Indian and Ramona Warehouse

TRAFFIC IMPACT ANALYSIS

CITY OF PERRIS

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
AASHTO	American Association of State Highway Transportation Officials
APZ	Accident Potential Zone
CA MUTCD	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
E+P	Existing Plus Project
EA	Existing plus Ambient Growth
EAC	Existing plus Ambient Growth plus Cumulative
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
N/A	Not Applicable
NP	No Project (or Without Project)
NPRBBD	North Perris Road and Bridge Benefit District
PCE	Passenger Car Equivalents
PHF	Peak Hour Factor
Project	Indian and Ramona Warehouse
PVCC SP	Perris Valley Commerce Center Specific Plan
RTA	Riverside Transit Authority
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	Square Feet
TIA	Traffic Impact Analysis
TSF	Thousand Square Feet
TUMF	Transportation Uniform Mitigation Fee
WP	With Project
WRCOG	Western Riverside Council of Governments
V/C	Volume to Capacity

VMT	Vehicle Miles Traveled

1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Indian and Ramona Warehouse development ("Project"), located on the northwest corner of Indian Avenue and Ramona Expressway, within the City of Perris' *Perris Valley Commerce Center Specific Plan* (PVCC SP) as shown on Exhibit 1-1.

The purpose of this traffic impact analysis is to evaluate the potential impacts related to traffic and circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to mitigate impacts considered significant in comparison to established regulatory thresholds and to achieve acceptable circulation system operational conditions. This report has been prepared in accordance with the Project Traffic Study Scoping agreement through consultation with and approval from the City of Perris, which is provided in Appendix 1.1 of this report.

1.1 PROJECT OVERVIEW

The Project is proposed to consist of a single high-cube transload and short-term storage warehouse building at approximately 428,730 square feet (sf). The Project is anticipated to be constructed in a single phase by the year 2020. The proposed Project land use is consistent with the PVCC SP. The designated land use and zoning within the PVCCP SP is Light Industrial within the Accident Potential Zone (APZ) I and APZ II overlay.

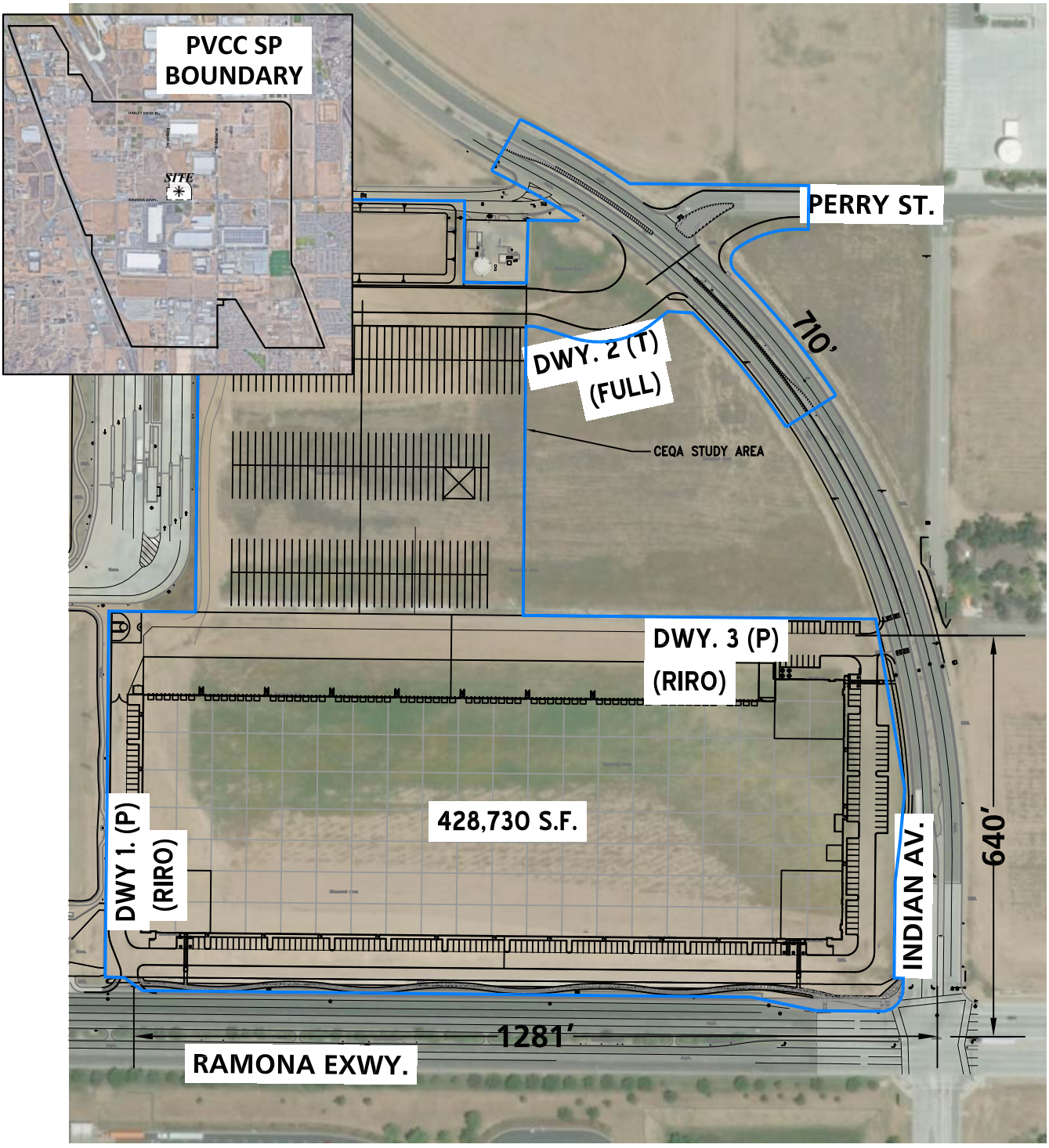
Vehicular and truck traffic access will be provided via the following driveways (see Exhibit 1-1):

- Driveway 1 & Ramona Expressway – Right-in/right-out access only for passenger cars
- Indian Avenue & Driveway 2/Perry Street – Full access only for trucks
- Indian Avenue & Driveway 3 – Right-in/right-out access only for passenger cars

The minimum intersection spacing required on Ramona Expressway is 2,640 feet. Driveway 1 on Ramona Expressway does not meet the required spacing and is therefore restricted to right-in/right-out access only. Indian Avenue requires 660 feet of space between intersections. Driveway 2 meets the intersections spacing criteria and has been evaluated assuming full access, while Driveway 3 on Indian Avenue does not meet the spacing criteria and has therefore been evaluated assuming right-in/right-out access only. Regional access to the Project site is provided via the I-215 Freeway and Ramona Expressway for passenger cars and at Harley Knox Boulevard for heavy trucks.

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, 10th Edition, 2017. (1) The Project is estimated to generate a net total of 897 passenger-car-equivalent (PCE) trip-ends per day on a typical weekday with approximately 50 net AM PCE peak hour trips and 58 net PM PCE 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: PRELIMINARY SITE PLAN



LEGEND:

RIRO	= RIGHT-IN/RIGHT-OUT ONLY ACCESS
P	= PASSENGER CARS ONLY
T	= TRUCKS ONLY

N

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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 (2018)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth (EA) (2020)
- Existing Plus Ambient Growth Plus Project (EAP) (2020)
- Existing Plus Ambient Growth Plus Cumulative Projects (EAC) (2020)
- Existing Plus Ambient Growth Plus Project Plus Cumulative Projects (EAPC) (2020)

1.2.1 EXISTING (2018) CONDITIONS

Information for Existing (2018) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Traffic counts were conducted in May 2018 based on vehicle classification and were converted to PCE due to the presence of heavy trucks within the study area.

1.2.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines any significant traffic impacts and 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 EXISTING PLUS AMBIENT GROWTH AND EXISTING PLUS AMBIENT GROWTH PLUS PROJECT (2020) CONDITIONS

The EA and EAP (2020) conditions analyses determines the traffic impacts based on a comparison of the EAP (2020) traffic conditions to EA (2020) conditions. To account for background traffic growth, an ambient growth factor from Existing (2018) conditions of 6.09% (3 percent per year, compounded over 2 years) is included for EA and EAP (2020) traffic conditions. As discussed below, in order to conduct a more conservative analysis, other cumulative development projects are not included as part of the EAP (2020) analysis.

1.2.4 EXISTING PLUS AMBIENT GROWTH PLUS CUMULATIVE AND EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE (2020) CONDITIONS

To account for growth in traffic between Existing (2018) conditions and the Project Opening Year (2020), a traffic growth rate of 6.09% was assumed (3 percent per year, compounded over 2 years). The 3.0 percent annual growth rate is intended to capture non-specific ambient traffic growth.

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 6.09% total ambient growth in traffic noted above; and in some instances, these related projects would likely not be implemented and operational within the 2020 Opening

Year time frame assumed for the Project. The resulting traffic growth rate utilized in the TIA (6.09 percent ambient growth + traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic impacts under 2020 conditions.

1.3 STUDY AREA

To ensure that this TIA satisfies the City of Perris' traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by City of Perris 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.

The 4 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on the City's Traffic Study Guidelines and in consultation with City of Perris staff. Pursuant to the Traffic Study Guidelines, the City requires analysis of intersections where the Project would contribute 50 or more peak hour trips. Based on the location of the Project site, the Project traffic dissipates between the Project site and the state facilities (intersections or Freeway segments). Based on the Project trip distributions, the Project only contributes 13 AM PCE peak hour trips and 24 PM PCE peak hour trips to the I-215 and Ramona Expressway ramps. Since the Project does not contribute 50 or more peak hour trips to any State facilities (intersections or freeway segments), assessment of state facilities is not required as the Project's traffic contribution to the State facilities is considered less than significant. The project trip generation, distribution, and volumes are further explained in Chapter 4 *Project Future Traffic* of this TIA.

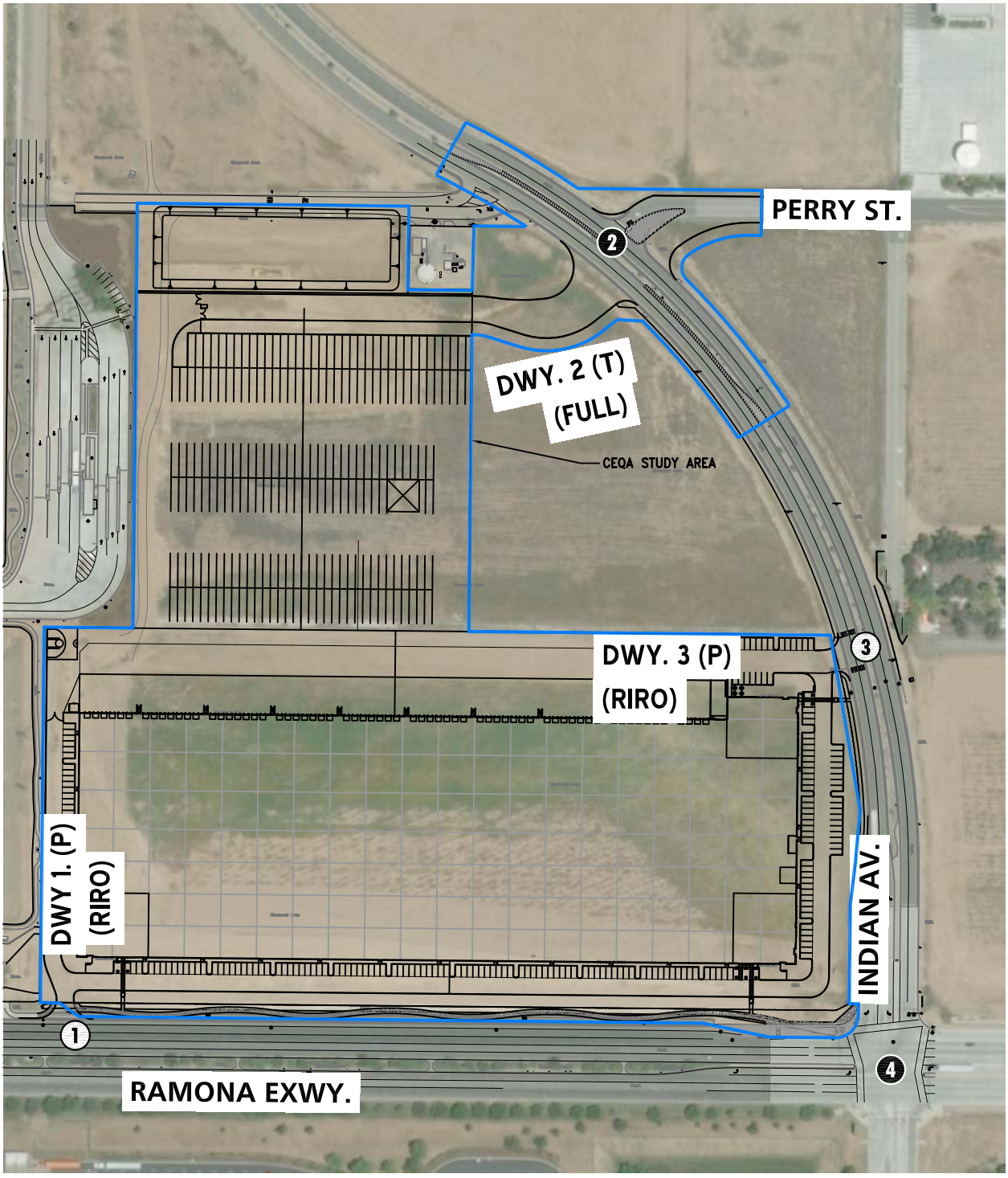
TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Driveway 1 & Ramona Expressway – Future Intersection	City of Perris	No
2	Indian Avenue & Driveway 2/Perry Street	City of Perris	No
3	Indian Avenue & Driveway 3 – Future Intersection	City of Perris	No
4	Indian Avenue & Ramona Expressway	City of Perris	No

* Note: CMP = Congestion Management Program

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. None of the study area intersections are identified as CMP facilities in the County of Riverside CMP. (2)

EXHIBIT 1-2: LOCATION MAP



LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

0 = FUTURE INTERSECTION ANALYSIS LOCATION

N

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URBAN CROSSROADS

EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2018)	E+P	EA (2020)	EAP (2020)	EAC (2020)	EAPC (2020)
1	Dwy. 1 & Ramona Exwy.	NA	◐	NA	◐	NA	◐
2	Indian Av. & Dwy. 2 / Perry St.	◐	◐	◐	◐	◐	◐
3	Indian Av. & Dwy. 3	NA	◐	NA	◐	NA	◐
4	Indian Av. & Ramona Exwy.	◐	◐	◐	◐	◐	◐

LEGEND:

- ◖ ▪ AM PEAK HOUR
- ◗ ▪ PM PEAK HOUR
- ◐ ▪ LOS A-D
- ◐ ▪ LOS E
- ◐ ▪ LOS F
- NA ▪ NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

1.4 SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

This section provides a summary of direct Project impacts and associated mitigation measures. Section 2 *Methodologies* provides information on the methodologies used in the analyses and Section 5 *E+P Traffic Analysis*, Section 6 *EA and EAP (2020) Traffic Analysis* and Section 7 *EAC and EAPC (2020) Traffic Analysis* include the detailed analyses. All the study area intersections operate at acceptable level of service (LOS) for all the scenarios (see Exhibit 1-3). Therefore, there are no direct Project impacts. Each project implementing the PVCC SP is required to incorporate applicable mitigation from the PVCC Specific Plan EIR. The relevant traffic mitigation measures from the PVCC Specific Plan EIR are identified in Section 1.4.1.

1.4.1 PVCC SPECIFIC PLAN EIR TRAFFIC MITIGATION MEASURES

MM Trans 1 Future implementing development projects shall construct on-site roadway improvements pursuant to the general alignments and right-of-way sections set forth in the PVCC Circulation Plan, except where said improvements have previously been constructed.

MM Trans 2 Sight distance at the project entrance roadway of each implementing development project shall be reviewed with respect to standard City of Perris sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

MM Trans 3 Each implementing development project shall participate in the phased construction of off-site traffic signals through payment of that project's fair share of traffic signal mitigation fees and the cost of other off-site improvements through payment of fair share mitigation fees which include TUMF (Transportation Uniform Mitigation Fee), DIF (Development Impact Fee), and the NPRBBD (North Perris Road and Bridge Benefit District). The fees shall be collected and utilized as needed by the City of Perris to construct the improvements necessary to maintain the required level of service and build or improve roads to their build-out level.

MM Trans 4 Prior to the approval of individual implementing development projects, the Riverside Transit Agency (RTA) shall be contacted to determine if the RTA has plans for the future provision of bus routing in the project area that would require bus stops at the project access points. If the RTA has future plans for the establishment of a bus route that will serve the project area, road improvements adjacent to the project site shall be designed to accommodate future bus turnouts at locations established through consultation with the RTA. RTA shall be responsible for the construction and maintenance of the bus stop facilities. The area set aside for bus turnouts shall conform to RTA design standards, including the design of the contact between sidewalk and curb and gutter at bus stops and the use of ADA-compliant paths to the major building entrances in the project.

MM Trans 5 Bike racks shall be installed in all parking lots in compliance with City of Perris standards.

MM Trans 7 Implementing project-level traffic impact studies shall be required for all subsequent implementing development proposals within the boundaries of the PVCC as approved by the City of Perris Engineering Department. These subsequent traffic studies shall identify specific project impacts and needed roadway improvements to be constructed in conjunction with each implementing development project. All intersection spacing for individual tracts or maps shall conform to the minimum City intersection spacing standards. All turn pocket lengths shall conform at least to the minimum City turn pocket length standards. If any of the proposed improvements are found to be infeasible, the implementing development project applicant would be required to provide alternative feasible improvements to achieve levels of service satisfactory to the City.

MM Trans 8 Proposed mitigation measures resulting from project-level traffic impact studies shall be coordinated with the North Perris Road and Bridge Benefit District (NPRBBD) to ensure that they are in conformance with the ultimate improvements planned by the NPRBBD. The applicant shall be eligible to receive proportional credits against the NPRBBD for construction of project level mitigation that is included in the NPRBBD.

1.5 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements throughout the City of Perris are funded through a combination of project mitigation, fair share contributions or development impact fee programs, such as TUMF program, the City's DIF program, or the NPRBBD program.

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.

1.5.2 CITY OF PERRIS DEVELOPMENT IMPACT FEE (DIF) PROGRAM

In 1991, the City of Perris created a Development Impact Fee 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. This DIF program has been successfully implemented by the City since 1991 and was updated in 2014. The City updated the DIF program to add new roadway segments and intersections necessary to accommodate future growth and to ensure that the identified street improvements would operate at or above the City's LOS performance threshold. 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.

Similar to the TUMF Program, after the City's DIF fees are collected, they are placed in a separate interest-bearing account pursuant to the requirements of Government Code sections 66000 *et seq*. 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 the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds. The City's DIF program establishes a timeline to fund, design, and build the improvements.

The City has an established, proven track record with respect to implementing the City's DIF Program. Many of the roadway segments and intersections included within the study area for this Traffic Impact Analysis are at various stages of widening and improvement based on the City's collection of DIF fees. Under this Program, as a result of the City's continual monitoring of the local circulation system, the City insures that DIF improvements are constructed prior to when the LOS would otherwise fall below the City's established performance criteria.

1.5.3 NORTH PERRIS ROAD AND BRIDGE BENEFIT DISTRICT (NPRBBD)

The NPRBBD is comprised of approximately 3,500 acres of land located within the northern portion of the City of Perris. The NPRBBD boundary is consistent with the boundary of the PVCC SP. As such, the Project will be subject to the NPRBBD. The purpose of the NPRBBD is to improve the efficiency of the financing of specific regional road and bridge improvements that are determined to provide benefit to the developing properties within the NPRBBD boundary. In addition, the NPRBBD includes additional improvements to supplement the TUMF and DIF network. NPRBBD fees are inclusive of TUMF and DIF. A significant portion of the fees collected through this mechanism are earmarked for use within the boundary sufficient to fully fund the

included improvements. The balance of TUMF is transmitted to WRCOG for use in addressing cumulative impacts elsewhere within Western Riverside County. The City treats the DIF component collected within the NPRBBD in a similar way to ensure the local circulation network outside the program boundaries is adequately addressed.

Table 1-2 lists each facility identified within the NPRBBD, the General Plan roadway classification and the current estimated construction cost for the facilities.

TABLE 1-2: NPRBBD FACILITES

Facility Name	General Plan Classification	Estimated Cost
Indian Avenue	Secondary Arterial	$11,343,500
Perris Boulevard	Arterial	$17,350,800
Redlands Avenue	Secondary Arterial	$14,845,000
Harley Knox Boulevard	Arterial	$31,813,700
Markham Street	Secondary Arterial	$2,132,000
Ramona Expressway	Expressway	$10,865,000
Morgan Street	Secondary Arterial	$2,899,500
Rider Street	Secondary Arterial	$3,803,000
Placentia Avenue	Arterial	$18,705,900
Indian Avenue Bridge	Secondary Arterial	$701,800
Harley Knox Boulevard Bridge	Arterial	$4,210,800
Ramona Expressway Bridge	Expressway	$2,105,800
Placentia Avenue Bridge	Arterial	$6,316,200
Harley Knox Boulevard Interchange @ I-215	Arterial	$17,371,000
Placentia Avenue Interchange @ I-215	Arterial	$8,389,000
4-Lane Intersections – Traffic Signals	4 – Signal Locations	$870,000
6-Lane Intersections – Traffic Signals	11 – Signal Locations	$3,190,000
District Totals		**$156,913,000**

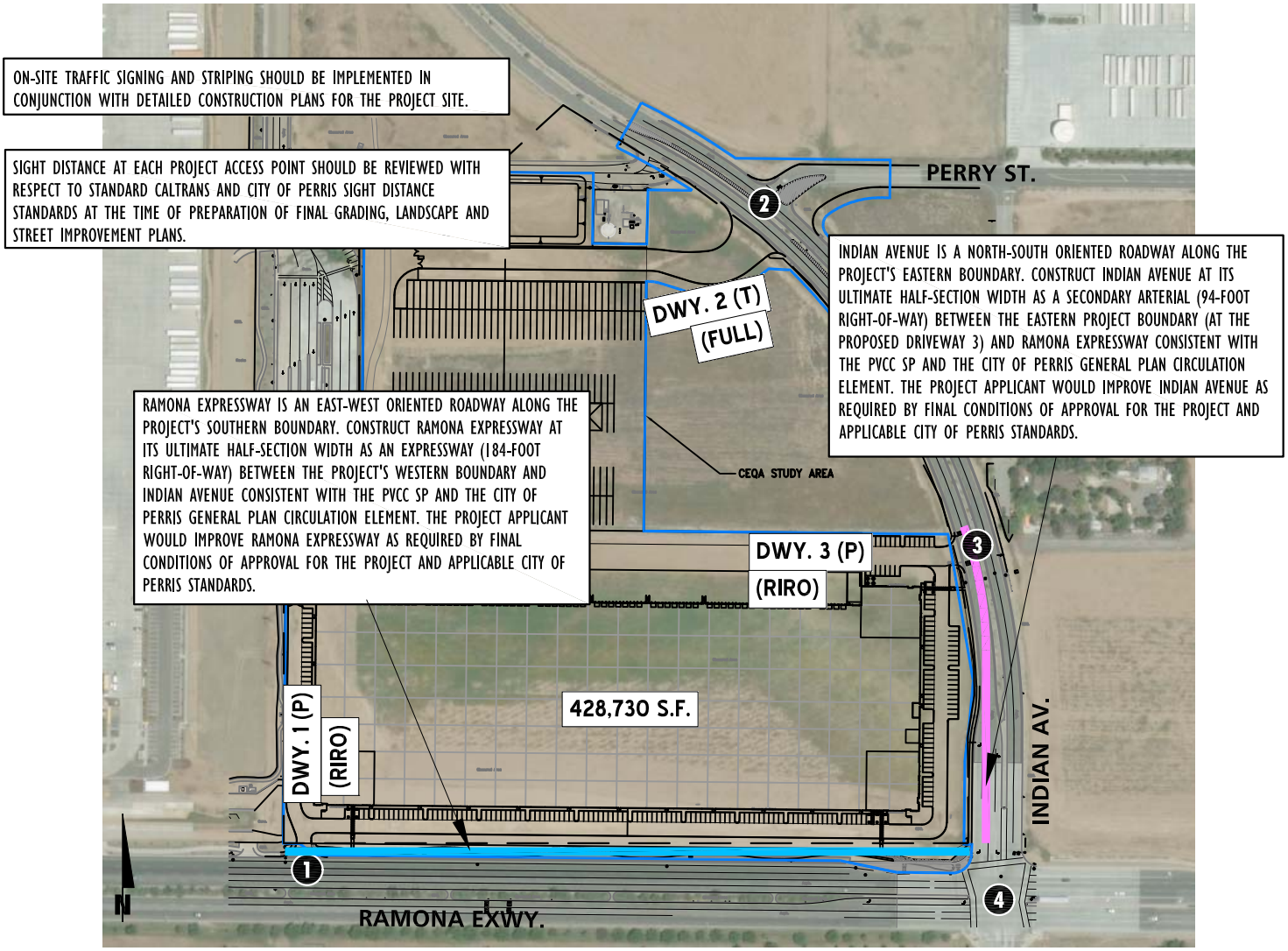
The facilities identified within the NPRBBD provide additional benefit by providing alternate truck routes within the City of Perris. It should be noted that NPRBBD fees are to be paid in conjunction with TUMF and City DIF fees as a one-time fee payment to the City prior to the issuance of a building permit.

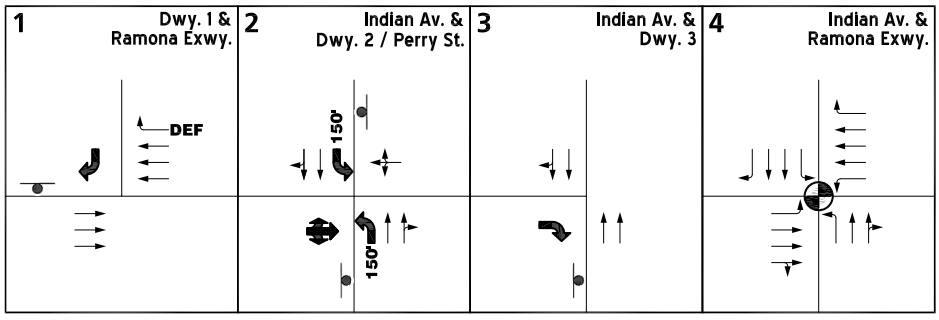
1.6 ON-SITE ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. Exhibit 1-4 illustrates the site-adjacent roadway improvement recommendations.

Ramona Expressway – Ramona Expressway is an east-west oriented roadway located along the Project's southern boundary. Construct Ramona Expressway at its ultimate half-section width as an Expressway (184-foot right-of-way) between the western Project boundary and Indian Avenue consistent with the PVCC SP and the City of Perris General Plan Circulation Element. The Project Applicant would improve Ramona Expressway as required by the final Conditions of Approval for the Project and applicable City of Perris standards.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS





LEGEND:

- TRAFFIC SIGNAL
- STOP SIGN
- EXISTING LANE
- LANE IMPROVEMENT
- 100' = RECOMMENDED MINIMUM TURN POCKET LENGTH
- DEF = DEFACTO RIGHT TURN
- EXPRESSWAY (184' R.O.W.)
- SECONDARY ARTERIAL (94' R.O.W.)

Indian Avenue – Indian Avenue is a north-south oriented roadway located along the Project's eastern boundary. Construct Indian Avenue at its ultimate half-section width as a Secondary Arterial (94-foot right-of-way) between the eastern Project boundary (at the proposed Driveway 3) and Ramona Expressway consistent with the PVCC SP and the City of Perris General Plan Circulation Element. The Project Applicant would improve Indian Avenue as required by the final Conditions of Approval for the Project and applicable City of Perris standards.

1.7 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 also illustrates the site access improvements. Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

Driveway 1 & Ramona Expressway – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

- Northbound Approach: Not Applicable (N/A)
- Southbound Approach (Project Driveway 1): One right turn lane.
- Eastbound Approach (Ramona Expressway): Three through lanes.
- Westbound Approach (Ramona Expressway): Three through lanes and a defacto right turn lane.

There is an existing raised median along Ramona Expressway that would prohibit left turns in and left turns out at this driveway.

Driveway 2 & Indian Avenue – Install traffic signal and construct the intersection with the following geometrics:

- Northbound Approach (Project Driveway 2): One left turn lane and one right turn lane.
- Southbound Approach: N/A
- Eastbound Approach (Indian Avenue): One through lane and one shared through-right turn lane.
- Westbound Approach (Indian Avenue): One left turn lane with a minimum of 150-feet of storage and two through lanes.

Although Driveway 2 is not anticipated to warrant a traffic signal based on future projected daily traffic, the Project is proposing the installation of a traffic signal as it is proposed to accommodate access to trucks heading to and from the north (Harley Knox Boulevard via Indian Avenue).

Indian Avenue & Driveway 3 – Install a stop control on the eastbound approach and construct the intersection with the following geometrics:

- Northbound Approach (Indian Avenue): Two through lanes.
- Southbound Approach (Indian Avenue): One through lane and one shared through-right turn lane.
- Eastbound Approach (Project Driveway 3): One right turn lane.
- Westbound Approach: N/A

There is an existing raised median along Indian Avenue that would prohibit left turns in and left turns out at this driveway.

Indian Avenue & Ramona Expressway – Maintain the existing traffic control (traffic signal) and lane geometrics.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the City of Perris General Plan Circulation Element.

1.8 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted along the site adjacent roadways of Ramona Expressway and Indian Avenue for EAPC (2020) traffic conditions to determine the turn pocket lengths necessary to accommodate near term 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours. The traffic modeling and signal timing optimization software package Synchro (Version 10) 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. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). However, 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. Many jurisdictions utilize the 95th percentile queues for design purposes.

SimTraffic has been utilized to assess peak hour queuing at the site access driveways for EAPC (2020) 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. Queuing results are provided in Appendix 1.2. Based on the 95th percentile queues under EAPC (2020) traffic conditions, the westbound left turn pocket at Driveway 2 is recommended to accommodate 150-feet of storage.

1.9 TRUCK ACCESS

Exhibit 1-5 illustrates the inbound and outbound truck access for Driveway 2. Due to the typical wide turning radius of these large trucks, a truck turning template has been overlaid on the site plan at Driveway 2, which is anticipated to serve heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers. In an effort to provide a conservative assessment of curb radii at each Project driveway, the turning template for a WB-67 class heavy truck has been utilized. It appears that the southwest curb radius at Driveway 2 should accommodate a 75-foot radius (currently showing 50-foot radius) in order to provide sufficient roadway width to accommodate the anticipated ingress of heavy trucks.

1.10 SIGHT DISTANCE ANALYSIS

The intersection stopping sight distance has been evaluated for each Project driveway on Indian Avenue and Ramona Expressway. Sight distance is the continuous length of highway ahead visible to the driver. At unsignalized intersections, intersection sight distance must provide a substantially clear line of sight between the driver of the vehicle waiting on the minor road (driveway) and the driver of an approaching vehicle. Per the American Association of State Highway Transportation Officials (AASHTO), a 7 ½ second criterion has been applied to the outside travel lanes in either direction to provide the most conservative sight distance for the purposes of this analysis. (3) The 7 ½ second criterion allows waiting vehicles to either cross all lanes of through traffic by turning left or cross the near lanes by turning right without requiring through traffic to radically alter their speed. The 7 ½ second criterion is the most conservative measure because it results in sight distances that are greater than all other sight distance requirements.

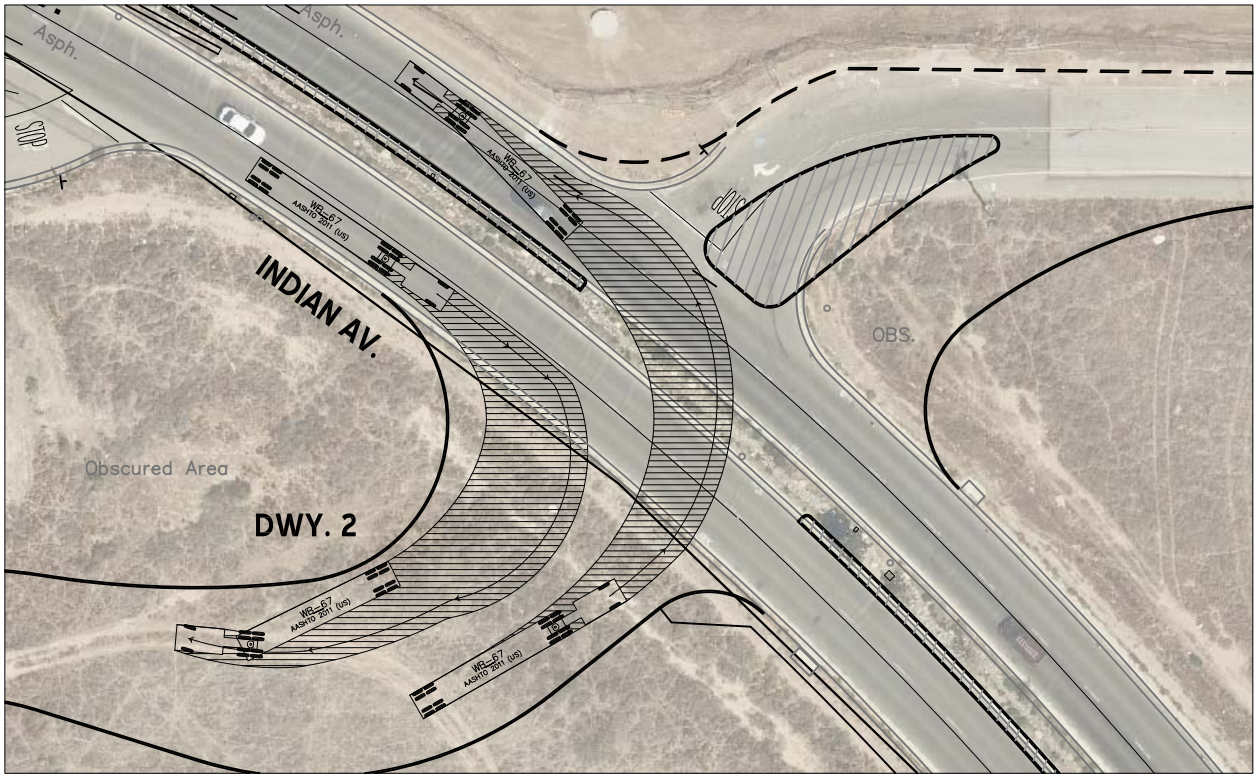
1.10.1 SIGHT DISTANCE STANDARDS

Ramona Expressway – Ramona Expressway is an existing roadway and the sight distance at the proposed Project driveway (Driveway 1) along Ramona Expressway has been assessed assuming the "object" in the road is another vehicle. Ramona Expressway has been evaluated as an Expressway with a posted speed limit of 55 miles per hour per the County of Riverside's Standard No. 821.

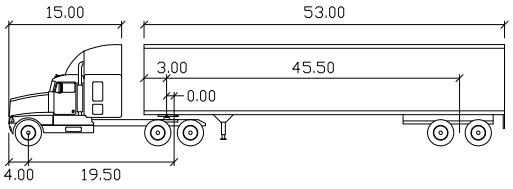
Indian Avenue – Indian Avenue is an existing roadway and the sight distance at the proposed Project driveways along Indian Avenue have been assessed assuming the "object" in the road is another vehicle. Indian Avenue has been evaluated as a Secondary Arterial with a posted speed limit of 40 miles per hour per the County of Riverside's Standard No. 821.

Adequate visibility for vehicular and pedestrian traffic can be provided at each Project driveway by limiting sight obstructions within the limited use area. Any landscaping/hardscape within the limited use area should not exceed 30-inches (2.5-feet) in height, including vegetation. The limited use area should be kept clear of any landscaping or any other obstructions that may impede the visibility of the driver, including on-street parking. Minimum horizontal intersection sight distance for the Project driveways is illustrated on Exhibit 1-6.

EXHIBIT 1-5: TRUCK ACCESS



LEGEND:



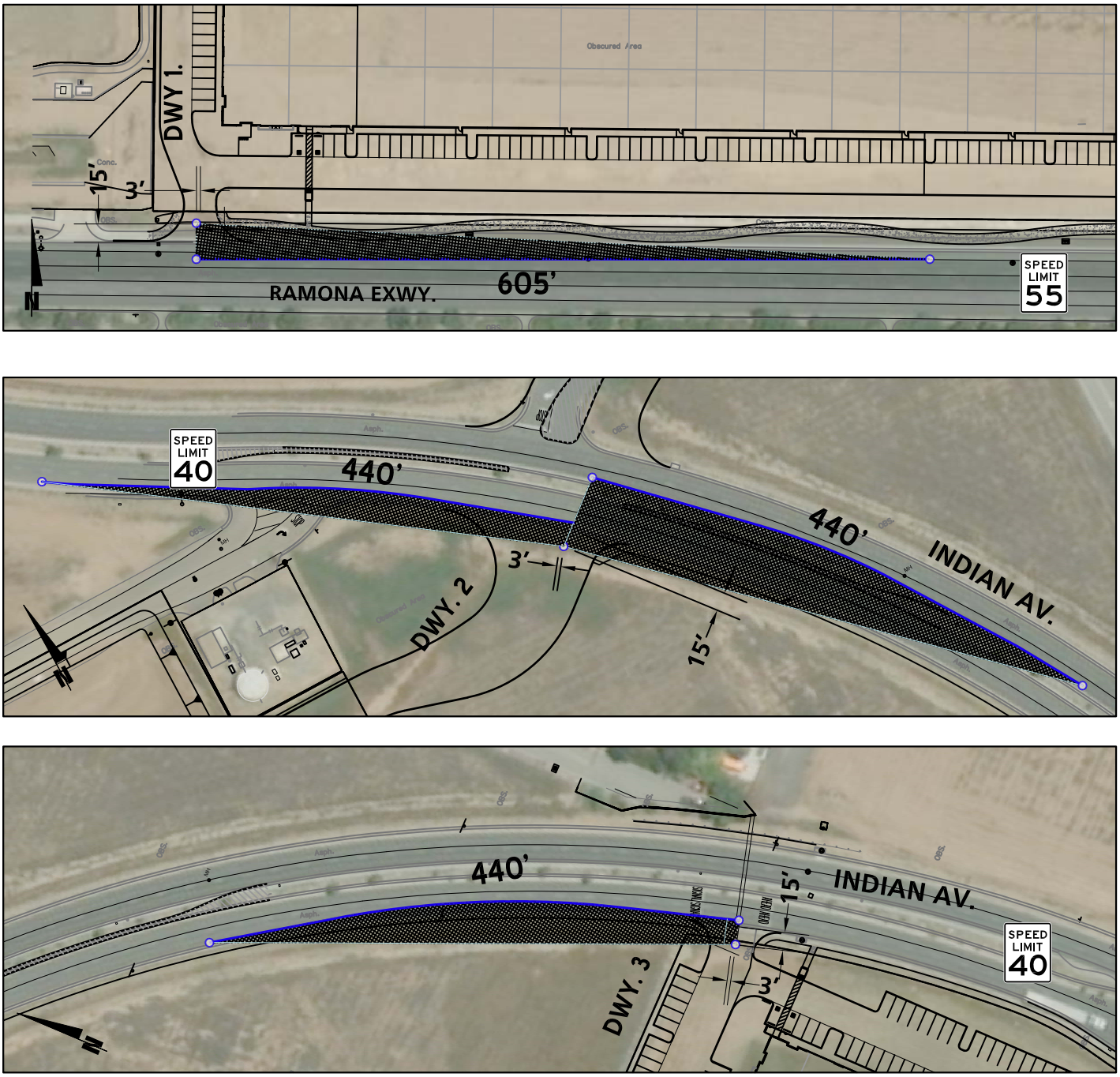
WB-67 feet

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		

GRAPHIC SCALE
0 60 120
1"=60'

N

EXHIBIT 1-6: SIGHT DISTANCE



LEGEND:

= MINIMUM SIGHT DISTANCE LINES

= LIMITED USE AREA
(THERE SHALL BE NO OBSTRUCTION WITHIN THE LIMITED USE AREA. OBSTRUCTIONS INCLUDE, BUT NOT LIMITED TO, ANY SIGNS OR OBJECTS HIGHER THAN 2.5' MEASURED FROM PAVEMENT WITHIN THE AREA OF LIMITED USE.)

GRAPHIC SCALE
0 125 250
1"=125'

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SIGHT DISTANCE AT PROJECT DRIVEWAY ALONG RAMONA EXPRESSWAY

The City of Perris does not have standards regarding minimum distances between driveways and intersections; thus, this analysis has been performed using the County of Riverside standards. The County's Standard No. 821 states that the minimum intersection corner sight distance on a roadway with a speed limit of 55 miles per hour is 605-feet. As shown on Exhibit 1-6, it is anticipated that the minimum 605-foot corner sight distance can be accommodated on Ramona Expressway in both the eastbound and westbound directions.

SIGHT DISTANCE AT PROJECT DRIVEWAYS ALONG INDIAN AVENUE

The County's Standard No. 821 states that the minimum intersection corner sight distance on a roadway with a speed limit of 40 miles per hour is 440-feet. As shown on Exhibit 1-6, it is anticipated that the minimum 440-foot corner sight distance can be accommodated on Indian Avenue in both the northbound and southbound directions at Driveways 2 and 3.

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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 generally consistent with City of Perris and the California Department of Transportation (Caltrans) traffic study guidelines. (4)

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. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Perris requires signalized intersection operations analysis based on the methodology described in the HCM. (5) 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 10) 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, 6th Edition

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 Existing (2018) baseline, E+P, EA (2020), EAP (2020), EAC (2020) and EAPC (2020) traffic conditions.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Perris requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. (5) 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, 6th Edition

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 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the 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 Caltrans California Manual on Uniform Traffic Control Devices *(CA MUTCD)* for all study area intersections. (6)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The Caltrans CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. 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 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.

Traffic signal warrant analyses were performed for the following study area intersection shown in Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
2	Driveway 2 & Indian Street	City of Perris

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,* Section 6 *EA and EAP (2020) Traffic Analysis, and* Section 7 *EAC and EAPC (2020) 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.

2.4 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from the City of Perris' General Plan:

LOS D along all City maintained roads (including intersections) and LOS D along I-215 and SR-74 (including intersections with local streets and roads). An exception to the local road standard is LOS E, at intersections of any Arterials and Expressways with SR-74, the Ramona-Cajalco Expressway, or at I-215 Freeway ramps. (7)

LOS E may be allowed within the boundaries of the Downtown Specific Plan Area to the extent that it would support transit-oriented development and walkable communities. Increased congestion in this area will facilitate an increase in transit ridership and encourage development of a complementary mix of land uses within a comfortable walking distance from light rail stations.

2.5 CEQA COMPLIANCE AND DOCUMENTATION

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

For purposes of analyzing California Environmental Quality Act (CEQA) impacts, the analysis shall evaluate significant impacts based on the following criteria to determine whether the addition of project-generated trips (or alternative-generated trips) results in a significant impact, and thus requires mitigation:

- A project-related impact is considered direct and significant when a study intersection operates at an acceptable LOS for existing conditions (without the project) and the addition of 50 or more AM or PM peak hour project trips causes the intersection to operate at an unacceptable LOS for existing plus project (E+P) traffic conditions.
- A project-related impact is considered direct and significant when a study intersection operates at an unacceptable LOS for existing conditions (without the project) and the addition of 50 or more AM or PM peak hour project trips causes the intersection delay to increase by 2 seconds or more.
- A cumulative impact is considered significant when a study intersection is forecast to operate at an unacceptable LOS with the addition of cumulative/background traffic and 50 or more AM or PM peak hour project trips.

2.6 SB 743 REQUIREMENTS

In the fall of 2013, Senate Bill 743 (SB 743) was passed by the legislature and signed into law by the governor. For some parts of California (and possibly the entire State), this legislation will eventually change the way that transportation studies are conducted for environmental documents. In the areas where SB 743 is implemented, delay-based metrics such as roadway

capacity and level of service will no longer be the performance measures used for the determination of the transportation impacts of projects in studies conducted under CEQA. Instead, new performance measures such as vehicle miles travelled (VMT) or other similar measures will be used.

During the preparation of this traffic impact study, guidelines for the implementation of SB 743 were still being written and this legislation was not yet incorporated into CEQA. Therefore, this traffic impact study follows current practice regarding state and local guidance as of the date of preparation. Depending on the schedule for implementation of SB 743 and the schedule for preparation of the environmental document for this project, additional studies may need to be considered to fully incorporate SB 743.

It should be noted that the Project is not subject to SB 743 as of the date of preparation of this traffic study.

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Perris 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 City of Perris staff (Appendix 1.1), the study area includes a total of 4 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 GENERAL PLAN CIRCULATION ELEMENTS

As noted previously, the Project site is located within PVCC SP in the City of Perris. Exhibit 3-2 shows the City of Perris General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Perris General Plan roadway cross-sections. Exhibit 3-4 illustrates the PVCC SP Circulation Plan and Exhibit 3-5 shows the corresponding PVCC SP roadway cross-sections.

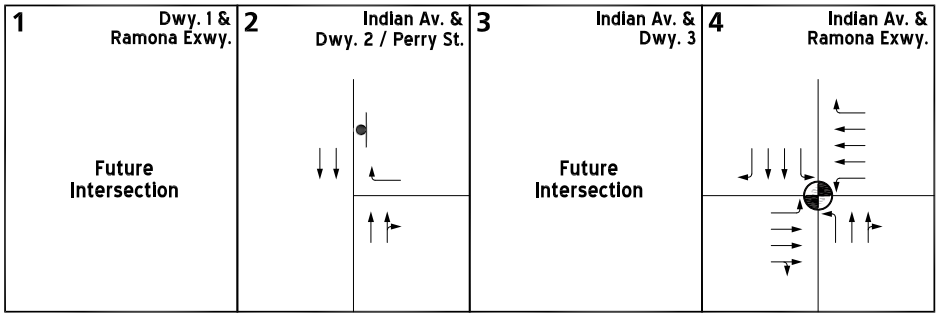
3.3 TRUCK ROUTES

The City of Perris designated truck route map is shown on Exhibit 3-6. Harley Knox Boulevard and Indian Avenue are identified as designated truck routes. Although the City's truck route map identifies Ramona Expressway as a designated truck route, the PVCC SP truck route plan and the City's current direction is to prohibit trucks along Ramona Expressway. The PVCC SP truck route plan is shown on Exhibit 3-7. Consistent with the City of Perris designated truck route map, Harley Knox Boulevard and Indian Avenue are identified as designated truck routes within the PVCC SP. These designated truck route maps have been utilized to route truck traffic from future cumulative development projects throughout the study area. It should be noted that the City of Perris City Council's policy is for trucks to utilize the Harley Knox Boulevard interchange within this study area and not have any trucks on Ramona Expressway. As such, Project truck traffic will also be routed to the north to the Harley Knox Boulevard interchange via Indian Avenue.

3.4 TRANSIT SERVICE

The study area is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the Riverside County region (see Exhibit 3-8). Mass transit routes within the PVCC SP are shown on Exhibit 3-9. Exhibit 3-9 also shows future potential routes along Ramona Expressway. As shown on Exhibit 3-8 and Exhibit 3-9, the existing RTA Route 19 (Alternative) and RTA Route 41 could potentially serve the proposed Project.

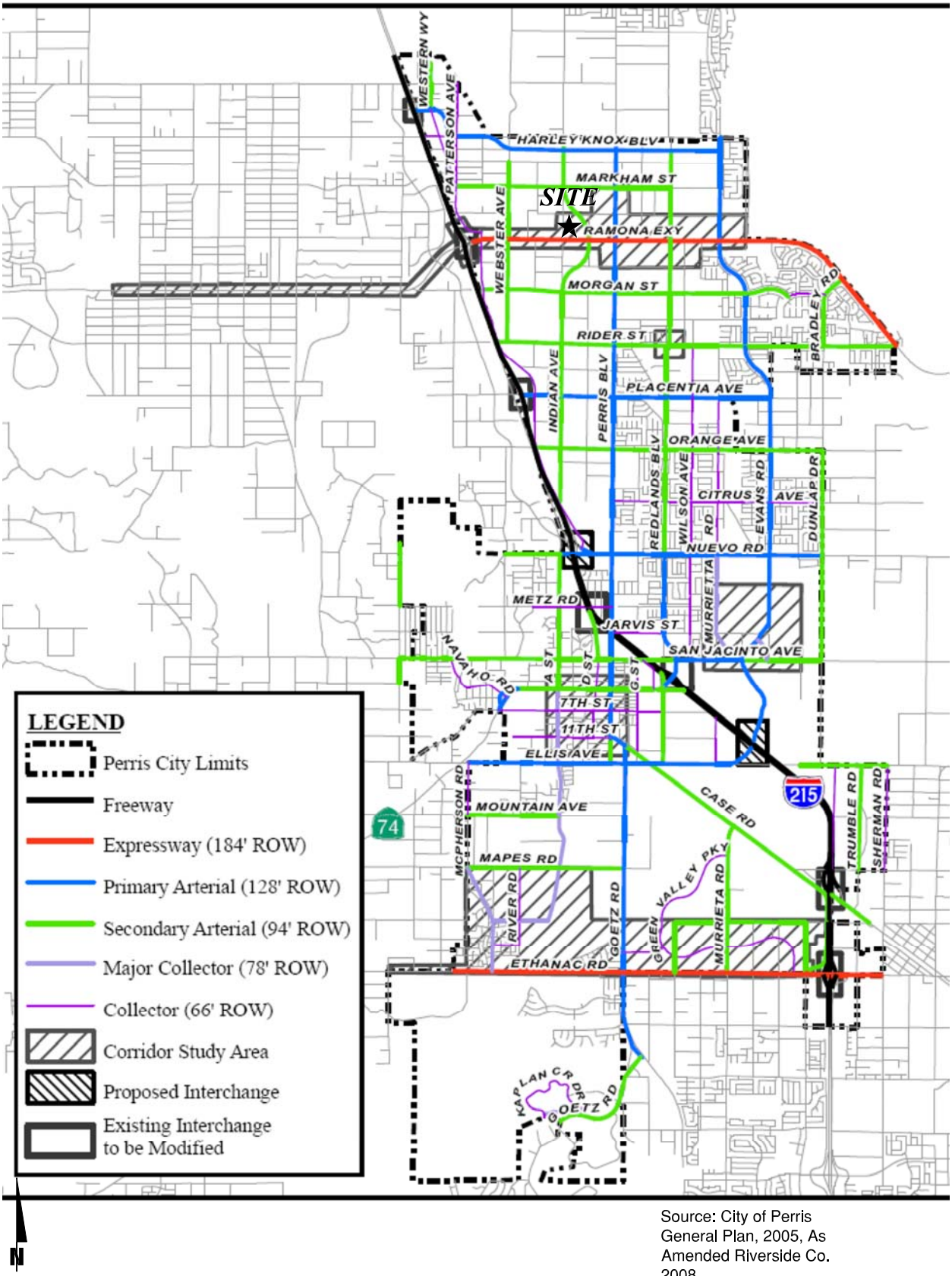
EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- = TRAFFIC SIGNAL
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- SPEED LIMIT 25 = SPEED LIMIT (MPH)

EXHIBIT 3-2: CITY OF PERRIS GENERAL PLAN CIRCULATION ELEMENT



Source: City of Perris General Plan, 2005, As Amended Riverside Co. 2008

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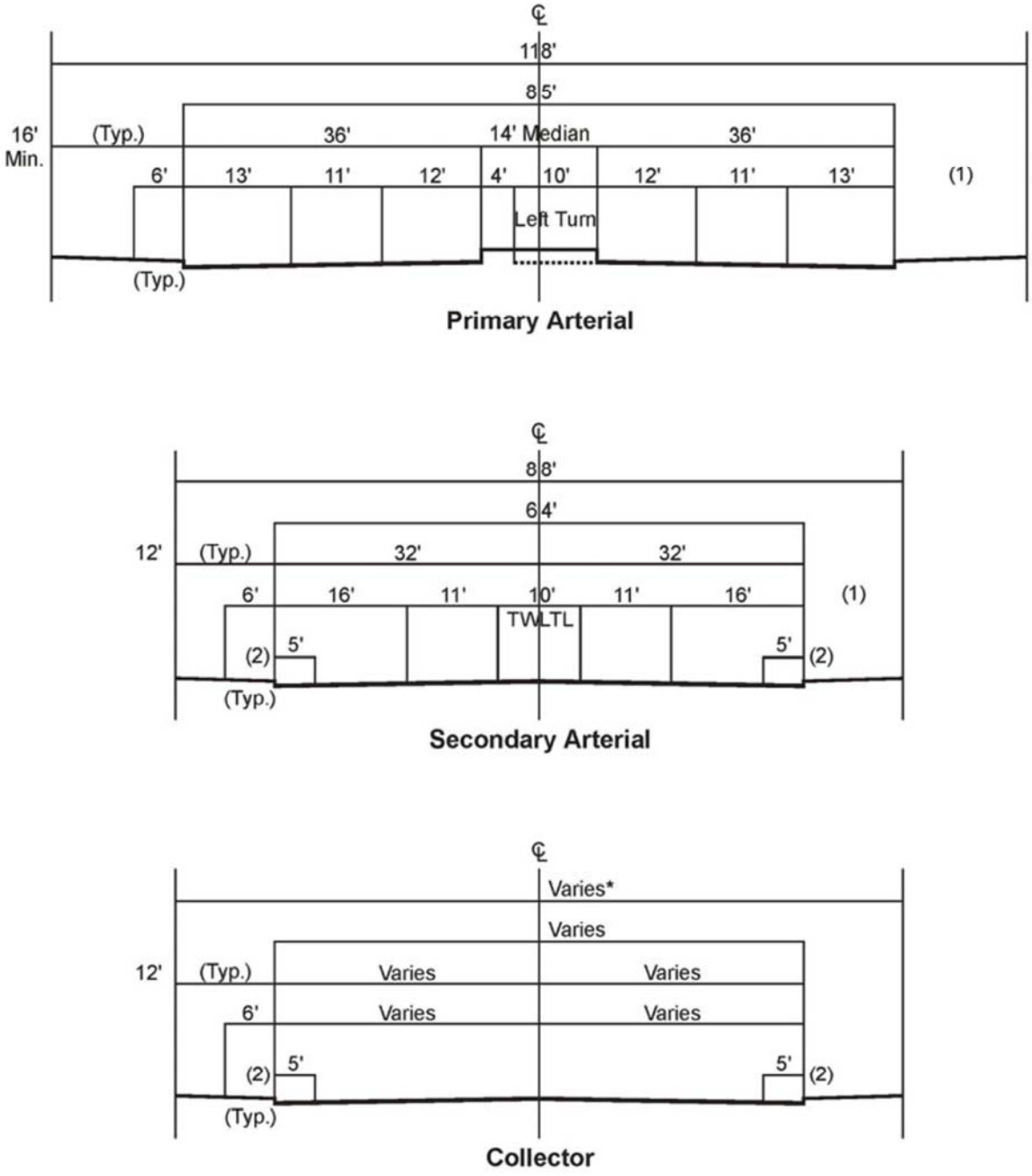
EXHIBIT 3-3: CITY OF PERRIS GENERAL PLAN ROADWAY CROSS-SECTIONS



Legend

(1) No stopping any time both sides.

(2) Bike lane where designated.

* The width of the collector street can range from 40 feet to 64 feet curb-to-curb.

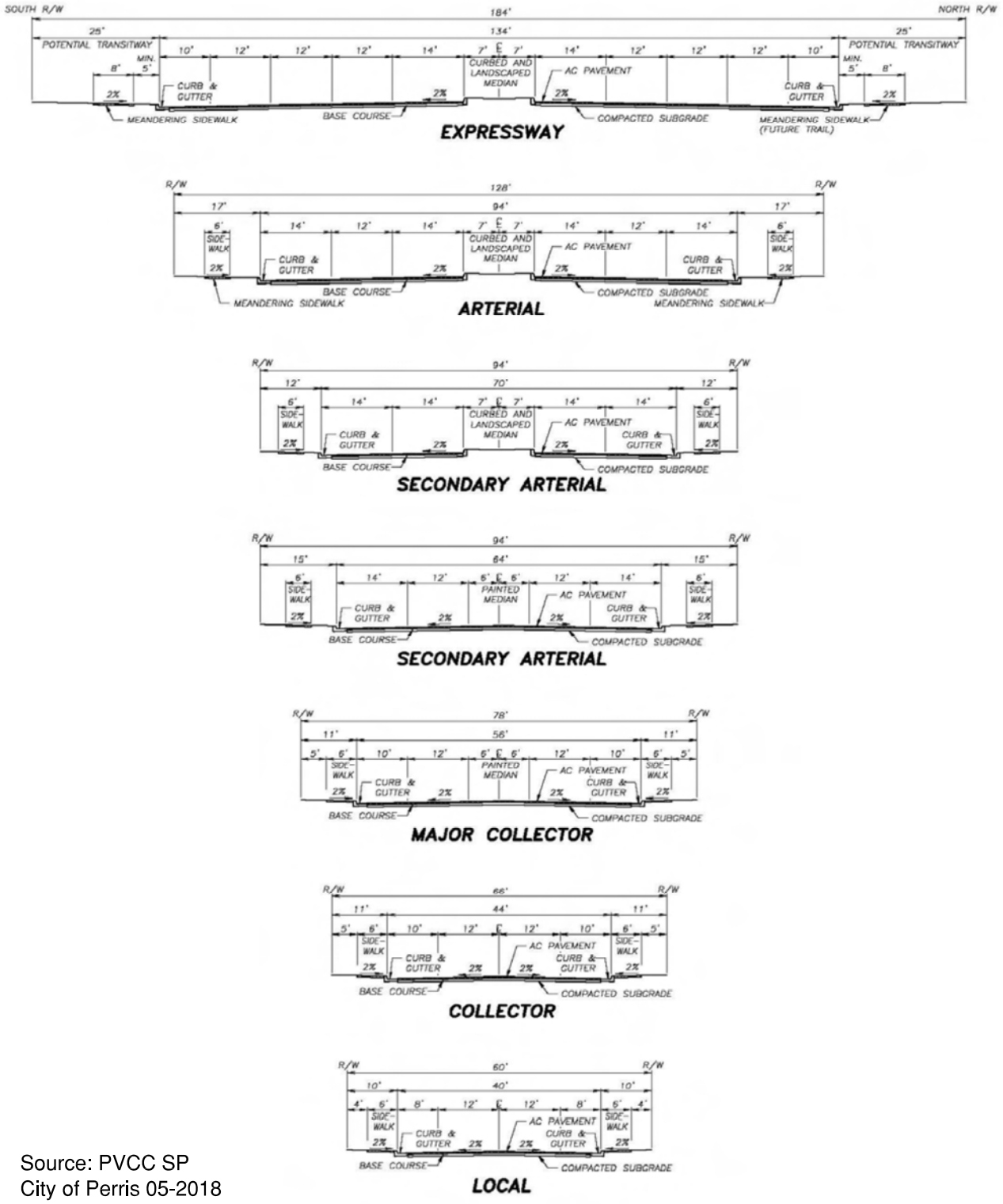
TWLTL = Two Way Left Turn Lane

Source: City of Perris General Plan 8-2008

EXHIBIT 3-4: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN CIRCULATION PLAN

Source: PVCC SP
City of Perris 05-2018

EXHIBIT 3-5: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN CROSS-SECTIONS



Source: PVCC SP
City of Perris 05-2018

EXHIBIT 3-6: CITY OF PERRIS TRUCK ROUTES

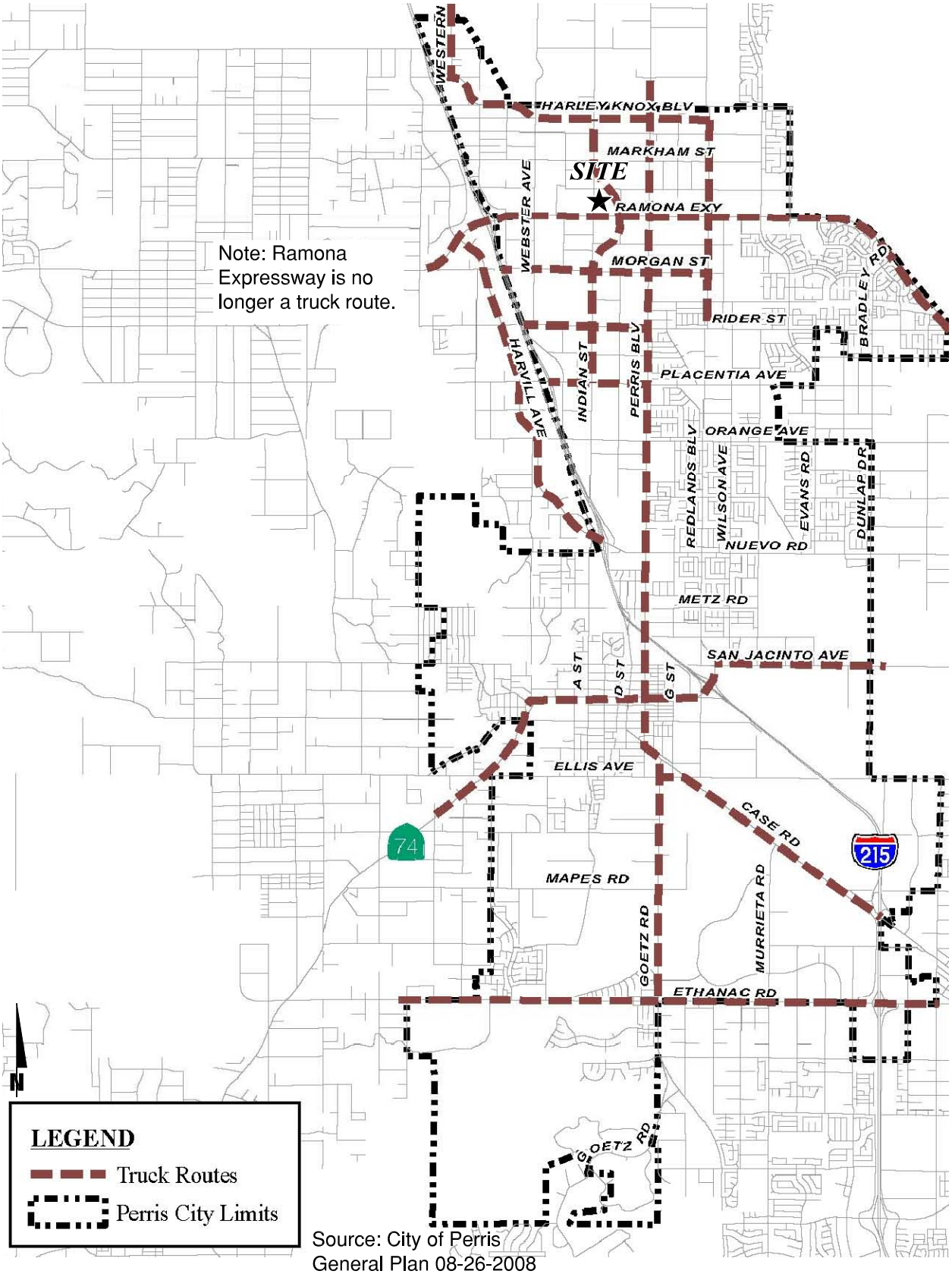


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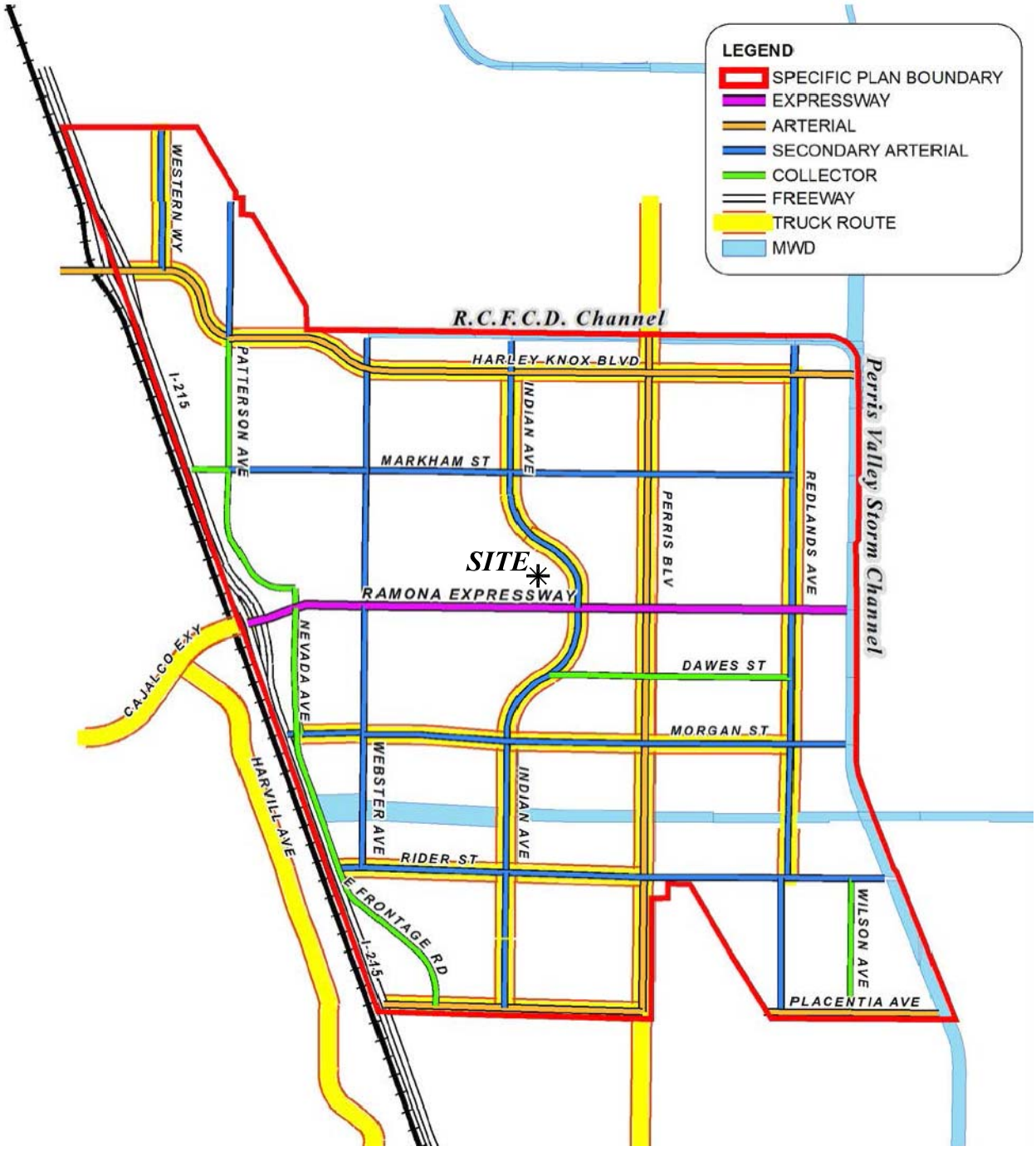
EXHIBIT 3-7: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN TRUCK ROUTE PLAN



Source: PVCC SP
City of Perris 05-2018

N

EXHIBIT 3-8: EXISTING TRANSIT ROUTES

LEGEND:

= RTA ROUTE 41

= RTA ROUTE 19 (ALTERNATIVE)

N

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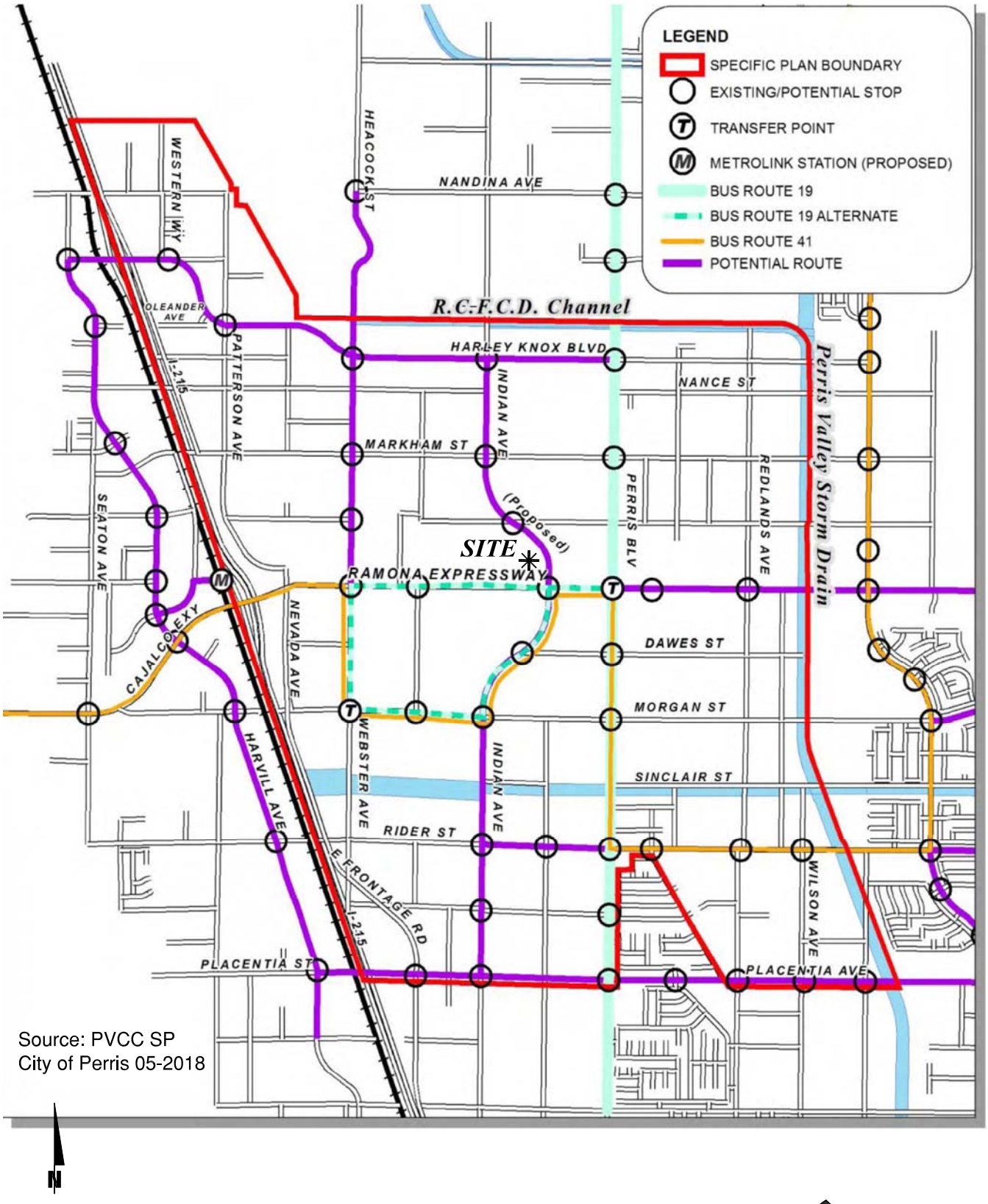
EXHIBIT 3-9: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN MASS TRANSIT ROUTES



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. Consistent with MM Trans 4 of the PVCC SP EIR, the Project will submit a plan to RTA to review and provide comments on bus stops and turnouts prior to Project approval.

3.5 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the City of Perris also includes a proposed bikeways and trail system. The City of Perris proposed bikeways and trail system is shown on Exhibit 3-10. Ramona Expressway and Indian Avenue are proposed to have Class II bike lanes. PVCC SP Trail System is shown on Exhibit 3-11. As shown, there is a regional trail planned along Ramona Expressway. Field observations conducted in May 2018 indicate nominal pedestrian and bicycle activity within the study area. Exhibit 3-12 illustrates the existing bicycle and pedestrian facilities, including bike lanes, sidewalks and crosswalk locations.

3.6 EXISTING TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in May 2018, while schools were in session. The following peak hours were selected for analysis:

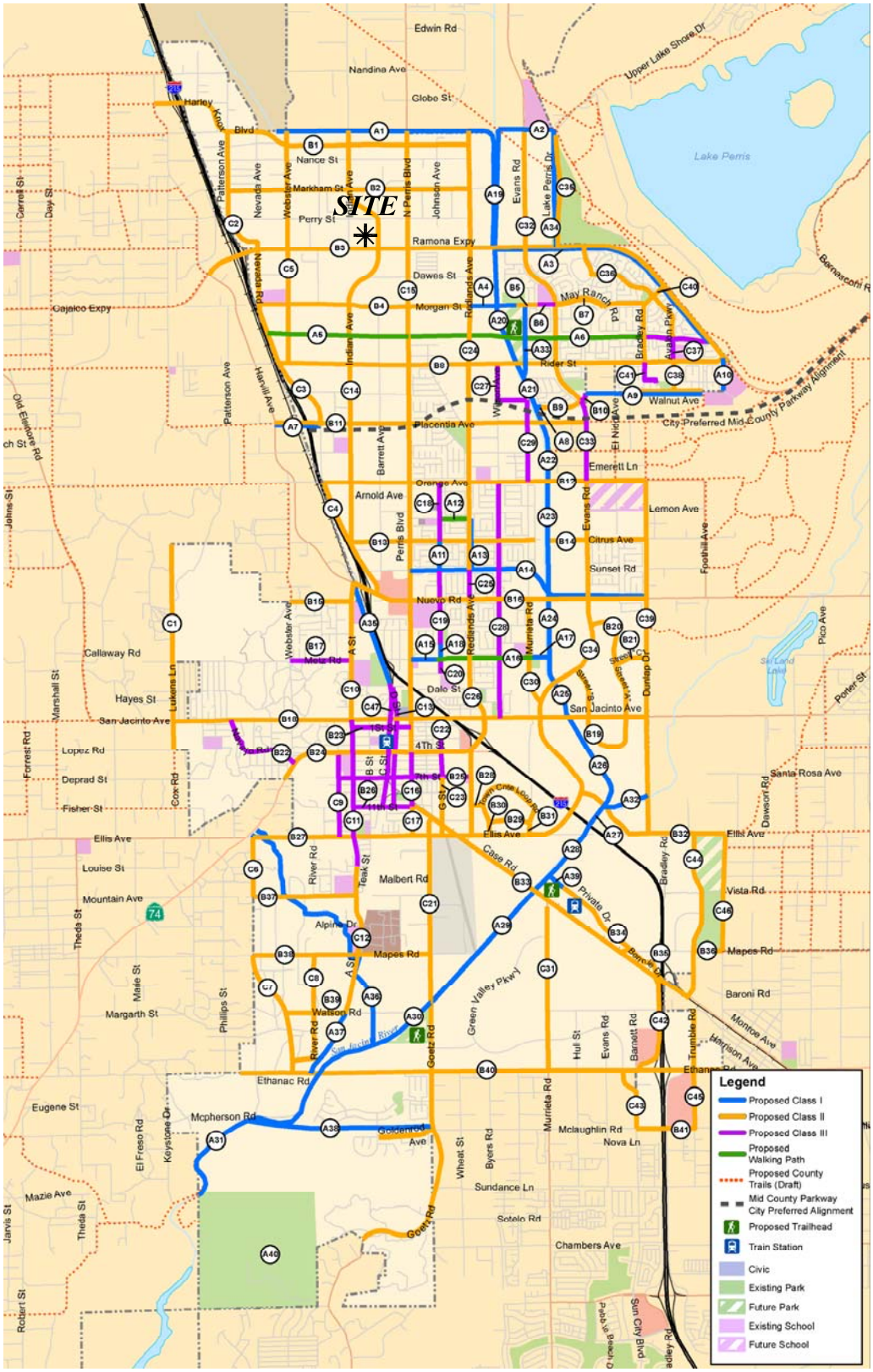
- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

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. The traffic counts collected in May 2018 include the vehicle classifications as shown below:

- Passenger Cars
- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

EXHIBIT 3-10: CITY OF PERRIS PROPOSED BIKEWAYS AND TRAIL IMPROVEMENTS



Source: City of Perris General Plan

EXHIBIT 3-11: PERRIS VALLEY COMMERCE CENTER SPECIFIC PLAN TRAIL SYSTEM

EXHIBIT 3-12: EXISTING PEDESTRIAN FACILITIES

LEGEND:

= SIDEWALK

0 = NO CROSSWALK

0 = FUTURE INTERSECTION

0 = CROSSWALK ON ALL APPROACHES

N

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To represent the impact large trucks, buses, and recreational vehicles have on traffic flow, all trucks were converted into PCEs. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the San Bernardino County CMP and are in excess of the factor recommended for use in the County of Riverside traffic study guidelines. (8) Although the County of Riverside has a recommended PCE factor of 2.0, the San Bernardino County CMP PCE factors have been utilized in an effort to conduct a more conservative analysis.

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-13. Where actual 24-hour tube count data was not available, 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 17.1389 = 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 5.84 percent. As such, the above equation utilizing a factor of 17.1389 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 5.84 percent (i.e., 1/0.0584 = 17.1389) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes (in PCE) are also shown on Exhibit 3-13.

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 in Table 3-1 which indicates that the study area intersections are currently operating at an acceptable LOS during the peak hours (i.e., LOS B or better).

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-14. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

No traffic signal warrant analysis has been performed for Existing (2018) traffic conditions as the only unsignalized intersection is currently restricted to right-in/right-out access only.

EXHIBIT 3-13: EXISTING (2018) TRAFFIC VOLUMES (IN PCE)

1 Dwy. 1 & Ramona Exwy.	2 Indian Av. & Dwy. 2 / Perry St.	3 Indian Av. & Dwy. 3	4 Indian Av. & Ramona Exwy.
Future Intersection	108(300) ↓ 3(6) → 354(249) ↑ 20(5) ↱	Future Intersection	38(59) ↓ 52(181) ↓ 19(61) ↓ 98(53) → 1380(1137) ← 63(118) ↰ 141(88) ↱ 966(1286) → 60(94) ↴ 85(96) ↑ 135(113) ↑ 44(30) ↑

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)
10.0 = ESTIMATED VEHICLES PER DAY (1000'S)

EXHIBIT 3-14: EXISTING (2018) SUMMARY OF LOS

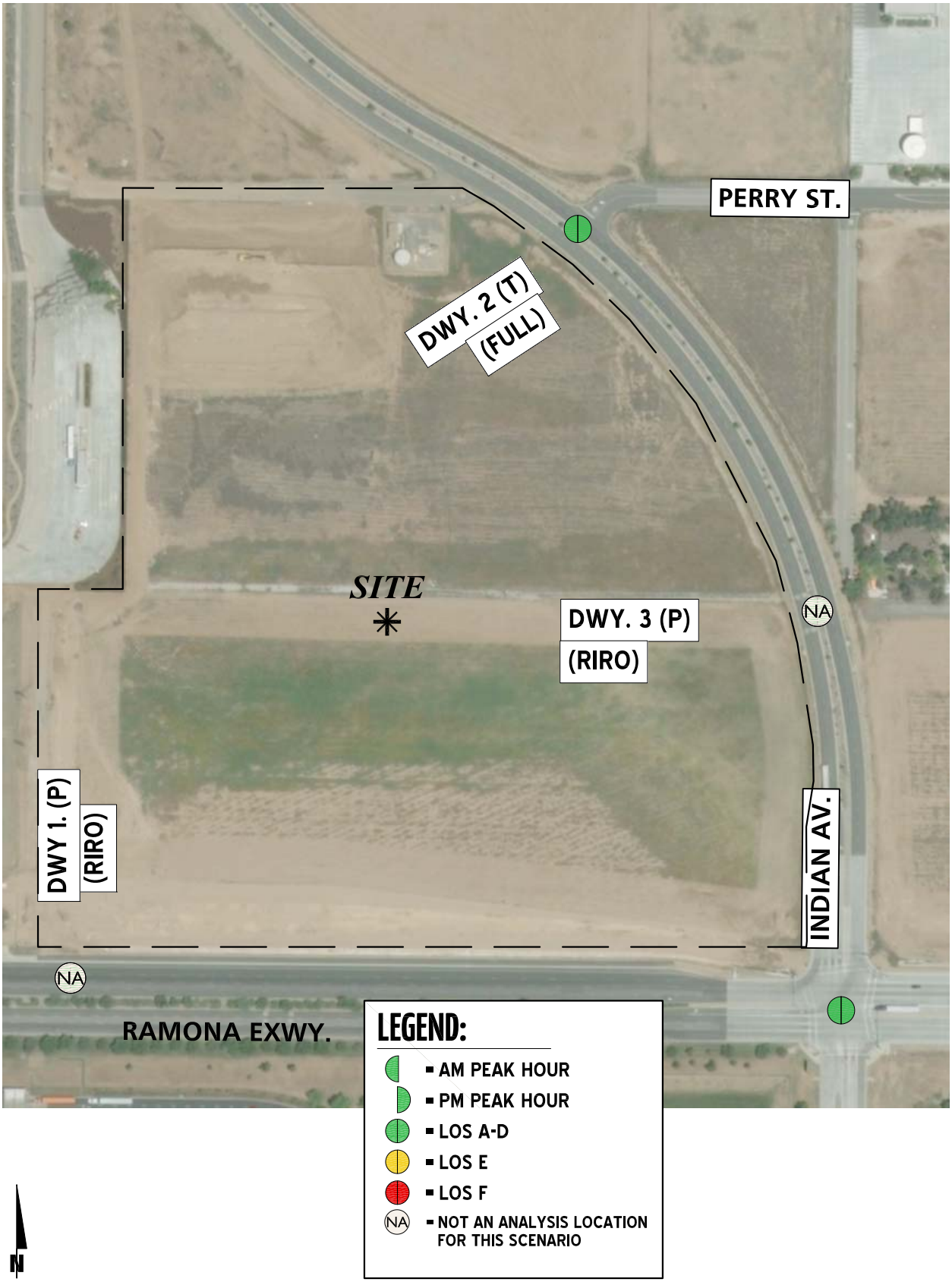

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Table 3-1

Intersection Analysis for Existing (2018) 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	Driveway 1 & Ramona Expressway		Future Intersection															
2	Indian Avenue & Driveway 2/Perry Street	CSS	0	2	0	0	2	0	0	0	1	0	0	1	9.6	9.1	A	A
3	Indian Avenue & Driveway 3		Future Intersection															
4	Indian Avenue & Ramona Expressway	TS	1	2	0	1	2	1	1	3	0	1	3	1	19.1	19.7	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 right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

[2] Per the Highway Capacity Manual (HCM) (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] TS = Traffic Signal; CSS = Cross-Street Stop

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 single high-cube transload and short-term storage warehouse building at approximately 428,730 sf. The Project is anticipated to be constructed in a single phase by the year 2020. The proposed Project land use is consistent with PVCC SP. The designated land use and zoning within the PVCCP SP is Light Industrial within the APZI and APZ II overlay. The Project is located within APZ I and APZ II within Zone B1 and is limited to 25 people per acre in the APZ I and limited to 50 people per acre in the APZ II. The northern portion of the Project site, where parking and access is proposed, is within APZ I while the southern portion of the site, where the warehouse building, parking, and access are proposed, is within APZ II.

Vehicular and truck traffic access will be provided via the following driveways:

- Driveway 1 & Ramona Expressway – Right-in/right-out access only for passenger cars
- Indian Avenue & Driveway 2/Perry Street – Full access only for trucks
- Indian Avenue & Driveway 3 – Right-in/right-out access only for passenger cars

Regional access to the Project site is provided via the I-215 Freeway and Ramona Expressway for passenger cars and at Harley Knox Boulevard for heavy trucks.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. Trip generation rates for the Project are shown in Table 4-1 together with the PCE trip generation summary illustrating daily and peak hour trip generation estimates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017, for High-Cube Transload and Short-Term Storage Warehouse (ITE Land Use Code 154). (1)

Data regarding the truck percentage and vehicle mix has been obtained from High Cube Warehouse Vehicle Trip Generation Analysis (October 2016). (9) The High Cube Warehouse Vehicle Trip Generation Analysis provides vehicle mix for Short-Term Storage, Transload & Non-Cold Storage, which consists of 32.2% trucks for daily trips, 30.8% trucks for AM peak hour trips and 21.7% trucks for PM peak hour trips. The South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type for high-cube warehouses has been utilized for the 2-axle, 3-axle, and 4+-axle trucks.

Table 4-1

Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Actual Vehicle Trip Generation Rates									
High-Cube Transload and Short-Term Storage Warehouse (Without Cold Storage)[3]	TSF	154	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%)			0.003	0.001	0.004	0.001	0.003	0.004	0.075
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%)			0.004	0.001	0.005	0.001	0.003	0.004	0.093
4-Axle+ Trucks (AM-19.25%; PM-13.56%; Daily-20.13%)			0.012	0.004	0.015	0.004	0.010	0.014	0.282
Passenger Car Equivalent (PCE) Trip Generation Rates[5]									
High-Cube Transload and Short-Term Storage Warehouse (Without Cold Storage)[3]	TSF	154	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 1.5)			0.005	0.001	0.006	0.002	0.004	0.005	0.113
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.0)			0.008	0.002	0.010	0.003	0.006	0.009	0.187
Axle+ Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)			0.036	0.011	0.046	0.011	0.029	0.041	0.845

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle Mix Source: High Cube Warehouse Vehicle Trip Generation Analysis, October 2016, ITE.

Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type for high-cube warehouse. PCE rates are per SBCTA.

As noted in Table 4-1 and Table 4-2, refinements to the raw trip generation estimates have been made to provide a more detailed breakdown of trips between passenger cars and trucks. Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 3 different truck types: 2-axle, 3-axle, and 4+-axle trucks. 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 level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County Congestion Management Program (CMP), 2016 Update. (8) Note that these procedures are consistent with those adopted by the County of Riverside for warehouse projects, with the exception of the PCE factors, where the San Bernardino County CMP factors have been utilized in an effort to conduct a conservative analysis. The County of Riverside utilizes a default PCE factor of 2.0 for all trucks, whereas, the County of San Bernardino CMP factors are broken down by axle type (1.5 for 2-axle, 2.0 for 3-axle, and 3.0 for 4+-axle). Since there are more 4+-axle trucks than 2-axle and 3-axle trucks, the San Bernardino CMP factors are more conservative because they account for additional PCE (3.0) compared to that of the Riverside factors (2.0). The number of trucks by axle type can be found in Appendix 3.1.

The proposed Project is anticipated to generate a net total of approximately 897 PCE trip-ends per day with 50 PCE AM peak hour trips and 58 PCE PM peak hour trips, as shown in Table 4-2. The proposed Project's trip generation, based on actual vehicles, has also been included in Table 4-2 for informational purposes only.

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, and are consistent with other similar projects that have been reviewed and approved by City of Perris staff. The truck trip distribution patterns have been developed based on the anticipated travel patterns for the 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 Project passenger car trip distribution pattern is graphically depicted on Exhibit 4-1. The Project truck trip distribution pattern is graphically depicted on Exhibit 4-2. Each of these distribution patterns was reviewed and approved by the City of Perris as part of the traffic study scoping process (see Appendix 1.1).

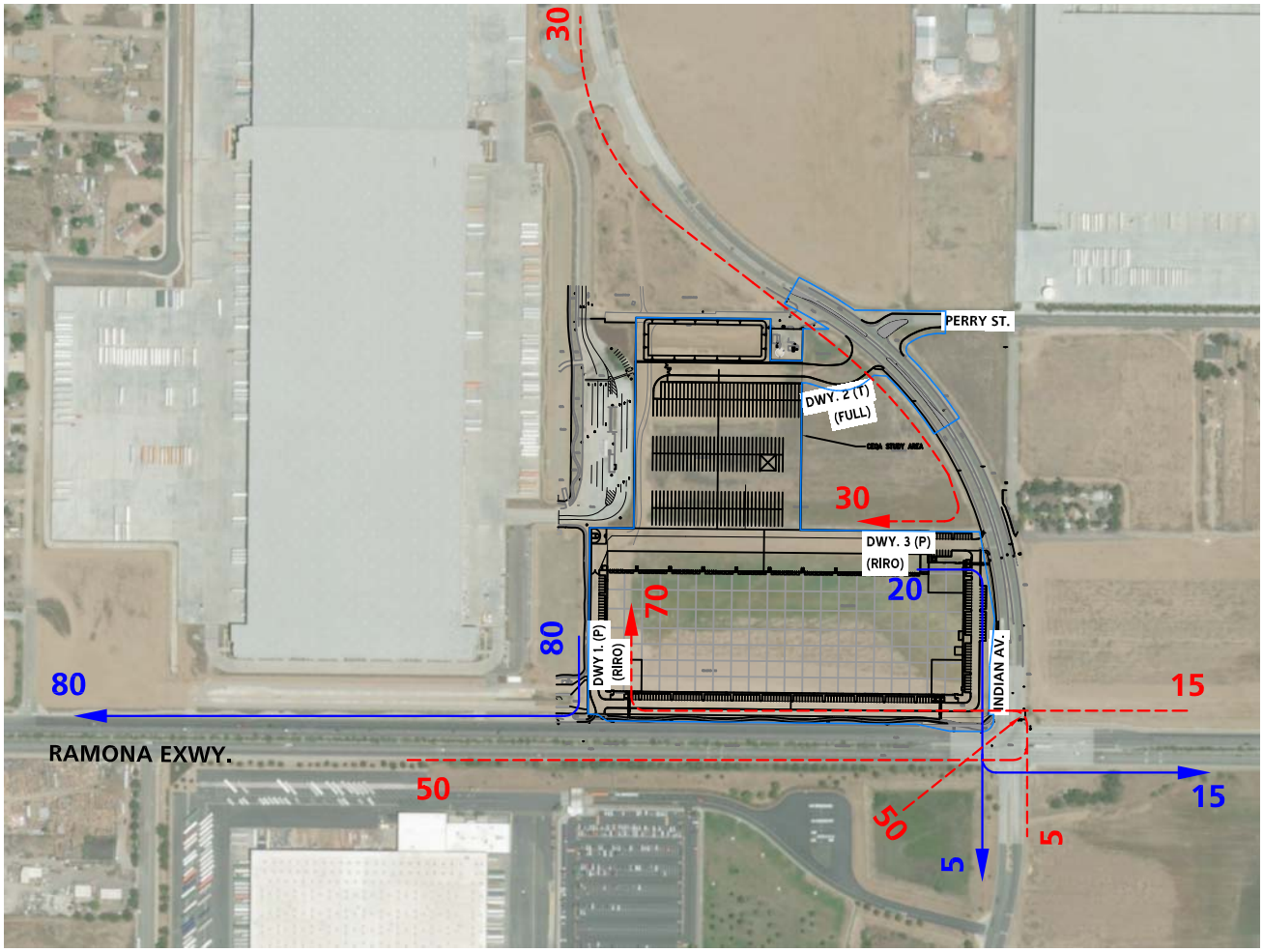
Table 4-2

Project Trip Generation Summary

Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary (Actual Vehicles)									
High-Cube Warehouse (Without Cold Storage)	428.730	TSF							
Passenger Cars:			18	5	23	9	24	33	407
Truck Trips:									
2-axle:			1	0	1	0	1	1	32
3-axle:			2	1	3	1	1	2	40
4+-axle:			5	2	7	2	4	6	121
- Net Truck Trips (Actual Vehicles)			8	3	11	3	6	9	193
Total Proposed Project (Actual Vehicles)			**26**	**8**	**34**	**12**	**30**	**42**	**600**
Project Trip Generation Summary (PCE)									
High-Cube Warehouse (Without Cold Storage)	428.730	TSF							
Passenger Cars:			18	5	23	9	24	33	407
Truck Trips:									
2-axle:			2	1	3	1	2	3	48
3-axle:			3	1	4	1	3	4	80
4+-axle:			15	5	20	5	13	18	362
- Net Truck Trips (PCE)			20	7	27	7	18	25	490
Total Proposed Project (PCE)			**38**	**12**	**50**	**16**	**42**	**58**	**897**

[1] TSF = thousand square feet

EXHIBIT 4-1: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



LEGEND:

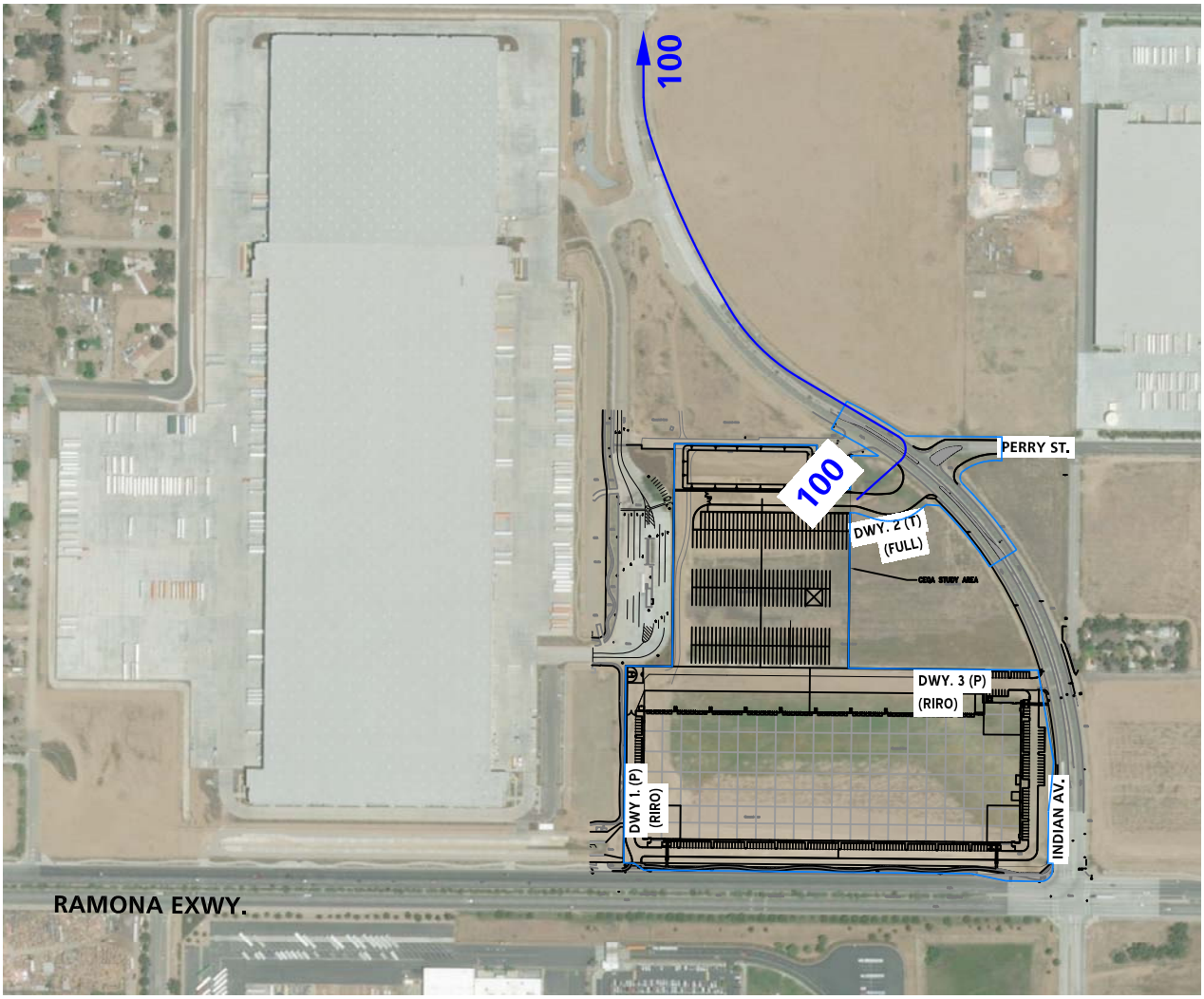
10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

EXHIBIT 4-2: PROJECT (TRUCKS) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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 (employee trips only).

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 in PCE.

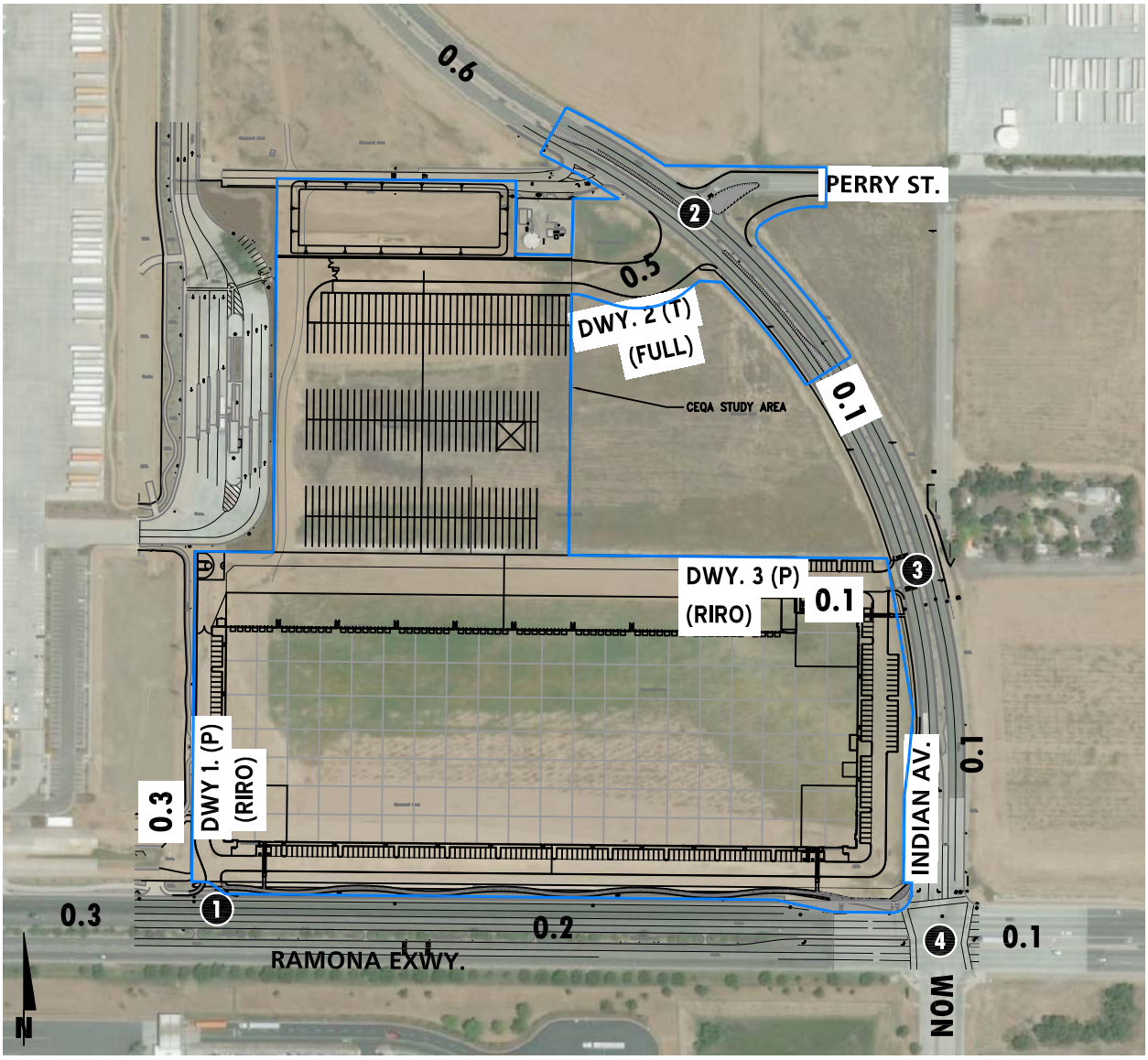
4.5 BACKGROUND TRAFFIC

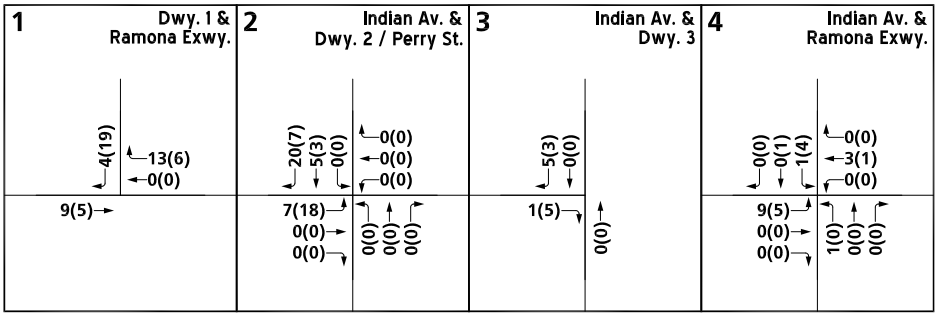
Future year traffic forecasts have been based upon two years of background (ambient) growth at 3% per year, compounded over 2 years, for 2020 traffic conditions. The total ambient growth is 6.09% for 2020 traffic conditions (compounded growth of 3 percent per year, compounded over two years or $1.03^{2\ years}$). 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.

The Southern California Association of Governments (SCAG) 2016—2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) growth forecasts for the City of Perris assume the City population to increase from 70,700 in 2012 to 116,700 by the year 2040, or an approximate 1.81 percent growth rate compounded annually. The RTP/SCS assumed growth in households over the same 28-year period reflects an increase from 16,600 households to 32,700 households; a rate of 2.45 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 15,100 jobs to 32,200 jobs; a rate of approximately 2.74 percent compounded annually. (10)

Therefore, the use of an annual growth rate of 3.0 percent would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Perris, especially when considered along with the addition of Project-related traffic and traffic generated by other known development projects. As such, the growth in traffic volumes assumed in this traffic impact analysis would tend to overstate as opposed to understate the potential impacts to traffic and circulation.

EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES (IN PCE)





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

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 Perris. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. Adjacent jurisdictions of the County of Riverside and the City of Moreno Valley have also been contacted to obtain the most current list of cumulative projects from their respective jurisdictions.

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 EAC and 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 4-3, and have been considered for inclusion.

Although it is unlikely that these cumulative projects would be fully built and occupied by Year 2020, 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 Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5 in PCE.

4.7 TRAFFIC FORECASTS

An E+P analysis scenario has been included to address a recent CEQA case ruling, which asserts that impacts of a proposed project must be measured against the current existing physical conditions.

To provide a comprehensive assessment of potential transportation network deficiencies, two types of analyses, “buildup” and “buildout”, were performed in support of this work effort. The buildup method was utilized to approximate the EA/EAP and EAC/EAPC conditions for the analysis year of 2020, and is intended to identify the near-term cumulative impacts on both the existing and planned near-term circulation system. The EA/EAP traffic condition includes background traffic and the traffic generated by the proposed Project. The EAC/EAPC traffic condition includes traffic generated by other cumulative development projects within the study area in addition to the background traffic and traffic generated by the proposed Project.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

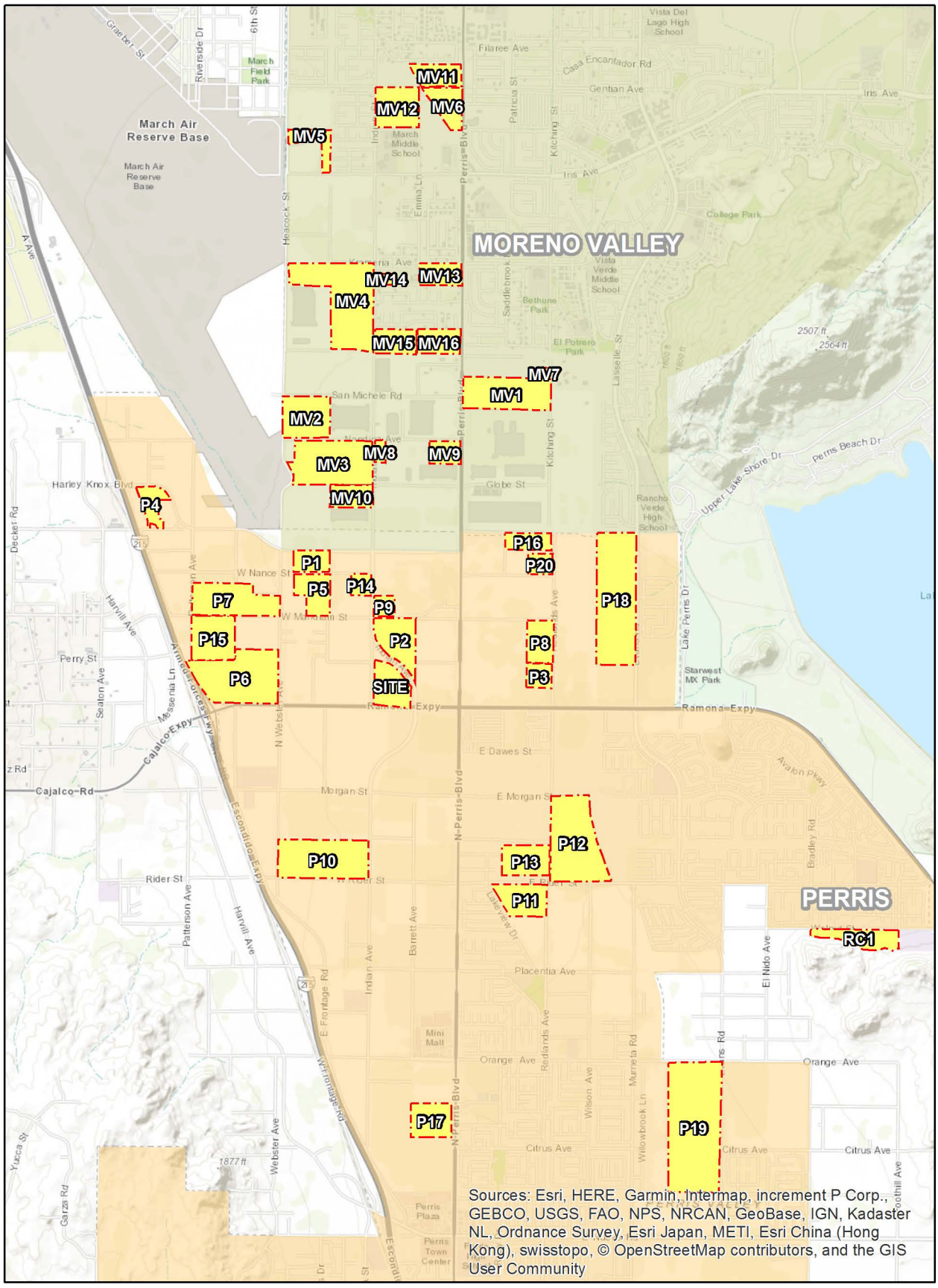


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE)

1 Dwy. 1 & Ramona Exwy.	2 Indian Av. & Dwy. 2 / Perry St.	3 Indian Av. & Dwy. 3	4 Indian Av. & Ramona Exwy.
Future Intersection	←171(234) →0(0) ↑207(525) 0(0)→	Future Intersection	←103(128) →18(6) ←50(100) ←50(100) ←282(175) →0(0) 151(303)→ 131(257)→ 13(4)→ ↑8(37) ↑6(122) 0(0)→

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

Table 4-3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Jurisdiction	Land Use[1]	Quantity	Units[2]	Location
P1	Bargemann / DPR 07-09-0018	Perris	Warehousing	173.000	TSF	NEC OF WEBSTER & NANCE
P2	Duke 2 / DPR 16-00008	Perris	High-Cube Warehouse	669.000	TSF	NEC OF INDIAN & MARKHAM
P3	First Perry / DPR 16-00013	Perris	High-Cube Warehouse	240.000	TSF	SWC OF REDLANDS AVE. & PERRY ST.
P4	Gateway / DPR 16-00003	Perris	High-Cube Warehouse	400.000	TSF	SOUTH OF HARLEY KNOX BLVD. EAST OF HWY. 215
P5	Integra / DPR 14-02-0014	Perris	High-Cube Warehouse	864.000	TSF	EAST OF WEBSTER AVE. SOUTH OF NANCE ST.
P6	OLC 1 / DPR 12-10-0005	Perris	High-Cube Warehouse	1,455.000	TSF	WEST OF WEBSTER AVE. NORTH OF RAMONA Exwy.
P7	OLC2 / DPR 14-01-0015	Perris	High-Cube Warehouse	1,037.000	TSF	WEST OF WEBSTER AVE. NORTH OF MARKHAM ST.
P8	Markham East / DPR 05-0477	Perris	High-Cube Warehouse	460.000	TSF	SWC OF REDLANDS AVE. & MARKHAM ST.
P9	Markham Industrial / DPR 16-00015	Perris	Warehousing	170.000	TSF	NEC OF INDIAN AVE. & MARKHAM ST.
P10	Rados / DPR 07-0119	Perris	High-Cube Warehouse	1,200.000	TSF	NWC OF INDIAN AVE. & RIDER ST.
P11	Rider 1 / DPR 16-0365	Perris	High-Cube Warehouse	350.000	TSF	SWC OF REDLANDS AVE. & RIDER ST.
P12	Rider 2 & 4	Perris	High-Cube Warehouse	1,376.721	TSF	NORTH OF RIDER ST. EAST OF REDLANDS
P13	Rider 3 / DPR 06-0432	Perris	High-Cube Warehouse	640.000	TSF	NORTH OF RIDER ST. WEST OF REDLANDS
P14	Westcoast Textile / DPR 16-00001	Perris	Warehousing	180.000	TSF	SWC OF INDIAN ST. & NANCE ST.
P15	Duke at Patterson / DPR 17-00001	Perris	High-Cube Warehouse	811.000	TSF	SEC OF PATTERSON AVE. & MARKHAM ST.
P16	Harley Knox Commerce Park / DPR 16-004	Perris	High-Cube Warehouse	386.278	TSF	NWC OF HARLEY KNOX BLVD. & REDLANDS AVE.
P17	Perris Marketplace / DPR 05-0341	Perris	Commercial Retail	520.000	TSF	WEST OF PERRIS BLVD. AT AVOCADO AVE.
P18	Stratford Ranch Residential / TTM 36648	Perris	SFDR	270	DU	WEST OF EVANS RD. AT MARKHAM ST.
P19	Pulte Residential / TTM 30850	Perris	SFDR	496	DU	WEST OF EVANS RD. AT CITRUS AVE.
P20	Perris Circle 3	Perris	Warehousing	210.900	TSF	NWC OF REDLANDS AVE. AND NANCE AVE.

Table 4-3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Jurisdiction	Land Use[1]	Quantity	Units[2]	Location
MV1	Kearney	Moreno Valley	High-Cube Warehouse	1100.000	TSF	EAST OF PERRIS BLVD. AT SAN MICHEL RD.
MV2	IDS	Moreno Valley	High-Cube Warehouse	701.000	TSF	SEC OF HEACOCK ST. & SAN MICHELE RD.
MV3	First Industrial	Moreno Valley	High-Cube Warehouse	1380.000	TSF	SWC OF INDIAN AVE. & NANDINA AVE.
MV4	Prologis 1	Moreno Valley	High-Cube Warehouse	1000.000	TSF	NEC OF INDIAN AVE. & MARIPOSA AVE.
MV5	Moreno Valley Industrial Park	Moreno Valley	High-Cube Warehouse	207.684	TSF	NEC OF HEACOCK ST. & IRIS AVE.
MV6	Moreno Valley Walmart	Moreno Valley	Retail	193.000	TSF	SWC OF PERRIS BLVD. & GENTIAN AVE.
MV7	Moreno Valley Utility Substation	Moreno Valley	High-Cube Warehouse	PUBLIC	TSF	NWC OF EDWIN RD. & KITCHING ST.
MV8	Phelan Development	Moreno Valley	High-Cube Warehouse	98.210	TSF	SEC OF INDIAN ST. & NANDINA AVE.
MV9	Nandina Industrial Center	Moreno Valley	High-Cube Warehouse	335.966	TSF	SOUTH OF NANDINA AVE. WEST OF PERRIS BLVD.
MV10	Indian Street Commerce Center	Moreno Valley	High-Cube Warehouse	433.918	TSF	SWC OF INDIAN ST. & GROVEVIEW RD.
MV11	Tract 22180	Moreno Valley	SFDR	140	DU	NORTH OF GENTIAN AVE. EAST OF INDIAN ST.
MV12	Tract 36760	Moreno Valley	SFDR	221	DU	SEC OF INDIAN ST. & GENTIAN AVE.
MV13	PEN18-0042	Moreno Valley	SFDR	2	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV14	Tract 33024	Moreno Valley	SFDR	8	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV15	Tract 32716	Moreno Valley	SFDR	57	DU	NEC OF INDIAN ST. & MARIPOSA AVE.
MV16	Tract 31442	Moreno Valley	SFDR	63	DU	NWC OF PERRIS BLVD. & MARIPOSA AVE.
RC1	McCanna Hills / TTM 33978	County of Riverside	SFDR	63	DU	SWC OF SHERMAN AVE. & WALNUT AVE.

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet

4.8 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EA (2020), EAP (2020), EAC (2020), and EAPC (2020) traffic conditions. An ambient growth factor of 6.09% to account for background (area-wide) traffic increases that occur over time up to the year 2020 from the year 2018 (compounded 3.0 percent per year growth over a 2-year period). Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2020 roadway networks are 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 (2020)
  - Existing 2018 counts
  - Ambient growth traffic (6.09%)

- Existing Plus Ambient Growth plus Project (2020)
  - Existing 2018 counts
  - Ambient growth traffic (6.09%)
  - Project traffic

- Existing Plus Ambient Growth Plus Cumulative (2020)
  - Existing 2018 counts
  - Ambient growth traffic (6.09%)
  - Cumulative Development traffic

- Existing Plus Ambient Growth Plus Cumulative Plus Project (2020)
  - Existing 2018 counts
  - Ambient growth traffic (6.09%)
  - Cumulative Development traffic
  - Project traffic

5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing Plus Project (E+P) 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 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). This includes the Project aligning its Driveway 2 with the existing Perry Street to create a 4-leg, full access intersection.

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 (in PCE), which can be expected for E+P traffic conditions.

5.3 INTERSECTION OPERATIONS ANALYSIS

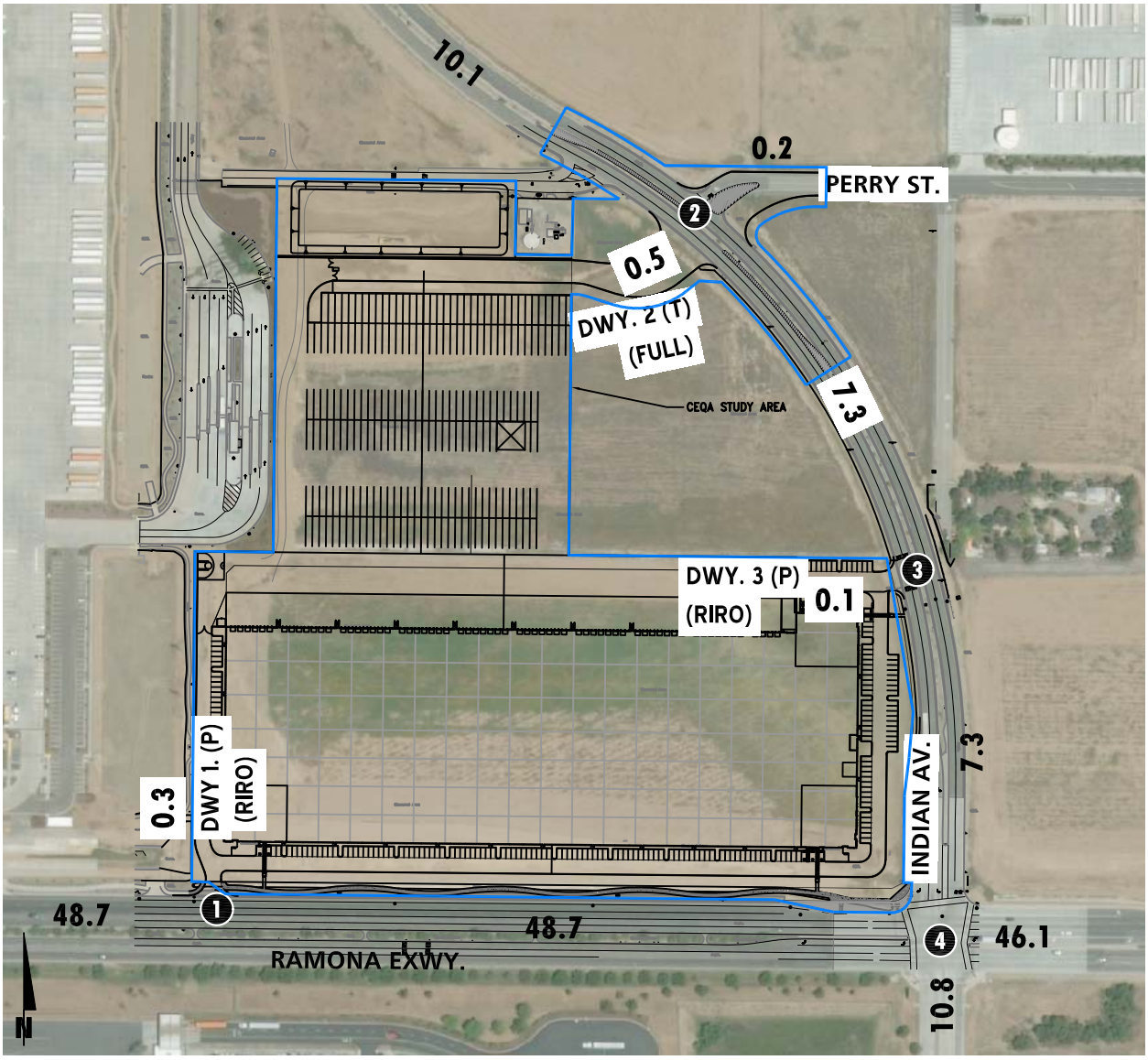
E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicate that the study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours, consistent with Existing (2018) traffic conditions.

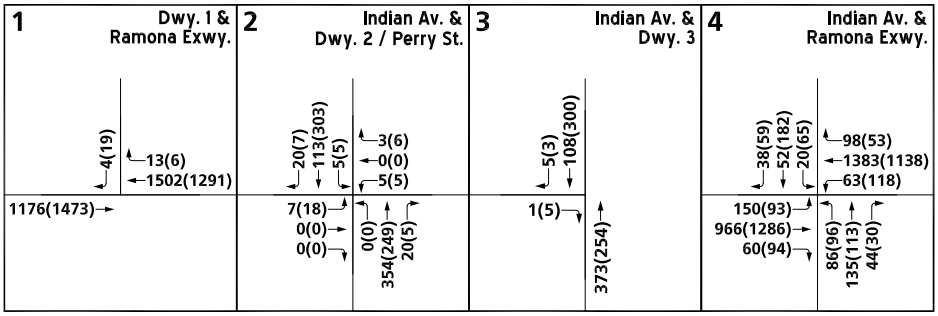
Exhibit 5-2 summarizes the weekday AM and PM peak hour study area intersection LOS under E+P traffic conditions, consistent with the summary provided in Table 5-1. The intersection operations analysis worksheets are included in Appendix 5.1 of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no study area intersections anticipated to meet peak hour volume-based traffic signal warrants under E+P traffic conditions (see Appendix 5.2).

EXHIBIT 5-1: E+P TRAFFIC VOLUMES (IN PCE)

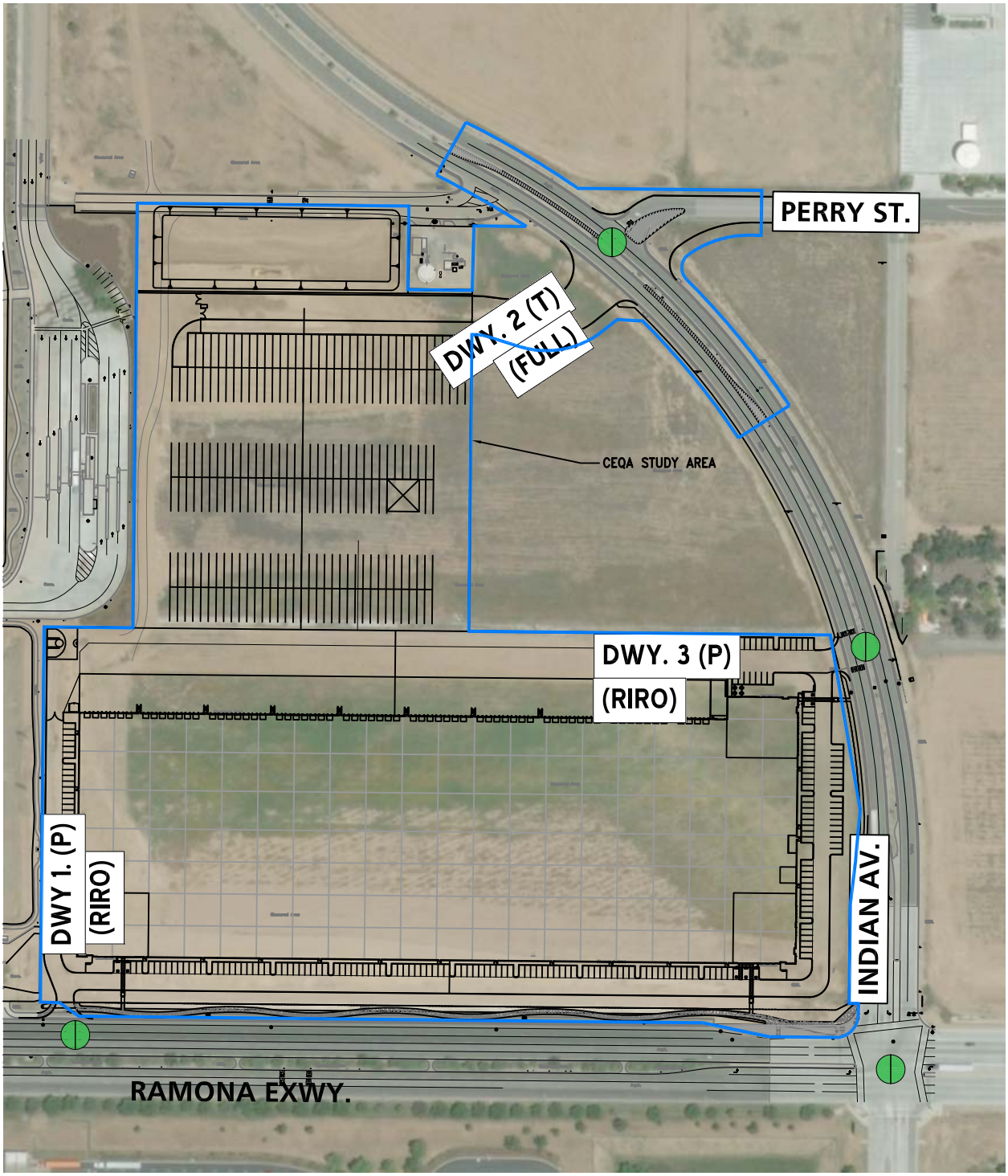




LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 5-2: E+P SUMMARY OF LOS



11704 - los.dwg

Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2018)				E+P			
			HCM Delay[1] (secs.)		Level of Service		HCM Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1 & Ramona Expressway	**CSS**	Future Intersection				18.2	16.6	C	C
2	Indian Avenue & Driveway 2/Perry Street	CSS	9.6	9.1	A	A	11.3	12.1	B	B
3	Indian Avenue & Driveway 3	**CSS**	Future Intersection				8.6	9.2	A	A
4	Indian Avenue & Ramona Expressway	TS	19.1	19.7	B	B	19.4	19.8	B	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.

[2] CSS = Cross-Street Stop; TS = Traffic Signal; **CSS** = Improvement

6 EA AND EAP (2020) TRAFFIC ANALYSIS

This section discusses the methods used to develop EA and EAP (2020) traffic forecasts, 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 EA and EAP (2020) 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). This includes the Project aligning its Driveway 2 with the existing Perry Street to create a 4-leg, full access intersection.

6.2 EA (2020) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2018) traffic volumes plus an ambient growth factor of 6.09%. Exhibit 6-1 shows the weekday ADT and peak hour volumes which can be expected for EA (2020) traffic conditions.

6.3 EAP (2020) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2018) traffic volumes plus an ambient growth factor of 6.09% and the addition of Project traffic. Exhibit 6-2 shows the weekday ADT and peak hour volumes which can be expected for EAP (2020) traffic conditions (in PCE).

6.4 INTERSECTION OPERATIONS ANALYSIS

Level of service calculations were conducted for the study intersections to evaluate their operations under EA and EAP (2020) conditions with existing roadway and intersection geometrics consistent with those described under Section 6.1 *Roadway Improvements*. As shown in Table 6-1 and illustrated on Exhibits 6-3 and 6-4, there are no study area intersections that are anticipated to operate at an unacceptable LOS under both EA and EAP (2020) traffic conditions.

The intersection operations analysis worksheets for EA and EAP (2020) conditions are included in Appendices 6.1 and 6.2 of this report, respectively.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

No traffic signal warrant analysis has been performed for EA (2020) traffic conditions as the only unsignalized intersection is restricted to right-in/right-out access only. Traffic signal warrants have been performed (based on CA MUTCD) for EAP (2020) traffic conditions based on peak hour volumes. For EAP (2020) traffic conditions, no traffic signals are warranted (see Appendix 6.3).

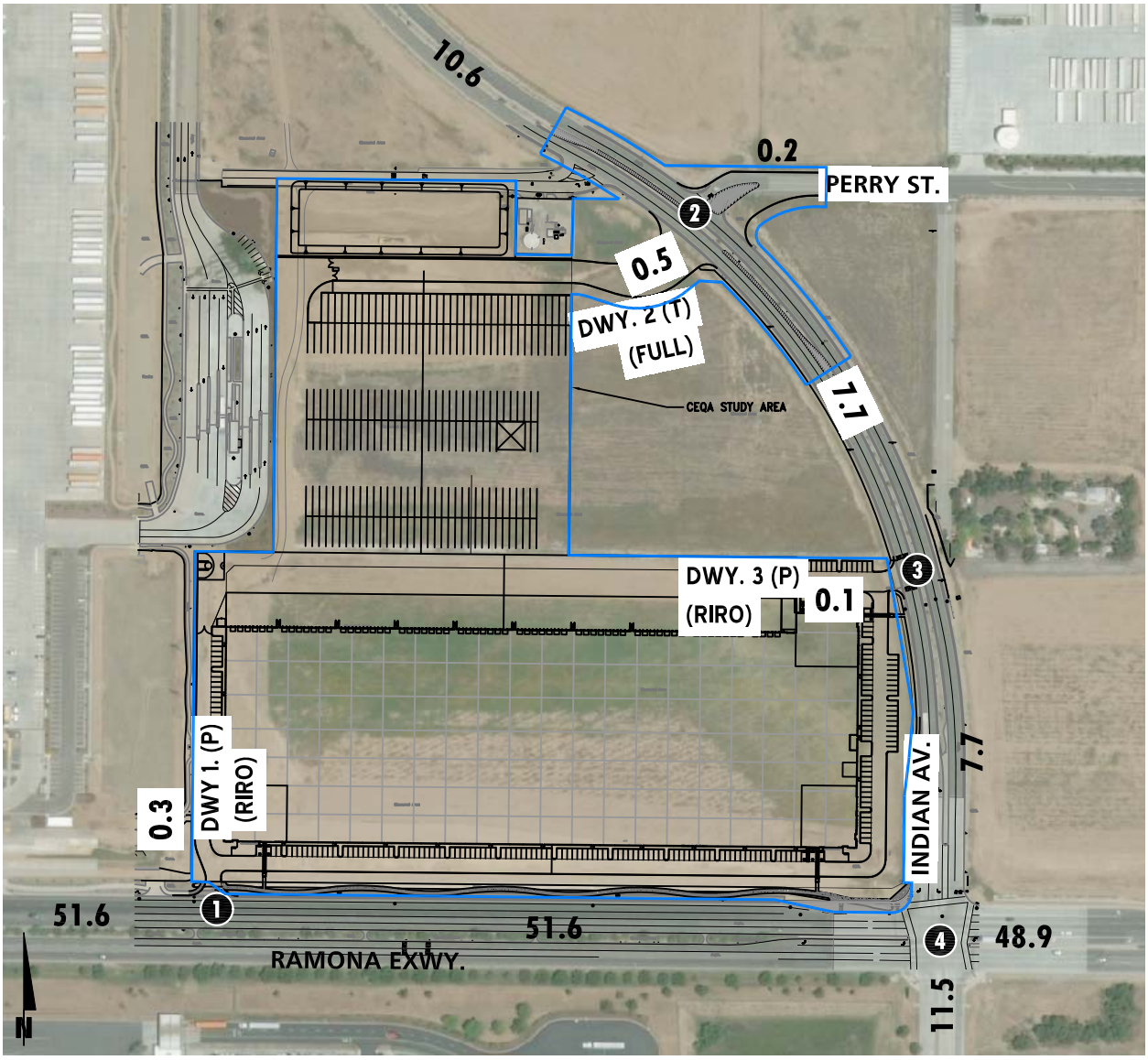
EXHIBIT 6-1: EA (2020) TRAFFIC VOLUMES (IN PCE)

1 Dwy. 1 & Ramona Exwy.	2 Indian Av. & Dwy. 2 / Perry St.	3 Indian Av. & Dwy. 3	4 Indian Av. & Ramona Exwy.
Future Intersection	115(318) → ; 3(6) ← ; 375(264) ↑ ; 21(5) ↱	Future Intersection	40(62) ↓ ; 55(191) ↓ ; 20(65) ↓ ; 103(56) ← ; 1464(1206) ← ; 66(125) ↰ ; 150(93) ↱ ; 1025(1364) → ; 64(100) ↴ ; 90(101) ↑ ; 143(119) ↑ ; 47(32) ↑

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

EXHIBIT 6-2: EAP (2020) TRAFFIC VOLUMES (IN PCE)



1 Dwy. 1 & Ramona Exwy.	2 Indian Av. & Dwy. 2 / Perry St.	3 Indian Av. & Dwy. 3	4 Indian Av. & Ramona Exwy.
4(19) ↓ 13(6) ← 1593(1369)	20(7) ↓ 120(321) ↓ 5(5)	3(6) ← 0(0) ← 5(5)	5(3) ↓ 115(318)
1247(1562) →	7(18) → 0(0) → 0(0) →	0(0) ↑ 375(264) ↑ 21(5) ↑	1(5) → 396(269)
			40(62) ↓ 55(192) ↓ 21(69)
			159(98) → 1025(1364) → 64(100) →
			103(56) ← 1467(1207) ← 66(125)
			91(101) ↑ 143(119) ↑ 47(32) ↑

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 6-3: EA (2020) SUMMARY OF LOS

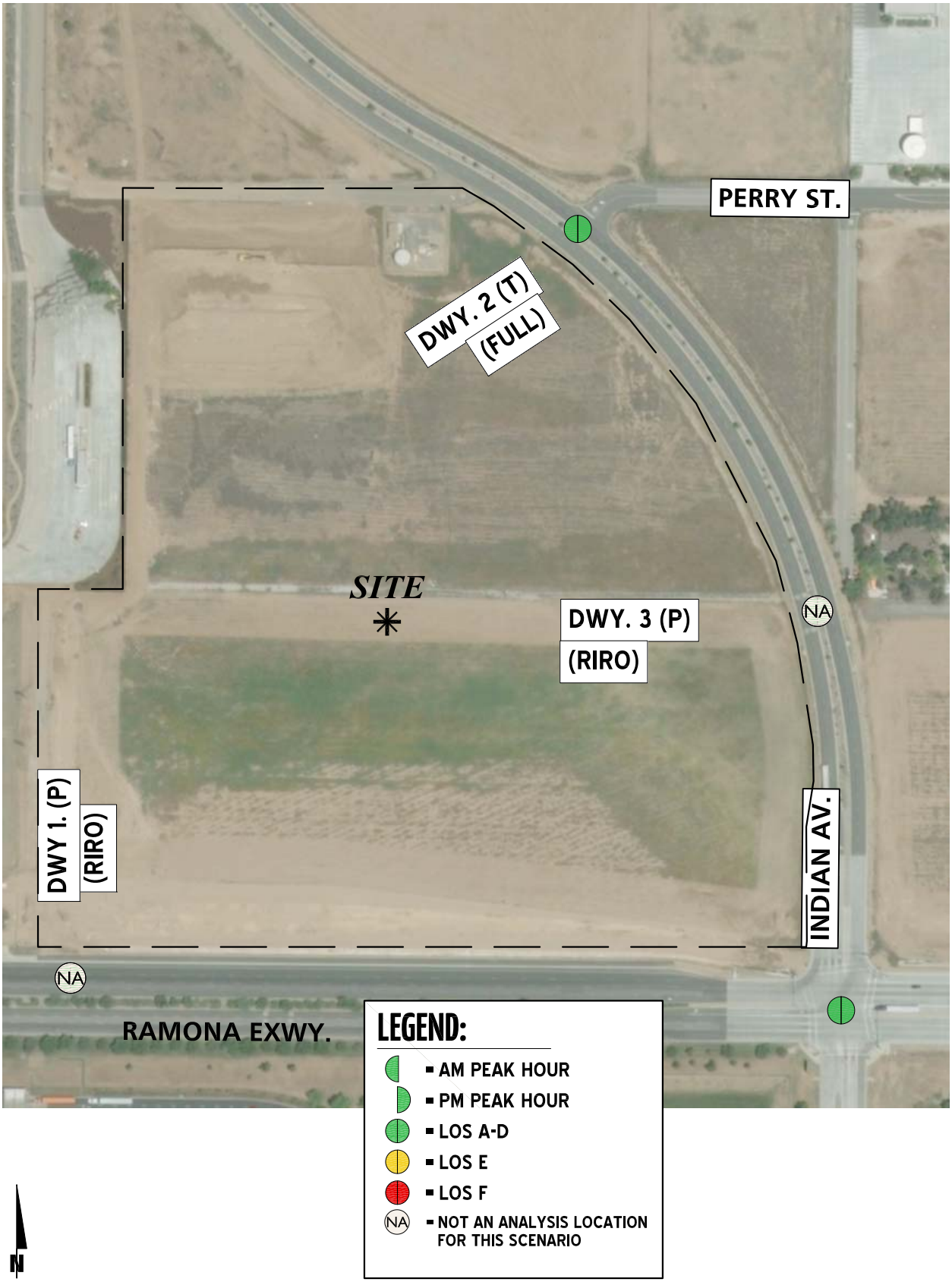


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EXHIBIT 6-4: EAP (2020) SUMMARY OF LOS

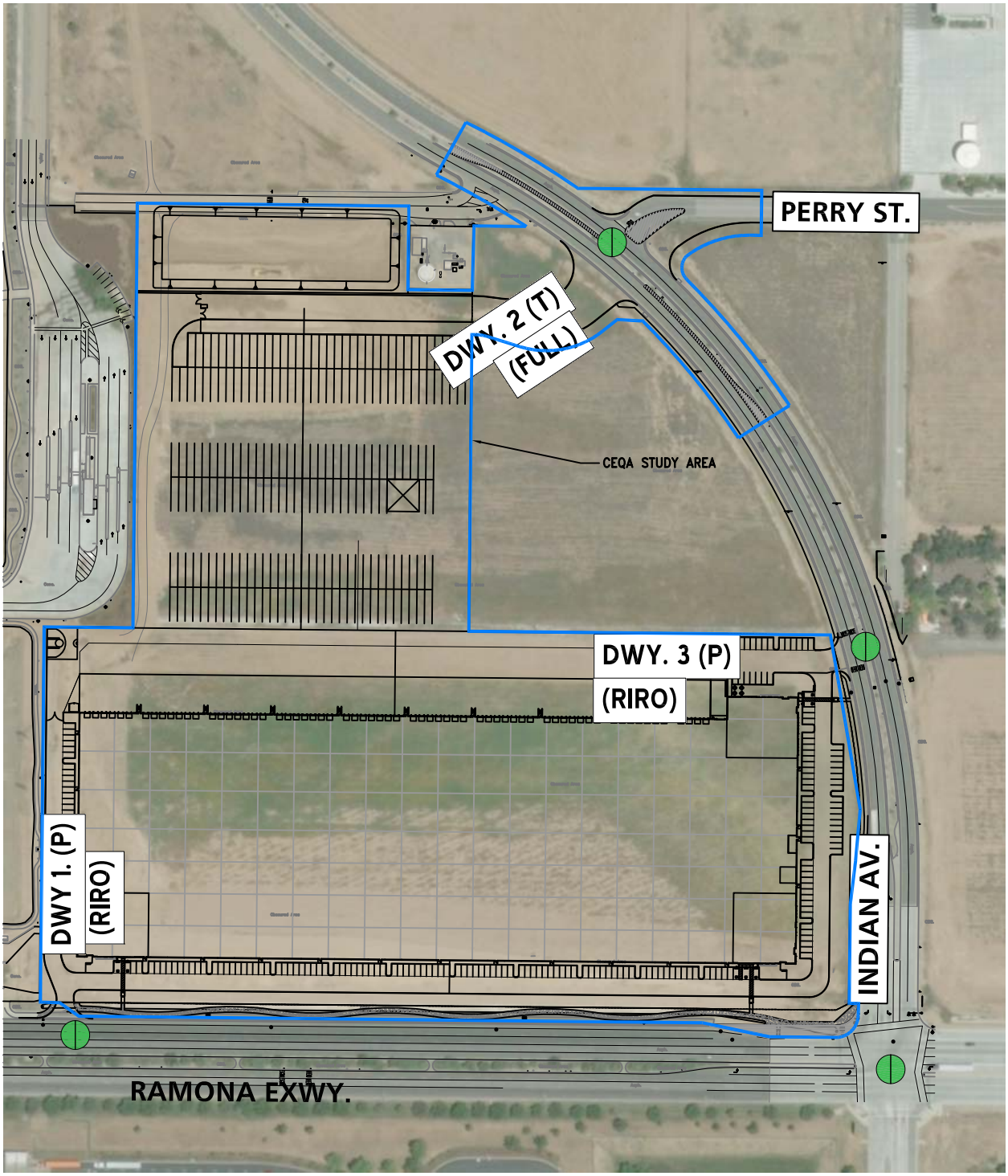

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Table 6-1

Intersection Analysis for EA (2020) and EAP (2020) Conditions

#	Intersection	Traffic Control[2]	EA (2020) HCM Delay[1] (secs.) AM	EA (2020) HCM Delay[1] (secs.) PM	EA (2020) Level of Service AM	EA (2020) Level of Service PM	EAP (2020) HCM Delay[1] (secs.) AM	EAP (2020) HCM Delay[1] (secs.) PM	EAP (2020) Level of Service AM	EAP (2020) Level of Service PM
1	Driveway 1 & Ramona Expressway	**CSS**	Future Intersection				19.2	17.4	C	C
2	Indian Avenue & Perry Street	CSS	9.7	9.2	A	A	11.5	12.3	B	B
3	Indian Avenue & Driveway 3	**CSS**	Future Intersection				8.6	9.3	A	A
4	Indian Avenue & Ramona Expressway	TS	19.8	18.4	B	B	20.2	20.5	C	C

[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.

[2] CSS = Cross-Street Stop; TS = Traffic Signal; **CSS** = Improvement

7 EAC AND EAPC (2020) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAC and EAPC (2020) traffic forecasts and the resulting intersection operations and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAC and EAPC (2020) 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 conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways). This includes the Project aligning its Driveway 2 with the existing Perry Street to create a 4-leg, full access intersection.

7.2 EAC (2020) TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 6.09% of ambient growth for EAC (2020) traffic conditions. The weekday ADT and weekday AM and PM peak hour volumes (in PCE) which can be expected for EAC (2020) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 EAPC (2020) TRAFFIC VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 6.09% of ambient growth for EAPC (2020) traffic conditions in conjunction with traffic associated with the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes (in PCE) which can be expected for EAPC (2020) With Project traffic conditions are shown on Exhibit 7-2.

7.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAC (2020) conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown in Table 7-1, all the study area intersections are anticipated to operate at acceptable LOS during the peak hours under EAC (2020) and EAPC (2020) traffic conditions.

A summary of the peak hour intersection LOS for EAC (2020) conditions are shown on Exhibit 7-3 and on Exhibit 7-4 for EAPC (2020) traffic conditions. The intersection operations analysis worksheets for EAC and EAPC (2020) traffic conditions are included in Appendix 7.1 and Appendix 7.2 of this TIA, respectively.

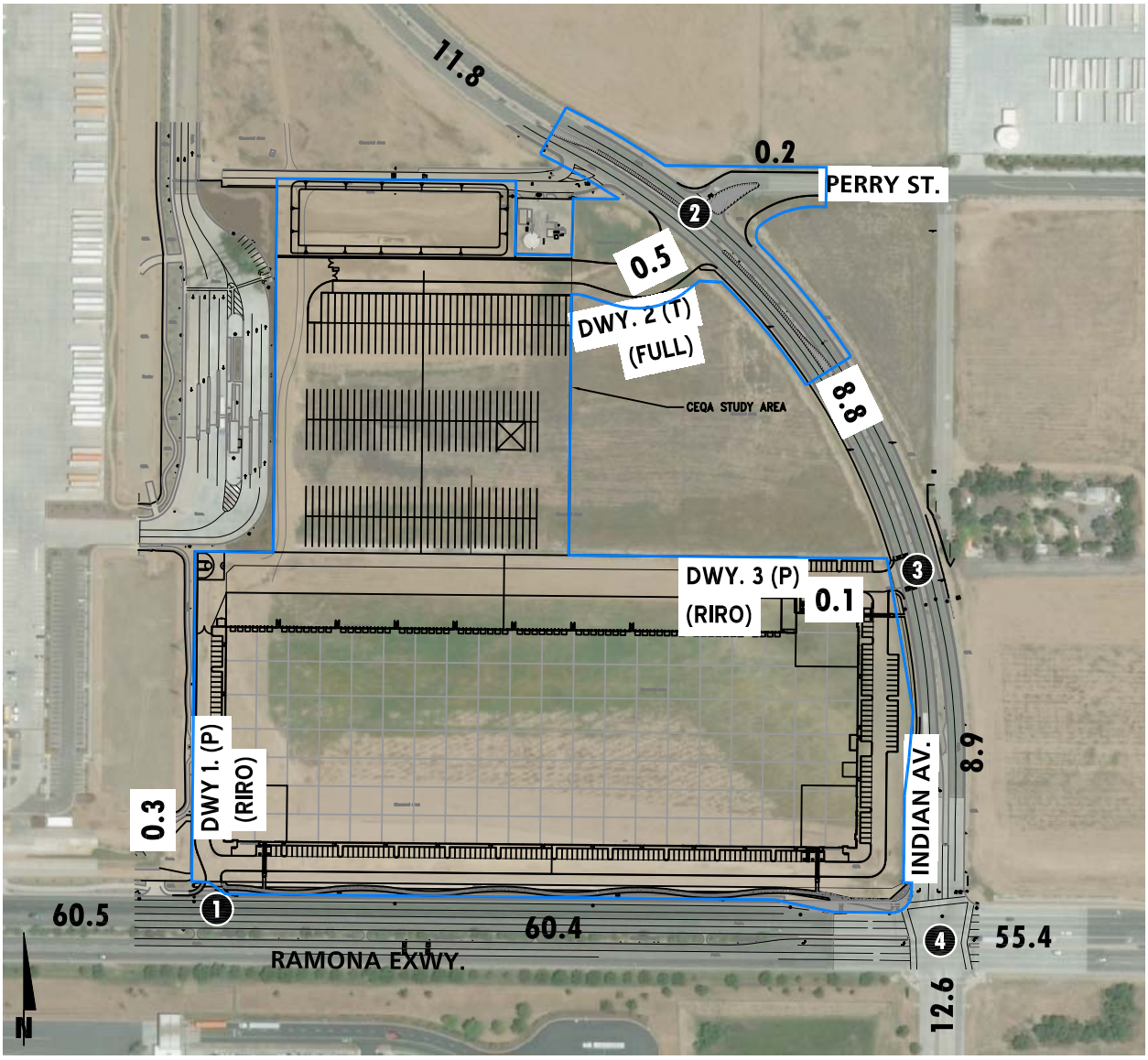
EXHIBIT 7-1: EAC (2020) TRAFFIC VOLUMES (IN PCE)

1 Dwy. 1 & Ramona Exwy.	2 Indian Av. & Dwy. 2 / Perry St.	3 Indian Av. & Dwy. 3	4 Indian Av. & Ramona Exwy.
Future Intersection	←286(552) →3(6) ↑582(789) →21(5)	Future Intersection	←143(190) →73(197) ←70(165) ←153(156) ←1746(1381) →66(125) →301(396) →1156(1621) ←77(104) ↑98(138) ↑149(241) →47(32)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

EXHIBIT 7-2: EAPC (2020) TRAFFIC VOLUMES (IN PCE)



1 Dwy. 1 & Ramona Exwy.	2 Indian Av. & Dwy. 2 / Perry St.	3 Indian Av. & Dwy. 3	4 Indian Av. & Ramona Exwy.
4(19) ↓ 13(6) ← 1986(1709)	20(7) ↓ 291(555) ↓ 5(5) ; 3(6) ← 0(0) ← 5(5)	5(3) ↓ 286(552)	143(190) ↓ 73(198) ↓ 71(169) ; 153(156) ← 1749(1382) ← 66(125)
1542(2126) →	7(18) → 0(0) → 0(0) ; 0(0) ↑ 582(789) ↑ 21(5)	1(5) → 603(794)	310(401) → 1156(1621) → 77(104) ; 99(138) ↑ 149(241) ↑ 47(32)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 7-3: EAC (2020) SUMMARY OF LOS

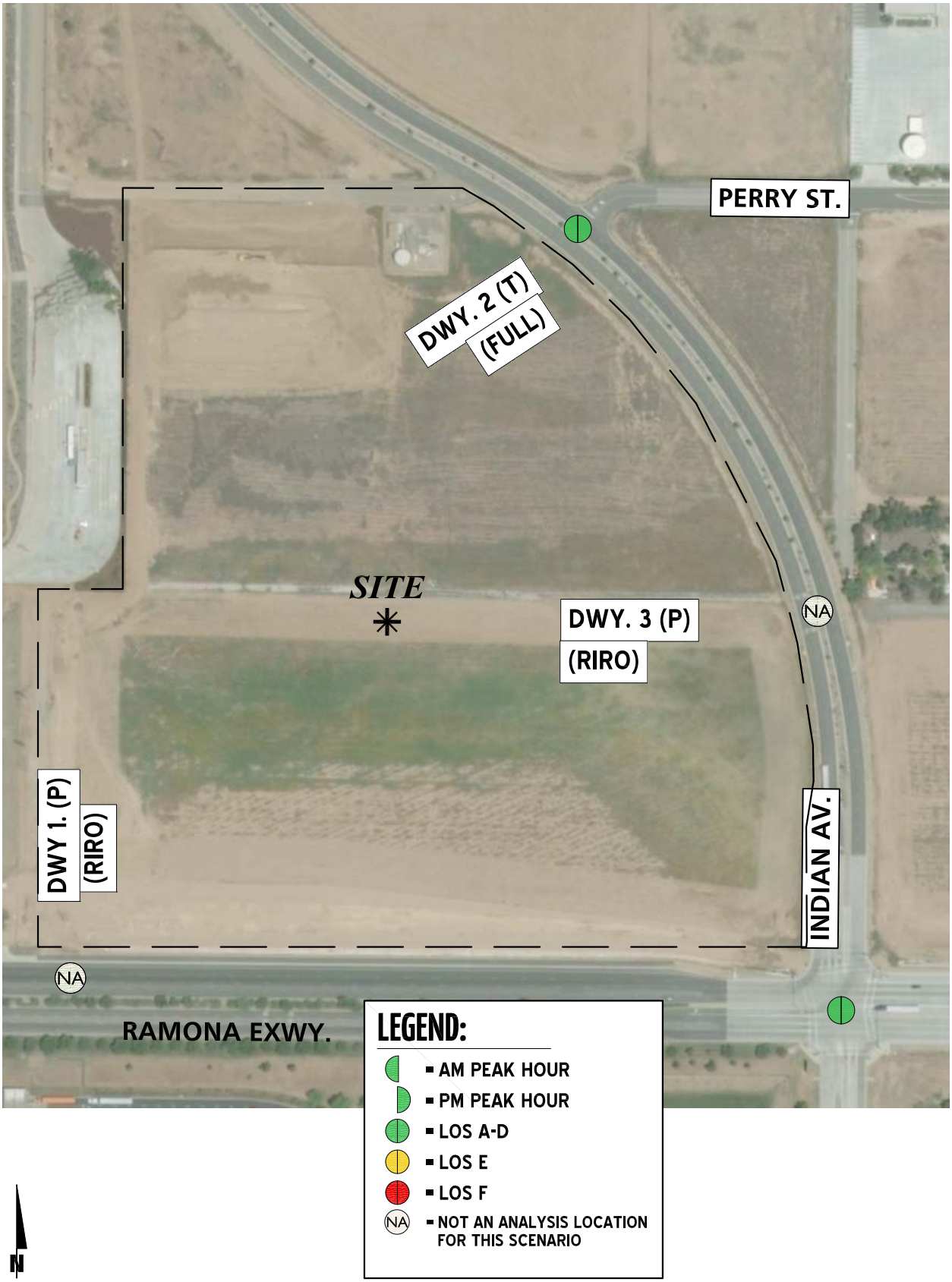


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EXHIBIT 7-4: EAPC (2020) SUMMARY OF LOS

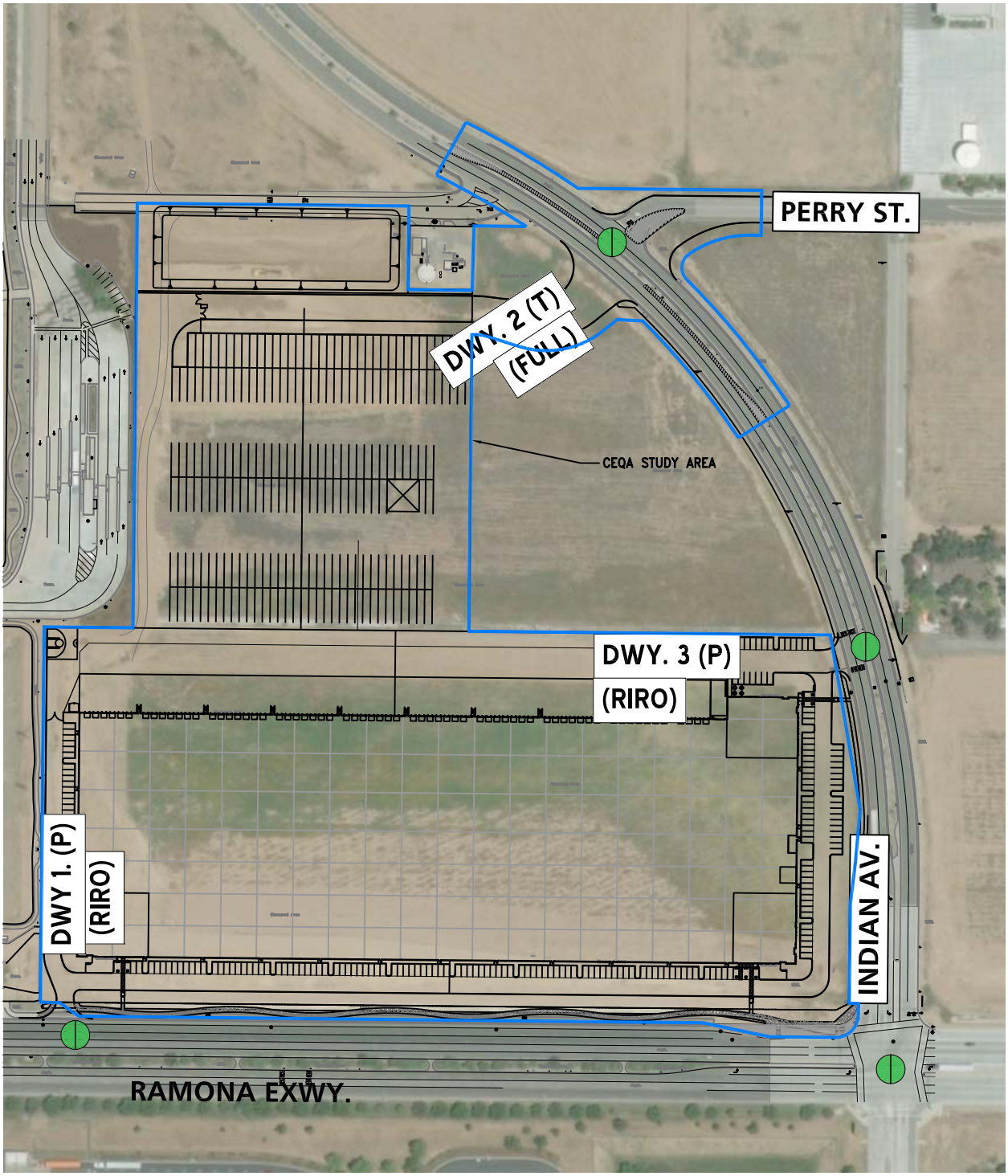

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Table 7-1

Intersection Analysis for EAC (2020) and EAPC (2020) Conditions

#	Intersection	Traffic Control[3]	EA (2020)				EAPC (2020)			
			HCM Delay[1] (secs.)		Level of Service		HCM Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1 & Ramona Expressway	**CSS**	Future Intersection				24.8	21.9	C	C
2	Indian Avenue & Perry Street	CSS	10.6	11.5	B	B	14.1	17.9	B	C
3	Indian Avenue & Driveway 3	**CSS**	Future Intersection				9.2	10.2	A	B
4	Indian Avenue & Ramona Expressway	TS	33.1	42.5	C	D	34.6	53.7	C	D

[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.

[2] CSS = Cross-Street Stop; TS = Traffic Signal; **CSS** = Improvement

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

No traffic signal warrant analysis has been performed for EAC (2020) traffic conditions as the only unsignalized intersection is restricted to right-in/right-out access only. Traffic signal warrants have been performed (based on CA MUTCD) for EAPC (2020) traffic conditions based on peak hour volumes. For EAPC (2020) traffic conditions, no traffic signals are warranted (see Appendix 7.3).

7.6 SUMMARY OF FINDINGS

All the study area intersections operate at acceptable LOS for all the scenarios. Therefore, there are no direct Project impacts. Each project implementing the PVCC SP is required to incorporate applicable mitigation from the PVCC Specific Plan EIR. The relevant traffic mitigation measures from the PVCC Specific Plan EIR were previously identified in Section 1.4.1.

In addition, Project truck traffic shall be restricted to take Harley Knox Boulevard as the one and only truck route to access the I-215 Freeway. Signage shall be posted on-site directing truck drivers to use the existing City truck route on Harley Knox Boulevard. The information on the signage will be coordinated with City Planning and the City's traffic Engineering during the plan check process.

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8 REFERENCES

1. **Institute of Transportation Engineers.** *Trip Generation.* 10th Edition. 2017.

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3. **American Association of State Highway and Transportation Officials.** *Geometric Design of Highways and Streets.* 2004.

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6. **Federal Highway Administration.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2017.

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