLTL = Two Way Left turn Lane

Recommendation 4 **–** Harvill Avenue & Driveway 4 (#5) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the eastbound approach (egress Project traffic) to implement a cross-street stop-controlled intersection. Driveway will be restricted to right-in/right-out access and will serve passenger cars only. Access at this driveway will be controlled by the construction of a raised median in order to prohibit left turns into and out of Driveway 4.

Recommendation 5 – Harvill Avenue is a north-south oriented roadway located on the Project's eastern boundary. Harvill Avenue is currently constructed to its ultimate cross-section as a Major Arterial (118-foot right-of-way) consistent with the County's standards; however, the Project should construct the driveways necessary to accommodate site access, including a 100-foot northbound left turn lane at Driveway 3 and a raised median to prohibit left-turn access at Driveway 4.

Recommendation 6 – Patterson Avenue is a north-south oriented roadway located along the Project's western boundary. Project to construct Patterson Avenue at its ultimate half-section width as an Industrial Collector (78-foot right-of-way) from the Project's northbound and southern boundaries consistent with the City's standards. Frontage improvements include pavement, curb-and-gutter, sidewalk, and landscaping improvements.

Exhibit 1-5 shows the proposed street improvements along Patterson Avenue from just south of the proposed Project, north to Cajalco Road. The improvements shown on Exhibit 1-5 will be constructed jointly with the adjacent project (PPT220024, Bridge Industrial).

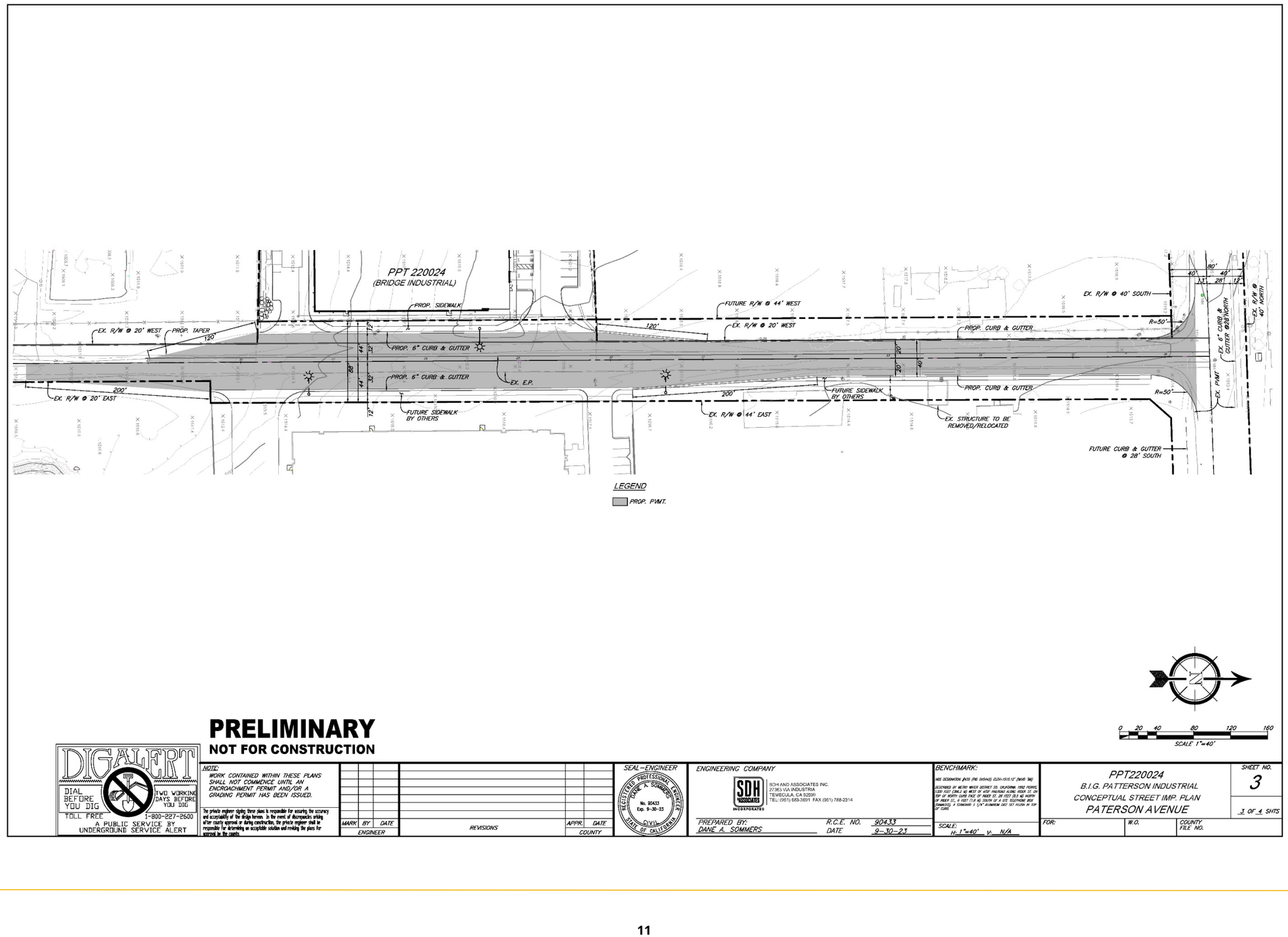
On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

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

1.6.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the deficiencies identified under Existing (2022), EAP (2024), and EAPC (2024) traffic conditions are shown in Table 1-3. Improvements that appear under EAP (2024) that are not also identified for Existing (2022) traffic conditions would be the Project's responsibility to implement/construct in order to maintain acceptable LOS. For those remaining improvements listed in Table 1-3 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share or payment of fees (if applicable) that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay fair share fees and participate in pre-existing fee programs consistent with the County's requirements (see Section 7 Local and Regional Funding Mechanisms).

EXHIBIT 1-5: PATTERSON AVENUE OFF-SITE IMPROVEMENT



PRELIMINARY
NOT FOR CONSTRUCTION

DIGALERT
DIAL BEFORE YOU DIG
TOLL FREE 1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design herein. In the event of discrepancies arising after county approval or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for approval by the county.

MARK	BY	DATE	REVISIONS	APPR.	DATE
ENGINEER				COUNTY	

SEAL—ENGINEER
REGISTERED PROFESSIONAL ENGINEER
DANE A. SOMMERS
No. 90433
Exp. 9-30-23
CIVIL
STATE OF CALIFORNIA

ENGINEERING COMPANY
SDH ASSOCIATES INCORPORATED
SDH AND ASSOCIATES INC.
27363 VIA INDUSTRIA
TEMECULA, CA 92590
TEL: (951) 683-3691 FAX (951) 788-2314

PREPARED BY: DANE A. SOMMERS
R.C.E. NO. 90433
DATE 9-30-23

BENCHMARK:
NGS DESIGNATION AJ5S (PID DH5443) ELEV=1515.13' (NAVD '88)
DESCRIBED BY METRO WATER DISTRICT SD, CALIFORNIA 1982 PERRIS, 1.320 YEET (.2MILE W) WEST OF AVE. MARIONA ALONG ROAD ST. CH TOP OF NORTH CURB FACE OF RIDER ST. 28 FEET (8.5 M) NORTH OF RIDER ST., 6 FEET (1.8 M) SOUTH OF A STE TELEPHONE BOX CONNECTED, A STAINLESS 3 1/4" ALUMINUM DISC SET FLUSH W/ TOP OF CURB.

SCALE: H: 1"=40' V: N/A

PPT220024
B.I.G. PATTERSON INDUSTRIAL
CONCEPTUAL STREET IMP. PLAN
PATERSON AVENUE

FOR: | W.O. | COUNTY FILE NO.

SHEET NO. 3
3 OF 4 SHTS

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TABLE 1-3: SUMMARY OF IMPROVEMENTS BY ANALYSIS SCENARIO

#	Intersection Location	Jurisdiction	Analysis Scenario EAP	Analysis Scenario EAPC	Improvements in DIF, TUMF, etc.[1]	Project Responsibility[2]	Project Fair Share[3]
6	Harvill Av. & Rider St.	County	- None	- Install a traffic signal	No	Fair Share	0.8%

[1] Improvements included in TUMF Nexus or County DIF programs have been identified as such.

[2] Program improvements constructed by Project may be eligible for fee credit. In lieu fee payment is at discretion of County.

Represents the fair share percentage for the Project during the most impacted peak hour. Identifies the Project's responsibility to construct an off-site improvement, contribute fair share, or fee payment towards the improvements shown. If identified as a Project construct obligation/in a fee program, then no fair share percentage has

[3] Total project fair share is applicable to the improvements which are not already included in the County DIF/TUMF for those intersections wholly or partially within the Count

1.7 QUEUING ANALYSIS

The traffic modeling and signal timing optimization software package SimTraffic has been utilized to assess the queues. 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. These random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each applicable turn lane. A SimTraffic simulation has been recorded up to 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals. The results of the queuing analysis are shown in Table 1-4 and the worksheets for the weekday AM and PM peak hours are provided in Appendix 1.2 of this report for EAPC (2024) traffic conditions. No site adjacent queues are anticipated with the proposed improvements.

TABLE 1-4: PEAK HOUR QUEUING ANALYSIS FOR SITE ADJACENT INTERSECTIONS

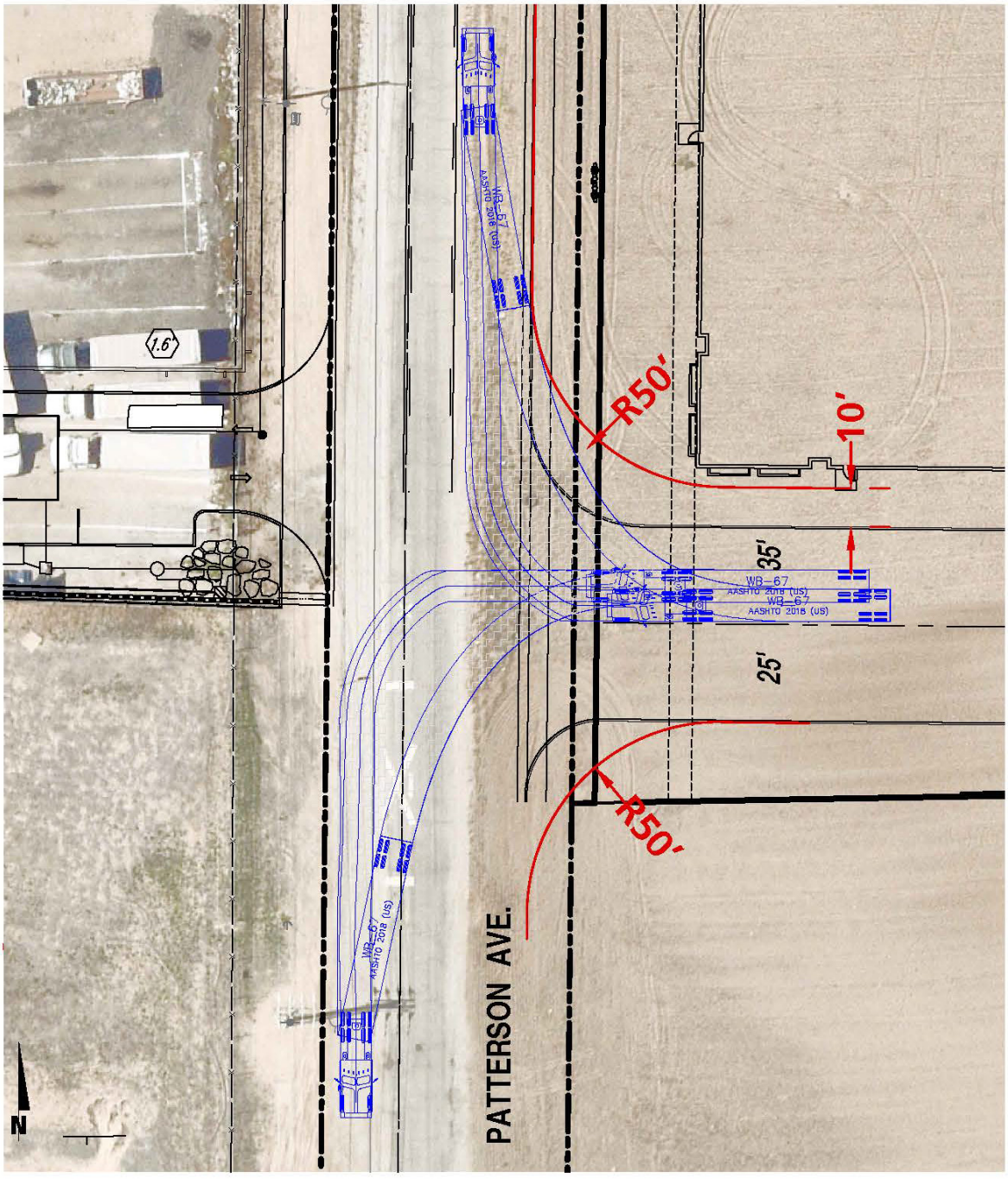
Intersection	Movement	Available Stacking Distance (Feet)[3]	95th Percentile Queue (Feet) AM Peak	95th Percentile Queue (Feet) PM Peak	Acceptable? [1] AM	Acceptable? [1] PM
Patterson Av. & Driveway 1	WBLTR	100	0	19	Yes	Yes
Patterson Av. & Driveway 2	WBLTR	100	25	18	Yes	Yes
Harvill Av. & Driveway 3	NBL	100	10	4	Yes	Yes
	EBLR	100	11	19	Yes	Yes
Harvill Av. & Driveway 4	EBR	100	0	12	Yes	Yes

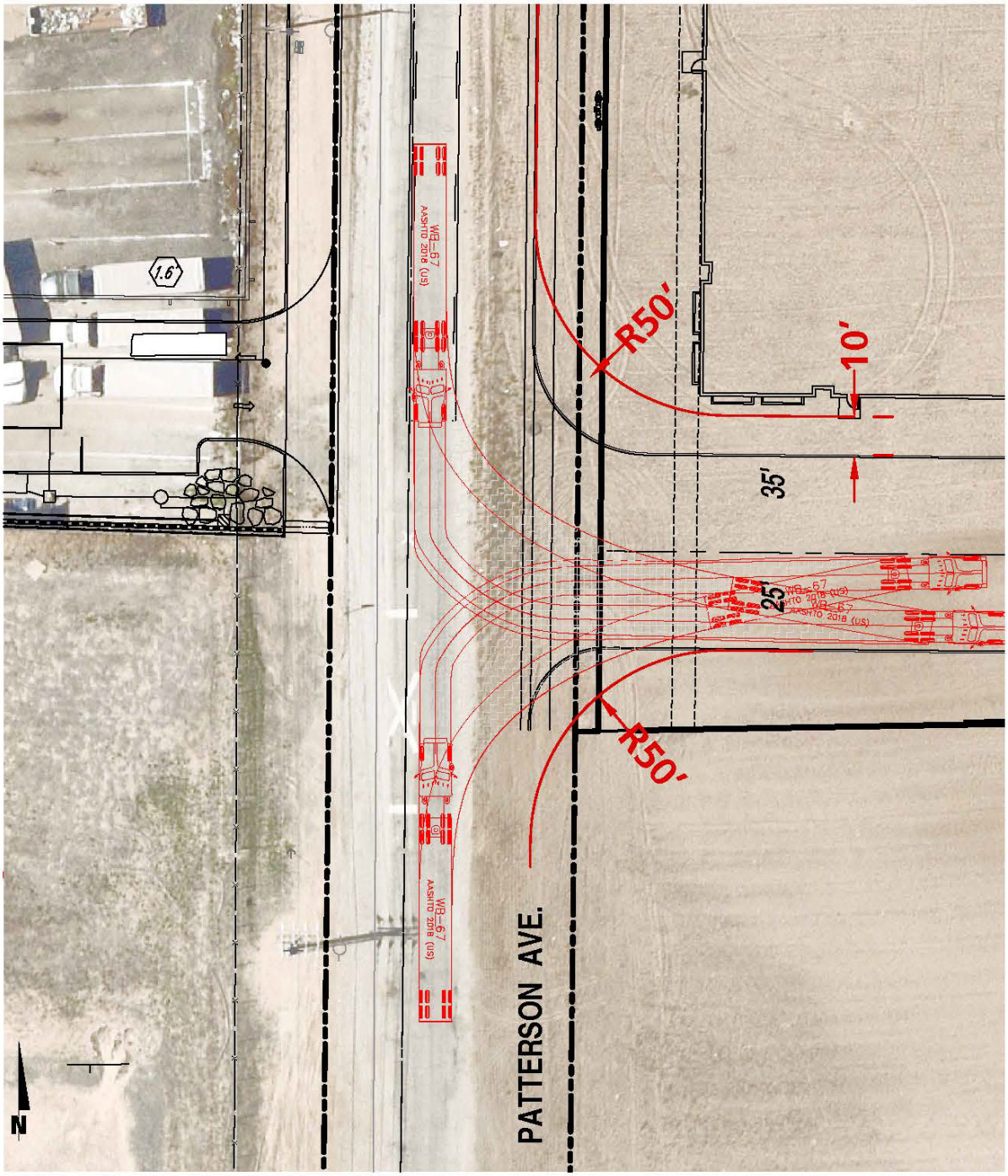
[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

1.8 TRUCK ACCESS

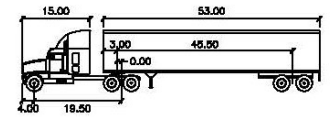
Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-6). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis. As shown on Exhibit 1-6, the northeast and southeast corners of Driveway 2 on Patterson Avenue should be modified to accommodate a 50-foot curb radius and Driveway 2 should be widened by 10-feet in order to accommodate the ingress and egress of heavy trucks.

EXHIBIT 1-6: TRUCK ACCESS – DRIVEWAY 2





GRAPHIC SCALE
0 20 40
1"=40'



WB-67
Not to Scale
feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with County of Riverside's Traffic Study Guidelines.

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 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The County of Riverside requires signalized intersection operations analysis based on the methodology described in the HCM. (4) 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 related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections. 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[1]
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
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
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
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
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

A saturation flow rate of 1900 has been utilized for all study area intersections. The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Customary 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. (4)

2.2.2 UNSIGNALIZED INTERSECTIONS

The County of Riverside requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). 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. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

2.3 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 determine the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (5)

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. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions and for all future analysis scenarios for existing unsignalized intersections. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics. 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. Rural warrants have been used as posted speed limits on the major roadways with unsignalized intersections are over 40 miles per hour while urban warrants have been used where speeds are 40 miles per hour or below.

Future intersections that do not currently 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. Similarly, the speed limit has been used as the basis for determining the use of Urban and Rural warrants. Traffic signal warrant analyses were performed for the following study area intersection shown on Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

#	Intersection
1	Patterson Av. & Driveway 1
2	Patterson Av. & Driveway 2
3	Harvill Av. & Old Cajalco Rd.
4	Harvill Av. & Driveway 3
6	Harvill Av. & Rider St.

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 EAP (2024) Traffic Conditions and Section 6 EAPC (2024) Traffic Conditions 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. A traffic signal warrant analysis has not bee conducted for Driveway 4 on Harvill Avenue as the driveway is proposed to restrict left turns.

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from the County of Riverside General Plan. Riverside County General Plan Policy C 2.1 states that the County will maintain the following County-wide target LOS:

The following minimum target levels of service have been designated for the review of development proposals in the unincorporated areas of Riverside County with respect to transportation impacts on roadways designated in the Riverside County Circulation Plan which are currently County maintained, or are intended to be accepted into the County maintained roadway system:

- LOS C shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well as those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS D shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.

- LOS E may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.

The applicable minimum LOS utilized for the purposes of this analysis is LOS D per the County-wide target LOS for projects located within the Mead Valley Area Plan.

2.5 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. The following deficiency criteria has been utilized for the County of Riverside. To determine whether the addition of project-related traffic at a study intersection would result in a deficiency, the following will be utilized:

- A deficiency occurs at study area intersections if the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and the addition of project trips causes the peak hour LOS of the study area intersection to operate at unacceptable LOS (i.e., LOS E or F). Per the County of Riverside traffic study guidelines, for intersections currently operating at unacceptable LOS (LOS E or F), a deficiency will occur if the Project contributes peak hour trips to pre-project traffic conditions.

2.6 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the TUMF and/or DIF will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share contribution based on the Project's proportional share may be imposed in order to address the Project's share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the County Traffic Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval). The Project's fair share contribution is determined based on the following equations, which are the ratio of Project traffic to net new traffic (where net new traffic is the future traffic less existing traffic):

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

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the County of Riverside General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with County of Riverside staff (Appendix 1.1), the study area includes a total of 6 existing and future intersections as shown previously on Exhibit 1-3, where the Project is anticipated to contribute 50 or more peak hour trips or were added at the County's request during the scoping process. 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 COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

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

Major Highways are four-lane roadways and may include a painted median. These roadways typically have a 118-foot right-of-way and a 76-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas. The following study area roadway within the County of Riverside is classified as a Major Highway:

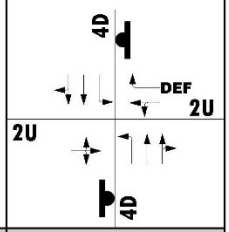
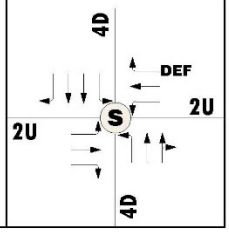
- Harvill Avenue

Secondary Highways are four-lane roadways. These roadways typically have a 100-foot right-of-way and a 64-foot curb-to-curb measurement. The following study area roadway within the County of Riverside is classified as a Secondary Highway:

- Rider Street
- Patterson Avenue south of Rider Street

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



1 Patterson Av. & Dwy. 1	2 Patterson Av. & Dwy. 2	3 Harvill Av. & Old Cajalco Rd.
Future Intersection	Future Intersection	
4 Harvill Av. & Dwy. 3	5 Harvill Av. & Dwy. 4	6 Harvill Av. & Rider St.
Future Intersection	Future Intersection	

S = *All Way Stop*
= *Stop Sign*
4 = *Number of Lanes*
D = *Divided*
U = *Undivided*
DEF = *Defacto Right Turn*
SPEED LIMIT 25 = *Speed Limit (MPH)*

EXHIBIT 3-2: COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

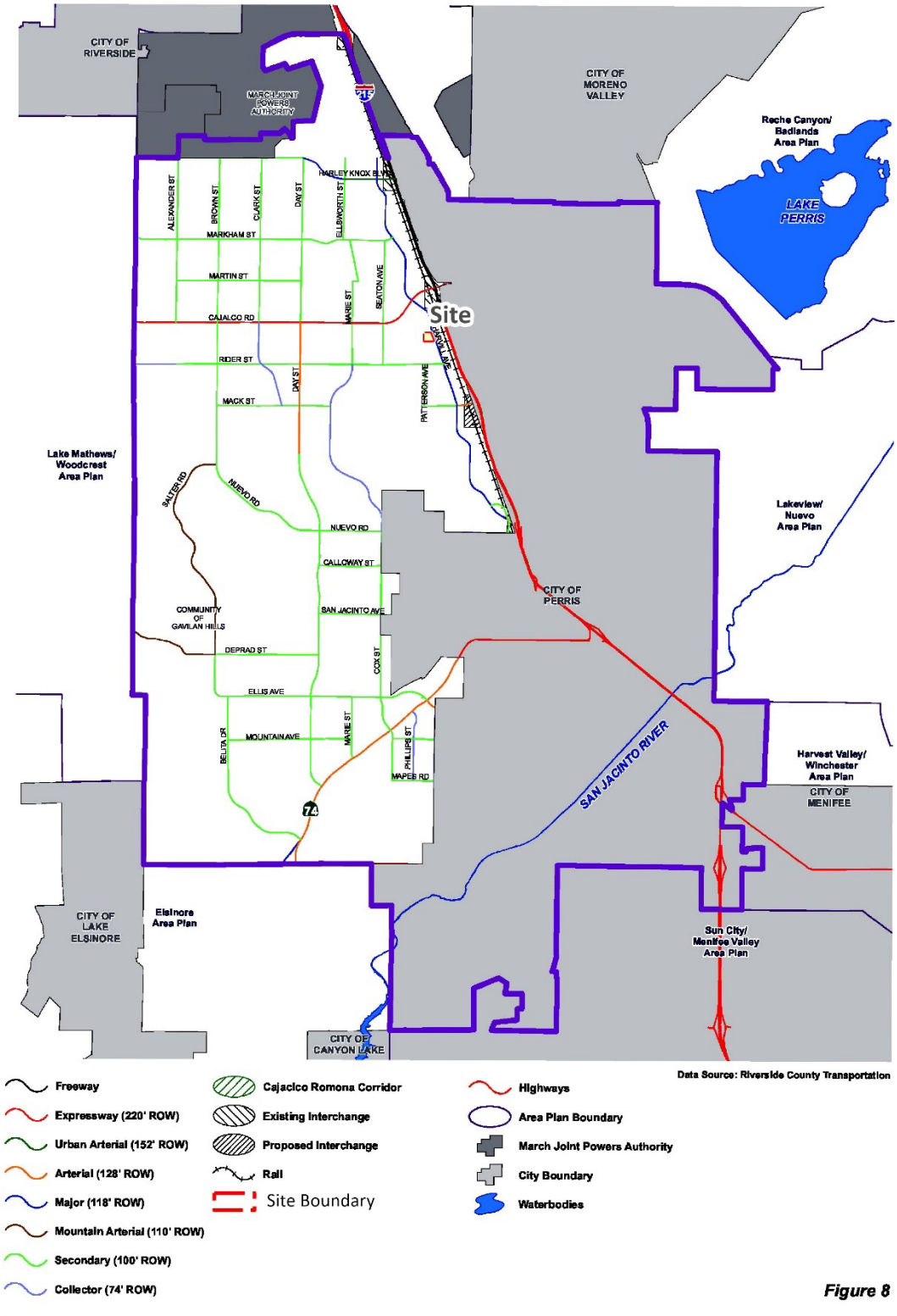
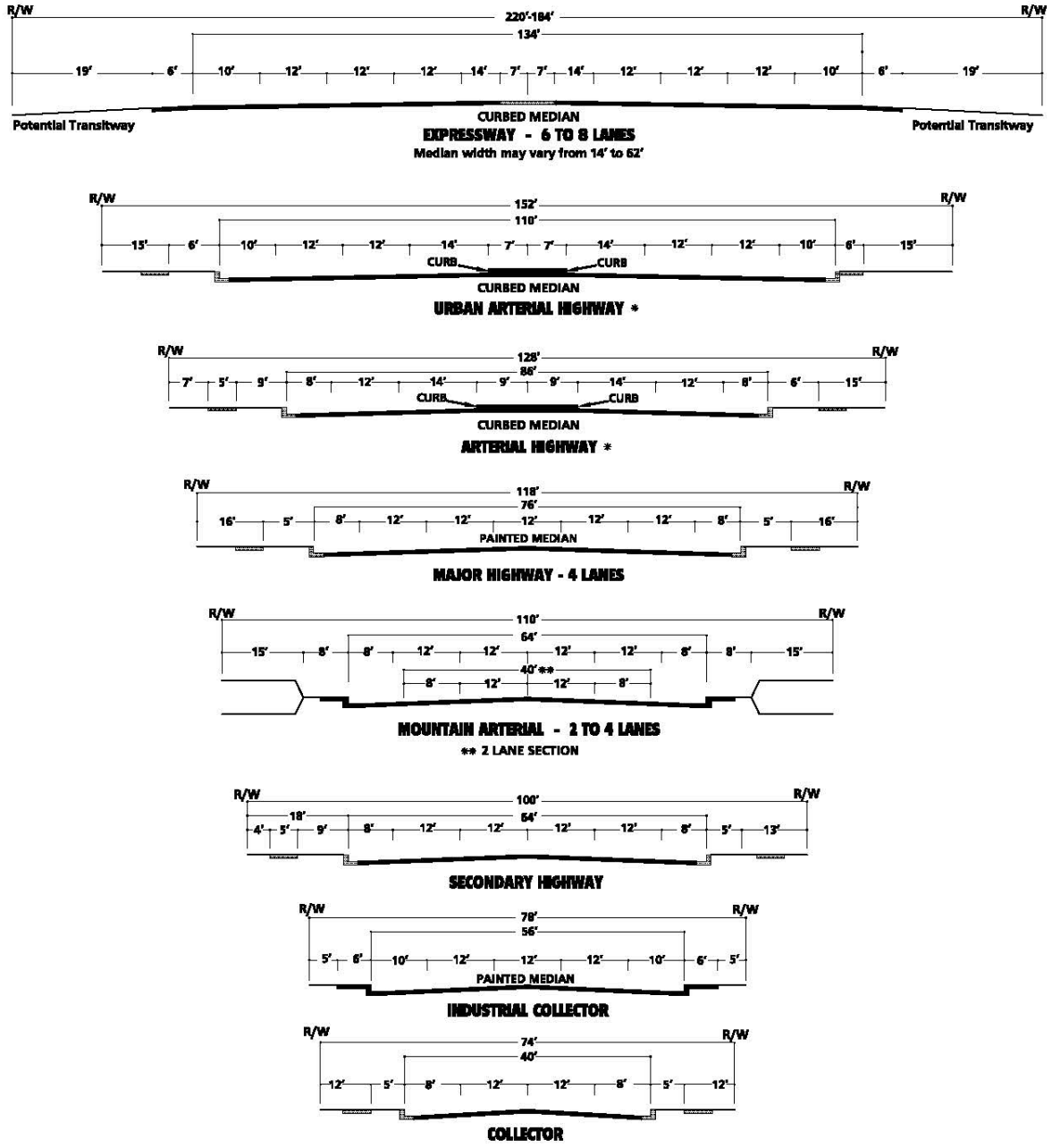


Figure 8

EXHIBIT 3-3: COUNTY OF RIVERSIDE GENERAL PLAN ROADWAY CROSS-SECTIONS



3.3 BICYCLE & PEDESTRIAN FACILITIES

The County of Riverside bike networks is shown on Exhibit 3-4. As shown on Exhibit 3-4, there is a planned Regional Trail (Urban/Suburban) trail proposed along Placentia Avenue south of the Project, and Class II (on-street, striped) bike lanes along Ramona Expressway/Cajalco Expressway. Exhibit 3-5 illustrates the existing crosswalks throughout the study area. As shown on Exhibit 3-5, there are limited pedestrian facilities in place in the vicinity of the Project with improvements primarily along Rider Street west of Harvill Avenue and along Harvill Avenue at Rider Street. Development of the proposed Project would provide new pedestrian facilities (to be constructed by the Project) along its frontages on Patterson Avenue and Harvill Avenue (consistent with the County's roadway standards).

3.4 TRANSIT SERVICE

The study area is currently served by Riverside Transit Agency (RTA) with bus service along the I-215 Freeway and Cajalco Expressway/Ramona Expressway. RTA Route 27 runs along the I-215 Freeway and stops at Perris High School (on Nuevo Road) and runs between the Perris Station Transit Center and the Galleria at Tyler in the City of Riverside. The closest route would be RTA Route 41 which runs along Ramona/Cajalco Expressway and has existing bus stops to the west and east of Harvill Avenue, which is located approximately ½ mile north or the Project. There are currently no transit routes or stops along the Harvill Avenue corridor near the proposed Project. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.5 TRUCK ROUTES

The County of Riverside's General Plan does not provide designated truck routes. Trucks are prohibited on certain County roadways through the Municipal Code through weight restrictions. Truck routes for the proposed Project have been determined based on discussions with County staff. These truck routes serve both the proposed Project and future cumulative development projects throughout the study area. Sensitive land uses have also been taken into consideration as part of determining the best routes for future trucks.

EXHIBIT 3-4: COUNTY OF RIVERSIDE GENERAL PLAN BIKE NETWORK

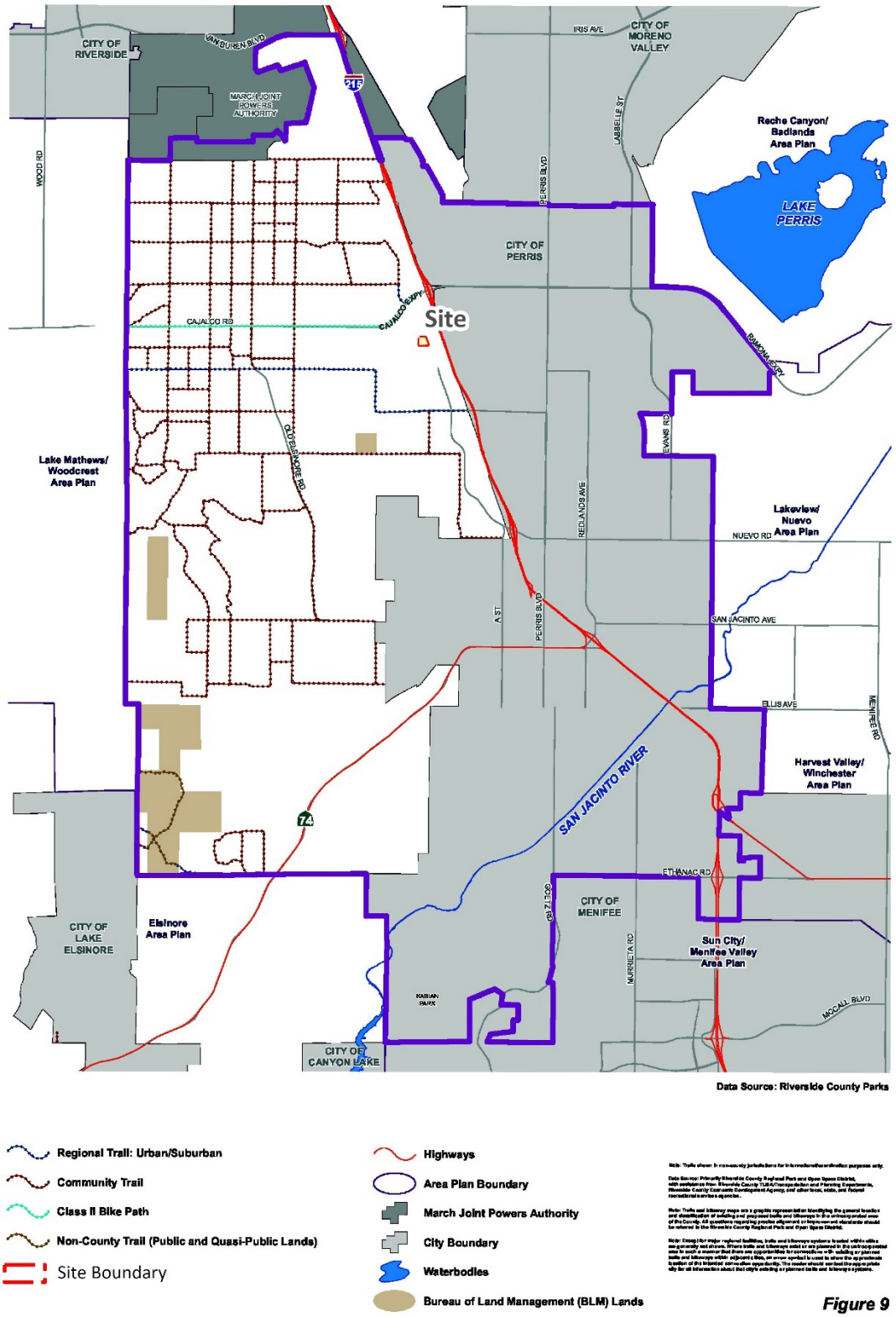


Figure 9

EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES



3.6 EXISTING (2022) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in February and May 2022 when local schools were in session and operating on normal bell schedules. 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)

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.

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-6. Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 14.6 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 6.8 percent. As such, the above equation utilizing a factor of 14.6 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 6.8 percent (i.e., 1/0.068 = 14.6) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. This factor is consistent with that used for other traffic studies within the study area. Existing weekday AM and weekday PM peak hour intersection volumes are shown on Exhibit 3-6.

Volumes reported on the exhibits are expressed in actual vehicles. However, consistent with the County's guidelines, the peak hour intersection operations analysis utilizes passenger car equivalent (PCE) volumes. PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in the County's Guidelines. PCE volumes can be found in Appendix 3.1.

EXHIBIT 3-6: EXISTING (2022) TRAFFIC VOLUMES



1 Patterson Av. & Driveway 1

Nominal

← 1(2)

→ 0(2)

Nominal

2 Patterson Av. & Driveway 2

Nominal

← 1(2)

→ 0(2)

Nominal

3 Harvill Av. & Old Cajalco Rd.

12,200

← 36(22) ↓ 201(416) ↳ 8(4)

20(54) →

3(13) ↳

↰ 3(5) ↑ 2(16)

↰ 5(4) ↑ 697(323) ↱ 7(2)

550

1,350

11,150

4 Harvill Av. & Driveway 3

11,150

← 207(434)

→ 709(329)

11,150

5 Harvill Av. & Driveway 4

11,150

← 207(434)

→ 709(329)

11,150

6 Harvill Av. & Rider St.

8,700

← 16(31) ↓ 182(430) ↳ 13(1)

43(27) →

1(1) →

29(42) ↳

↰ 2(3) ↑ 13(4)

↰ 23(22) ↑ 272(261) ↱ 4(3)

200

1,800

11,100

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

3.7 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 on Table 3-1, which indicates that all existing study area intersections are currently operating at acceptable LOS during the peak hours. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2022) CONDITIONS

#	Intersection	Traffic Control[2]	Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM
1	Patterson Av. & Driveway 1		Future Intersection			
2	Patterson Av. & Driveway 2		Future Intersection			
3	Harvill Av. & Old Cajalco Rd.	CSS	11.0	13.4	B	B
4	Harvill Av. & Driveway 3		Future Intersection			
5	Harvill Av. & Driveway 4		Future Intersection			
6	Harvill Av. & Rider St.[3]	AWS	9.5	12.2	A	B

1 Per the Highway Capacity Manual (6th Edition), 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. HCM delay reported in seconds.

2 CSS = Cross-street Stop; AWS = All Way Stop

3 Intersection includes a SB right turn lane that is not coded due to limitations of the HCM for AWS intersections.

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently warrant a traffic signal for Existing traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

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 consists of the development of a 100,924 square foot warehouse building. For the purposes of this analysis, the Project will evaluate 20% of the building square footage assuming high-cube (cold storage) warehouse use (20,185 square feet) and 80% of the building square footage assuming general warehousing (80,739 square feet). Access to the Project site will be accommodated via Patterson Avenue and Harvill Avenue. Regional access to the Project site is available from the I-215 Freeway via the existing Ramona Expressway and future Placentia Avenue interchanges.

4.1 PROJECT TRIP GENERATION

4.1.1 PROPOSED 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. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the ITE Trip Generation Manual (11th Edition, 2021) was used to calculate the trip generation for the proposed warehousing use (ITE Land Use Code 150) and high-cube cold storage warehouse use (ITE Land Use Code 157). (2) The following trip generation rates and vehicle mixes were utilized for calculating the trip generation for the proposed Project:

- Warehousing – ITE Land Use Code 150 has been used to derive site specific trip generation estimates for 80,739 square feet of the proposed Project. A warehouse is primarily devoted to the storage of materials but may also include office and maintenance areas. The vehicle mix has also been obtained from the ITE's latest Trip Generation Manual. The truck percentages were further broken down by axle type per the following South Coast Air Quality Management District (SCAQMD) recommended truck mix: 2-Axle = 16.7%; 3-Axle = 20.7%; 4+-Axle = 62.6%.
- ITE land use code 157 (High-Cube Cold Storage Warehouse) has been used to derive site specific trip generation estimates for up to 20,185 square feet of the Project. High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. High-cube cold storage warehouses are facilities typified by temperature-controlled environments for frozen food or other perishable products. The High-Cube Cold Storage Warehouse vehicle mix (passenger cars versus trucks) has been obtained from the ITE's Trip Generation Manual. The truck percentages were further broken down by axle type per the following SCAQMD recommended truck mix: 2-Axle = 34.7%; 3-Axle = 11.0%; 4+-Axle = 54.3%.

PCE factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and LOS analyses. The PCE factors are consistent with the recommended PCE factors In the County's Guidelines. Trip generation rates are summarized on Table 4-1 for actual vehicles and PCE.

TABLE 4-1: TRIP GENERATION RATES

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicle Trip Generation Rates									
Warehousing[3]	TSF	150	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars (AM=88.2%, PM=83.3%, Daily=64.9%)			0.120	0.030	0.150	0.034	0.116	0.150	1.110
2-Axle Trucks (AM=1.97%, PM=2.79%, Daily=5.86%)			0.002	0.001	0.003	0.003	0.002	0.005	0.100
3-Axle Trucks (AM=2.44%, PM=3.46%, Daily=7.27%)			0.002	0.002	0.004	0.003	0.003	0.006	0.124
4+-Axle Trucks (AM=7.39%, PM=10.45%, Daily=21.97%)			0.007	0.006	0.013	0.010	0.009	0.019	0.376
High-Cube Cold Storage Warehouse[3]	TSF	157	0.085	0.025	0.110	0.034	0.086	0.120	2.120
Passenger Cars (AM-72.7%, PM-75.0%, Daily-64.6%)			0.076	0.004	0.080	0.019	0.071	0.090	1.370
2-Axle Trucks (AM-9.5%, PM-8.7%, Daily-12.3%)			0.003	0.007	0.010	0.005	0.005	0.010	0.260
3-Axle Trucks (AM-3.0%, PM-2.8%, Daily-3.9%)			0.001	0.002	0.003	0.002	0.001	0.003	0.083
4+-Axle Trucks (AM-14.8%, PM-13.6%, Daily-19.2%)			0.005	0.011	0.016	0.008	0.008	0.016	0.407
Passenger Car Equivalent (PCE) Trip Generation									
Warehousing[3]	TSF	150	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars			0.120	0.030	0.150	0.034	0.116	0.150	1.110
2-Axle Trucks (PCE = 1.5)			0.003	0.002	0.005	0.005	0.003	0.008	0.150
3-Axle Trucks (PCE = 2.0)			0.004	0.004	0.008	0.006	0.006	0.012	0.248
4+-Axle Trucks (PCE = 3.0)			0.021	0.017	0.038	0.030	0.026	0.056	1.127
High-Cube Cold Storage Warehouse[3]	TSF	157	0.085	0.025	0.110	0.034	0.086	0.120	2.120
Passenger Cars			0.076	0.004	0.080	0.019	0.071	0.090	1.370
2-Axle Trucks (PCE = 1.5)			0.005	0.011	0.016	0.008	0.008	0.016	0.390
3-Axle Trucks (PCE = 2.0)			0.002	0.005	0.007	0.004	0.003	0.007	0.165
4+-Axle Trucks (PCE = 3.0)			0.015	0.034	0.049	0.024	0.025	0.049	1.222

[1] Trip Generation & Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = thousand square feet

[3] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.
Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.
Normalized % - With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks.

Per the County's Guidelines, peak hour intersection operations analyses are to utilize the PCE trip generation. The trip generation summary illustrating daily and peak hour trip generation estimates for the Project in actual vehicles are shown on Table 4-2. The proposed Project is anticipated to generate 182 two-way trip-ends per day with 15 AM peak hour trips and 15 PM peak hour trips (see Table 4-2, in actual vehicles). PCE based trip generation for the Project are summarized on Table 4-3.

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY (ACTUAL VEHICLES)

			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[1]	In	Out	Total	In	Out	Total	Daily
Actual Vehicles:									
Warehousing	80.739	TSF							
Passenger Cars:			10	2	12	3	9	12	90
2-axle Trucks:			0	0	0	0	0	0	8
3-axle Trucks:			0	0	0	0	0	0	10
4+-axle Trucks:			1	0	1	1	1	2	30
Total Truck Trips (Actual Vehicles):			1	0	1	1	1	2	48
Total Trips (Actual Vehicles)[2]			11	2	13	4	10	14	138
High-Cube Cold Storage	20.185	TSF							
Passenger Cars:			2	0	2	0	1	1	28
2-axle Trucks:			0	0	0	0	0	0	6
3-axle Trucks:			0	0	0	0	0	0	2
4+-axle Trucks:			0	0	0	0	0	0	8
Total Truck Trips (Actual Vehicles):			0	0	0	0	0	0	16
Total Trips (Actual Vehicles)[2]			2	0	2	0	1	1	44
Passenger Cars			12	2	14	3	10	13	118
Trucks			1	0	1	1	1	2	64
Total Trips (Actual Vehicles)[2]			**13**	**2**	**15**	**4**	**11**	**15**	**182**

[1] TSF = thousand square feet

[2] Total Trips = Passenger Cars + Truck Trips.

TABLE 4-3: PROJECT TRIP GENERATION SUMMARY (PCE)

			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[1]	In	Out	Total	In	Out	Total	Daily
Passenger Car Equivalent (PCE):									
Warehousing	80.739	TSF							
Passenger Cars:			10	2	12	3	9	12	90
2-axle Trucks:			0	0	0	0	0	0	12
3-axle Trucks:			0	0	0	0	1	1	20
4+-axle Trucks:			2	1	3	2	2	4	92
Total Truck Trips (PCE):			2	1	3	2	3	5	124
Total Trips (PCE)[2]			12	3	15	5	12	17	214
High-Cube Cold Storage	20.185	TSF							
Passenger Cars:			2	0	2	0	1	1	28
2-axle Trucks:			0	0	0	0	0	0	8
3-axle Trucks:			0	0	0	0	0	0	4
4+-axle Trucks:			0	1	1	0	1	1	26
Total Truck Trips (PCE):			0	1	1	0	1	1	38
Total Trips (PCE)[2]			2	1	3	0	2	2	66
Passenger Cars			12	2	14	3	10	13	118
Trucks			2	2	4	2	4	6	162
Total Trips (PCE)[2]			**14**	**4**	**18**	**5**	**14**	**19**	**280**

[1] TSF = thousand square feet

[2] Total Trips = Passenger Cars + Truck Trips.

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. 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. In addition, truck routes for neighboring agencies have been taken into consideration in the development of the trip distribution patterns for heavy trucks. Exhibits 4-1 and 4-2 show the Project truck and passenger car trip distribution patterns, respectively. Note that the Project Truck distribution shows two alternatives that have been evaluated in this TA.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would 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, the Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year, compounded annually, for 2024 conditions. The total ambient growth is 4.04% for 2024 traffic conditions (compounded growth of 2 percent per year over 2 years or $1.02^{2\ years}$). The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION

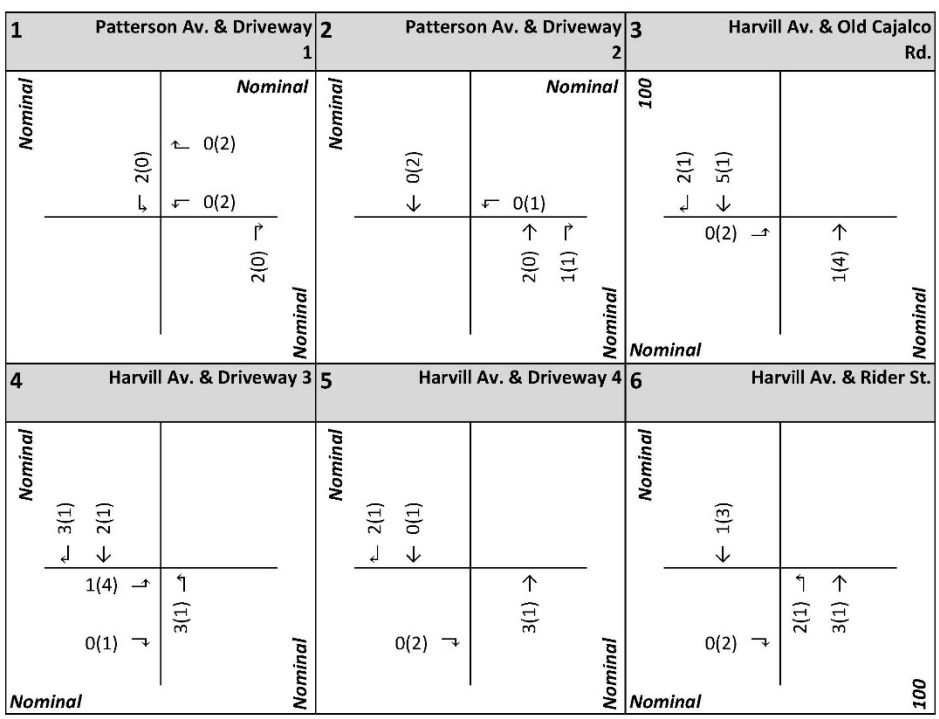


EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

The currently adopted Southern California Association of Governments (SCAG) 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) growth forecasts for the County of Riverside identifies projected growth in population of 370,500 in 2016 to 525,600 in 2045, or a 41.9 percent increase over the 29-year period. (6) The change in population equates to roughly a 1.21 percent growth rate, compounded annually. Similarly, growth over the same 29-year period in households is projected to increase by 59.2 percent, or 1.62 percent annual growth rate. Finally, growth in employment over the same 29-year period is projected to increase by 83.4 percent, or a 2.11 percent annual growth rate. This results in an average of 1.65 percent annual growth rate. As such, the 2.0 percent per year ambient growth rate utilized in this TA would appear to conservatively estimate annual traffic growth and overstate as opposed to understate future traffic forecasts.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the County of Riverside. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

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 EAPC 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 4-4, listed in Table 4-4, and have been considered for inclusion. Any additional traffic generated by other projects not on the cumulative projects list is likely 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 projects shown in Exhibit 4-4 and listed in Table 4-4. Cumulative Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5.

4.7 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2024) and EAPC (2024) traffic conditions. An ambient growth factor accounts for background (area-wide) traffic increases that occur over time up to the year 2024 from the year 2022. Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2024 roadway network is similar to the Existing conditions roadway network, with the exception of future driveways proposed to be developed by the Project. The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Existing Plus Ambient Growth Plus Project (2024)
    - Existing 2022 counts
    - Ambient growth traffic (4.04%)
    - Project traffic
- Existing Plus Ambient Growth Plus Project Plus Cumulative (2024)
    - Existing 2022 counts
    - Ambient growth traffic (4.04%)
    - Cumulative Development traffic
    - Project traffic

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

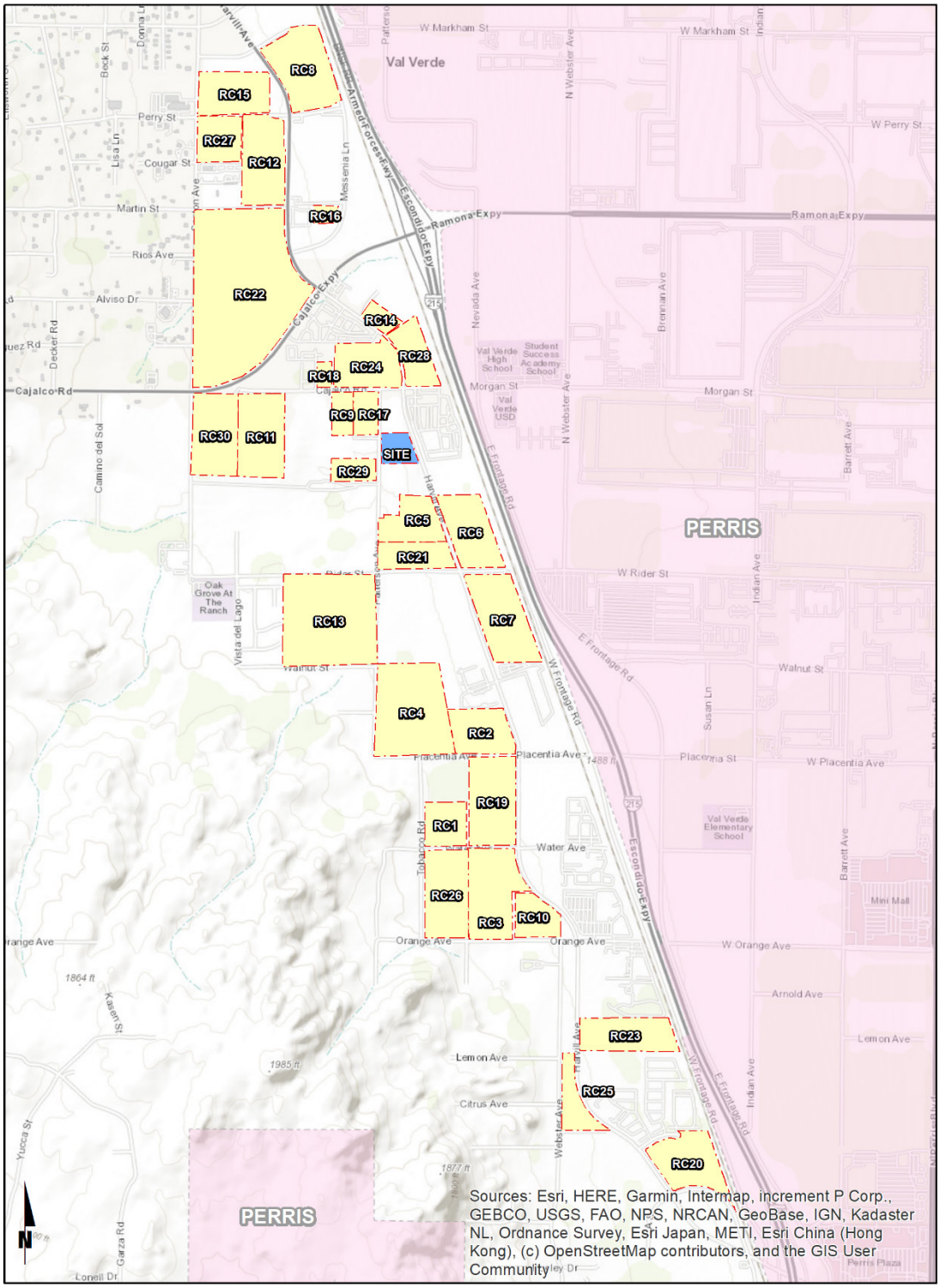


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES



1 Patterson Av. & Driveway 1	2 Patterson Av. & Driveway 2	3 Harvill Av. & Old Cajalco Rd.
100 ← 7(2) → 2(7) *Nominal* *100*	*100* ← 7(2) 2(7) → 1(5) → ↰ 5(2) *150* *100*	*10,700* ← 21(9) ← 663(376) ↳ 38(6) ↰ 5(32) ↰ 5(24) 6(21) → 7(20) → ↰ 21(9) ↑ 269(630) ↱ 27(4) *1,600* *10,300* *550*
4 Harvill Av. & Driveway 3	**5 Harvill Av. & Driveway 4**	**6 Harvill Av. & Rider St.**
10,300 ← 675(420) → 317(643) *10,300*	*10,300* ← 675(420) → 317(643) *10,300*	*10,300* ← 23(13) ← 652(407) 8(30) → 2(10) → ↰ 10(6) ↑ 309(613) *800* *9,950*

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 4-7: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

No.	Project Name	Address/Location	Land Use[1]	Quantity	Units[2]
RC1	Thrifty Oil Warehouse	NEC of Tobacco Rd. & Water Av.	Warehousing	194.479	TSF
RC2	Placentia Truck Drop Lot	NWC of Harvill Av. & Placentia Av.	Truck Trailer Storage	8.06	AC
RC3	Harvill & Water Logistics	SWC of Harvill Av. & Water St.	High-Cube Fulfillment Center Warehouse	304.376	TSF
			High-Cube Cold Storage Warehouse	130.447	TSF
RC4	Barker Logistics	NWC of Patterson Av. & Placentia Av.	High-Cube Fulfillment Center Warehouse	699.630	TSF
RC5	Dedeaux Harvill Truck Terminal	North of Rider St., west of Harvill Av.	Truck Terminal	55.700	TSF
RC6	Harvill & Rider Warehouse	NEC of Harvill Av. & Rider St.	General Light Industrial	50.249	TSF
			High-Cube Transload Short-Term Warehouse	284.746	TSF
RC7	WPC Perris	SEC of Harvill Av. & Rider St.	High-Cube Fulfillment Center Warehouse	384.448	TSF
			High-Cube Cold Storage Warehouse	96.112	TSF
RC8	Majestic Freeway Busines Center (Building 11)	NEC of Harvill Av. & Perry St.	High-Cube Fulfillment Center Warehouse	391.045	TSF
RC9	PPT190029	South of Old Cajalco Rd., west of Patterson Av.	Warehousing	36.000	TSF
RC10	PPT210021	NWC of Harvill Av. & Orange Av.	Trailer Maintenance Facility/Storage	16.200	TSF
RC11	PPT210133	SEC of Seaton Av. & Cajalco Exwy.	Warehousing	365.046	TSF
RC12	Majestic Freeway Busines Center (Building 13)	SWC of Harvill Av. & Perry St.	High-Cube Fulfillment Center Warehouse	322.997	TSF
RC13	Rider & Patterson Business Center	SWC of Patterson Av. & Rider St.	High-Cube Fulfillment Center Warehouse	591.203	TSF
			Single Family Detached Residential	2	DU
RC14	CUP03599	North of Cajalco Rd., east of Harvill Av.	Hotel	103	RM
RC15	Majestic Freeway Busines Center (Buildings 14A,14B)	SWC of Harvill Av. & Commerce Center Dr.	Warehousing	354.583	TSF
RC16	PP16763	NEC of Harvill Av. & Messenia Ln.	Warehousing	19.500	TSF
RC17	PP16823	South of Old Cajalco St., west of Harvill Av.	Manufacturing	22.000	TSF
RC18	PP16932	North of Old Cajalco St., east of Cajalco Exwy.	Manufacturing	12.000	TSF
RC19	PP21207	SWC of Harvill Av. & Placentia Av.	Warehousing	311.412	TSF
RC20	PP23170	NEC of Harvill Av. & A St.	Warehousing	286.829	TSF
RC21	PP23342	NWC of Harvill Av. & Rider St.	Warehousing	180.551	TSF
RC22	Majestic Freeway Busines Center (Buildings 1,3,4)	NWC of Harvill Av. & Cajalco Exwy.	High-Cube Fulfillment Center Warehouse	1,195.740	TSF
RC23	PPT190005	NEC of Harvill Av. & Lemon St.	Warehousing	333.553	TSF
RC24	PPT190006	NWC of Harvill Av. & Cajalco Rd.	Warehousing	289.556	TSF
RC25	PPT190028	NWC of Harvill Av. & Citrus Av.	Warehousing	197.856	TSF
RC26	TR27997	NEC of Patterson Av. & Orange Av.	Multifamily Housing	120	DU
RC27	Seaton Commerce Center	SEC of Seaton Av. & Perry St.	High-Cube Fulfillment Center Warehouse	210.800	TSF
RC28	Harvill & Cajalco Warehouse	NEC of Harvill Av. & Old Cajalco Rd.	General Light Industrial & Truck Yard	99.770	TSF
RC29	Patterson & Cajalco Warehouse	West of Patterson Av., South of Old Cajalco Rd.	Warehousing & Cold Storage	107.968	TSF
RC30	Seaton & Cajalco High Cube Warehouse	SEC of Seaton Av. & Cajalco Rd.	Warehousing & Cold Storage	350.481	TSF

[1] TSF = Thousand Square Feet; DU = Dwelling Units; RM = Rooms; TPY = Tons per Year

5 EAP (2024) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for EAP (2024) conditions and the resulting intersection operations and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP (2024) 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 EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- The I-215 Freeway at Placentia Avenue interchange which is anticipated to be completed and open in Fall of 2022 has been assumed to be completed with improvements in place for EAP (2024) traffic conditions.

5.2 EAP (2024) TRAFFIC VOLUME FORECASTS

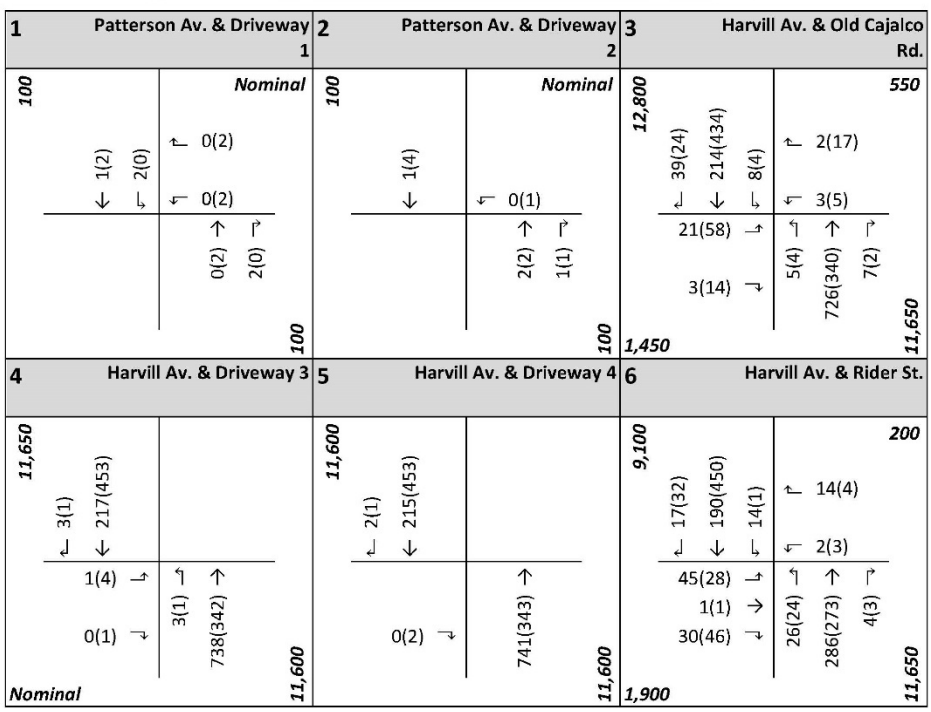
This scenario includes Existing (2022) traffic volumes plus an ambient growth factor of 4.04% and the addition of Project traffic. The weekday ADT volumes and peak hour volumes which can be expected for EAP (2024) traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

EAP (2024) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 Methodologies of this TA. The intersection analysis results are summarized on Table 5-1 for EAP traffic conditions, which indicate that all of the study area intersections are anticipated to continue to operate at an acceptable LOS under EAP traffic conditions. The intersection operations analysis worksheets for EAP traffic conditions are included in Appendix 5.1 of this TA.

EXHIBIT 5-1: EAP (2024) TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 5-1: INTERSECTION ANALYSIS FOR EAP (2024) CONDITIONS

#	Intersection	Traffic Control[2]	Existing (2022) Delay[1] (secs.) AM	Existing (2022) Delay[1] (secs.) PM	Existing (2022) Level of Service AM	Existing (2022) Level of Service PM	EAP (2024) Delay[1] (secs.) AM	EAP (2024) Delay[1] (secs.) PM	EAP (2024) Level of Service AM	EAP (2024) Level of Service PM
1	Patterson Av. & Driveway 1	**CSS**	Future Intersection				7.2	8.6	A	A
2	Patterson Av. & Driveway 2	**CSS**	Future Intersection				8.6	8.7	A	A
3	Harvill Av. & Old Cajalco Rd.	CSS	11.0	13.4	B	B	17.3	13.6	C	B
4	Harvill Av. & Driveway 3	**CSS**	Future Intersection				12.6	12.4	B	B
5	Harvill Av. & Driveway 4	**CSS**	Future Intersection				0.0	9.9	A	A
6	Harvill Av. & Rider St.[3]	AWS	9.5	12.2	A	B	9.6	12.7	A	B

1 Per the Highway Capacity Manual (6th Edition), 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. HCM delay reported in seconds.

2 CSS = Cross-street Stop; AWS = All Way Stop

3 Intersection includes a SB right turn lane that is not coded due to limitations of the HCM for AWS intersections.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for EAP (2024) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. No study area intersections are anticipated to meet either peak hour volume or ADT volume-based warrants with the addition of Project traffic (see Appendix 5.2).

5.5 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The study area intersections are anticipated to operate at an acceptable LOS with the addition of Project traffic. As such, no additional improvements aside from those that are needed to facilitate site access have been recommended.

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6 EAPC (2024) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for EAPC (2024) conditions and the resulting intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC (2024) 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 EAPC (2024) conditions only (e.g., intersection and roadway improvements at 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 EAPC (2024) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).
- The I-215 Freeway at Placentia Avenue interchange which is anticipated to be completed and open in Fall of 2022 has been assumed to be completed with improvements in place for EAPC (2024) traffic conditions.

6.2 EAPC (2024) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2022) traffic volumes plus an ambient growth factor of 4.04%, traffic from pending and approved cumulative development projects, and the addition of Project traffic. The weekday ADT volumes and peak hour volumes which can be expected for EAPC (2024) traffic conditions are shown on Exhibit 6-1.

6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAPC (2024) conditions with roadway and intersection geometrics consistent with Section 6.1 Roadway Improvements. As shown on Table 6-1, the study area intersections are anticipated to operate at an acceptable LOS under EAPC (2024) traffic conditions with the exception of the following intersection:

- Harvill Av. & Rider St. (#6) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for EAPC (2024) traffic conditions are included in Appendix 6.1 of this TA.

EXHIBIT 6-1: EAPC (2024) TRAFFIC VOLUMES



1 Patterson Av. & Driveway 1		2 Patterson Av. & Driveway 2		3 Harvill Av. & Old Cajalco Rd.	
200	*Nominal*	*200*	*Nominal*	*23,500*	*1,150*
← 8(4) ↳ 2(0)	↰ 0(2) ↰ 0(2)	↲ 7(2) ↓ 1(4)	↰ 0(1)	↲ 60(33) ↓ 877(810) ↳ 46(10)	↰ 7(49) ↰ 8(29)
	↑ 2(9) ↱ 2(0)	2(7) ↳ 1(5) ↲	↰ 5(2) ↑ 2(2) ↱ 1(1)	27(79) ↳ 10(34) ↲	↰ 26(13) ↑ 995(970) ↱ 34(6)
Nominal	*200*	*150*	*200*	*3,050*	*21,900*
4 Harvill Av. & Driveway 3		**5 Harvill Av. & Driveway 4**		**6 Harvill Av. & Rider St.**	
21,900		*21,900*		*19,400*	*200*
↲ 3(1) ↓ 892(873)		↲ 2(1) ↓ 890(873)		↲ 40(45) ↓ 842(857) ↳ 16(1)	↰ 14(4) ↰ 2(3)
1(4) ↳ 0(1) ↲	↰ 3(1) ↑ 1055(985)	0(2) ↲	↑ 1058(986)	53(58) ↳ 1(1) → 32(56) ↲	↰ 36(30) ↑ 595(886) ↱ 4(3)
Nominal	*21,900*	*21,900*		*2,700*	*21,600*

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 6-1: INTERSECTION ANALYSIS FOR EAPC (2024) CONDITIONS

#	Intersection	Traffic Control[2]	EAPC (2024) Delay[1] (secs.) AM	PM	Level of Service AM	PM
1	Patterson Av. & Driveway 1	**CSS**	8.9	8.7	A	A
2	Patterson Av. & Driveway 2	**CSS**	8.7	8.8	A	A
3	Harvill Av. & Old Cajalco Rd.	CSS	32.0	29.5	D	D
4	Harvill Av. & Driveway 3	**CSS**	22.0	19.6	C	C
5	Harvill Av. & Driveway 4	**CSS**	0.0	12.0	A	B
6	Harvill Av. & Rider St.[3]	AWS	**52.5**	**150.1**	**F**	**F**

1 Per the Highway Capacity Manual (6th Edition), 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. HCM delay reported in seconds.

2 CSS = Cross-street Stop; AWS = All Way Stop

3 Intersection includes a SB right turn lane that is not coded due to limitations of the HCM for AWS intersections.

6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for EAPC (2024) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. The intersection of Harvill Avenue at Rider Street is anticipated to meet a peak hour volume-based warrant for EAPC (2024) traffic conditions (see Appendix 6.2).

6.5 NEAR-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the County of Riverside deficiency criteria discussed in Section 2.5 Deficiency Criteria, roadway intersections were found to be deficient. Improvements necessary to improve project-related traffic deficiencies are shown in Table 6-2. Table 6-2 indicates the physical improvements needed to address LOS deficiencies at each of the study area intersections under EAPC (2024) traffic conditions. The improvements have been identified to improve the EAPC (2024) deficiencies back to acceptable levels. Intersection analysis worksheets for EAPC (2024) traffic conditions, with improvements, are provided in Appendix 6.3.

TABLE 6-2: INTERSECTION ANALYSIS FOR EAPC (2024) CONDITIONS WITH IMPROVEMENTS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1] Northbound L	T	R	Southbound L	T	R	Eastbound L	T	R	Westbound L	T	R	Delay[2] (secs.) AM	PM	Level of Service AM	PM
6	Harvill Av. & Rider St.																	
	- Without Improvements	AWS	1	2	0	1	2	1	1	1	1	1	1	d	**52.5**	**150.1**	**F**	**F**
	- With Improvements	**TS**	1	2	0	1	2	1	1	1	1	1	1	d	10.6	11.2	B	B

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

[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; **1** = Improvement

[2] Per the Highway Capacity Manual 6th Edition, 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] AWS = All-Way Stop; TS = Traffic Signal; **TS** = Improvement

7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the County of Riverside are funded through a combination of improvements constructed by the Project, development impact fee programs. Fee programs applicable to the Project are described below.

7.1 RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (7) This regional program was put into place to ensure that development pays its fair share, and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

7.2 RIVERSIDE COUNTY DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The Project is located within the County's Mead Valley Area Plan and therefore will be subject to County of Riverside DIF in an effort by the County to address development throughout its unincorporated area. The DIF program consists of two separate transportation components: the Roads, Bridges and Major Improvements component and the Traffic Signals component. Eligible facilities for funding by the County DIF program are identified on the County's Public Needs List, which currently extends through the year 2020. (8) A comprehensive review of the DIF program is now planned in order to update the nexus study. This will result in development of a revised "needs list" extending the program time horizon from 2010 to 2030.

The cost of signalizing DIF network intersections is identified under the Traffic Signals component of the DIF program. County staff generally defines DIF eligible intersections as those consisting of two intersecting general plan roadways. If the intersection meets this requirement, it is potentially eligible for up to $235,000 of credit, which is subject to negotiations with the County.

7.3 MEASURE A

Measure A, Riverside County's half-cent sales tax for transportation, was adopted by voters in 1988 and extended in 2002. It will continue to fund transportation improvements through 2038. Measure A funds a wide variety of transportation projects and services throughout the County. Riverside County Transportation Commission (RCTC) is responsible for administering the program. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the 1988 election.

7.4 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate. When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, have been provided in Table 7-1 for the applicable deficient study area intersections. These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases.

Although the intersection of Harvill Avenue at Old Cajalco Road is anticipated to operate at an acceptable LOS under EAPC traffic conditions (see Table 6-1), fair share calculations have been provided as the intersection meets peak hour volume-based warrants for a traffic signal under EAPC traffic conditions.

TABLE 7-1: PROJECT FAIR SHARE CALCULATIONS

#	Intersection		Existing	Project Only	EAPC	Net New Traffic	Project % of New Traffic
3	Harvill Av. & Old Cajalco Rd.						
		AM:	1,107	10	2,254	1,147	**0.9%**
		PM:	944	9	2,104	1,160	0.8%
6	Harvill Av. & Rider St.						
		AM:	642	9	1,714	1,072	**0.8%**
		PM:	857	9	1,986	1,129	0.8%

BOLD = Denotes highest fair share percentage.

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