Harvill and Rider Warehouse (PPT190039)

TRAFFIC IMPACT ANALYSIS

COUNTY OF RIVERSIDE

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
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
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
PCE	Passenger Car Equivalents
PHF	Peak Hour Factor
Project	Harvill and Rider Warehouse
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
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Riverside Council of Governments
V/C	Volume to Capacity

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Harvill and Rider Warehouse development ("Project"), which is located on the northeast corner of Harvill Avenue and Rider Street, as shown on Exhibit 1-1.

The purpose of this TIA 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 resolve identified deficiencies and to achieve acceptable circulation system operational conditions. This traffic study has been prepared in accordance with the County of Riverside's Traffic Impact Analysis Preparation Guide (August 2008) and through consultation with County of Riverside staff during the scoping process. (1) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

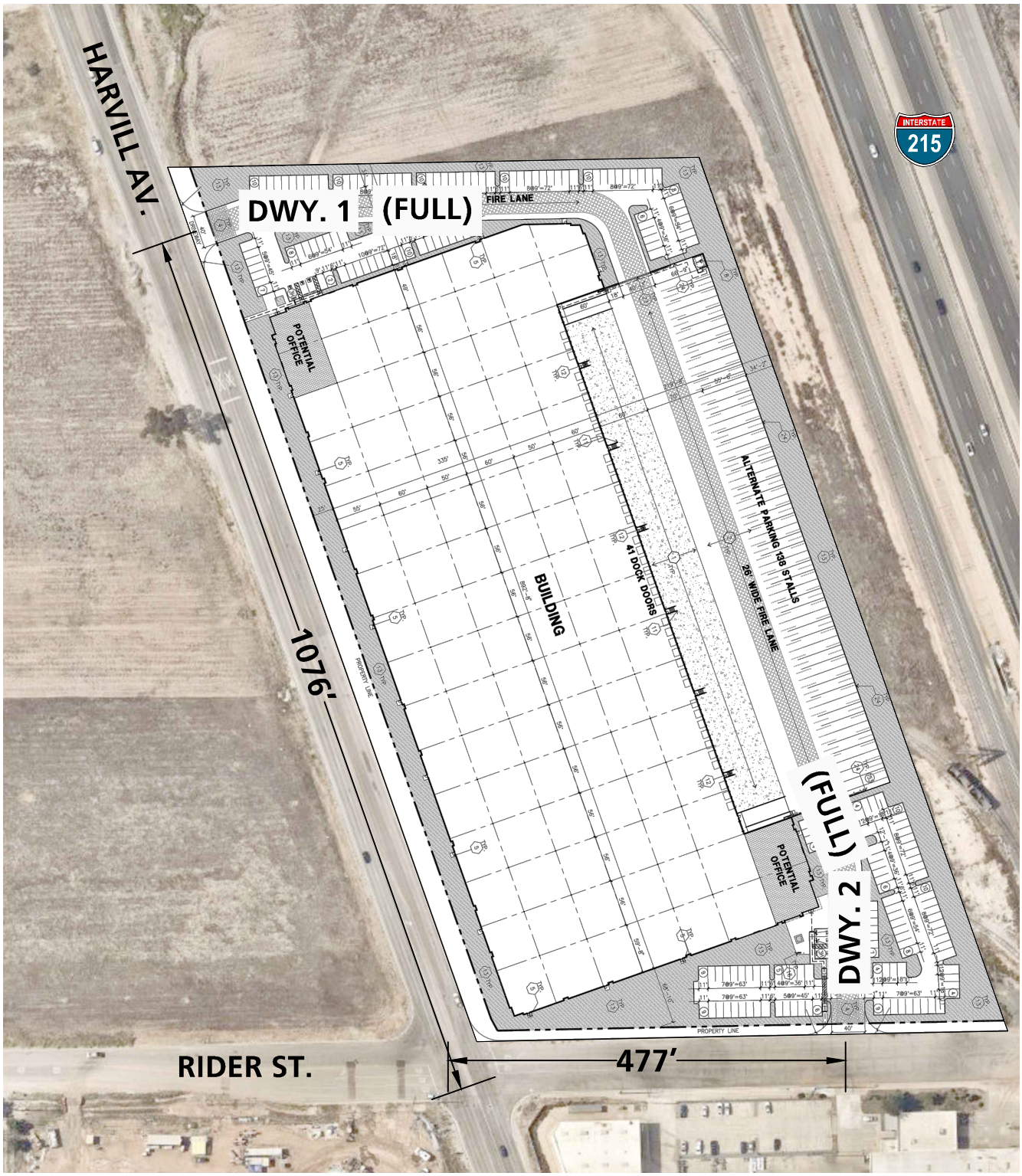
1.1 SUMMARY OF FINDINGS

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

- Project to construct Rider Street from Harvill Avenue to the Project's eastern boundary at its ultimate half-section width as a Secondary Frontage Road (85-foot right-of-way) in compliance with the circulation recommendations found in the County of Riverside General Plan Circulation Element.
- Project to construct Harvill Avenue from the Project's northern boundary to Rider Street at its ultimate half-section width as a Major Highway (118-foot right-of-way) in compliance with the circulation recommendations found in the County of Riverside General Plan Circulation Element.
- Construct Driveway 1 on Harvill Avenue as cross-street stop-controlled intersection with full access.
- Construct Driveway 2 on Rider Street as cross-street stop-controlled intersection with full access (driveway to align with the existing driveway on the south side of Rider Street).

Additional details are provided in Section 1.6 *Recommendations* of this report.

EXHIBIT 1-1: PRELIMINARY SITE PLAN



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1.2 PROJECT OVERVIEW

The Project is proposed to consist of up to 284,746 square feet (sf) of high-cube transload/short-term storage warehouse (without cold storage) use (85 percent of the total square footage) and 50,249 square feet of general light industrial use (15 percent of the total square footage) for a total of 334,995 square feet within a single building. The Project opening year is 2021.

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

- Harvill Avenue via Driveway 1 – full access for passenger cars and trucks
- Rider Street via Driveway 2 – full access for passenger cars and trucks

Regional access to the Project site will be provided by the I-215 Freeway via Cajalco Road/Ramona Expressway and Placentia Avenue.

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). (2) The Project is estimated to generate a total of 916 passenger-car-equivalent (PCE) trip-ends per day on a typical weekday with approximately 77 AM PCE peak hour trips and 76 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.

1.3 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 (2019)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth Plus Project (EAP) (2021)
- Existing Plus Ambient Growth Plus Project Plus Cumulative Projects (EAPC) (2021)

1.3.1 EXISTING (2019) CONDITIONS

Information for Existing (2019) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Traffic counts were conducted in October 2019 based on vehicle classification and were converted to PCE. Use of PCE here accounts for the effects of large trucks present within the study area. 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.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines any potential circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions. This analysis scenario has been provided for informational purposes only. As

discussed below, Project impacts have been discerned from a comparison of Existing (2019) to EAP (2021) traffic conditions (per the County's traffic study guidelines).

1.3.3 EXISTING PLUS AMBIENT GROWTH PLUS PROJECT (2021) CONDITIONS

The EAP (2021) conditions analysis determines the potential circulation system deficiencies based on a comparison of the EAP traffic conditions to Existing conditions. To account for background traffic growth, an ambient growth factor from Existing (2019) conditions of 4.04% (2 percent per year, compounded over 2 years) is included for EAP (2021) traffic conditions. The assumed ambient growth factor is based on the requirements per the County of Riverside traffic study guidelines. Consistent with Riverside County traffic study guidelines, the EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area. The I-215 Freeway and Placentia Avenue interchange is anticipated to be in place by 2021. As such, this connection is assumed to be in place for the purposes of this analysis.

1.3.4 EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS

The EAPC (2021) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, an ambient growth factor of 4.04% from Existing conditions are included for EAPC traffic conditions (2 percent per year, compounded over 2 years).

Conservatively, the TIA estimates the area ambient traffic growth and then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed 4.04% total ambient growth in traffic noted above; and some of these related projects would likely not be implemented and operational within the 2021 Opening Year time frame assumed for the Project. The resulting traffic growth rate utilized in the TIA (4.04% ambient growth plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic impacts under 2021 conditions.

The I-215 Freeway and Placentia Avenue interchange is anticipated to be in place by 2021. As such, this connection is assumed to be in place for the purposes of this analysis.

1.4 STUDY AREA

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

1.4.1 STUDY AREA INTERSECTIONS

The following 3 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with County of Riverside staff. The study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the County of Riverside's traffic study guidelines. (1) The "50 peak hour trip" criteria represents a minimum number of trips at which a typical intersection would have the potential to be substantively affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and widely used within Riverside County for estimating a potential area of impact (i.e., study area).

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Harvill Avenue & Driveway 1 – Future Intersection	County of Riverside	No
2	Harvill Avenue & Rider Street	County of Riverside	No
3	Driveway 2/Private Driveway & Rider Street	County of Riverside	No

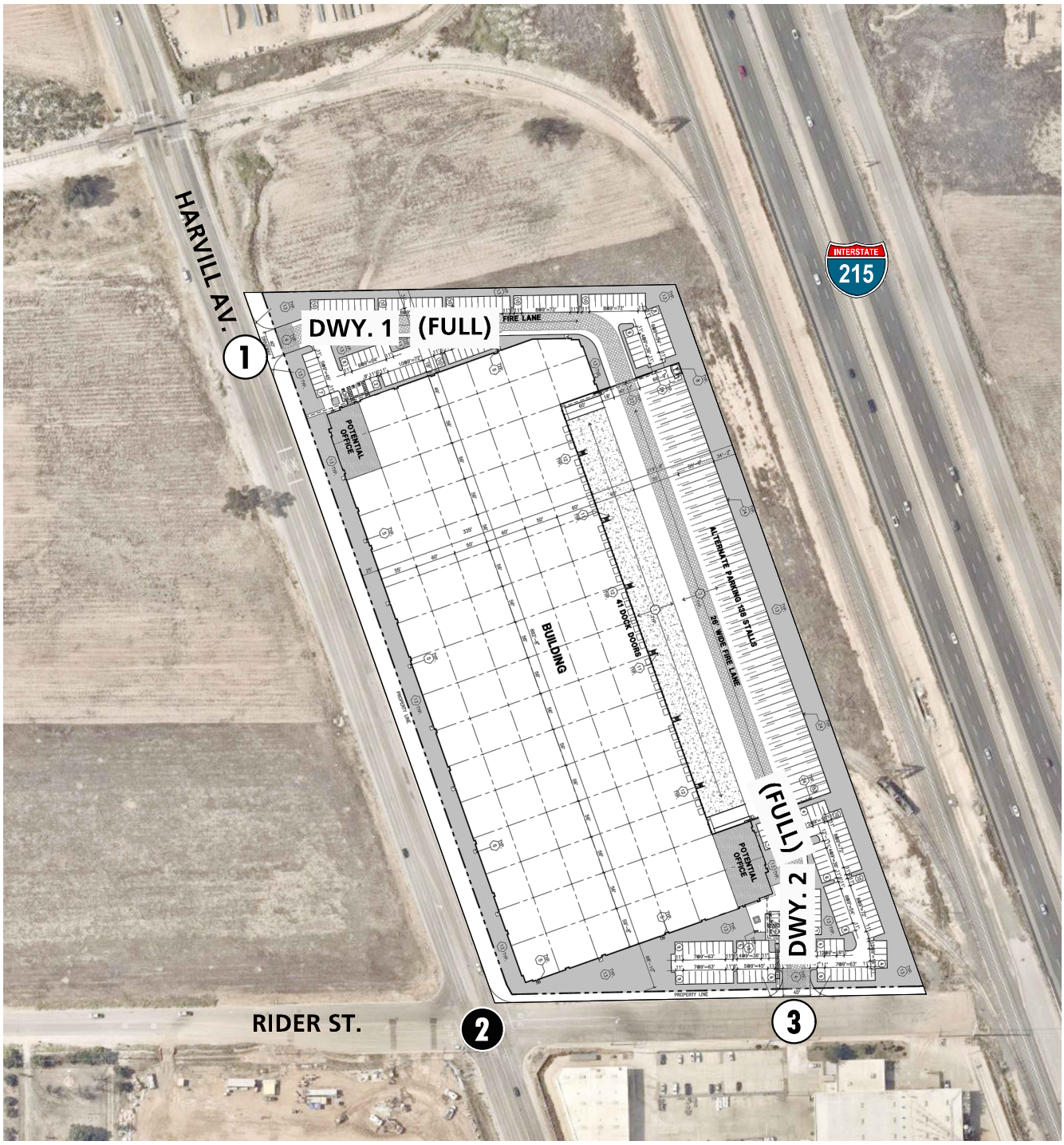
1.4.2 CMP CONSIDERATIONS

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. 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.

1.5 ANALYSIS FINDINGS

This section provides a summary of potential Project traffic impacts. Section 2 *Methodologies* provides information on the methodologies used in the analysis and results for Existing (2019), E+P, EAP (2021), and EAPC (2021) traffic conditions. A summary of level of service (LOS) results for all analysis scenarios is presented on Exhibit 1-3.

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 (2020)	E+P	EAP (2021)	EAPC (2021)
1	Harvill Av. & Dwy. 1	NA			
2	Harvill Av. & Rider St.				
3	Dwy. 2 & Rider St.				

LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-D
- LOS E
- LOS F

NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

Existing (2019) Conditions:

All of the study area intersections are currently operating at an acceptable LOS.

E+P Conditions:

All study area intersections are anticipated to continue to operate at acceptable LOS for E+P traffic conditions.

EAP (2021) Conditions:

Under EAP (2021) traffic conditions, the I-215/Placentia Avenue interchange is assumed to be in place based on discussions with County of Riverside staff. All study area intersections are anticipated to continue to operate at acceptable LOS for EAP (2021) traffic conditions.

EAPC (2021) Conditions:

Under EAPC (2021) traffic conditions, the I-215/Placentia Avenue interchange is assumed to be in place based on discussions with County of Riverside staff. All study area intersections are anticipated to continue to operate at acceptable LOS for EAPC (2021) traffic conditions.

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the improvements needed to accommodate site access. Exhibit 1-4 shows the site adjacent recommendations.

Recommendation 1.1 – Harvill Avenue & Driveway 1 (#1) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the westbound approach and a southbound left turn lane with a minimum of 100-feet of storage.

Recommendation 2.1 – Harvill Avenue & Rider Street (#2) – The following improvements are necessary to accommodate site access:

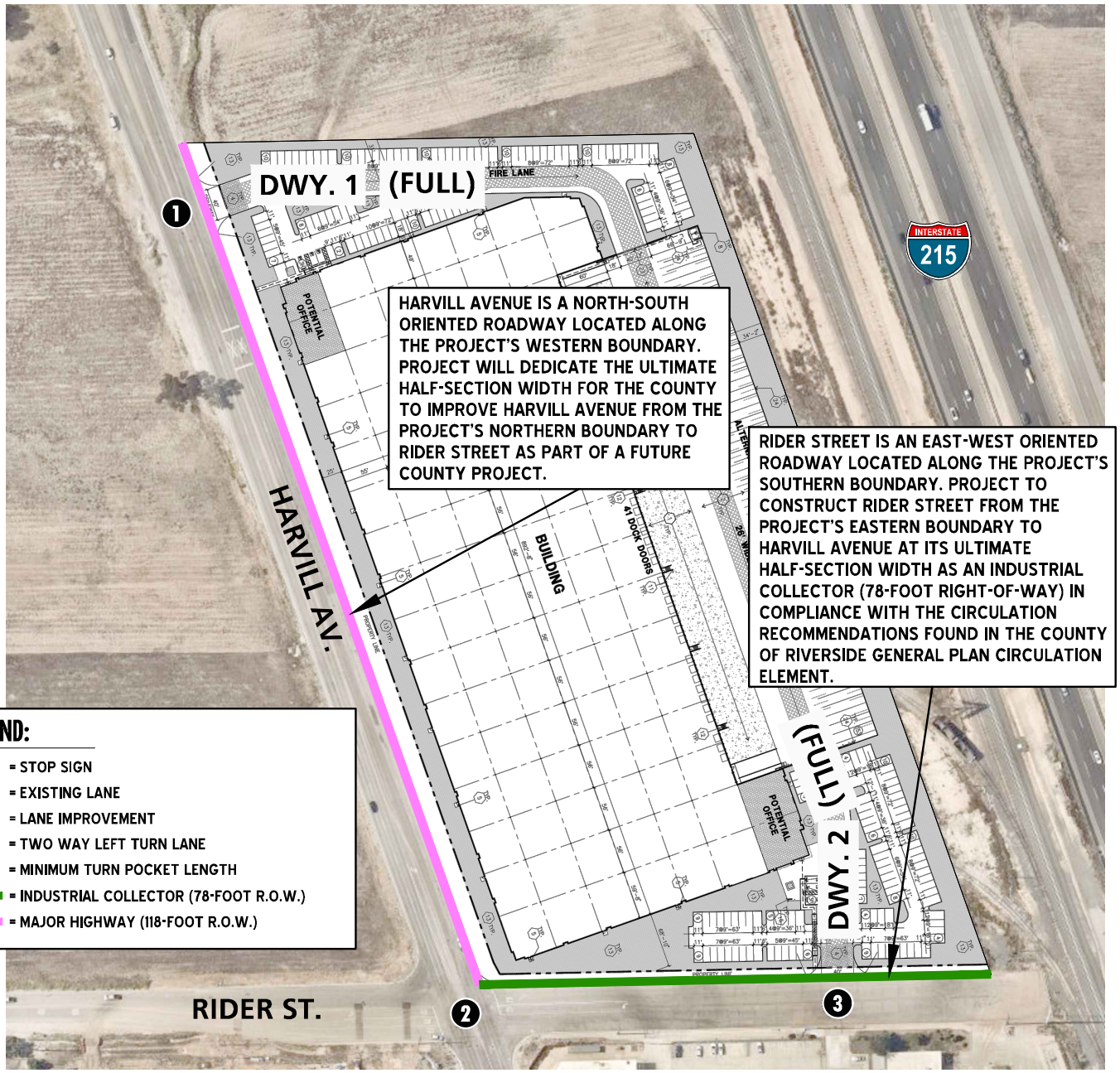
- Maintain existing traffic controls and lane geometrics

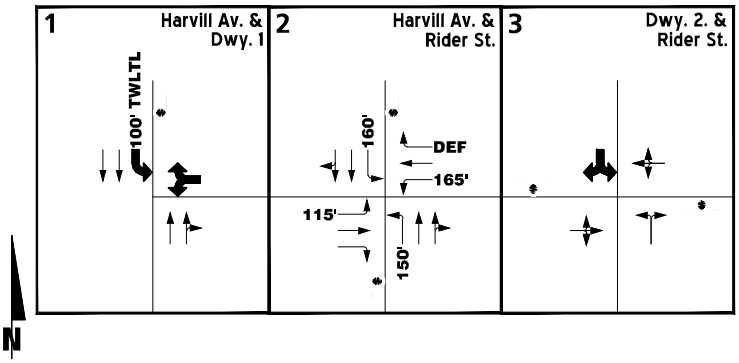
Recommendation 3.1 – Harvill Avenue & Driveway 2 (#3) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the southbound approach and a southbound shared left-through-right turn lane.

Recommendation 4.1 – Rider Street is an east-west oriented roadway located along the Project's southern boundary. Project to construct Rider Street from Harvill Avenue to the Project's eastern boundary at its ultimate half-section width as an Industrial Collector (78-foot right-of-way) in compliance with the circulation recommendations found in the County of Riverside General Plan Circulation Element.

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





ON-SITE TRAFFIC SIGNING AND STRIPING SHOULD BE IMPLEMENTED IN CONJUNCTION WITH DETAILED CONSTRUCTION PLANS FOR THE PROJECT SITE.

SIGHT DISTANCE AT EACH PROJECT ACCESS POINT SHOULD BE REVIEWED WITH RESPECT TO STANDARD CALTRANS AND COUNTY OF RIVERSIDE SIGHT DISTANCE STANDARDS AT THE TIME OF PREPARATION OF FINAL GRADING, LANDSCAPE AND STREET IMPROVEMENT PLANS.

Recommendation 5.1 – Harvill Avenue is a north-south oriented roadway located along the Project's western boundary. Project will dedicate the ultimate half-section width for the County of Riverside to improve Harvill Avenue from the Project's northern boundary to Rider Street as a Major Highway (118-foot right-of-way) as part of a future County project.

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

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

1.6.2 OFF-SITE RECOMMENDATIONS

There are no off-site improvement recommendations, however, the Project Applicant would be required to pay Transportation Uniform Mitigation Fees (TUMF) and Development Impact Fees (DIF) consistent with the County's requirements (see Section 9 *Local and Regional Funding Mechanisms*).

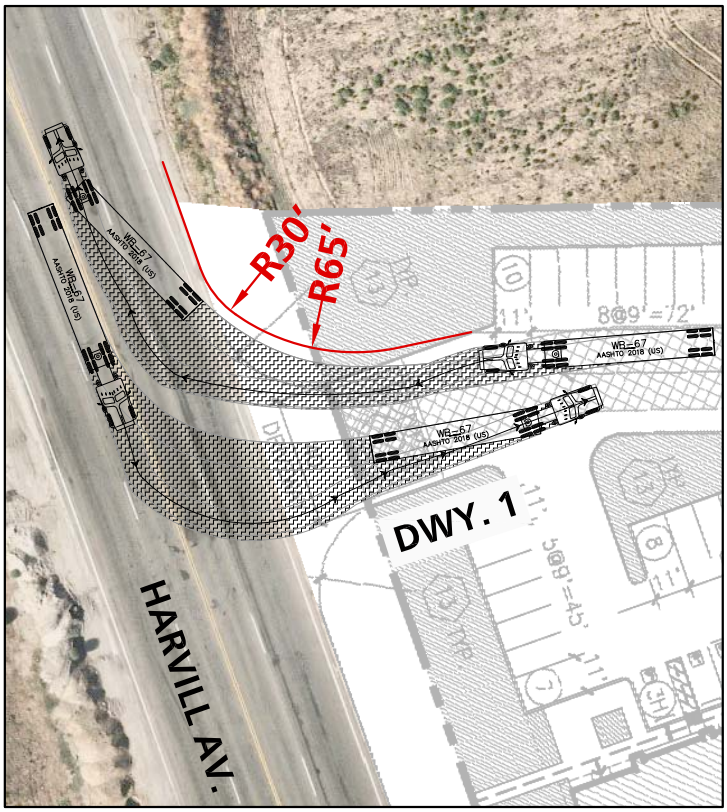
1.7 TRUCK ACCESS

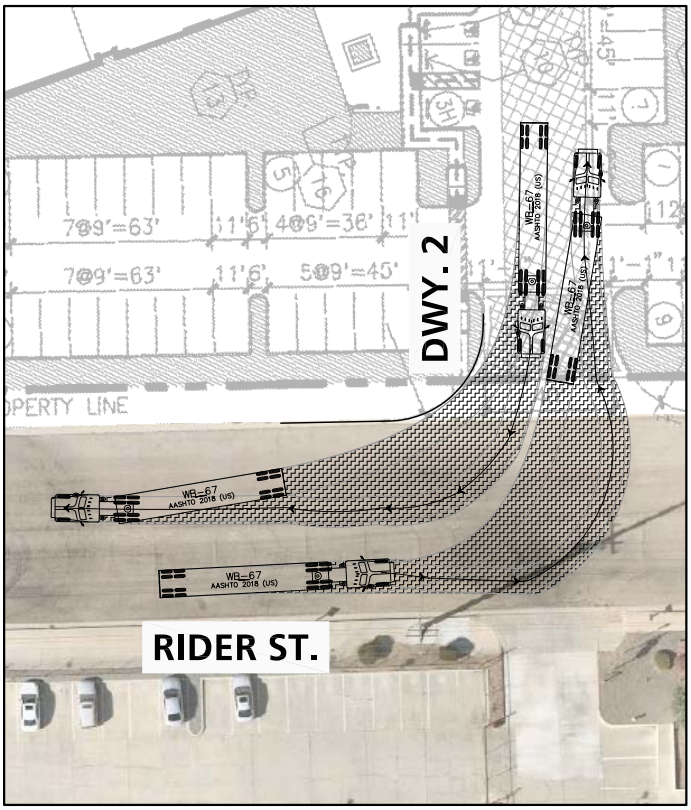
Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis.

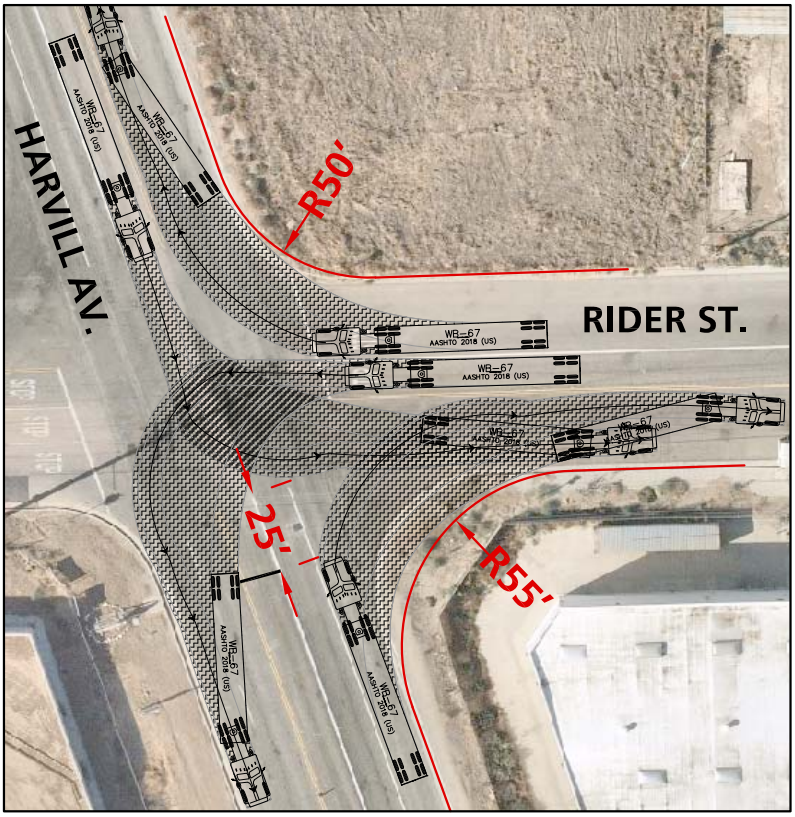
As shown on Exhibit 1-5, the following curb radius change is necessary in order to accommodate the ingress and egress of heavy trucks:

- Modify the northeast curb of Driveway 1 on Harvill Avenue to provide a 30/65-foot curb radius.
- Modify the northeast curb of Harvill Avenue and Rider Street to provide a 50-foot curb radius.
- Modify the southeast curb of Harvill Avenue and Rider Street to provide a 55-foot curb radius.
- Set the northbound left turn lane stop bar at Harvill Avenue and Rider Street approximately 25-feet south of its current location to accommodate the westbound left turning truck radius.

EXHIBIT 1-5: TRUCK ACCESS







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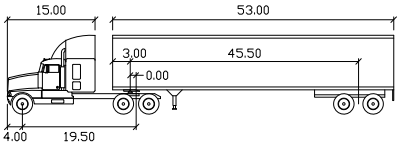

WB-67

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 30 60
1"=60'

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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 the County of Riverside's Traffic Impact Analysis Preparation Guide (April 2008). (1)

2.1 LEVEL OF SERVICE

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

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (3) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The County of Riverside requires signalized intersection operations analysis based on the methodology described in the HCM (6th Edition). 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.

The traffic modeling and signal timing optimization software package Synchro (Version 10) is utilized to analyze signalized intersections within the County of Riverside. 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 are adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (3)

2.2.2 UNSIGNALIZED INTERSECTIONS

The County of Riverside requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. (3) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

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

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

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the California Department of Transportation (Caltrans) and other public agencies to quantitatively justify or 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. (4)

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. (4) 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 unsignalized study area intersection shown in Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Harvill Avenue & Driveway 1 – Future Intersection	County of Riverside
2	Harvill Avenue & Rider Street	County of Riverside
3	Driveway 2/Private Driveway & Rider Street	County of Riverside

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 Conditions,* Section 6 *EAP (2021) Traffic Conditions,* Section and 7 *EAPC (2021) Traffic Conditions* of this report.

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

2.4 MINIMUM LEVEL OF SERVICE (LOS)

2.4.1 COUNTY OF RIVERSIDE

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

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

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

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

2.5 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. The following deficiency criteria has been utilized for the County of Riverside.

To determine whether the addition of project traffic at a study intersection would result in a deficiency, the following will be utilized:

- A deficiency occurs at study area intersections if the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and the addition of project trips causes the peak hour LOS of the study area intersection to operate at unacceptable LOS (i.e., LOS E or F). Per the County of Riverside traffic study guidelines, for intersections currently operating at unacceptable LOS (LOS E or F), a deficiency would occur if the Project contributes 50 or more peak hour trips to pre-project traffic conditions.

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3 AREA CONDITIONS

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

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with County of Riverside staff (Appendix 1.1), the study area includes a total of 3 existing and future intersections as shown previously on Exhibit 1-2 where the Project is anticipated to contribute 50 or more peak hour trips or has been added at the direction of County staff. 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 the County of Riverside. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on County of Riverside General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the County of Riverside General Plan Circulation Element and Exhibit 3-3 illustrates the County of Riverside General Plan roadway cross-sections.

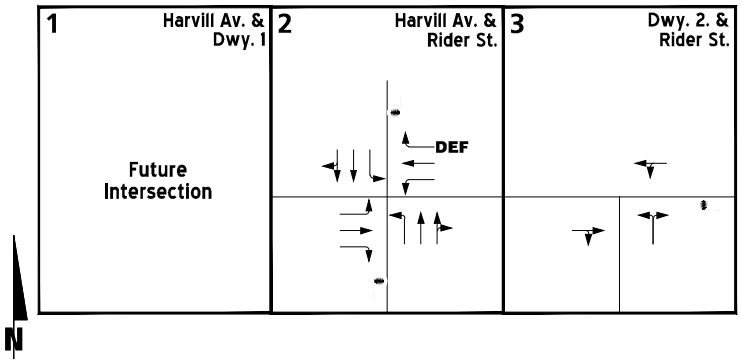
Major Highways can accommodate four travel lanes. These facilities serve property zoned for major industrial and commercial uses, or to serve through traffic. The following roadway is classified as a Major Highway within the study area:

- Harvill Avenue

Secondary Highways can accommodate four travel lanes. These facilities typically provide access between the regional highway system and collector streets. The following roadway is classified as a Secondary Highway within the study area:

- Rider Street (west of Harvill Avenue)

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



LEGEND:

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

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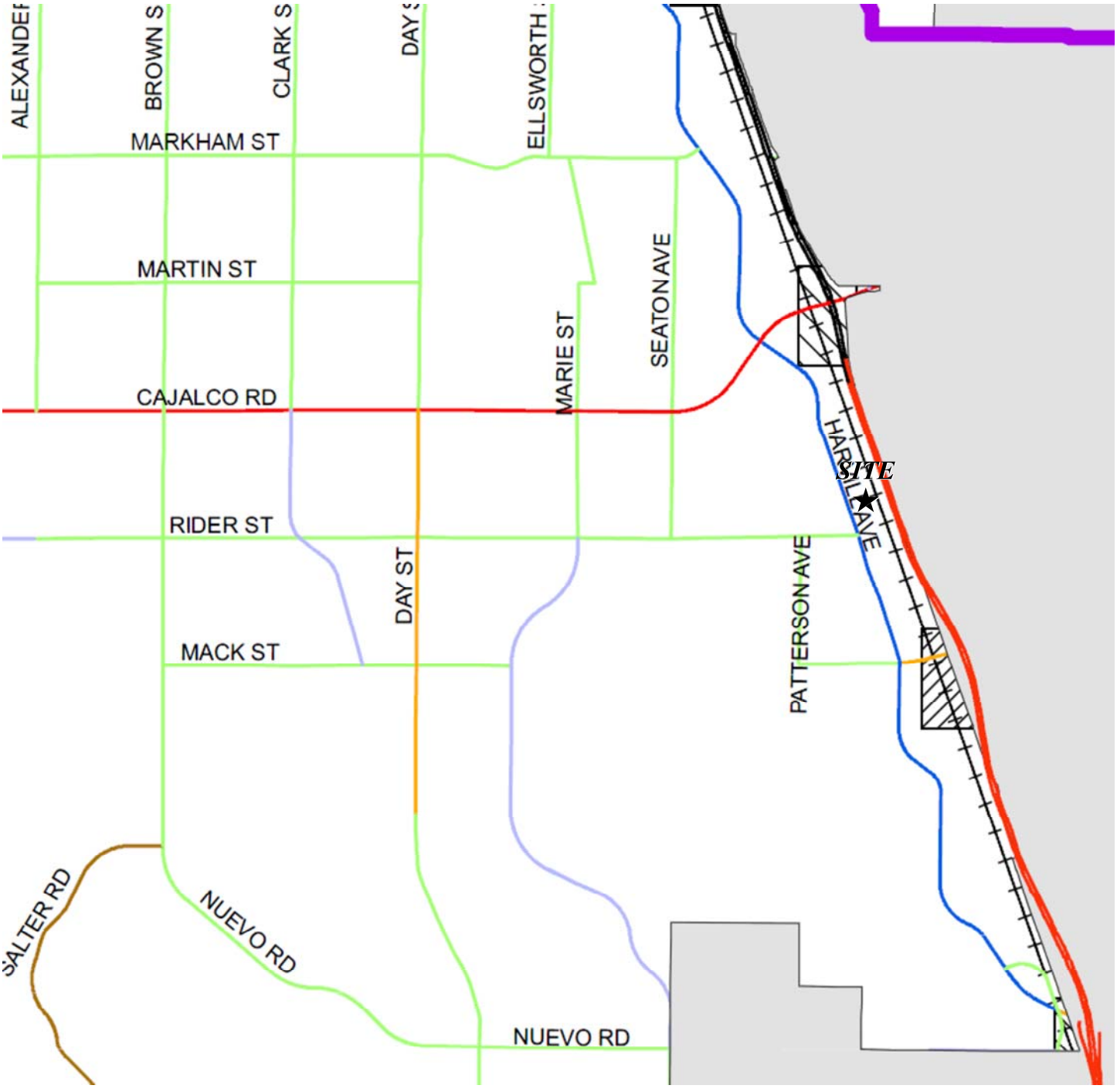
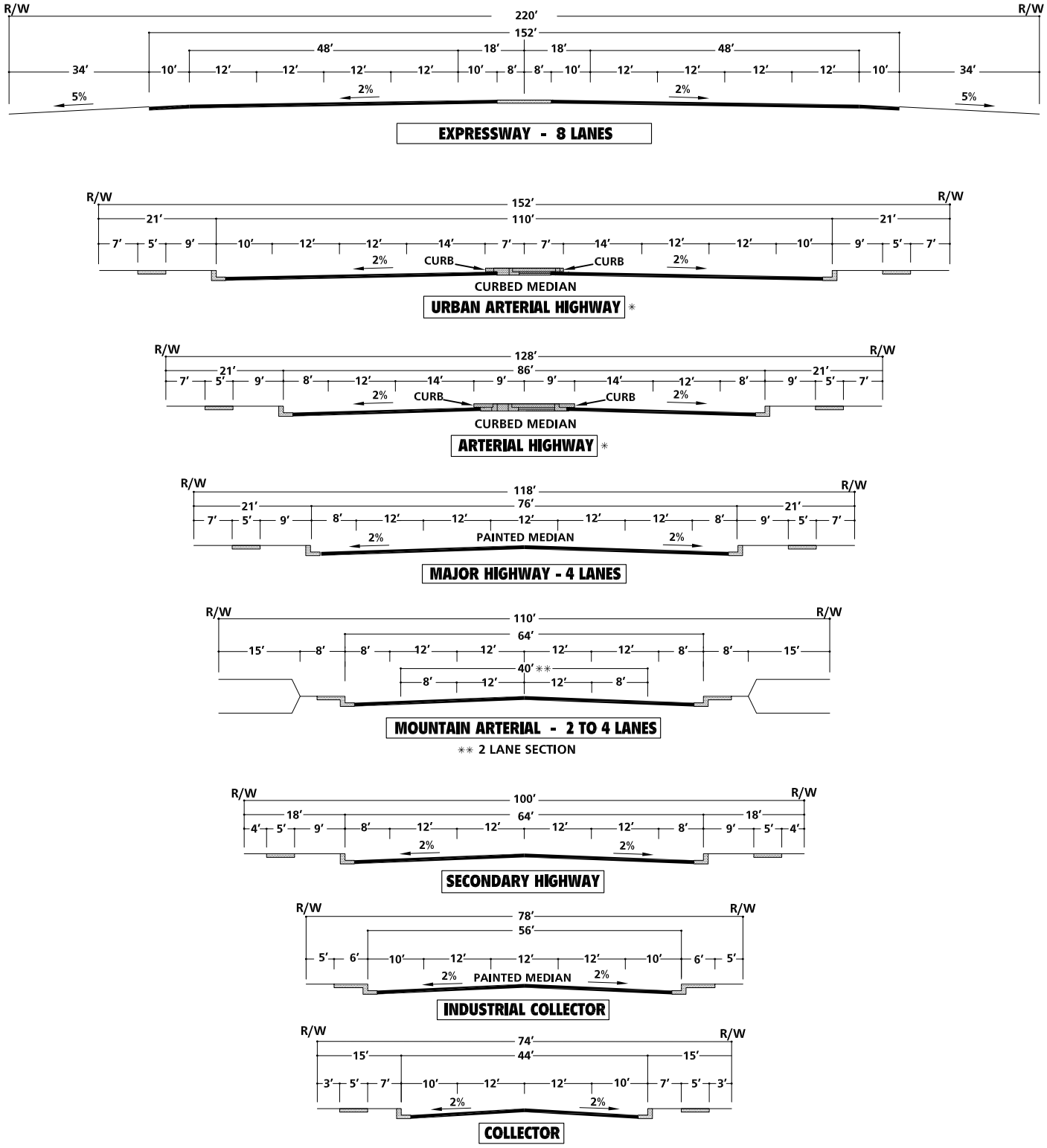
EXHIBIT 3-2: COUNTY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT



SOURCE: RIVERSIDE COUNTY INTEGRATED PROJECT (RCIP) DECEMBER 8, 2015

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



✳ *IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.*

NOT TO SCALE

SOURCE: COUNTY OF RIVERSIDE

3.3 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the County of Riverside also includes a trails and bikeway system. The trails and bikeway system, shown on Exhibit 3-4, shows the proposed trails connected with major features within the County. There is a proposed Class II bike path along Cajalco Expressway and Regional Trail along Placentia Avenue within the study area.

Field observations conducted in October 2019 indicates nominal pedestrian and bicycle activity within the study area. Exhibit 3-5 illustrates the existing pedestrian facilities, including sidewalks and crosswalks. As shown on Exhibit 3-5, there are existing pedestrian facilities located along portions of Harvill Avenue and Rider Street within the study area adjacent to existing development.

3.4 TRANSIT SERVICE

The County of Riverside is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the unincorporated Riverside County region. There are currently no existing bus routes that serve the roadways within the study area in close proximity to the proposed Project. The closest existing transit route is RTA Route 41 along Cajalco Road/Ramona Expressway. RTA Routes 27 and 208/212 run along the I-215 Freeway. 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. As such, it is recommended that the Project Applicant work in conjunction with RTA to potentially accommodate bus service to the site.

3.5 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 October 2019, 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 are 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.

EXHIBIT 3-4: COUNTY OF RIVERSIDE TRAILS AND BIKEWAY SYSTEM

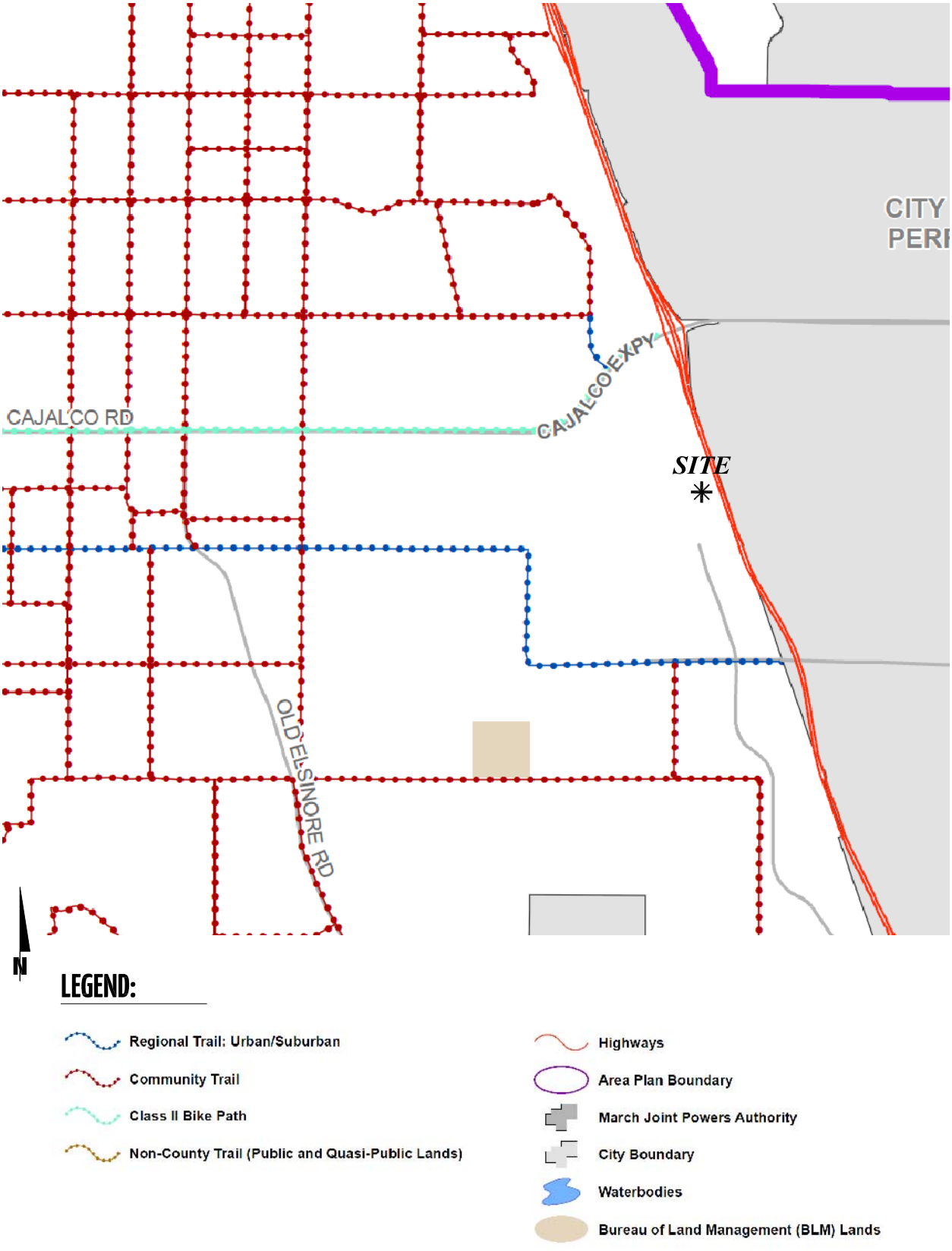
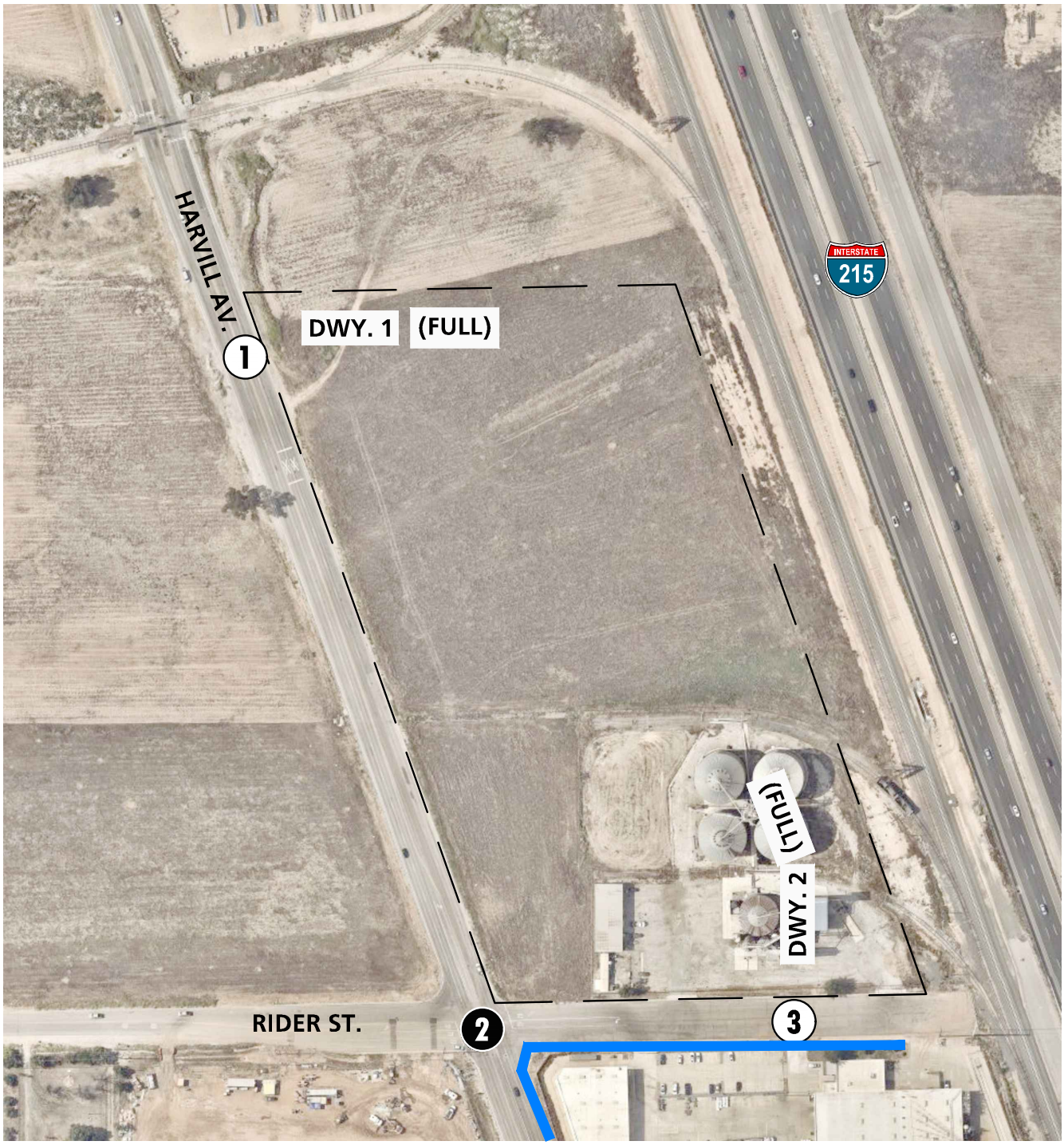


EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES



LEGEND:

= SIDEWALK

0 = NO CROSSWALK

(0) = FUTURE INTERSECTION

N

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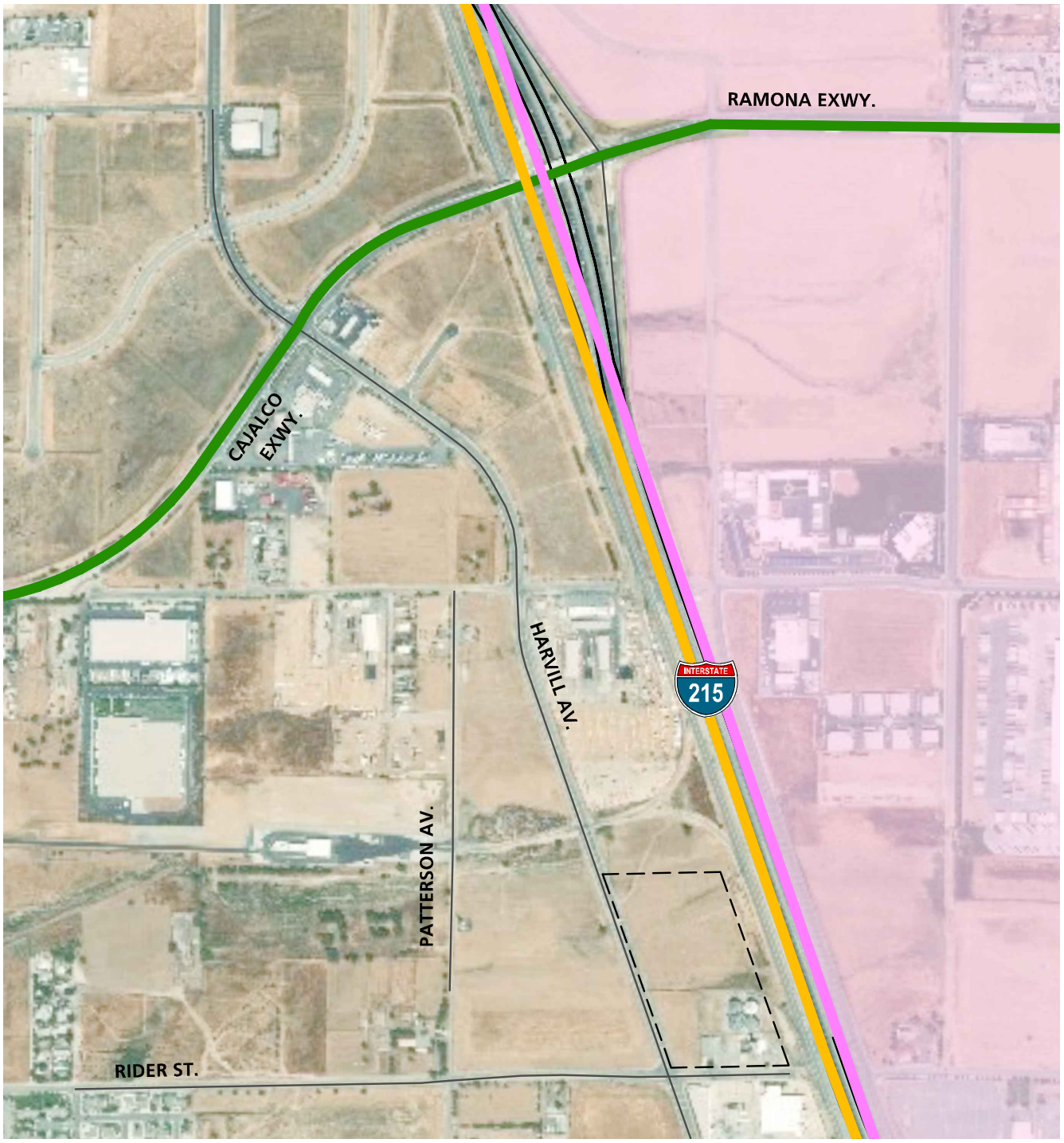
URBAN CROSSROADS

EXHIBIT 3-6: EXISTING TRANSIT ROUTES



LEGEND:

- = RTA ROUTE 27
- = RTA ROUTE 41
- = RTA ROUTE 208/212

N

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URBAN CROSSROADS

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 October 2019 include the vehicle classifications as shown below:

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

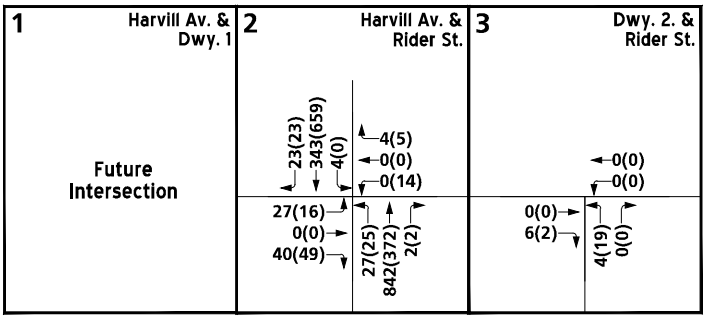
To represent the impact large trucks, buses, and recreational vehicles have on traffic flow, all trucks were converted into PCE. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For this analysis, the following PCE factors have been used to estimate each turning movement: 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks. 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. (5) 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 ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-7. 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 13.18 = 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 7.58 percent. As such, the above equation utilizing a factor of 13.18 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.58 percent (i.e., 1/0.0758 = 13.18) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes (in PCE) are also shown on Exhibit 3-7.

EXHIBIT 3-7: EXISTING (2020) TRAFFIC VOLUMES (IN PCE)



LEGEND:

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

3.6 INTERSECTION OPERATIONS ANALYSIS

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

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-8. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are currently no study area intersections that warrant a traffic signal under Existing (2019) traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

3.8 RECOMMENDED IMPROVEMENTS

All existing study area intersections currently operate at an acceptable LOS; therefore, no improvements are recommended for Existing (2019) traffic conditions.

Table 3-1

Intersection Analysis for Existing (2019) 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	Harvill Av. & Driveway 1		Future Intersection															
2	Harvill Av. & Rider St.	CSS	1	2	0	1	2	0	1	1	1	1	1	d	16.5	16.8	C	C
3	Driveway 2 & Rider St.	CSS	0	1	0	0	0	0	0	1	0	0	1	0	8.5	8.6	A	A

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

L = Left; T = Through; R = Right; d = Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-Street Stop

EXHIBIT 3-8: EXISTING (2020) SUMMARY OF LOS

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4 PROJECTED FUTURE TRAFFIC

The Project is proposed to consist of up to 284,746 sf of high-cube transload/short-term storage warehouse (without cold storage) use (85 percent of the total square footage) and 50,249 square feet of general light industrial use (15 percent of the total square footage) for a total of 334,995 square feet within a single building. The Project is anticipated to be constructed in a single phase by the year 2021.

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

- Harvill Avenue via Driveway 1 – full access for passenger cars and trucks
- Rider Street via Driveway 2 – full access for passenger cars and trucks

Regional access to the Project site will be provided by the I-215 Freeway via Cajalco Road/Ramona Expressway and Placentia Avenue.

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 (PCE) and daily and peak hour trip generation estimates for the Project are shown in Table 4-1 and trip generation rates (actual vehicles) and daily and peak hour trip generation estimates for the Project are shown in Table 4-2. These estimates are based on the trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, (10th Edition, 2017). (2)

For purposes of this analysis, the following ITE land use codes and vehicle mixes have been utilized:

- High-Cube Transload and Short-Term Storage Warehouse (Without Cold Storage) (ITE 154): Transload facilities have a primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. They typically have little storage duration, high throughput, and are high-efficiency facilities. Short-term high-cube warehouses are high-efficiency distribution facilities often with custom/special features built into structure movement of large volumes of freight with only short-term storage of products. The ITE Trip Generation Manual includes data for total vehicles (passenger cars and trucks), but provides no guidance on vehicle mix (passenger cars vs. trucks and breakdown by each truck axle type). As such, data regarding the specific truck mix has been obtained from a separate report: The South Coast Air Quality Management District's (SCAQMD) Warehouse Truck Trip Study Data Results and Usage recommended truck mix, 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. This recommended procedure will be utilized for the purposes of the analysis for the High Cube Transload and Short-term Storage Warehouse land use (ITE land use code 154). (6)

Table 4-1

Project Trip Generation Summary (PCE)

Land Use	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Rates[1]									
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%) (PCE = 1.5)[5]			0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks (3.9%) (PCE = 2.0)[5]			0.048	0.007	0.055	0.006	0.043	0.049	0.387
4-Axle+ Trucks (9.5%) (PCE = 3.0)[5]			0.176	0.024	0.200	0.023	0.156	0.180	1.414
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (80.00%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (3.34%) (PCE = 1.5)[5]			0.005	0.001	0.006	0.002	0.004	0.005	0.113
3-Axle Trucks (4.14%) (PCE = 2.0)[5]			0.008	0.002	0.010	0.003	0.006	0.009	0.187
4-Axle+ Trucks (12.52%) (PCE = 3.0)[5]			0.036	0.011	0.046	0.011	0.029	0.041	0.847

Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary (PCE)									
Harvill & Rider Warehouse									
General Light Industrial (15%)	50.249	TSF							
Passenger Cars:			24	3	27	3	22	25	196
Truck Trips:									
2-axle:			4	1	5	0	3	3	30
3-axle:			2	0	2	0	2	2	20
4+-axle:			9	1	10	1	8	9	72
- Truck Trips (PCE)			*15*	*2*	*17*	*1*	*13*	*14*	*122*
High-Cube Transload Short-Term Warehouse (85%)	284.746	TSF							
Passenger Cars:			12	4	16	6	16	22	270
Truck Trips:									
2-axle:			1	0	1	0	1	1	32
3-axle:			2	1	3	1	2	3	54
4+-axle:			10	3	13	3	8	11	242
- Truck Trips (PCE)			*13*	*4*	*17*	*4*	*11*	*15*	*328*
TOTAL TRIPS (PCE)			***64***	***13***	***77***	***14***	***62***	***76***	***916***

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

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).

Normalized % - Without Cold Storage:

16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

[5] PCE rates are per SBCTA (more conservative than Riverside County).

Table 4-2

Project Trip Generation Summary (Actual Vehicles)

Land Use	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Rates (Actual Vehicles)[1]									
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%)			0.049	0.007	0.056	0.007	0.044	0.050	0.397
3-Axle Trucks (3.9%)			0.024	0.003	0.027	0.003	0.021	0.025	0.193
4-Axle+ Trucks (9.5%)			0.059	0.008	0.067	0.008	0.052	0.060	0.471
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (80.00%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (3.34%)			0.003	0.001	0.004	0.001	0.003	0.004	0.075
3-Axle Trucks (4.14%)			0.004	0.001	0.005	0.001	0.003	0.004	0.093
4-Axle+ Trucks (12.52%)			0.012	0.004	0.015	0.004	0.010	0.014	0.282

Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary (Actual Vehicles)									
Harvill & Rider Warehouse									
General Light Industrial (15%)	50.249	TSF							
Passenger Cars:			24	3	27	3	22	25	196
Truck Trips:									
2-axle:			2	0	2	0	2	2	20
3-axle:			1	0	1	0	1	1	10
4+-axle:			3	0	3	0	3	3	24
- Truck Trips (Actual)			*6*	*0*	*6*	*0*	*6*	*6*	*54*
High-Cube Transload Short-Term Warehouse (85%)	284.746	TSF							
Passenger Cars:			12	4	16	6	16	22	270
Truck Trips:									
2-axle:			1	0	1	0	1	1	22
3-axle:			1	0	1	0	1	1	28
4+-axle:			3	1	4	1	3	4	80
- Truck Trips (Actual)			*5*	*1*	*6*	*1*	*5*	*6*	*130*
TOTAL TRIPS (Actual)			***47***	***8***	***55***	***10***	***49***	***59***	***650***

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

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
Normalized % - Without Cold Storage:
16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

- General light industrial data regarding the truck percentage and vehicle mix has been obtained from the City of Fontana's Truck Trip Generation Study (April 2003). This study provides vehicle mix for general light industrial land uses, which consist of 21.4% trucks for AM, PM, and daily trips. The City of Fontana's recommended truck mix, by axle type for general light industrial has been utilized for the 2-axle, 3-axle, and 4+-axle trucks. (7) Both the County of Riverside and the ITE Trip Generation Manual do not have a recommended vehicle mix for the general light industrial use. As such, the City of Fontana's Truck Trip Generation Study has been utilized as it is the best data available for the general light industrial land use.

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. 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 CMP, 2016 Update. (5) 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 Project is estimated to generate a net total of 916 PCE trip-ends per day on a typical weekday with approximately 77 net AM PCE peak hour trips and 76 net PM PCE peak hour trips, as shown in Table 4-1. The proposed Project's trip generation, based on actual vehicles, has 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 County of Riverside staff. 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 is anticipated to be fully constructed and operational in 2021 and the I-215 Freeway and Placentia Avenue interchange is also anticipated to be completed in2021. Based on the location of the Project and its proximity to the proposed I-215 Freeway and Placentia Avenue interchange, it is likely that Project traffic would utilize the new interchange once completed. Each of these distribution patterns were reviewed by the County of Riverside as part of the traffic study scoping process (see Appendix 1.1). The Project passenger car trip distribution patterns are graphically depicted on Exhibit 4-1. The Project truck trip distribution patterns are graphically depicted on Exhibit 4-2.

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 in PCE are shown on Exhibit 4-3.

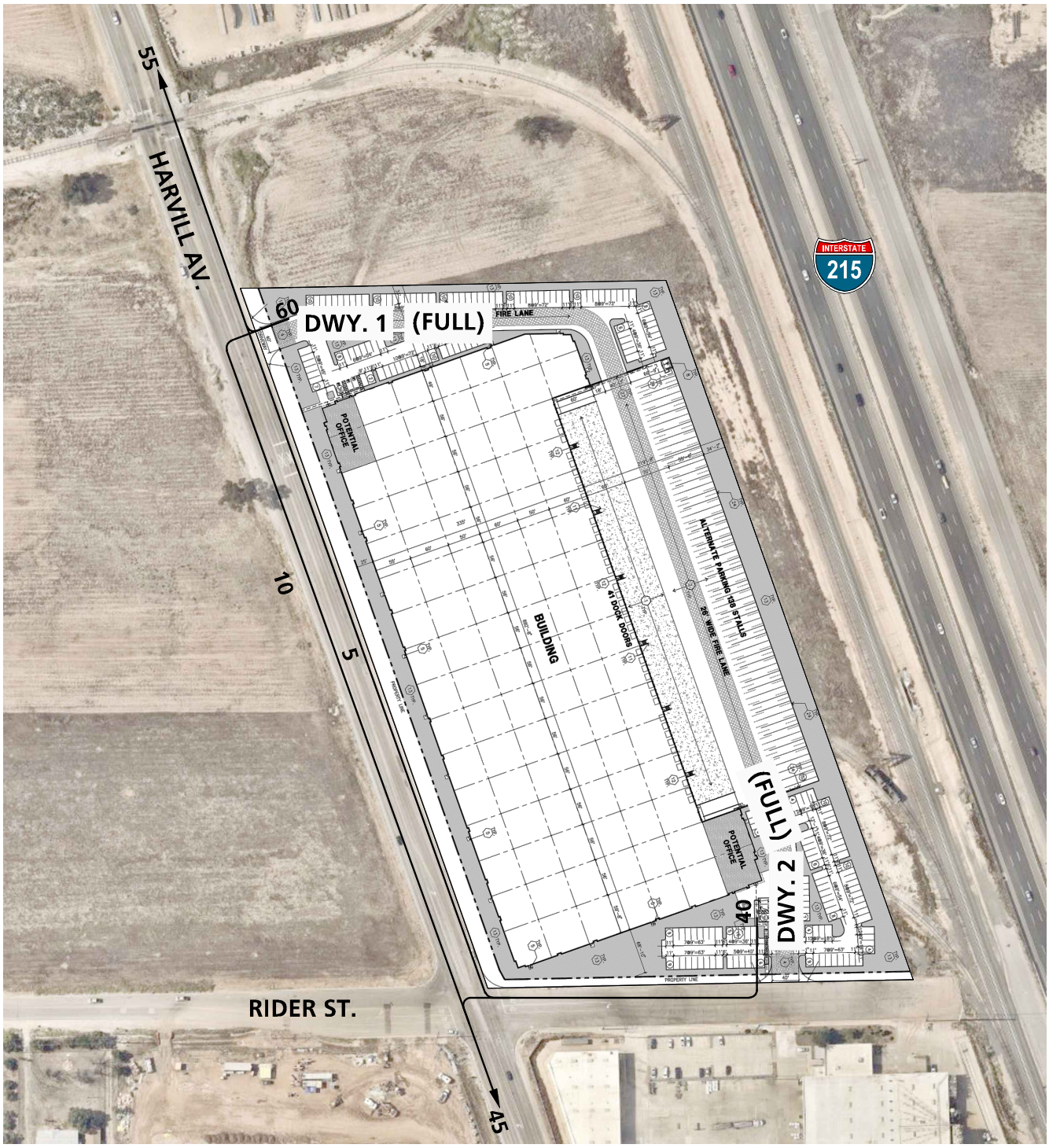
4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon a background (ambient) growth factor of 2% per year for 2021 traffic conditions. The ambient growth factor is intended to approximate traffic growth. The total ambient growth is 4.04% for 2021 traffic conditions (compounded growth of 2 percent per year over 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.

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 currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (April 2016) growth forecasts for the County of Riverside identifies projected growth in population of 359,500 in 2012 to 499,200 in 2040, or a 39.1 percent increase over the 28-year period. (8) The change in population equates to roughly a 1.18 percent growth rate, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 45.1 percent, or 1.33 percent annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 122.1 percent, or a 2.89 percent annual growth rate.

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



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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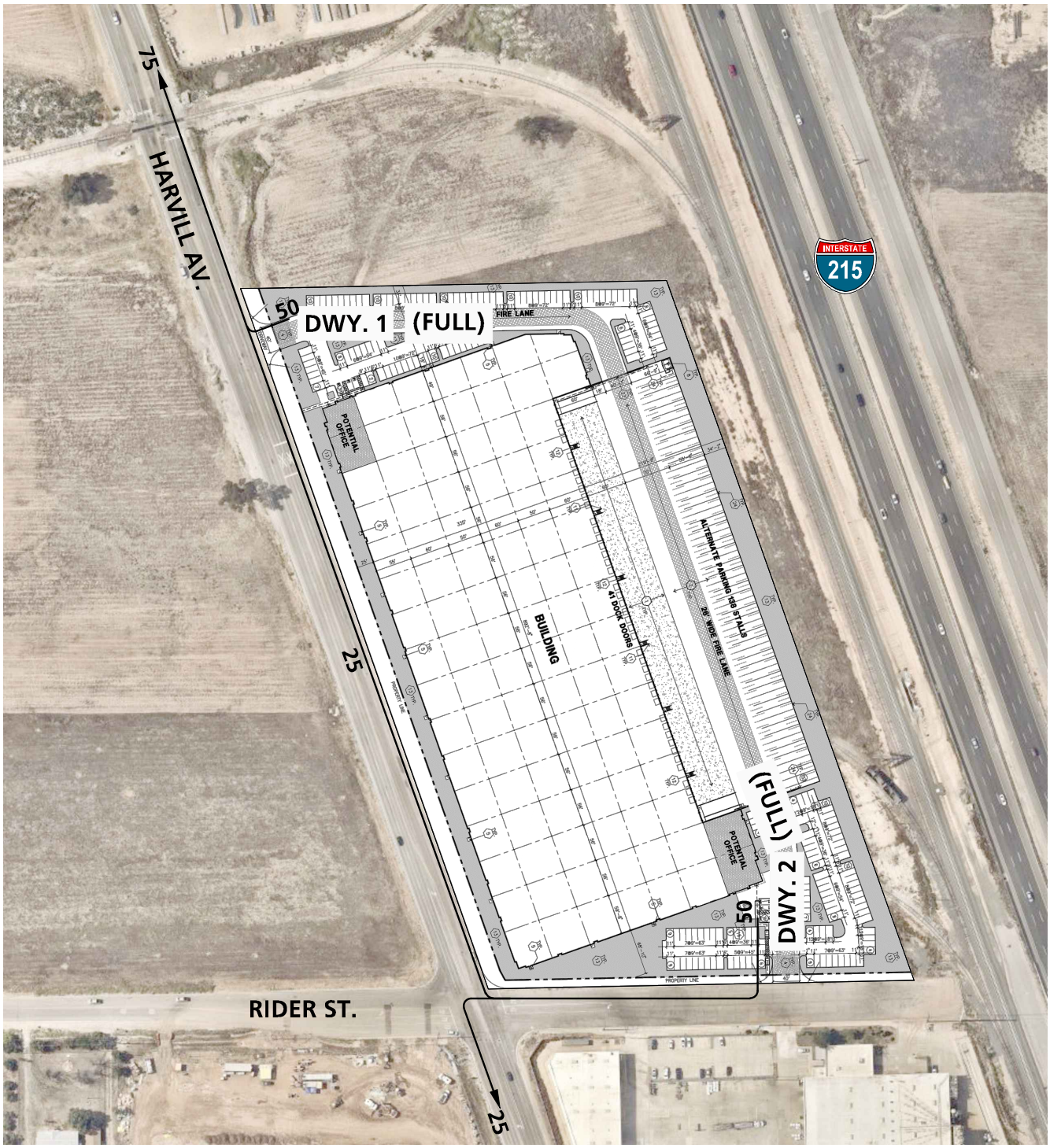
URBAN CROSSROADS

EXHIBIT 4-2: PROJECT (TRUCK) TRIP DISTRIBUTION

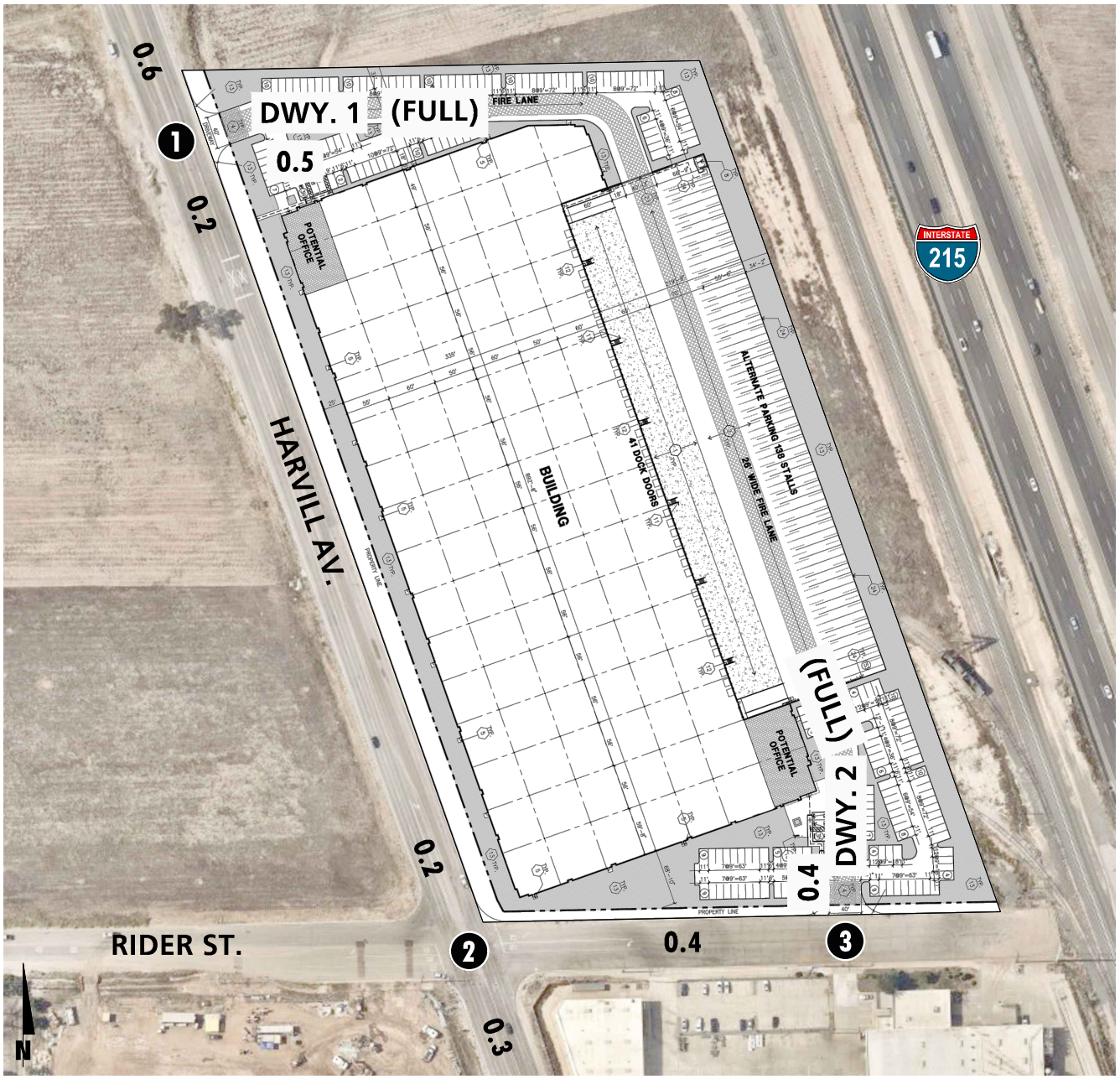


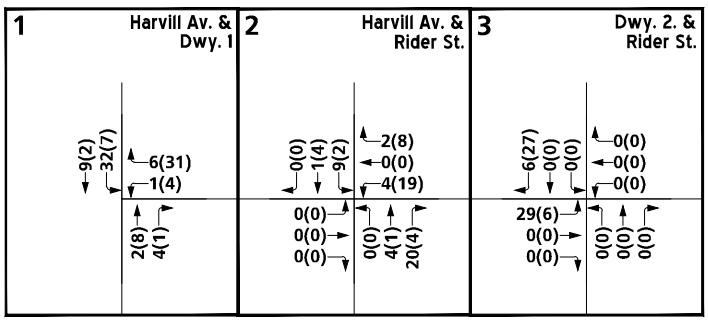
LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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)

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 County of Riverside. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. Adjacent jurisdictions of the City of Perris 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 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 all of these cumulative projects would be fully built and occupied by Year 2021, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic impacts.

Any other cumulative projects located beyond the cumulative study area 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 traffic volumes in PCE are shown on Exhibit 4-5.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

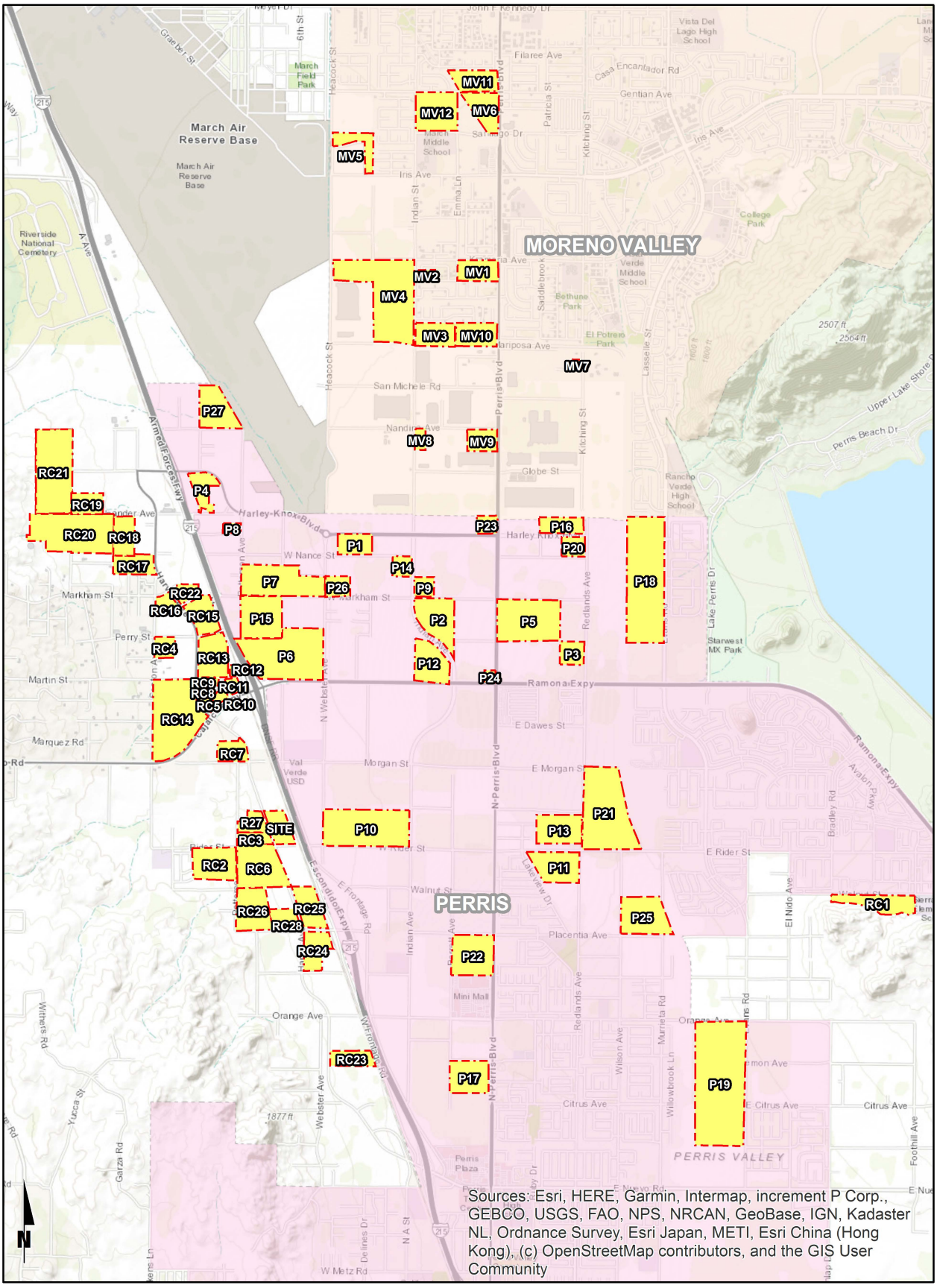
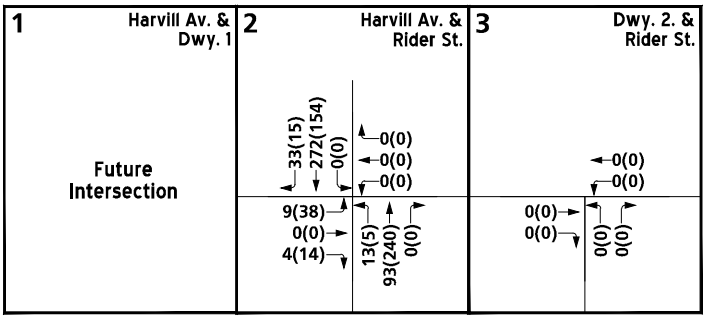


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE)



LEGEND:

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

Table 4-3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
Riverside County					
RC1	McCanna Hills / TTM 33978	SFDR	63	DU	SWC OF SHERMAN AVE. & WALNUT AVE.
RC2	PP26293	High-Cube Warehouse	612.481	TSF	SWC OF PATTERSON AVE. & RIDER ST.
RC3	PPT180023: Rider Commerce Center	Warehousing	204.330	TSF	NEC OF PATTERSON AVE. & RIDER ST.
RC4	PPT180025: Seaton Commerce Center	High-Cube Warehouse	210.800	TSF	SEC OF SEATON AV. & PERRY ST.
RC5	Farmer Boys/Retail Shop	Retail	16.306	TSF	NEC OF HARVILL AVE. & CAJALCO RD.
		Fast-Food with Drive Thru	3.252	TSF	
RC6	PP26173	High-Cube Warehouse	423.665	TSF	SWC OF HARVILL AVE. & RIDER ST.
RC7	Val Verde Logistics Center	High-Cube Warehouse	280.308	TSF	NWC OF HARVILL AVE. & OLD CAJALCO RD.
RC8	Majestic Freeway Business Center - Building 5	Warehousing	40.000	TSF	NEC OF HARVILL AVE. & MESSENIA LN.
RC9	Majestic Freeway Business Center - Building 6	Warehousing	72.000	TSF	NORTH OF MESSENIA LN., EAST OF HARVILL AVE.
RC10	Majestic Freeway Business Center - Building 7	Warehousing	80.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC11	Majestic Freeway Business Center - Building 8	Warehousing	110.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC12	Majestic Freeway Business Center - Building 9	Warehousing	45.000	TSF	EAST OF MESSENIA LN., NORTH OF HARVILL AVE.
RC13	Majestic Freeway Business Center - Building 10	High-Cube Warehouse	600.000	TSF	SEC OF HARVILL AVE. & PERRY ST.
RC14	Majestic Freeway Business Center - Buildings 1, 3 & 4	Warehousing	48.930	TSF	NWC OF HARVILL AVE. & CAJALCO RD.
		High-Cube Warehouse	1195.740	TSF	
RC15	Majestic Freeway Business Center - Building 11	High-Cube Warehouse	391.045	TSF	NEC OF HARVILL AVE. & PERRY ST.
RC16	Majestic Freeway Business Center - Building 15	Warehousing	90.279	TSF	NWC OF HARVILL AVE. & COMMERCE CENTER DR.
RC17	Majestic Freeway Business Center - Building 19	Warehousing	364.560	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC18	Majestic Freeway Business Center - Building 20	Warehousing	425.830	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC19	Majestic Freeway Business Center - Building 21,22	Warehousing	241.059	TSF	NEC OF DECKER RD. & OLD OLEANDER AVE.
RC20	Knox Logistics Center	High-Cube Warehouse	1259.410	TSF	NWC OF DECKER RD. & OLD OLEANDER AVE.
RC21	Oleander Business Park	High-Cube Warehouse	680.000	TSF	NWC OF DECKER RD. & HARLEY KNOX BLVD.
RC22	Majestic Freeway Business Center - Building 12	Warehousing	154.751	TSF	NEC OF HARVILL AVE. & COMMERCE CENTER DR.
RC23	Harvill Distribution Center	High-Cube Warehouse	345.103	TSF	EAST OF HARVILL AVE., SOUTH OF ORANGE ST.
RC24	PP26241	Warehousing	23.600	TSF	SEC OF HARVILL AVE. & PLACENTIA ST.
RC25	PP26220	Warehousing	66.000	TSF	EAST OF HARVILL AVE., NORTH OF PLACENTIA ST.
RC26	Barker Logistics	High-Cube Warehouse	699.630	TSF	SWC OF PATTERSON AVE. & PLACENTIA ST.
RC27	Dedeaux Truck Terminal	Truck Terminal	55.700	TSF	NORTH OF RIDER ST., WEST OF HARVILL AV.
RC28	Placentia Logistics	High-Cube Warehouse	274.190	TSF	NWC OF HARVILL AV. & PLACENTIA AV.
City of Perris					
P1	Bargemann / DPR 07-09-0018	Warehousing	173.000	TSF	NEC OF WEBSTER & NANCE
P2	Duke 2 / DPR 16-00008	High-Cube Warehouse	669.000	TSF	NEC OF INDIAN & MARKHAM
P3	First Perry / DPR 16-00013	High-Cube Warehouse	240.000	TSF	SWC OF REDLANDS AVE. & PERRY ST.
P4	Gateway / DPR 16-00003	High-Cube Warehouse	400.000	TSF	SOUTH OF HARLEY KNOX BLVD., EAST OF HWY. 215
P6	OLC 1 / DPR 12-10-0005	High-Cube Warehouse	1,455.000	TSF	WEST OF WEBSTER AVE., NORTH OF RAMONA EXWY.
P5	Duke Realty - Perris & Markham	High-Cube Warehouse	1,189.860	TSF	SEC OF PERRIS BL. & MARKHAM ST.
P7	OLC2 / DPR 14-01-0015	High-Cube Warehouse	1,037.000	TSF	WEST OF WEBSTER AVE., NORTH OF MARKHAM ST.

Table 4-3

Page 2 of 2

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
P8	Canyon Steel	Manufacturing	28.124	TSF	NWC OF PATTERSON AVE. & CALIFORNIA AVE.
P9	Markham Industrial / DPR 16-00015	Warehousing	170.000	TSF	NEC OF INDIAN AVE. & MARKHAM ST.
P10	Rados / DPR 07-0119	High-Cube Warehouse	1,200.000	TSF	NWC OF INDIAN AVE. & RIDER ST.
P11	Rider 1 / DPR 16-0365	High-Cube Warehouse	350.000	TSF	SWC OF REDLANDS AVE. & RIDER ST.
P12	Indian/Ramona Warehouse	High-Cube Warehouse	428.730	TSF	NORTH OF RAMONA EXWY., WEST OF INDIAN AVE.
P13	Rider 3 / DPR 06-0432	High-Cube Warehouse	640.000	TSF	NORTH OF RIDER ST., WEST OF REDLANDS
P14	Westcoast Textile / DPR 16-00001	Warehousing	180.000	TSF	SWC OF INDIAN ST. & NANCE ST.
P15	Duke at Patterson / DPR 17-00001	High-Cube Warehouse	811.000	TSF	SEC OF PATTERSON AVE. & MARKHAM ST.
P16	Harley Knox Commerce Park / DPR 16-004	High-Cube Warehouse	386.278	TSF	NWC OF HARLEY KNOX BLVD. & REDLANDS AVE.
P17	Perris Marketplace / DPR 05-0341	Commercial Retail	520.000	TSF	WEST OF PERRIS BLVD. AT AVOCADO AVE.
P18	Stratford Ranch Residential / TTM 36648	SFDR	270	DU	WEST OF EVANS RD. AT MARKHAM ST.
P19	Pulte Residential / TTM 30850	SFDR	496	DU	WEST OF EVANS RD. AT CITRUS AVE.
P20	Perris Circle 3	Warehousing	210.900	TSF	NWC OF REDLANDS AVE. & NANCE AVE.
P21	Rider 2 and 4	High-Cube Warehouse	1,376.721	TSF	NWC OF REDLANDS AVE. AND RIDER ST.
P22	Weinerschnitzel / CUP 17-05083	Fast-Food Restaurant	2.000	TSF	WEST OF PERRIS BL., SOUTH OF PLACENTIA AVE.
P23	March Plaza / CUP16-05165	Commercial Retail	47.253	TSF	NWC OF PERRIS BL. AND HARLEY KNOX BL.
P24	Cali Express Carwash / CUP 16-05258	Carwash	5.600	TSF	NWC OF PERRIS BL. AND RAMONA EXWY.
P25	Wilson Industrial / DPR 19-00007	High-Cube Warehouse	303.000	TSF	SEC OF WILSON AVE. AND RIDER ST.
P26	Integra Expansion / MMOD 17-05075	High-Cube Warehouse	273.000	TSF	NCE OF MARKHAM ST. AND WEBSTER AVE.
P27	Western Industrial / DRP 19-00003	High-Cube Warehouse	250.000	TSF	NEC or WESTERN WY. AND NANDINA AVE.
		City of Moreno Valley			
MV1	PEN18-0042	SFDR	2	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV2	Tract 33024	SFDR	8	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV3	Tract 32716	SFDR	57	DU	NEC OF INDIAN ST. & MARIPOSA AVE.
MV4	Prologis 1	High-Cube Warehouse	1000.000	TSF	NEC OF INDIAN AVE. & MARIPOSA AVE.
MV5	Moreno Valley Industrial Park	High-Cube Warehouse	207.684	TSF	NEC OF HEACOCK ST. & IRIS AVE.
MV6	Moreno Valley Walmart	Retail	193.000	TSF	SWC OF PERRIS BLVD. & GENTIAN AVE.
MV7	Moreno Valley Utility Substation	High-Cube Warehouse	PUBLIC	TSF	NWC OF EDWIN RD. & KITCHING ST.
MV8	Phelan Development	High-Cube Warehouse	98.210	TSF	SEC OF INDIAN ST. & NANDINA AVE.
MV9	Nandina Industrial Center	High-Cube Warehouse	335.966	TSF	SOUTH OF NANDINA AVE., WEST OF PERRIS BLVD.
MV10	Tract 31442	SFDR	63	DU	NWC OF PERRIS BLVD. & MARIPOSA AVE.
MV11	Tract 22180	SFDR	140	DU	NORTH OF GENTIAN AVE., EAST OF INDIAN ST.
MV12	Tract 36760	SFDR	221	DU	SEC OF INDIAN ST. & GENTIAN AVE.

[1] SFDR = Single Family Detached Residential

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

4.7 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2021) and EAPC (2021) traffic conditions. An ambient growth factor of 2.0% per year account for background (area-wide) traffic increases that occur over time up to the year 2021 from the year 2019 (2.0 percent per year growth rate, compounded over a 2-year period). Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2021 roadway network is similar to the Existing conditions roadway network, with the exception of future driveways proposed to be developed by the Project.

The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Existing Plus Ambient Growth Plus Project (2021)
  - Existing 2019 counts
  - Ambient growth traffic (4.04%)
  - Project traffic
- Existing Plus Ambient Growth Plus Project Plus Cumulative (2021)
  - Existing 2019 counts
  - Ambient growth traffic (4.04%)
  - 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. This analysis scenario has also been provided for informational purposes only as Project impacts have been discerned from a comparison of Existing (2019) to EAP (2021) traffic conditions (per the County's traffic study guidelines).

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).
- The I-215/Placentia Avenue Interchange is assumed to be in place (to be completed in 2021).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The baseline traffic volumes have been adjusted to reflect the shift in travel patterns due to the I-215/Placentia Avenue interchange. No additional growth has been applied to the existing baseline count data. Exhibit 5-1 shows the ADT and peak hour intersection turning movement volumes, which can be expected for E+P traffic conditions.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that the study area intersections are anticipated to continue to operate at acceptable LOS under E+P traffic conditions with the addition of Project traffic, consistent with Existing traffic conditions. A summary of the peak hour intersection LOS for E+P conditions are shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

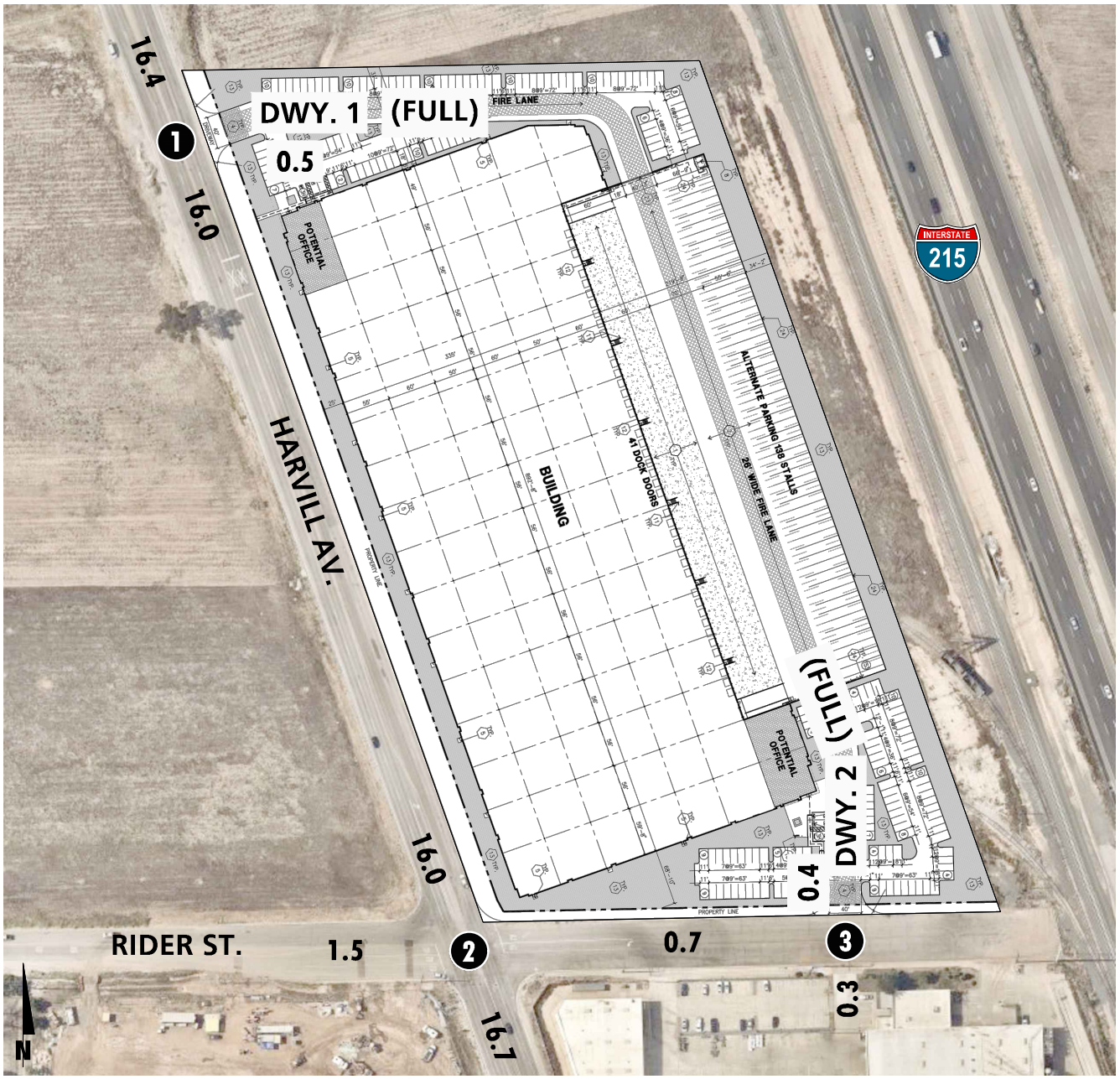
5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

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

5.5 RECOMMENDED IMPROVEMENTS

All study area intersections are anticipated to operate at an acceptable LOS; therefore no improvements have been recommended for E+P traffic conditions.

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



1 Harvill Av. & Dwy. 1	2 Harvill Av. & Rider St.	3 Dwy. 2. & Rider St.
357(788) 32(7) 6(31) 1(4)	23(23) 322(767) 13(2) 6(13) 0(0) 4(33)	6(27) 0(0) 0(0) 0(0) 0(0) 0(0)
825(418) 4(1)	27(16) 0(0) 40(49) 27(25) 796(390) 22(6)	29(6) 0(0) 6(2) 4(19) 0(0) 0(0)

LEGEND:

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

EXHIBIT 5-2: E+P SUMMARY OF LOS

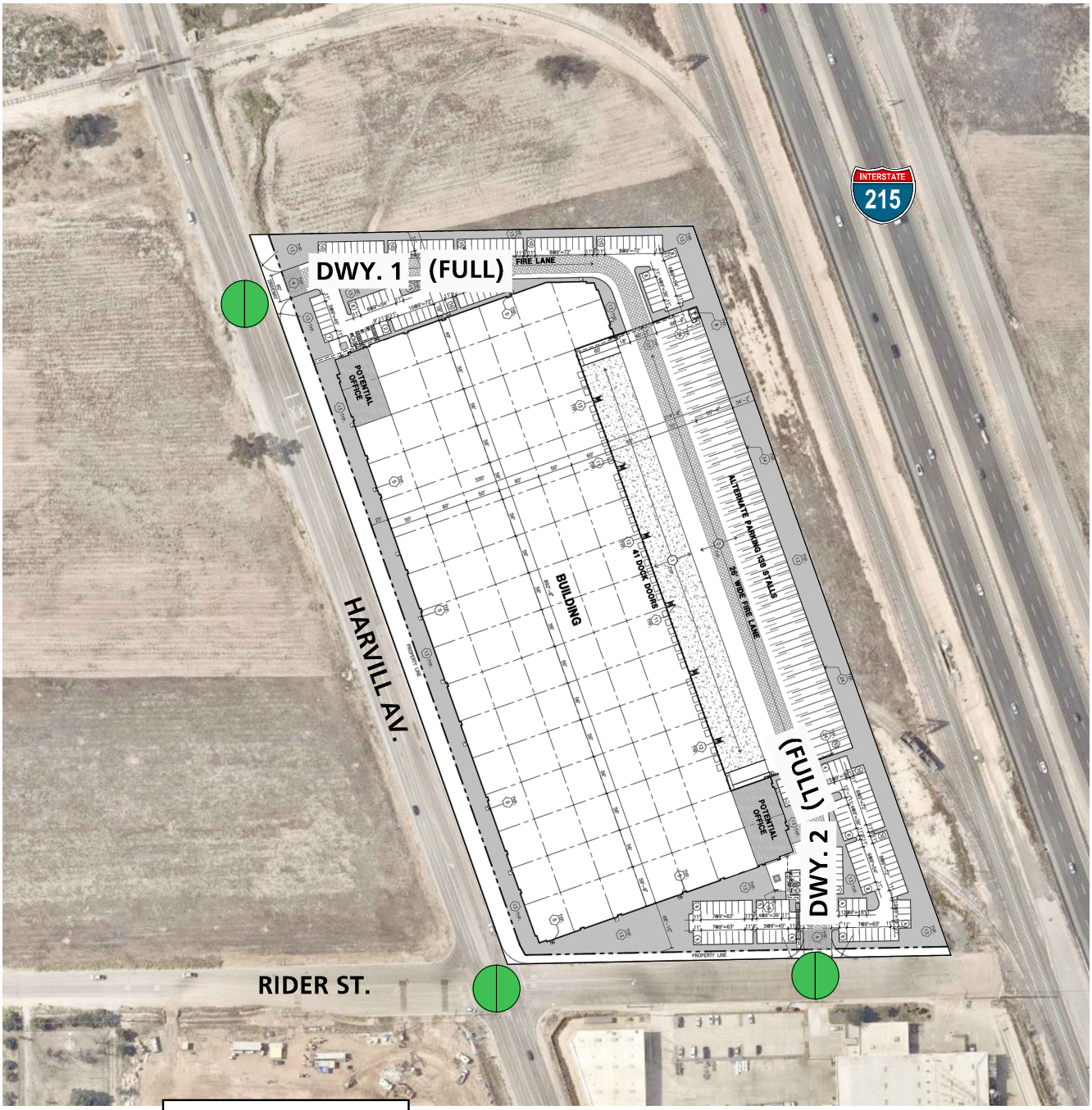


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Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019)				E+P			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Harvill Av. & Driveway 1	**CSS**	Future Interserction				12.4	10.4	B	B
2	Harvill Av. & Rider St.	CSS	16.5	16.8	C	C	21.0	19.0	C	C
3	Driveway 2 & Rider St.	CSS	8.5	8.6	A	A	8.9	8.7	A	A

[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; **CSS** = Improvement

6 EAP (2021) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAP (2021) 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 EAP (2021) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- The I-215/Placentia Avenue Interchange is assumed to be in place (to be completed in 2021).

6.2 EAP (2021) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2019) traffic volumes plus an ambient growth factor of 4.04% and the addition of Project traffic. Since the I-215/Placentia Avenue interchange is anticipated to be in place for 2021, the baseline traffic volumes have been adjusted to reflect the shift in travel patterns for EAP (2021) traffic conditions. Exhibit 6-1 shows the weekday ADT volumes and peak hour volumes which can be expected for EAP (2021) traffic conditions (in PCE).

6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAP conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, all study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours for EAP (2021) traffic conditions. A summary of the peak hour intersection LOS for EAP traffic conditions is shown on Exhibit 6-2. The intersection operations analysis worksheets for EAP (2021) traffic conditions are included in Appendix 6.1 of this TIA.

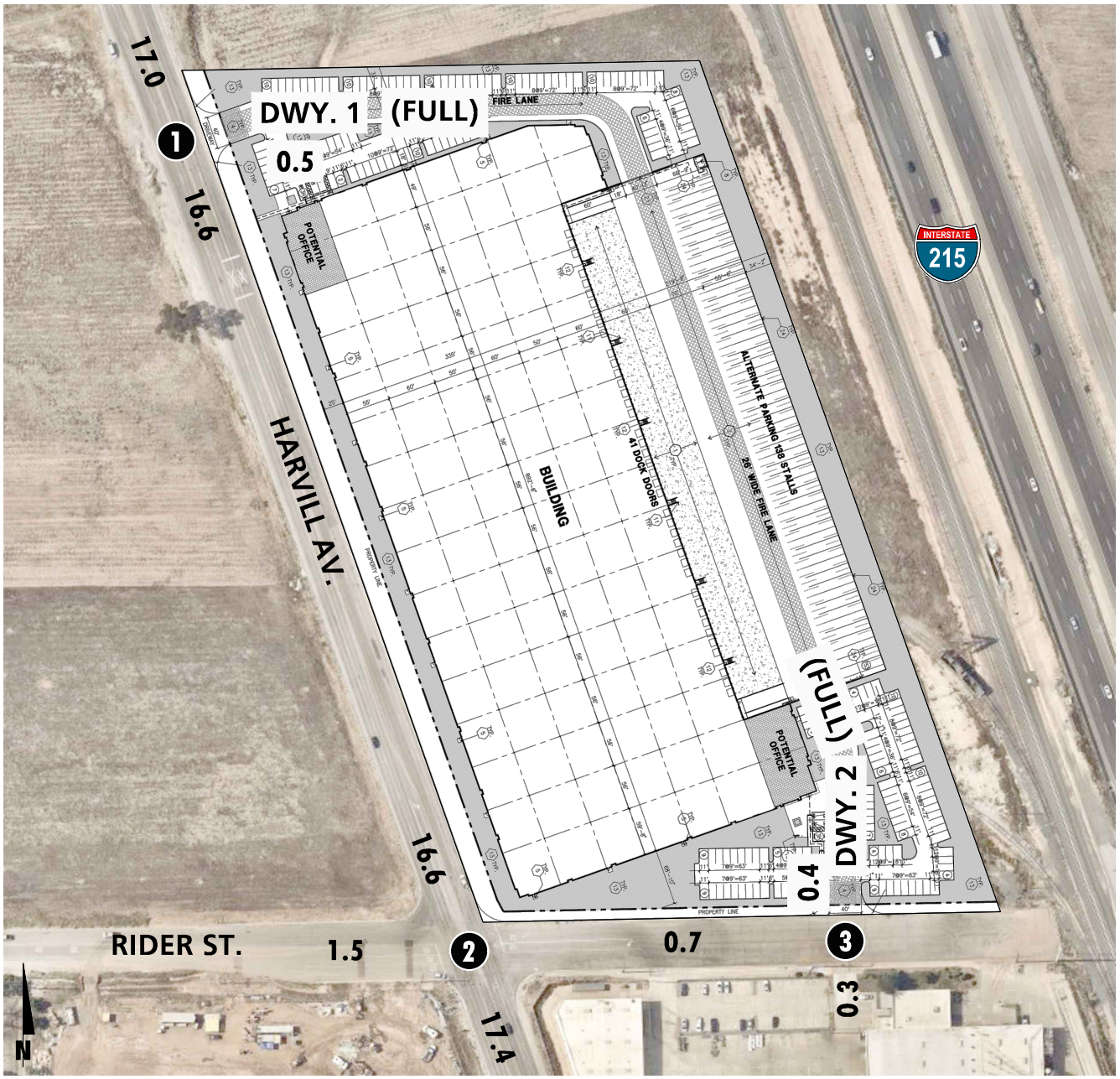
6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for EAP (2021) traffic conditions based on peak hour and daily traffic volumes. There are no study area intersections anticipated to meet planning-level ADT or peak hour volume-based traffic signal warrants under EAP traffic conditions (see Appendix 6.2).

6.5 RECOMMENDED IMPROVEMENTS

All study area intersections are anticipated to operate at an acceptable LOS; therefore no improvements have been recommended for EAP (2021) traffic conditions.

EXHIBIT 6-1: EAP (2021) TRAFFIC VOLUMES (IN PCE)



1 Harvill Av. & Dwy. 1	2 Harvill Av. & Rider St.	3 Dwy. 2. & Rider St.
371(820) → 32(7) → 6(31) ← 1(4) ←	24(24) → 334(798) → 13(2) → 6(13) ← 0(0) ← 4(34) ←	6(27) → 0(0) → 0(0) → 0(0) ← 0(0) ← 0(0) ←
858(434) ← 4(1) ←	28(16) → 0(0) → 42(51) → 28(26) ← 828(406) ← 22(6) ←	29(6) → 0(0) → 6(2) → 4(20) ← 0(0) ← 0(0) ←

LEGEND:

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

EXHIBIT 6-2: EAP (2021) SUMMARY OF LOS

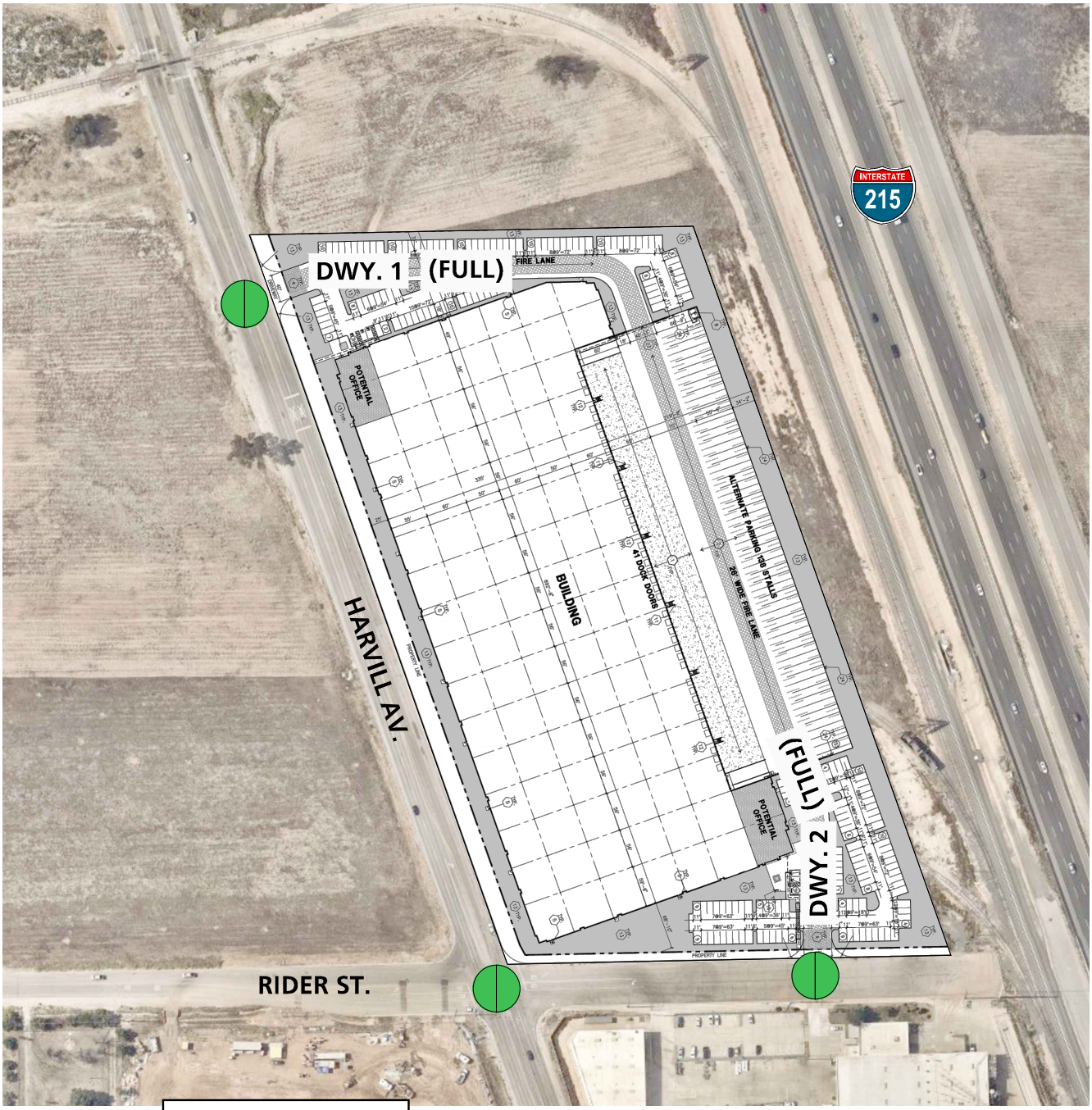


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Table 6-1

Intersection Analysis for EAP (2021) Conditions

#	Intersection	Traffic Control[2]	Existing (2019)				EAP (2021)			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Harvill Av. & Driveway 1	**CSS**	Future Intersection				12.6	10.5	B	B
2	Harvill Av. & Rider St.	CSS	16.5	16.8	C	C	21.9	19.7	C	C
3	Driveway 2 & Rider St.	CSS	8.5	8.6	A	A	8.9	8.7	A	A

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; **CSS** = Improvement

7 EAPC (2021) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAPC (2021) 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 EAPC (2021) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC (2021) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).
- The I-215/Placentia Avenue Interchange is assumed to be in place (to be completed in 2021).

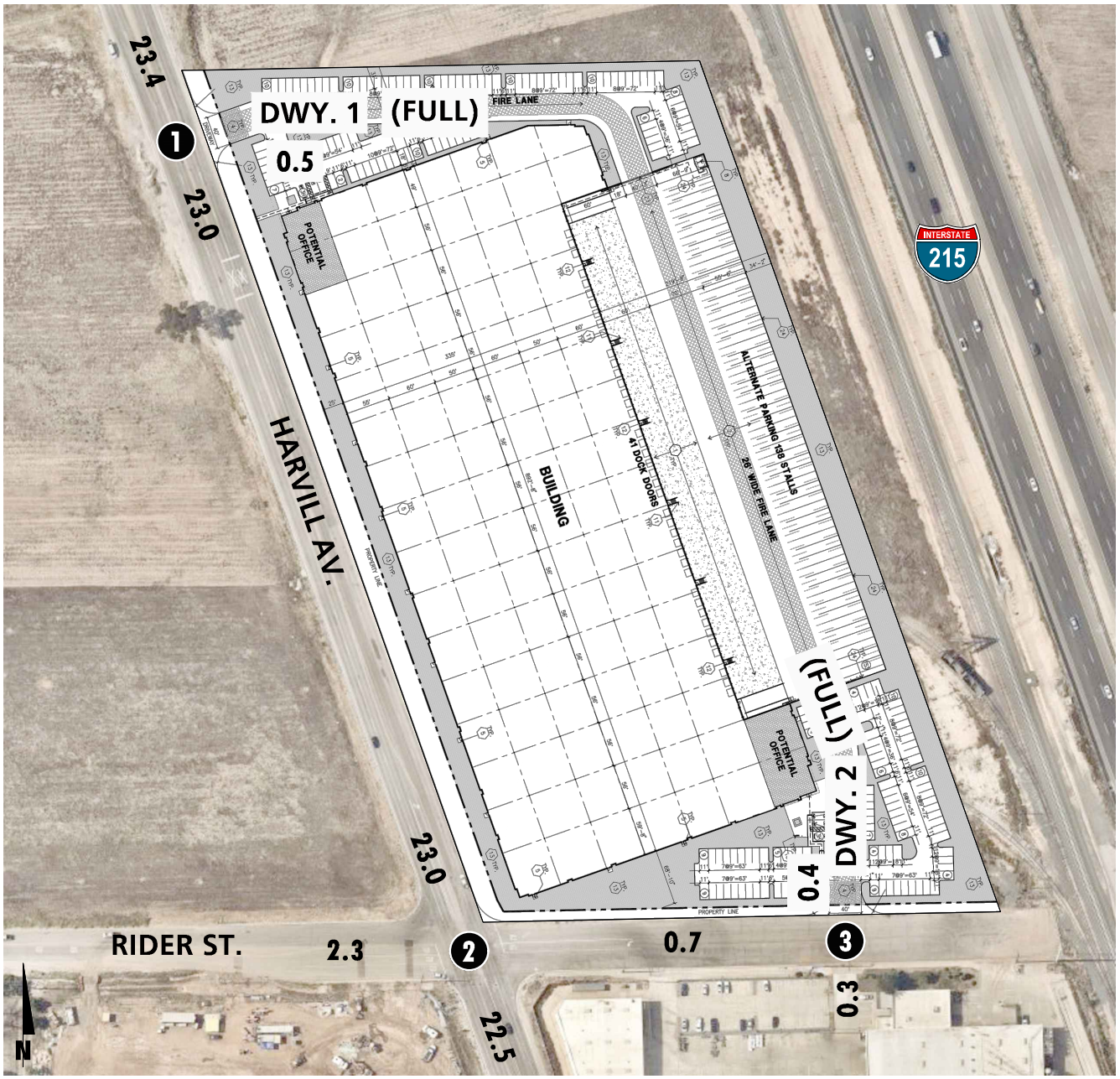
7.2 EAPC (2021) TRAFFIC VOLUME FORECASTS

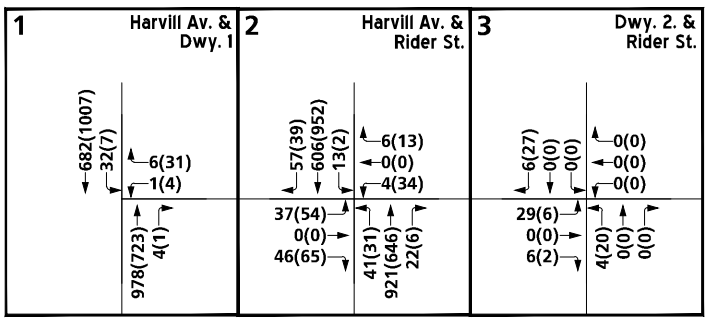
To account for background traffic, other known cumulative development projects in the study area were included in addition to 4.04% of ambient growth for EAPC (2021) traffic conditions in conjunction with traffic associated with the proposed Project. Since the I-215/Placentia Avenue interchange is anticipated to be in place for 2021, the baseline traffic volumes have been adjusted to reflect the shift in travel patterns for EAPC (2021) traffic conditions. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for EAPC (2021) traffic conditions are shown on Exhibit 7-1.

7.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAPC conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown in Table 7-1, all study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours for EAPC (2021) traffic conditions. A summary of the peak hour intersection LOS for EAPC traffic conditions is shown on Exhibit 7-2. The intersection operations analysis worksheets for EAPC (2021) traffic conditions are included in Appendix 7.1 of this TIA.

EXHIBIT 7-1: EAPC (2021) TRAFFIC VOLUMES (IN PCE)

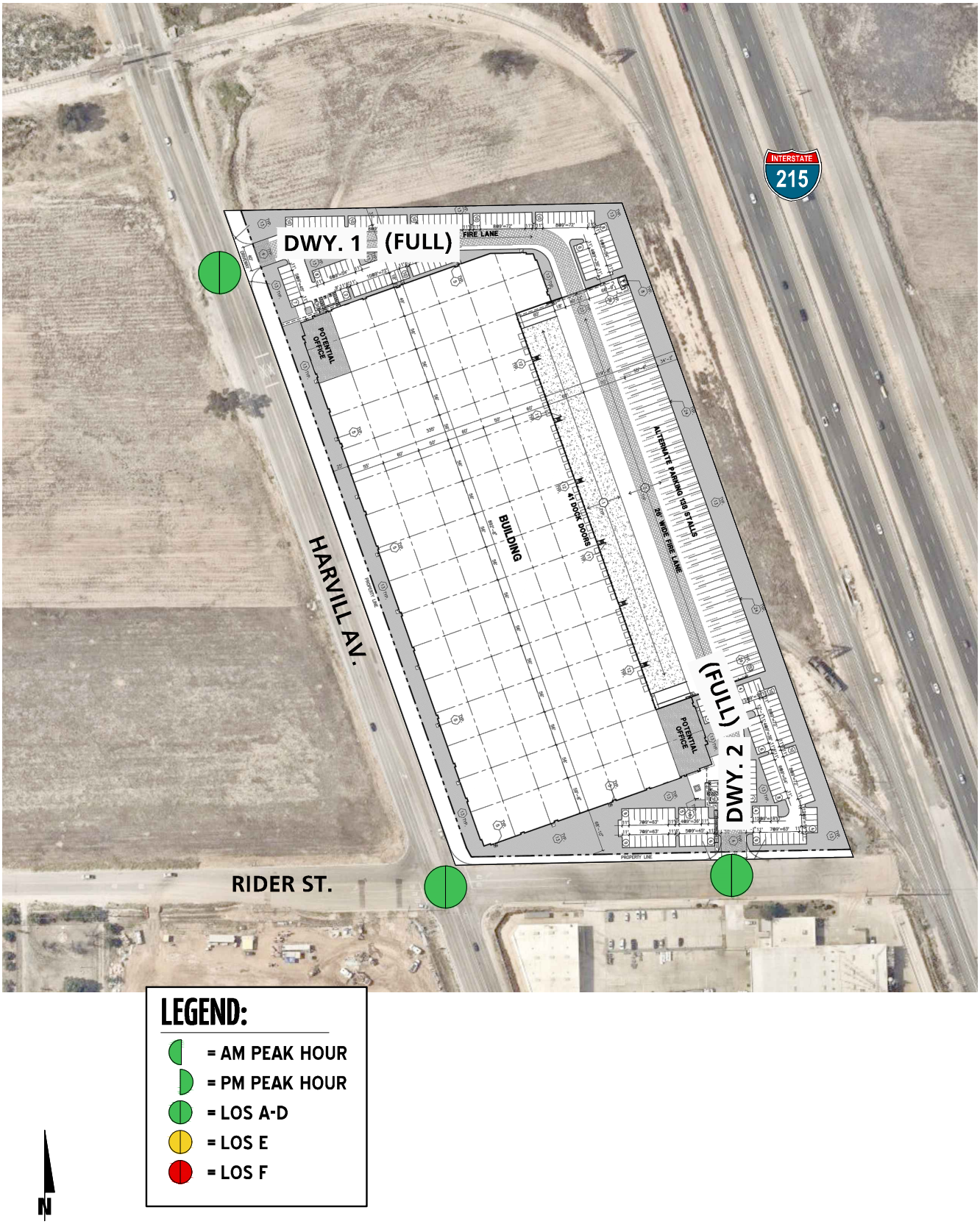




LEGEND:

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

EXHIBIT 7-2: EAPC (2021) SUMMARY OF LOS



12843 - los.dwg

Table 7-1

Intersection Analysis for EAPC (2021) Conditions

#	Intersection	Traffic Control[2]	Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM
1	Harvill Av. & Driveway 1	**CSS**	13.7	12.2	B	B
2	Harvill Av. & Rider St.	CSS	27.1	30.4	D	D
3	Driveway 2 & Rider St.	CSS	8.9	8.7	A	A

[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; **CSS** = Improvement

7.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for EAPC (2021) traffic conditions based on peak hour and daily traffic volumes. The following unsignalized study area intersection is anticipated to warrant a traffic signal for EAPC (2021) traffic conditions (see Appendix 7.2):

- Harvill Avenue & Rider Street (#2)

However, this intersection is anticipated to operate at an acceptable LOS as a cross-street stop-controlled intersection. As such, the installation of a traffic signal has not been recommended.

7.5 RECOMMENDED IMPROVEMENTS

All study area intersections are anticipated to operate at an acceptable LOS; therefore no improvements have been recommended for EAP (2021) traffic conditions.

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8 LOCAL AND REGIONAL FUNDING MECHANISMS

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

8.1 RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

The TUMF program is administered by the Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (9) This regional program was put into place to ensure that development pays its fair share and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

8.2 COUNTY OF RIVERSIDE DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The Project is located within the County's Mead Valley Area Plan and therefore will be subject to County of Riverside DIF in an effort by the County to address development throughout its unincorporated area. The DIF program consists of two separate transportation components: the Roads, Bridges and Major Improvements component and the Traffic Signals component. Eligible facilities for funding by the County DIF program are identified on the County's Public Needs List, which currently extends through the year 2020. (10) A comprehensive review of the DIF program is now planned in order to update the nexus study. This will result in development of a revised "needs list" extending the program time horizon from 2010 to 2030.

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

8.3 MEASURE A

Measure A, Riverside County's half-cent sales tax for transportation, was adopted by voters in 1988 and extended in 2002. It will continue to fund transportation improvements through 2039. Measure A funds a wide variety of transportation projects and services throughout the County. RCTC is responsible for administering the program. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the 1988 election.

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9 REFERENCES

1. **Riverside County Transportation Department.** *Traffic Impact Analysis Preparation Guide.* County of Riverside : s.n., April 2008.

2. **Institute of Transportationi Engineers (ITE).** *Trip Generation Manual.* 10th Edition. 2017.

3. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.

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

5. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated 2016.

6. **South Coast Air Quality Managment District (SCAQMD).** *Warehouse Truck Trip Study Data Results and Usage.* June 2014.

7. **City of Fontana.** *Truck Trip Generation Study.* Fontana : s.n., August 2003.

8. **Southern California Association of Governments.** *2016 Regional Transportation Plan / Sustainable Communities Strategy.* April 2016.

9. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.

10. **Willdan Financial Services.** *County of Riverside Development Impact Fee Study Update.* County of Riverside : s.n., 2013.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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EXHIBIT B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated April 2008.

Case No.
Related Cases-
SP No.
EIR No.
GPA No.
CZ No.
Project Name: Harvill and Rider Warehouse
Project Address: 28840 Rider Street
Project Description: 50,249 square feet of general light industrial (15%) and 284,746 square feet of warehousing (without cold storage) (85%) - Total of 334,995 sf

	Consultant	Developer - Representative
Name:	Urban Crossroads Inc. - Charlene So	T&B Planning
Address:	260 E. Baker Street, Suite 200	17542 17th Street, Suite 100
	Costa Mesa, CA 92626	Tustin, CA 92780
Telephone:	(949) 336-5982	
Fax:		

A. Trip Generation Source: ITE Trip Generation Manual, 10th Edition (2017)

Current GP Land Use	Light Industrial	Proposed Land Use	Light Industrial
Current Zoning	Light Industrial	Proposed Zoning	Light Industrial

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				**64**	**13**	**77**
PM Trips				**14**	**62**	**76**

Internal Trip Allowance ☐ Yes ■ No (0 % Trip Discount)
Pass-By Trip Allowance ☐ Yes ■ No (0 % Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: Trip distribtuion varies by vehicle type (passenger cars vs. trucks)

N **varies** % S **varies** % E **varies** % W **varies** %

C. Background Traffic

Project Build-out Year: 2021 Annual Ambient Growth Rate: 2 %
Phase Year(s) N/A

Other area Projects to be analyzed: To be provided by the County of Riverside
Model/Forecast Methodology:

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D. Study Intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).* (See Exhibit 2)

1. Harvill Avenue & Driveway 1
2. Harvill Avenue & Rider Street
3. Driveway 2 & Rider Street
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).*

1.
2.

F. Other Jurisdictional Impacts

Is this project within a City's Sphere of influence or one mile radius of City boundaries? ■ Yes ☐ No

If so, name of City jurisdiction: City of Perris

G. Site Plan (please attach reduced copy)

H. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)

(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted", or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.

I. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

Date of counts: traffic counts will be conducted once scoping agreement has been approved

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

Charlene So — 10/11/2019

Consultant's Representative — Date

Approved Scoping Agreement:

K. S — **10/23/2019**

Riverside County Transportation Department — Date

URBAN CROSSROADS

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

October 11, 2019

Mr. Kevin Tsang
County of Riverside, Transportation Department
4080 Lemon Street, 8th Floor
Riverside, CA 92501

SUBJECT: HARVILL AND RIDER WAREHOUSE TRAFFIC IMPACT ANALYSIS SCOPING AGREEMENT

Dear Mr. Kevin Tsang:

The firm of Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the traffic impact analysis for the proposed Harvill and Rider Warehouse development ("Project"), which is located at 28840 Rider Street in the County of Riverside. This letter describes the proposed Project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed Project study area and analysis locations.

PROJECT DESCRIPTION

A preliminary site use plan for the proposed Project is shown on Exhibit 1. Exhibit 2 depicts the location of the proposed project in relation to the existing roadway network. The Project is anticipated to have an Opening Year of 2021. Access to the Project site will be provided to Harvill Avenue (via Driveway) and Rider Street (via Driveway 2). Both driveways are proposed to allow for full access. The Project is proposed to consist of up to 284,746 square feet of warehouse (without cold storage) use (85 percent of the total square footage) and 50,249 square feet of general light industrial use (15 percent of the total square footage) for a total of 334,995 square feet within a single building.

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. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the proposed land use was used. Trip generation rates for the Project are shown in Table 1 and Table 2 for passenger car equivalent (PCE) and actual vehicles, respectively. The trip generation summary illustrating daily, and peak hour trip generation estimates for the proposed Project in PCE and actual vehicles are also shown in Table 1 and Table 2, respectively.

Brief descriptions of the proposed Project land uses are provided below:

General Light Industrial (ITE 110): A light industrial facility is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space.

High-Cube Transload and Short-Term Storage Warehouse (Without Cold Storage) (ITE 154): Transload facilities have a primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. They typically have little storage duration, high throughput, and are high-efficiency facilities. Short-term high-cube warehouses are high-efficiency distribution facilities often with custom/special features built into structure movement of large volumes of freight with only short-term storage of products.

The ITE Trip Generation Manual and the ITE Trip Generation Handbook does not provide a vehicle mix for the General Light Industrial (ITE land use code 110) land use. As such, the vehicle mix identified in the City of Fontana Truck Trip Generation Study has been utilized for the General Light Industrial land use.

The ITE Trip Generation Manual includes data for total vehicles (passenger cars and trucks), but provides no guidance on vehicle mix (passenger cars vs. trucks and breakdown by each truck axle type). As such, data regarding the specific truck mix has been obtained from a separate report: The South Coast Air Quality Management District's (SCAQMD) Warehouse Truck Trip Study Data Results and Usage recommended truck mix. This recommended procedure will be utilized for the purposes of the analysis for the High Cube Transload Short-term Storage Warehouse land use (ITE land use code 154).

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. For the purposes of this analysis, the percentage of trucks, by axle type, were obtained from the SCAQMD interim recommended truck mix. The SCAQMD has recently performed surveys of existing facilities and compiled the data to provide interim guidance on the mix of heavy trucks for these types of warehousing facilities. Based on this interim guidance from the SCAQMD, the following truck fleet mix was utilized for the purposes of estimating the truck trip generation for the site: 16.7% of the total trucks as 2-axle trucks, 20.7% of the total trucks as 3-axle trucks, and 62.5% of the total trucks as 4+-axle trucks.

Finally, 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), as these factors are more conservative than Riverside County's PCE factor of 2.0 for heavy trucks.

As shown on Table 1, the proposed Project is anticipated to generate a net total of 916 PCE trip-ends per day, 77 PCE AM peak hour trips and 76 PCE PM peak hour trips. In comparison, the proposed Project is anticipated to generate a net total of 650 actual vehicle trip-ends per day with 55 AM peak hour trips and 59 PM peak hour trips (see Table 2).

TRIP DISTRIBUTION

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. Exhibit 3 illustrates the passenger car trip distribution patterns for the Project and Exhibit 4 illustrates the truck trip distribution patterns. Both trip distribution patterns assume the future I-215/Placentia Avenue interchange is in place. It is our understanding that the I-215/Placentia Avenue interchange will be completed in 2021.

ANALYSIS SCENARIOS

Consistent with the County's TIA guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2019) Conditions
- Existing plus Project (E+P) Conditions
- Existing plus Ambient Growth plus Project (EAP) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) Conditions

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6th Edition analysis methodology.

CUMULATIVE PROJECTS

It is requested that County staff provide an updated list of cumulative projects for inclusion in the traffic study. A preliminary list of cumulative projects is provided on Table 3 and locations are identified on Exhibit 5.

TRAFFIC COUNTS

Traffic counts (classified by vehicle type) will be conducted once the scoping agreement has been approved during a typical Tuesday, Wednesday, or Thursday when local schools are in session and operating on a typical bell schedule.

CONCLUSION

Urban Crossroads, Inc. is pleased to submit this letter documenting the Project trip generation, trip distribution, and the recommended intersection analysis locations for the Harvill and Rider Warehouse Traffic Impact Study. We will continue to move forward towards completing the traffic study after receiving jurisdiction approval or comments finalizing the study area.

If you have any questions, please contact me directly at (949) 336-5982.

Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Associate Principal

EXHIBIT 1: PRELIMINARY SITE PLAN

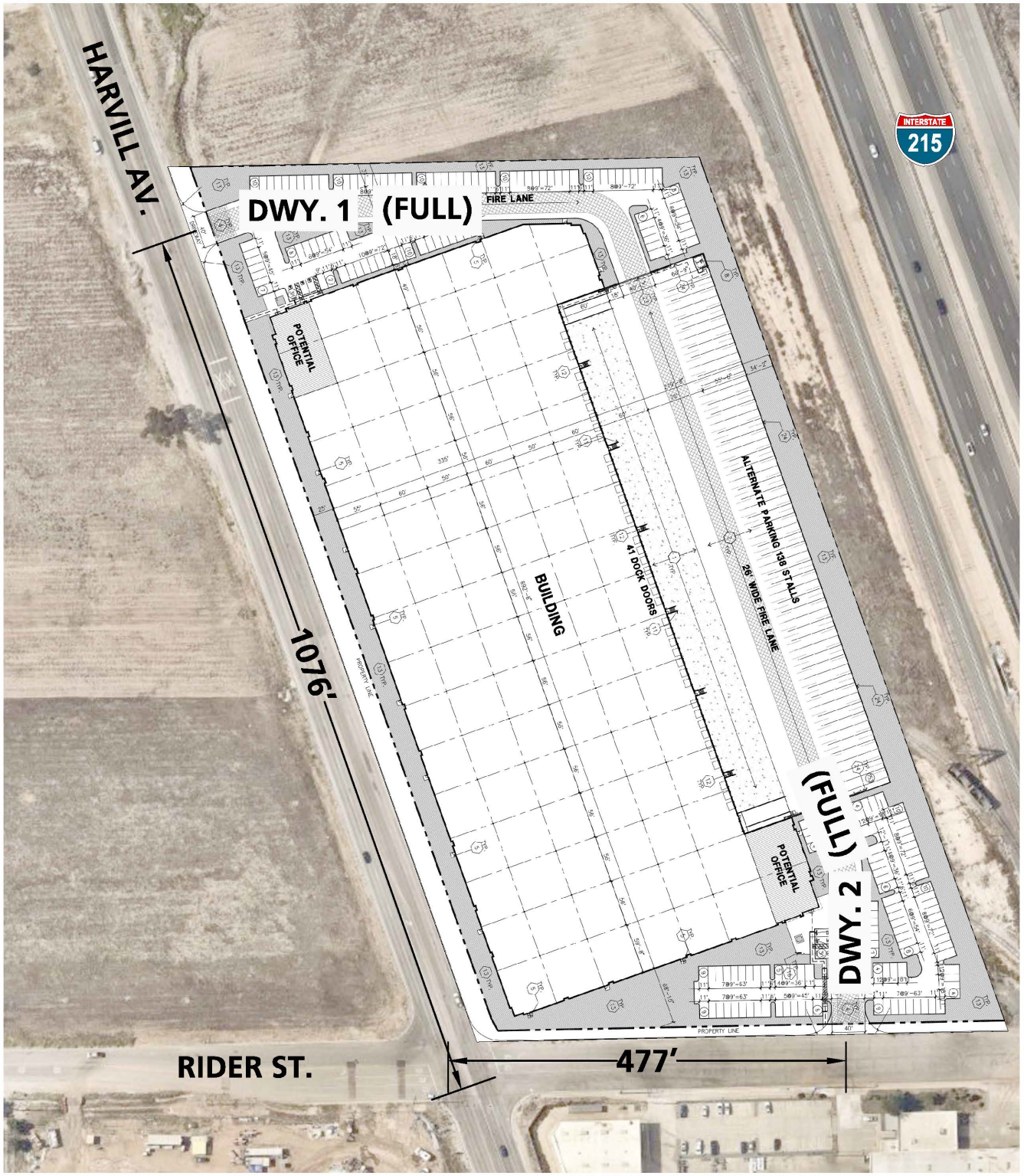

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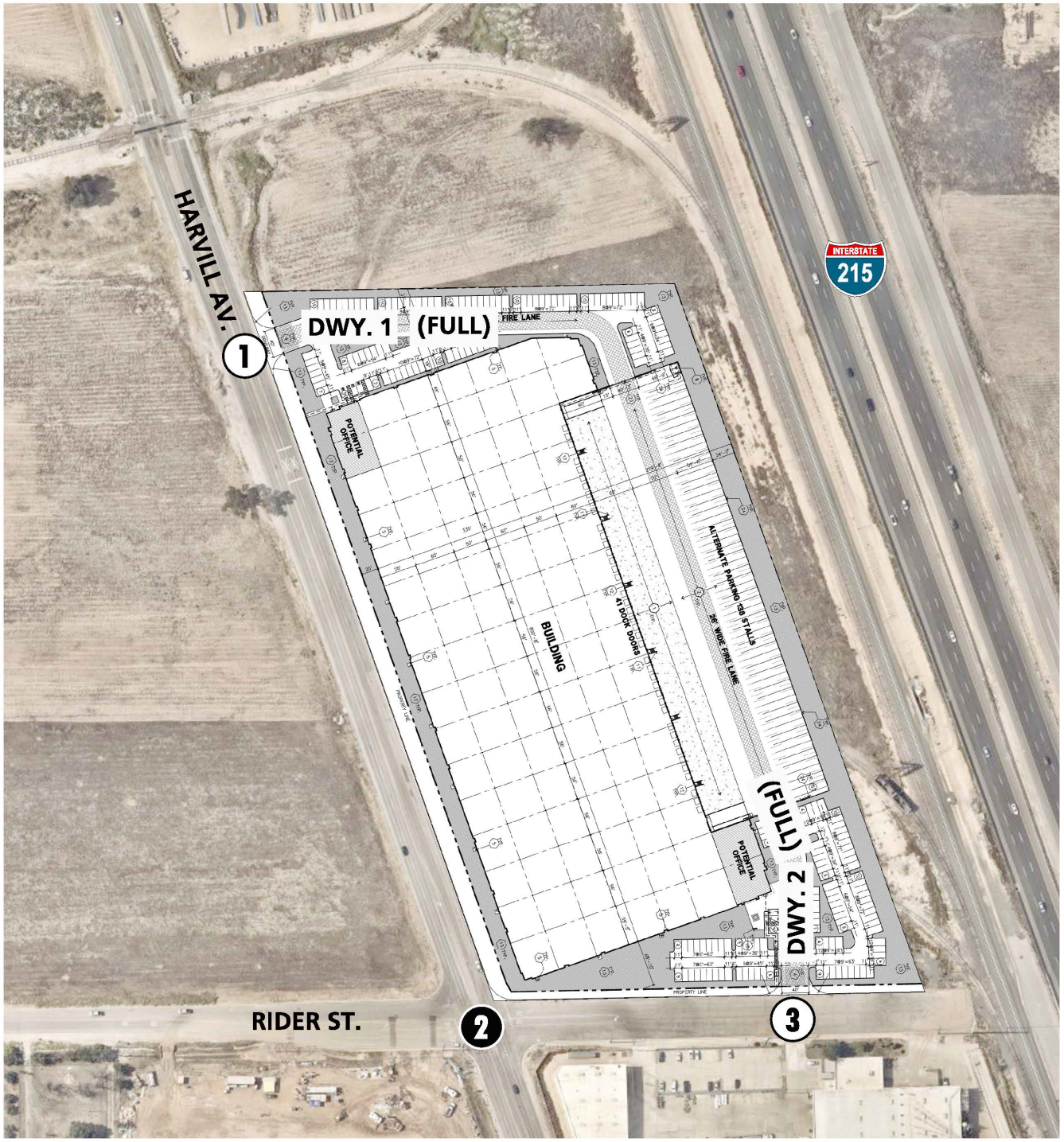
EXHIBIT 2: LOCATION MAP



LEGEND:

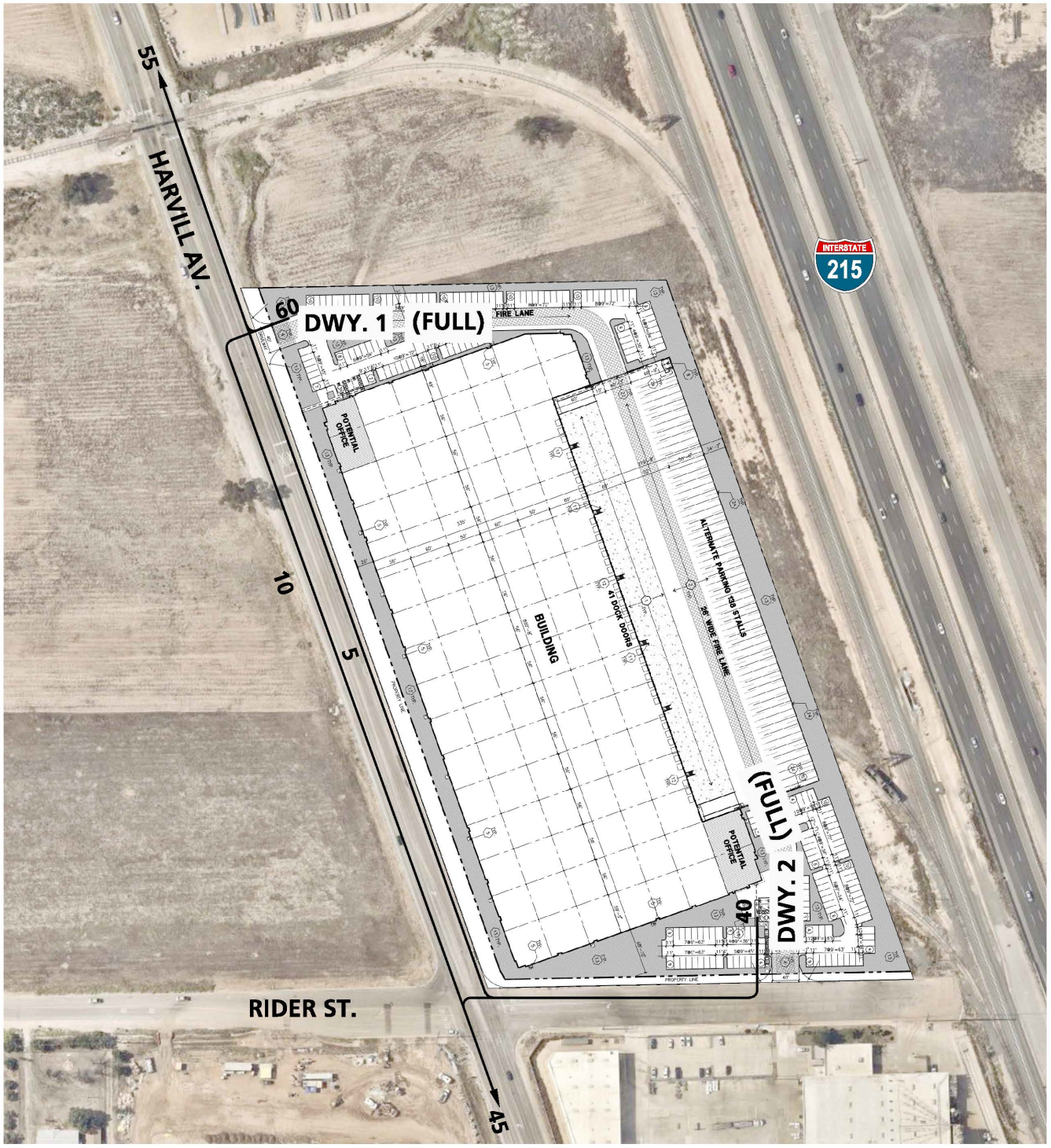
- ⓪ = EXISTING INTERSECTION ANALYSIS LOCATION
- ⓪ = FUTURE INTERSECTION ANALYSIS LOCATION

N

12843 - locmap.dwg

URBAN CROSSROADS

EXHIBIT 3: PROJECT (PASSENGER CAR) (WITH I-215/PLACENTIA INTERCHANGE) TRIP DISTRIBUTION



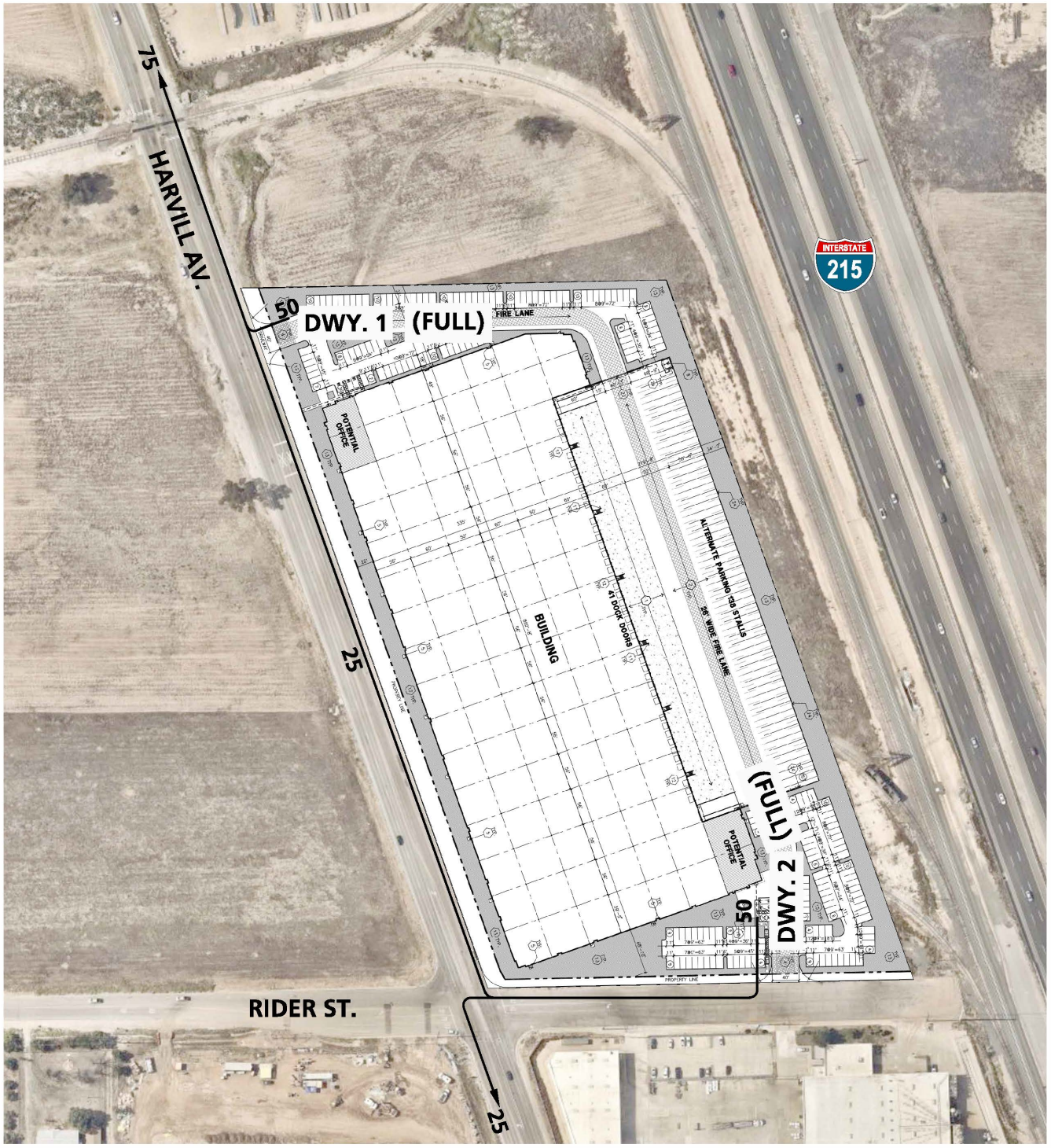
LEGEND:

10 = PERCENT TO/FROM PROJECT

N

12843 - trip.dwg

EXHIBIT 4: PROJECT (TRUCKS) (WITH I-215/PLACENTIA INTERCHANGE) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

12843 - trip.dwg

EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP

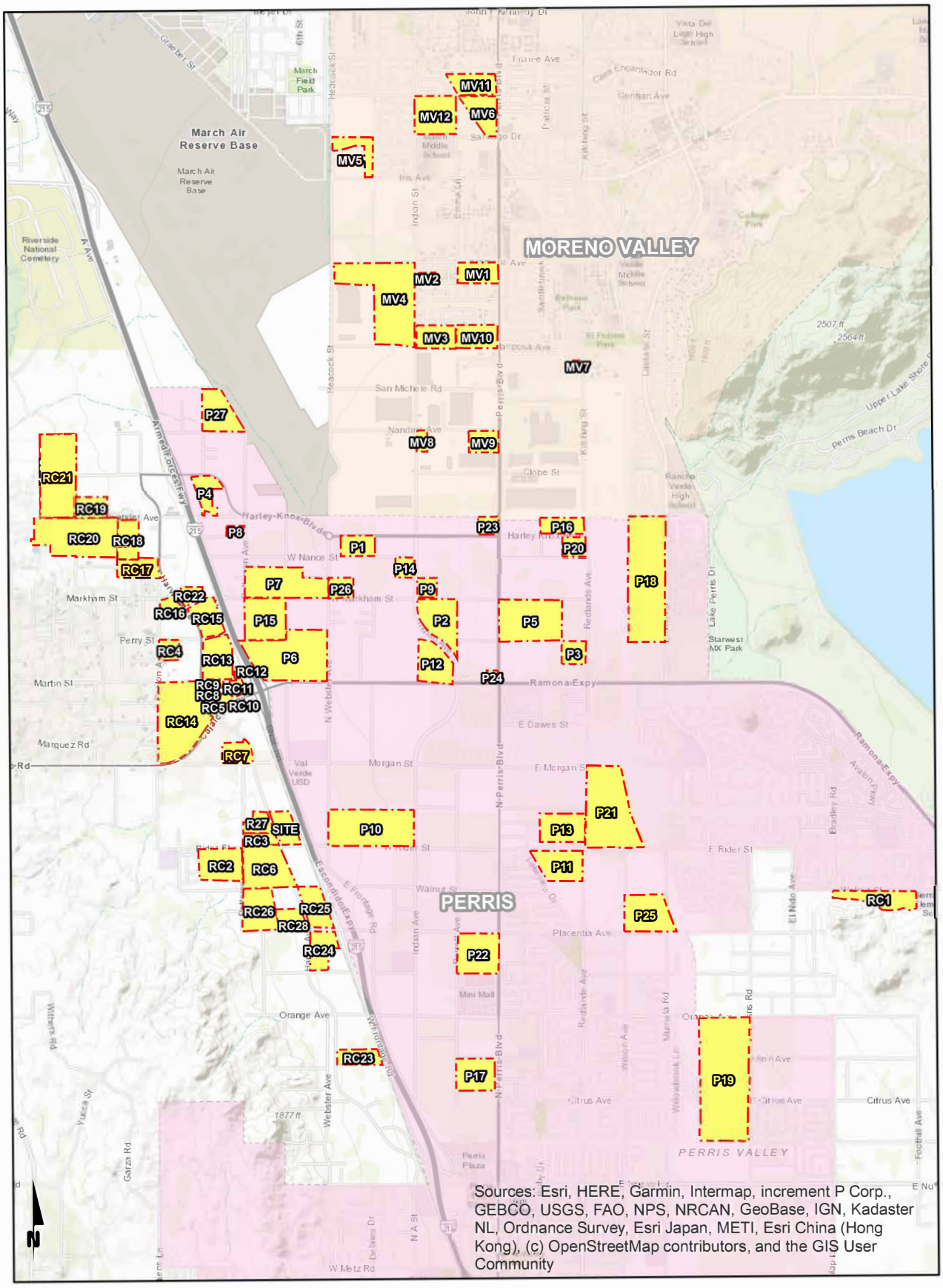


Table 1

Project Trip Generation Summary (PCE)

Land Use	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Rates[1]									
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%) (PCE = 1.5)[5]			0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks (3.9%) (PCE = 2.0)[5]			0.048	0.007	0.055	0.006	0.043	0.049	0.387
4-Axle+ Trucks (9.5%) (PCE = 3.0)[5]			0.176	0.024	0.200	0.023	0.156	0.180	1.414
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (80.00%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (3.34%) (PCE = 1.5)[5]			0.005	0.001	0.006	0.002	0.004	0.005	0.113
3-Axle Trucks (4.14%) (PCE = 2.0)[5]			0.008	0.002	0.010	0.003	0.006	0.009	0.187
4-Axle+ Trucks (12.52%) (PCE = 3.0)[5]			0.036	0.011	0.046	0.011	0.029	0.041	0.847

Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary									
Harvill & Rider Warehouse									
General Light Industrial (15%)	50.249	TSF							
Passenger Cars:			24	3	27	3	22	25	196
Truck Trips:									
2-axle:			4	1	5	0	3	3	30
3-axle:			2	0	2	0	2	2	20
4+-axle:			9	1	10	1	8	9	72
- Truck Trips (PCE)			*15*	*2*	*17*	*1*	*13*	*14*	*122*
High-Cube Transload Short-Term Warehouse (85%)	284.746	TSF							
Passenger Cars:			12	4	16	6	16	22	270
Truck Trips:									
2-axle:			1	0	1	0	1	1	32
3-axle:			2	1	3	1	2	3	54
4+-axle:			10	3	13	3	8	11	242
- Truck Trips (PCE)			*13*	*4*	*17*	*4*	*11*	*15*	*328*
TOTAL TRIPS (PCE)			***64***	***13***	***77***	***14***	***62***	***76***	***916***

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

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).

Normalized % - Without Cold Storage:

16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

[5] PCE rates are per SBCTA (more conservative than Riverside County).

Table 2

Project Trip Generation Summary (Actual Vehicles)

Land Use	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Rates (Actual Vehicles)[1]									
General Light Industrial[3]	110	TSF	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%)			0.049	0.007	0.056	0.007	0.044	0.050	0.397
3-Axle Trucks (3.9%)			0.024	0.003	0.027	0.003	0.021	0.025	0.193
4-Axle+ Trucks (9.5%)			0.059	0.008	0.067	0.008	0.052	0.060	0.471
High-Cube Transload Short-Term Warehouse[4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (80.00%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (3.34%)			0.003	0.001	0.004	0.001	0.003	0.004	0.075
3-Axle Trucks (4.14%)			0.004	0.001	0.005	0.001	0.003	0.004	0.093
4-Axle+ Trucks (12.52%)			0.012	0.004	0.015	0.004	0.010	0.014	0.282

Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary									
Harvill & Rider Warehouse									
General Light Industrial (15%)	50.249	TSF							
Passenger Cars:			24	3	27	3	22	25	196
Truck Trips:									
2-axle:			2	0	2	0	2	2	20
3-axle:			1	0	1	0	1	1	10
4+-axle:			3	0	3	0	3	3	24
- Truck Trips (Actual)			*6*	*0*	*6*	*0*	*6*	*6*	*54*
High-Cube Transload Short-Term Warehouse (85%)	284.746	TSF							
Passenger Cars:			12	4	16	6	16	22	270
Truck Trips:									
2-axle:			1	0	1	0	1	1	22
3-axle:			1	0	1	0	1	1	28
4+-axle:			3	1	4	1	3	4	80
- Truck Trips (Actual)			*5*	*1*	*6*	*1*	*5*	*6*	*130*
TOTAL TRIPS (Actual)			***47***	***8***	***55***	***10***	***49***	***59***	***650***

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

[2] TSF = Thousand Square Feet

[3] Vehicle Mix Source: City of Fontana Truck Trip Generation Study, August 2003.

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
Normalized % - Without Cold Storage:
16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.5% 4-Axle trucks

Table 3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
Riverside County					
RC1	McCanna Hills / TTM 33978	SFDR	63	DU	SWC OF SHERMAN AVE. & WALNUT AVE.
RC2	PP26293	High-Cube Warehouse	612.481	TSF	SWC OF PATTERSON AVE. & RIDER ST.
RC3	PPT180023: Rider Commerce Center	Warehousing	204.330	TSF	NEC OF PATTERSON AVE. & RIDER ST.
RC4	PPT180025: Seaton Commerce Center	High-Cube Warehouse	210.800	TSF	SEC OF SEATON AV. & PERRY ST.
RC5	Farmer Boys/Retail Shop	Retail	16.306	TSF	NEC OF HARVILL AVE. & CAJALCO RD.
		Fast-Food with Drive Thru	3.252	TSF	
RC6	PP26173	High-Cube Warehouse	423.665	TSF	SWC OF HARVILL AVE. & RIDER ST.
RC7	Val Verde Logistics Center	High-Cube Warehouse	280.308	TSF	NWC OF HARVILL AVE. & OLD CAJALCO RD.
RC8	Majestic Freeway Business Center - Building 5	Warehousing	40.000	TSF	NEC OF HARVILL AVE. & MESSENIA LN.
RC9	Majestic Freeway Business Center - Building 6	Warehousing	72.000	TSF	NORTH OF MESSENIA LN., EAST OF HARVILL AVE.
RC10	Majestic Freeway Business Center - Building 7	Warehousing	80.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC11	Majestic Freeway Business Center - Building 8	Warehousing	110.000	TSF	NORTH OF CAJALCO EXWY., EAST OF HARVILL AVE.
RC12	Majestic Freeway Business Center - Building 9	Warehousing	45.000	TSF	EAST OF MESSENIA LN., NORTH OF HARVILL AVE.
RC13	Majestic Freeway Business Center - Building 10	High-Cube Warehouse	600.000	TSF	SEC OF HARVILL AVE. & PERRY ST.
RC14	Majestic Freeway Business Center - Buildings 1, 3 & 4	Warehousing	48.930	TSF	NWC OF HARVILL AVE. & CAJALCO RD.
		High-Cube Warehouse	1195.740	TSF	
RC15	Majestic Freeway Business Center - Building 11	High-Cube Warehouse	391.045	TSF	NEC OF HARVILL AVE. & PERRY ST.
RC16	Majestic Freeway Business Center - Building 15	Warehousing	90.279	TSF	NWC OF HARVILL AVE. & COMMERCE CENTER DR.
RC17	Majestic Freeway Business Center - Building 19	Warehousing	364.560	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC18	Majestic Freeway Business Center - Building 20	Warehousing	425.830	TSF	SWC OF HARVILL AVE. & OLD OLEANDER AVE.
RC19	Majestic Freeway Business Center - Building 21,22	Warehousing	241.059	TSF	NEC OF DECKER RD. & OLD OLEANDER AVE.
RC20	Knox Logistics Center	High-Cube Warehouse	1259.410	TSF	NWC OF DECKER RD. & OLD OLEANDER AVE.
RC21	Oleander Business Park	High-Cube Warehouse	680.000	TSF	NWC OF DECKER RD. & HARLEY KNOX BLVD.
RC22	Majestic Freeway Business Center - Building 12	Warehousing	154.751	TSF	NEC OF HARVILL AVE. & COMMERCE CENTER DR.
RC23	Harvill Distribution Center	High-Cube Warehouse	345.103	TSF	EAST OF HARVILL AVE., SOUTH OF ORANGE ST.
RC24	PP26241	Warehousing	23.600	TSF	SEC OF HARVILL AVE. & PLACENTIA ST.
RC25	PP26220	Warehousing	66.000	TSF	EAST OF HARVILL AVE., NORTH OF PLACENTIA ST.
RC26	Barker Logistics	High-Cube Warehouse	699.630	TSF	SWC OF PATTERSON AVE. & PLACENTIA ST.
RC27	Dedeaux Truck Terminal	Truck Terminal	55.700	TSF	NORTH OF RIDER ST., WEST OF HARVILL AV.
RC28	Placentia Logistics	High-Cube Warehouse	274.190	TSF	NWC OF HARVILL AV. & PLACENTIA AV.
City of Perris					
P1	Bargemann / DPR 07-09-0018	Warehousing	173.000	TSF	NEC OF WEBSTER & NANCE
P2	Duke 2 / DPR 16-00008	High-Cube Warehouse	669.000	TSF	NEC OF INDIAN & MARKHAM
P3	First Perry / DPR 16-00013	High-Cube Warehouse	240.000	TSF	SWC OF REDLANDS AVE. & PERRY ST.
P4	Gateway / DPR 16-00003	High-Cube Warehouse	400.000	TSF	SOUTH OF HARLEY KNOX BLVD., EAST OF HWY. 215
P6	OLC 1 / DPR 12-10-0005	High-Cube Warehouse	1,455.000	TSF	WEST OF WEBSTER AVE., NORTH OF RAMONA EXWY.
P5	Duke Realty - Perris & Markham	High-Cube Warehouse	1,189.860	TSF	SEC OF PERRIS BL. & MARKHAM ST.
P7	OLC2 / DPR 14-01-0015	High-Cube Warehouse	1,037.000	TSF	WEST OF WEBSTER AVE., NORTH OF MARKHAM ST.

Table 3

Cumulative Development Land Use Summary

No.	Project Name / Case Number	Land Use[1]	Quantity	Units[2]	Location
P8	Canyon Steel	Manufacturing	28.124	TSF	NWC OF PATTERSON AVE. & CALIFORNIA AVE.
P9	Markham Industrial / DPR 16-00015	Warehousing	170.000	TSF	NEC OF INDIAN AVE. & MARKHAM ST.
P10	Rados / DPR 07-0119	High-Cube Warehouse	1,200.000	TSF	NWC OF INDIAN AVE. & RIDER ST.
P11	Rider 1 / DPR 16-0365	High-Cube Warehouse	350.000	TSF	SWC OF REDLANDS AVE. & RIDER ST.
P12	Indian/Ramona Warehouse	High-Cube Warehouse	428.730	TSF	NORTH OF RAMONA EXWY., WEST OF INDIAN AVE.
P13	Rider 3 / DPR 06-0432	High-Cube Warehouse	640.000	TSF	NORTH OF RIDER ST., WEST OF REDLANDS
P14	Westcoast Textile / DPR 16-00001	Warehousing	180.000	TSF	SWC OF INDIAN ST. & NANCE ST.
P15	Duke at Patterson / DPR 17-00001	High-Cube Warehouse	811.000	TSF	SEC OF PATTERSON AVE. & MARKHAM ST.
P16	Harley Knox Commerce Park / DPR 16-004	High-Cube Warehouse	386.278	TSF	NWC OF HARLEY KNOX BLVD. & REDLANDS AVE.
P17	Perris Marketplace / DPR 05-0341	Commercial Retail	520.000	TSF	WEST OF PERRIS BLVD. AT AVOCADO AVE.
P18	Stratford Ranch Residential / TTM 36648	SFDR	270	DU	WEST OF EVANS RD. AT MARKHAM ST.
P19	Pulte Residential / TTM 30850	SFDR	496	DU	WEST OF EVANS RD. AT CITRUS AVE.
P20	Perris Circle 3	Warehousing	210.900	TSF	NWC OF REDLANDS AVE. & NANCE AVE.
P21	Rider 2 and 4	High-Cube Warehouse	1,376.721	TSF	NWC OF REDLANDS AVE. AND RIDER ST.
P22	Weinerschnitzel / CUP 17-05083	Fast-Food Restaurant	2.000	TSF	WEST OF PERRIS BL., SOUTH OF PLACENTIA AVE.
P23	March Plaza / CUP16-05165	Commercial Retail	47.253	TSF	NWC OF PERRIS BL. AND HARLEY KNOX BL.
P24	Cali Express Carwash / CUP 16-05258	Carwash	5.600	TSF	NWC OF PERRIS BL. AND RAMONA EXWY.
P25	Wilson Industrial / DPR 19-00007	High-Cube Warehouse	303.000	TSF	SEC OF WILSON AVE. AND RIDER ST.
P26	Integra Expansion / MMOD 17-05075	High-Cube Warehouse	273.000	TSF	NCE OF MARKHAM ST. AND WEBSTER AVE.
P27	Western Industrial / DRP 19-00003	High-Cube Warehouse	250.000	TSF	NEC or WESTERN WY. AND NANDINA AVE.
City of Moreno Valley					
MV1	PEN18-0042	SFDR	2	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV2	Tract 33024	SFDR	8	DU	SEC OF INDIAN ST. & KRAMERIA AVE.
MV3	Tract 32716	SFDR	57	DU	NEC OF INDIAN ST. & MARIPOSA AVE.
MV4	Prologis 1	High-Cube Warehouse	1000.000	TSF	NEC OF INDIAN AVE. & MARIPOSA AVE.
MV5	Moreno Valley Industrial Park	High-Cube Warehouse	207.684	TSF	NEC OF HEACOCK ST. & IRIS AVE.
MV6	Moreno Valley Walmart	Retail	193.000	TSF	SWC OF PERRIS BLVD. & GENTIAN AVE.
MV7	Moreno Valley Utility Substation	High-Cube Warehouse	PUBLIC	TSF	NWC OF EDWIN RD. & KITCHING ST.
MV8	Phelan Development	High-Cube Warehouse	98.210	TSF	SEC OF INDIAN ST. & NANDINA AVE.
MV9	Nandina Industrial Center	High-Cube Warehouse	335.966	TSF	SOUTH OF NANDINA AVE., WEST OF PERRIS BLVD.
MV10	Tract 31442	SFDR	63	DU	NWC OF PERRIS BLVD. & MARIPOSA AVE.
MV11	Tract 22180	SFDR	140	DU	NORTH OF GENTIAN AVE., EAST OF INDIAN ST.
MV12	Tract 36760	SFDR	221	DU	SEC OF INDIAN ST. & GENTIAN AVE.

[1] SFDR = Single Family Detached Residential

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

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APPENDIX 1.2:

SITE ADJACENT QUEUES

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Intersection: 1: Harvill Av. & Driveway 1

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	29	43
Average Queue (ft)	6	13
95th Queue (ft)	26	36
Link Distance (ft)	106	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Harvill Av. & Rider St.

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	R	L	R	L	TR	L	TR
Maximum Queue (ft)	55	36	22	12	37	4	27	4
Average Queue (ft)	20	13	3	2	10	0	5	0
95th Queue (ft)	45	27	14	10	29	3	21	3
Link Distance (ft)				375		2742		970
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	115	170	165		150		160	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Driveway/Driveway 2 & Rider St.

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	29	28
Average Queue (ft)	2	6
95th Queue (ft)	15	24
Link Distance (ft)	87	126
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Harvill Av. & Driveway 1

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	49	22
Average Queue (ft)	22	2
95th Queue (ft)	45	13
Link Distance (ft)	106	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Harvill Av. & Rider St.

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	R	L	R	L	L
Maximum Queue (ft)	75	45	44	17	46	12
Average Queue (ft)	29	15	17	5	13	1
95th Queue (ft)	60	33	38	15	34	6
Link Distance (ft)				375		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	115	170	165		150	160
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Driveway/Driveway 2 & Rider St.

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	35	42
Average Queue (ft)	15	16
95th Queue (ft)	39	39
Link Distance (ft)	87	126
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – OCTOBER 2019

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INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Oct 29, 19

LOCATION: Perris
NORTH & SOUTH: Harvill
EAST & WEST: Rider

PROJECT #: SC2407
LOCATION #: 4
CONTROL: STOP E/W

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N / ◄ W / E ► / S ▼

Add U-Turns to Left Turns

		NORTHBOUND (Harvill)			SOUTHBOUND (Harvill)			EASTBOUND (Rider)			WESTBOUND (Rider)			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	6	251	0	0	49	3	8	0	9	0	0	1	327
AM	7:15 AM	4	206	0	1	72	4	2	0	12	0	0	0	301
AM	7:30 AM	8	177	0	1	70	2	5	0	10	0	0	0	273
AM	7:45 AM	7	163	2	2	90	5	5	0	8	0	0	1	283
AM	8:00 AM	6	118	1	0	66	6	6	0	2	0	0	1	206
AM	8:15 AM	3	75	0	0	54	1	1	0	10	0	0	1	145
AM	8:30 AM	6	65	0	4	53	0	4	0	2	0	0	0	134
AM	8:45 AM	5	62	0	0	54	2	5	0	8	0	0	0	136
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	VOLUMES	45	1,117	3	8	508	23	36	0	61	0	0	4	1,805
AM	APPROACH %	4%	96%	0%	1%	94%	4%	37%	0%	63%	0%	0%	100%	
AM	APP/DEPART	1,165	/	1,157	539	/	569	97	/	11	4	/	68	0
AM	BEGIN PEAK HR		7:00 AM											
AM	VOLUMES	25	797	2	4	281	14	20	0	39	0	0	2	1,184
AM	APPROACH %	3%	97%	0%	1%	94%	5%	34%	0%	66%	0%	0%	100%	
AM	PEAK HR FACTOR		0.802			0.771			0.868			0.500		0.905
AM	APP/DEPART	824	/	819	299	/	320	59	/	6	2	/	39	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	5	112	1	0	127	2	0	0	4	9	0	2	262
PM	4:15 PM	3	79	0	0	156	6	4	0	16	2	0	1	267
PM	4:30 PM	6	72	0	0	151	3	6	0	18	0	0	1	257
PM	4:45 PM	8	92	1	0	147	6	5	0	8	1	0	1	269
PM	5:00 PM	8	87	1	0	130	5	6	0	15	0	0	1	253
PM	5:15 PM	4	77	0	0	111	1	6	0	13	0	0	0	212
PM	5:30 PM	5	85	0	0	140	4	2	0	8	1	0	1	246
PM	5:45 PM	4	75	0	0	143	3	3	0	15	0	0	0	243
PM	VOLUMES	43	679	3	0	1,105	30	32	0	97	13	0	7	2,009
PM	APPROACH %	6%	94%	0%	0%	97%	3%	25%	0%	75%	65%	0%	35%	
PM	APP/DEPART	725	/	718	1,135	/	1,216	129	/	3	20	/	72	0
PM	BEGIN PEAK HR		4:00 PM											
PM	VOLUMES	22	355	2	0	581	17	15	0	46	12	0	5	1,055
PM	APPROACH %	6%	94%	1%	0%	97%	3%	25%	0%	75%	71%	0%	29%	
PM	PEAK HR FACTOR		0.803			0.923			0.635			0.386		0.980
PM	APP/DEPART	379	/	375	598	/	640	61	/	2	17	/	38	0

U-TURNS					
	NB 0	SB 0	EB 0	WB 0	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	1	0	0	0	1

RTOR				
	NRR X	SRR X	ERR X	WRR X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0

Harvill

NORTH SIDE

Rider WEST SIDE EAST SIDE **Rider**

SOUTH SIDE

Harvill

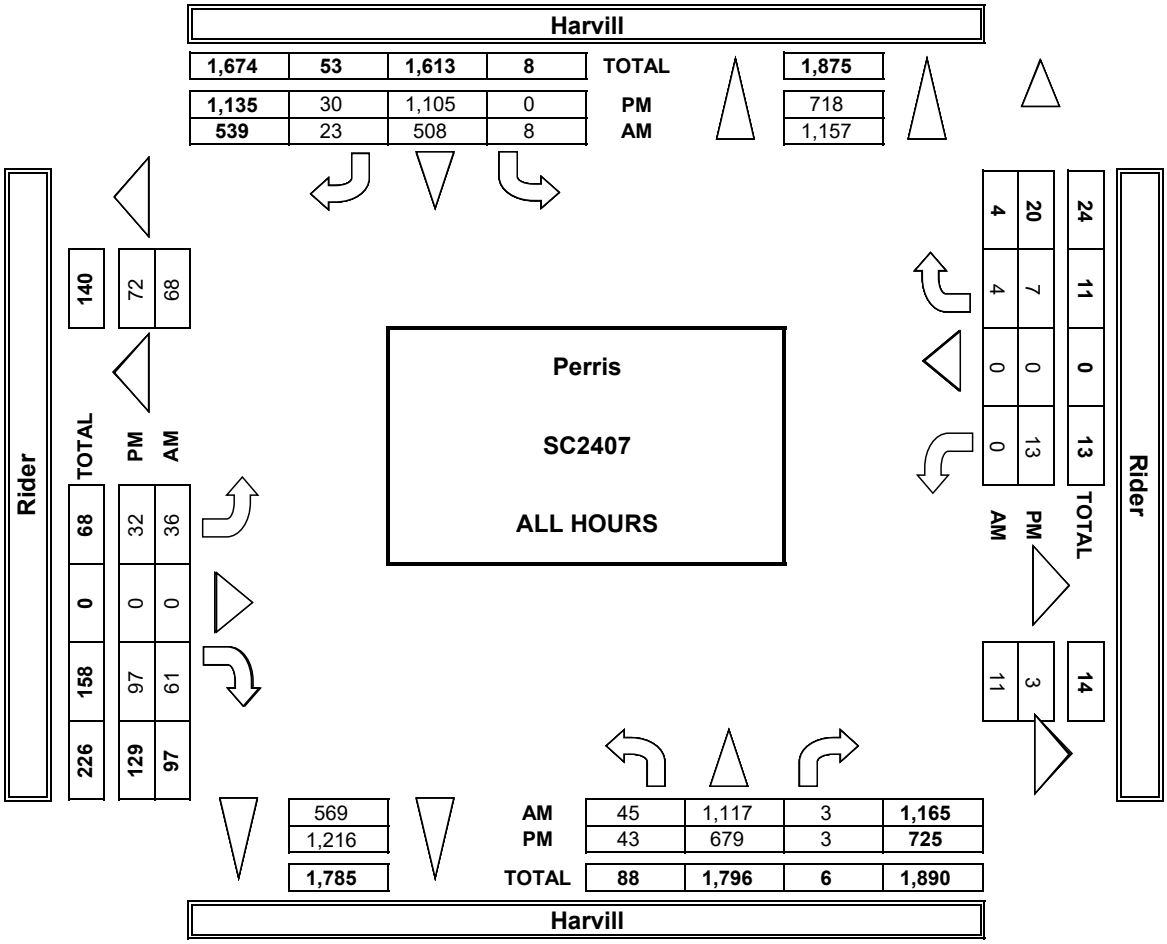
	ALL PED AND BIKE				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	2	0	0	0	2
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1
TOTAL	2	1	0	0	3

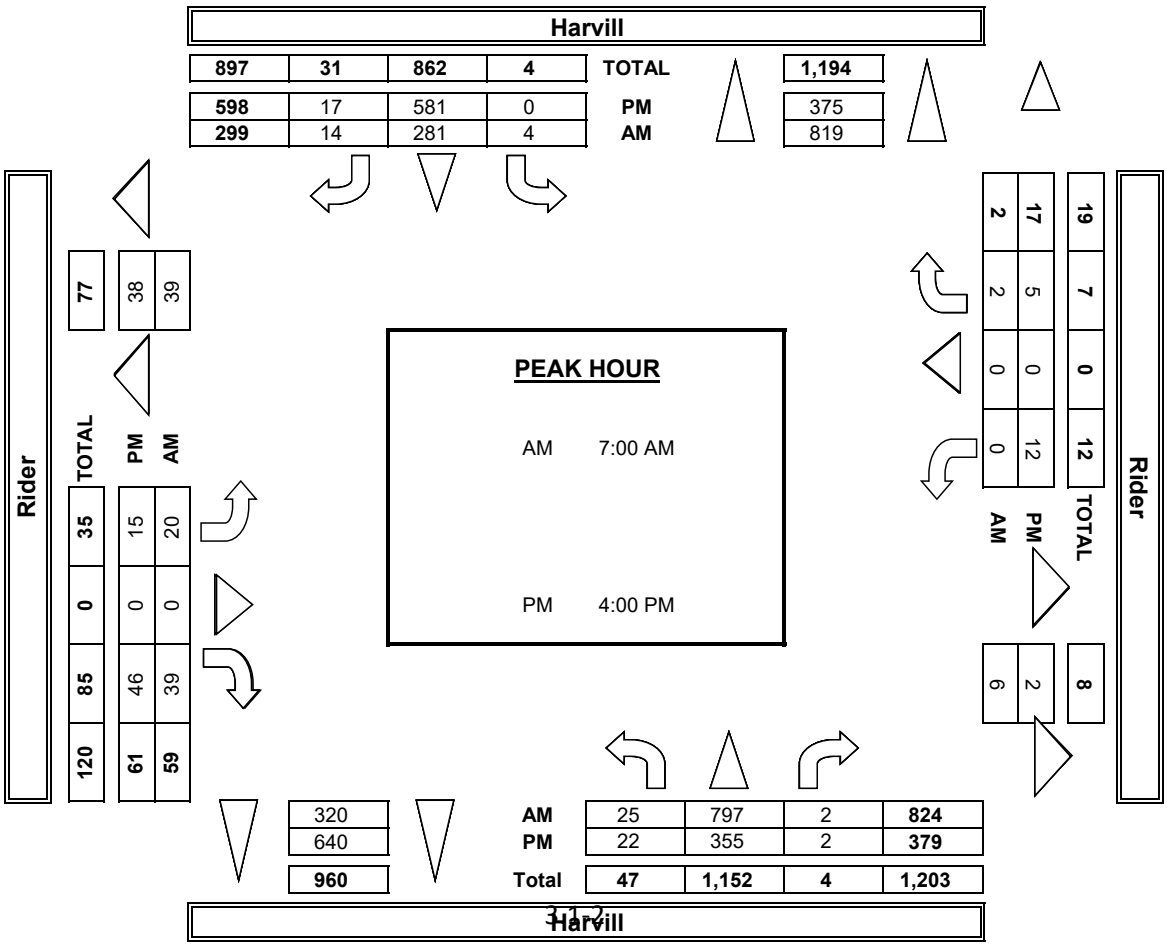
PEDESTRIAN CROSSINGS					
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	2	0	0	0	2
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1
TOTAL	0	0	0	0	3

BICYCLE CROSSINGS					
	ES	WS	SS	NS	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	1
TOTAL	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC2407
10/29/19	NORTH & SOUTH:	Harvill	LOCATION #:	4
TUESDAY	EAST & WEST:	Rider	CONTROL:	STOP E/W

CLASS 2:	NOTES:			
2-AXLE		AM		▲ N
WORK		PM	◄ W	E ►
VEHICLES/		MD		S
TRUCKS		OTHER		▼
		OTHER		

	NORTHBOUND Harvill			SOUTHBOUND Harvill			EASTBOUND Rider			WESTBOUND Rider			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	1	0	
AM 7:00 AM	0	7	0	0	7	0	0	0	0	0	0	0	14
7:15 AM	0	13	0	0	5	1	0	0	1	0	0	0	20
7:30 AM	2	10	0	0	5	0	2	0	0	0	0	0	19
7:45 AM	1	12	0	0	6	1	0	0	1	0	0	1	22
8:00 AM	0	9	0	0	4	0	0	0	0	0	0	0	13
8:15 AM	0	6	0	0	9	0	0	0	1	0	0	0	16
8:30 AM	0	10	0	0	6	0	0	0	0	0	0	0	16
8:45 AM	0	7	0	0	7	0	0	0	0	0	0	0	14
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	3	74	0	0	49	2	2	0	3	0	0	1	134
APPROACH %	4%	96%	0%	0%	96%	4%	40%	0%	60%	0%	0%	100%	
APP/DEPART	77	/	77	51	/	52	5	/	0	1	/	5	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	3	42	0	0	23	2	2	0	2	0	0	1	75
APPROACH %	7%	93%	0%	0%	92%	8%	50%	0%	50%	0%	0%	100%	
PEAK HR FACTOR		0.865			0.893			0.500			0.250		0.852
APP/DEPART	45	/	45	25	/	25	4	/	0	1	/	5	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	2	0	0	6	0	0	0	0	0	0	0	8
4:15 PM	0	3	0	0	11	0	1	0	1	0	0	0	16
4:30 PM	0	2	0	0	8	0	0	0	0	0	0	0	10
4:45 PM	2	3	0	0	10	0	0	0	0	0	0	0	15
5:00 PM	0	2	0	0	9	0	0	0	1	0	0	0	12
5:15 PM	2	2	0	0	6	0	0	0	0	0	0	0	10
5:30 PM	0	4	0	0	4	1	0	0	0	0	0	0	9
5:45 PM	0	2	0	0	8	0	0	0	1	0	0	0	11
VOLUMES	4	20	0	0	62	1	1	0	3	0	0	0	91
APPROACH %	17%	83%	0%	0%	98%	2%	25%	0%	75%	0%	0%	0%	
APP/DEPART	24	/	21	63	/	65	4	/	0	0	/	5	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	2	10	0	0	38	0	1	0	2	0	0	0	53
APPROACH %	17%	83%	0%	0%	100%	0%	33%	0%	67%	0%	0%	0%	
PEAK HR FACTOR		0.600			0.864			0.375			0.000		0.828
APP/DEPART	12	/	11	38	/	40	3	/	0	0	/	2	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:						X	X	X	X
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0
PEAK HR VOLUMES						0	0	0	0

Harvill

NORTH SIDE

Rider WEST SIDE

EAST SIDE **Rider**

SOUTH SIDE

Harvill

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC2407
10/29/19	NORTH & SOUTH:	Harvill	LOCATION #:	4
TUESDAY	EAST & WEST:	Rider	CONTROL:	STOP E/W

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Harvill			SOUTHBOUND Harvill			EASTBOUND Rider			WESTBOUND Rider			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	1	0	
AM													
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	1	1	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	1	2
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	1	2	0	0	0	0	0	3
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	3	1	1	2	2	2	0	0	0	0	1	12
APPROACH %	0%	75%	25%	20%	40%	40%	100%	0%	0%	0%	0%	100%	
APP/DEPART	4	/	6	5	/	2	2	/	2	1	/	2	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	0	0	0	0	2	2	2	0	0	0	0	1	7
APPROACH %	0%	0%	0%	0%	50%	50%	100%	0%	0%	0%	0%	100%	
PEAK HR FACTOR		0.000			1.000			0.250			0.250		0.583
APP/DEPART	0	/	3	4	/	2	2	/	0	1	/	2	0
PM													
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	4	0	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	2	0	0	10	0	0	0	0	0	0	0	12
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	2	/	2	10	/	10	0	/	0	0	/	0	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	2	0	0	9	0	0	0	0	0	0	0	11
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.500			0.563			0.000			0.000		0.688
APP/DEPART	2	/	2	9	/	9	0	/	0	0	/	0	0

U-TURNS

	NB	SB	EB	WB	TTL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
03:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0

RTOR

	NRR	SRR	ERR	WRR
LANES	X	X	X	X
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
9:00 AM	0	0	0	0
9:15 AM	0	0	0	0
9:30 AM	0	0	0	0
9:45 AM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0
03:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
VOLUMES	0	0	0	0
PEAK HR VOLUMES	0	0	0	0

Harvill

NORTH SIDE

Rider WEST SIDE

EAST SIDE **Rider**

SOUTH SIDE

Harvill

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC2407
10/29/19	NORTH & SOUTH:	Harvill	LOCATION #:	4
TUESDAY	EAST & WEST:	Rider	CONTROL:	STOP E/W

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM PM MD OTHER OTHER | ▲ N | ◄ W | E ► | S ▼

	NORTHBOUND Harvill			SOUTHBOUND Harvill			EASTBOUND Rider			WESTBOUND Rider				U-TURNS					RTOR			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	1	2	0	1	2	0	1	2	0	1	1	0							X	X	X	X
AM 7:00 AM	0	2	0	0	6	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
7:15 AM	0	4	0	0	4	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
7:30 AM	0	3	0	0	6	0	1	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
8:00 AM	0	3	0	0	9	2	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	0	0	5	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
8:30 AM	0	3	0	0	4	0	1	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
8:45 AM	0	4	0	0	6	1	1	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	22	0	0	43	3	3	0	0	0	0	0	71	0	0	0	0	0	0	0	0	0
APPROACH %	0%	100%	0%	0%	93%	7%	100%	0%	0%	0%	0%	0%										
APP/DEPART	22	/	25	46	/	43	3	/	0	0	/	3	0									
BEGIN PEAK HR		8:00 AM																				
VOLUMES	0	12	0	0	24	3	2	0	0	0	0	0	41						0	0	0	0
APPROACH %	0%	100%	0%	0%	89%	11%	100%	0%	0%	0%	0%	0%										
PEAK HR FACTOR		0.750			0.614			0.500			0.000		0.732									
APP/DEPART	12	/	14	27	/	24	2	/	0	0	/	3	0									
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	7	3	0	0	0	1	0	0	13	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	6	0	0	0	1	0	0	0	7	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	6	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
5:00 PM	1	2	0	0	6	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	6	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	6	0	1	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0
VOLUMES	1	7	0	0	54	3	1	0	1	1	0	0	68	0	0	0	0	0	0	0	0	0
APPROACH %	13%	88%	0%	0%	95%	5%	50%	0%	50%	100%	0%	0%										
APP/DEPART	8	/	8	57	/	56	2	/	0	1	/	4	0									
BEGIN PEAK HR		4:15 PM																				
VOLUMES	1	5	0	0	25	3	0	0	1	1	0	0	36						0	0	0	0
APPROACH %	17%	83%	0%	0%	89%	11%	0%	0%	100%	100%	0%	0%										
PEAK HR FACTOR		0.500			0.700			0.250			0.250		0.692									
APP/DEPART	6	/	5	28	/	27	1	/	0	1	/	4	0									

Harvill

NORTH SIDE

Rider WEST SIDE

EAST SIDE **Rider**

SOUTH SIDE

Harvill

A816

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: Tuesday, October 29, 2019 **CITY:** Perris

JOB #: SC2407 **LOCATION:** Harvill north of Rider

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	7	0	0	1	0	0	8	12:00	61	5	2	3	0	0	71
0:15	8	0	0	0	0	0	8	12:15	50	7	2	2	0	0	61
0:30	1	0	0	1	0	0	2	12:30	53	3	1	3	0	0	60
0:45	5	0	0	1	0	0	6	12:45	76	3	1	1	0	0	81
1:00	2	0	0	0	0	0	2	13:00	66	3	0	3	0	0	72
1:15	5	0	0	1	0	0	6	13:15	64	4	1	2	0	3	74
1:30	3	0	0	1	0	0	4	13:30	85	2	3	0	0	2	92
1:45	1	1	0	0	0	0	2	13:45	75	1	2	2	0	1	81
2:00	7	0	0	0	0	0	7	14:00	98	3	2	1	0	1	105
2:15	6	0	0	1	0	0	7	14:15	84	3	0	2	0	1	90
2:30	5	0	0	1	0	0	6	14:30	110	3	1	1	0	1	116
2:45	11	0	0	1	0	0	12	14:45	107	1	0	6	0	0	114
3:00	11	0	1	0	0	0	12	15:00	79	4	3	2	0	0	88
3:15	11	0	0	1	0	0	12	15:15	102	5	1	2	0	0	110
3:30	24	0	0	2	0	0	26	15:30	117	4	0	7	0	0	128
3:45	27	2	0	2	0	0	31	15:45	96	3	1	1	0	0	101
4:00	22	1	0	0	0	0	23	16:00	111	2	1	0	0	0	114
4:15	39	1	0	3	0	0	43	16:15	77	4	0	2	0	1	84
4:30	40	1	0	2	0	0	43	16:30	78	2	0	0	0	0	80
4:45	45	1	0	1	0	0	47	16:45	93	3	1	1	0	0	98
5:00	48	2	0	0	0	0	50	17:00	90	2	0	2	0	0	94
5:15	48	1	0	2	0	0	51	17:15	80	2	0	1	0	0	83
5:30	66	4	0	3	0	0	73	17:30	82	4	0	2	0	0	88
5:45	88	5	0	1	0	0	94	17:45	76	2	0	0	0	0	78
6:00	78	3	0	3	0	0	84	18:00	77	0	0	1	0	0	78
6:15	141	2	0	1	0	0	144	18:15	66	1	2	3	0	0	72
6:30	220	5	0	3	0	0	228	18:30	57	1	1	2	0	0	61
6:45	283	14	1	1	0	2	301	18:45	65	0	1	1	0	0	67
7:00	249	7	1	2	0	1	260	19:00	79	1	0	1	0	0	81
7:15	191	13	0	4	0	0	208	19:15	49	1	0	1	0	0	51
7:30	164	12	1	4	0	1	182	19:30	47	0	0	2	0	0	49
7:45	154	13	1	1	0	0	169	19:45	38	0	1	2	0	0	41
8:00	111	9	1	3	0	1	125	20:00	35	0	0	0	0	0	35
8:15	69	6	0	2	0	0	77	20:15	34	0	0	0	0	0	34
8:30	54	10	0	4	0	1	69	20:30	30	0	2	1	0	0	33
8:45	53	7	2	5	0	0	67	20:45	43	0	0	1	0	0	44
9:00	48	1	0	3	0	0	52	21:00	34	0	0	0	0	0	34
9:15	48	2	2	2	0	0	54	21:15	39	0	0	1	0	0	40
9:30	46	6	0	2	0	0	54	21:30	35	0	0	1	0	0	36
9:45	49	3	1	2	0	1	56	21:45	22	0	0	0	0	0	22
10:00	51	5	1	5	0	0	62	22:00	17	1	0	0	0	0	18
10:15	49	1	0	8	0	0	58	22:15	18	0	1	2	0	0	21
10:30	54	1	1	8	0	0	64	22:30	19	1	1	1	0	0	22
10:45	58	5	1	6	0	0	70	22:45	15	0	0	0	0	0	15
11:00	65	3	1	5	0	0	74	23:00	19	0	0	2	0	0	21
11:15	52	3	0	4	0	0	59	23:15	13	0	1	0	0	0	14
11:30	74	4	1	4	0	0	83	23:30	9	0	0	0	0	0	9
11:45	55	6	2	1	0	2	66	23:45	5	0	0	2	0	0	7
TOTAL	2,946	160	18	108	0	9	3,241	**TOTAL**	2,875	81	32	70	0	10	3,068
				AM PEAK HOUR			6:30 AM						**AM PEAK HOUR**		3:15 PM
				AM PEAK VOLUME			997						**AM PEAK VOLUME**		453

CLASS 1	PASSENGER VEHICLES	**TOTAL: AM+PM**	5,821	241	50	178	0	19	6,309
CLASS 2	2-AXLE TRUCKS	**% OF TOTAL**	92.3%	3.8%	0.8%	2.8%	0.0%	0.3%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	**TOTAL: ALL**	10,509	521	96	434	0	45	11,605
CLASS 6	Buses	**% OF TOTAL**	90.6%	4.5%	0.8%	3.7%	0.0%	0.4%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: Tuesday, October 29, 2019
JOB #: SC2407
CITY: Perris
LOCATION: Harvill north of Rider

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	13	0	0	0	0	0	13	12:00	65	4	1	4	0	0	74
0:15	5	0	0	1	0	0	6	12:15	61	6	0	1	0	1	69
0:30	12	0	0	0	0	0	12	12:30	62	4	0	3	0	0	69
0:45	7	0	0	1	0	0	8	12:45	64	4	1	1	0	2	72
1:00	3	0	0	0	0	0	3	13:00	62	3	1	6	0	1	73
1:15	4	0	0	0	0	0	4	13:15	69	10	2	7	0	0	88
1:30	5	0	0	2	0	0	7	13:30	68	4	1	0	0	0	73
1:45	5	0	0	2	0	0	7	13:45	50	1	0	1	0	0	52
2:00	6	0	0	3	0	0	9	14:00	71	8	0	5	0	0	84
2:15	3	0	0	4	0	0	7	14:15	78	4	2	3	0	0	87
2:30	2	0	0	1	0	0	3	14:30	122	7	1	2	0	1	133
2:45	3	0	0	1	0	0	4	14:45	113	2	0	1	0	1	117
3:00	2	0	0	2	0	0	4	15:00	102	6	0	4	0	0	112
3:15	3	0	0	2	0	0	5	15:15	118	6	0	2	0	0	126
3:30	6	0	0	4	0	0	10	15:30	103	3	1	2	0	1	110
3:45	7	1	0	0	0	0	8	15:45	151	13	0	3	0	1	168
4:00	10	0	0	1	0	0	11	16:00	114	6	2	6	0	1	129
4:15	8	0	0	1	0	0	9	16:15	136	11	4	10	0	1	162
4:30	13	0	0	1	0	0	14	16:30	139	8	2	6	0	0	155
4:45	20	1	0	0	0	0	21	16:45	134	10	1	6	0	2	153
5:00	10	1	0	0	0	0	11	17:00	118	9	1	6	0	1	135
5:15	15	0	0	0	0	0	15	17:15	99	6	0	6	0	1	112
5:30	27	1	0	0	0	0	28	17:30	133	5	0	6	0	0	144
5:45	24	1	0	3	0	0	28	17:45	127	8	0	11	0	0	146
6:00	29	1	0	1	0	0	31	18:00	109	5	1	2	0	0	117
6:15	33	1	0	4	0	0	38	18:15	98	6	0	3	0	0	107
6:30	29	0	0	2	0	0	31	18:30	97	3	0	3	0	1	104
6:45	54	7	0	0	0	0	61	18:45	82	2	0	3	0	0	87
7:00	39	7	0	6	0	0	52	19:00	78	1	1	4	0	0	84
7:15	67	6	0	4	0	0	77	19:15	60	0	1	4	0	0	65
7:30	62	5	0	6	0	0	73	19:30	55	0	2	6	0	0	63
7:45	85	7	1	3	0	1	97	19:45	40	0	0	5	0	0	45
8:00	52	4	1	11	0	4	72	20:00	35	0	1	4	0	0	40
8:15	37	9	1	5	0	3	55	20:15	35	0	0	3	0	0	38
8:30	44	6	1	4	0	2	57	20:30	22	2	0	4	0	0	28
8:45	41	7	1	7	0	0	56	20:45	33	1	0	0	0	0	34
9:00	47	1	1	1	0	0	50	21:00	17	0	0	1	0	0	18
9:15	41	0	4	1	0	0	46	21:15	32	1	1	0	0	0	34
9:30	39	6	0	2	0	0	47	21:30	23	0	1	0	0	0	24
9:45	45	5	0	1	0	0	51	21:45	23	0	0	2	0	0	25
10:00	67	2	1	1	0	0	71	22:00	15	1	0	0	0	0	16
10:15	46	2	1	4	0	1	54	22:15	22	0	2	2	0	0	26
10:30	44	9	0	2	0	0	55	22:30	12	0	0	0	0	0	12
10:45	49	4	2	2	0	0	57	22:45	12	0	1	0	0	0	13
11:00	51	1	0	2	0	0	54	23:00	16	0	0	0	0	0	16
11:15	58	5	0	2	0	0	65	23:15	10	0	0	1	0	0	11
11:30	49	6	0	2	0	0	57	23:30	10	0	0	1	0	0	11
11:45	64	4	1	3	0	0	72	23:45	8	0	0	1	0	0	9
TOTAL	1,385	110	15	105	0	11	1,626	TOTAL	3,303	170	31	151	0	15	3,670
				AM PEAK HOUR			7:15 AM						AM PEAK HOUR		3:45 PM
				AM PEAK VOLUME			319						AM PEAK VOLUME		614

CLASS 1	PASSENGER VEHICLES	**TOTAL: AM+PM**	4,688	280	46	256	0	26	5,296
CLASS 2	2-AXLE TRUCKS	**% OF TOTAL**	88.5%	5.3%	0.9%	4.8%	0.0%	0.5%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV								
CLASS 6	BUS								

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APPENDIX 3.2:

EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	0	40	0	0	4	27	842	2	4	343	23
Future Vol, veh/h	27	0	40	0	0	4	27	842	2	4	343	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	0	44	0	0	4	30	925	2	4	377	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	921	1385	201	1183	1396	464	402	0	0	927	0	0
Stage 1	398	398	-	986	986	-	-	-	-	-	-	-
Stage 2	523	987	-	197	410	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	229	145	813	147	142	550	1168	-	-	746	-	-
Stage 1	605	606	-	270	328	-	-	-	-	-	-	-
Stage 2	510	328	-	792	599	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	222	141	813	136	138	550	1168	-	-	746	-	-
Mov Cap-2 Maneuver	344	244	-	219	242	-	-	-	-	-	-	-
Stage 1	589	603	-	263	319	-	-	-	-	-	-	-
Stage 2	493	319	-	745	596	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	11.6	0.3	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1168	-	-	344	-	813	-	-	550	746	-	-
HCM Lane V/C Ratio	0.025	-	-	0.086	-	0.054	-	-	0.008	0.006	-	-
HCM Control Delay (s)	8.2	-	-	16.5	0	9.7	0	0	11.6	9.9	-	-
HCM Lane LOS	A	-	-	C	A	A	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	-	0.2	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	6	0	0	0	4	0	0	0	0	0
Future Vol, veh/h	0	0	6	0	0	0	4	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	7	0	0	0	4	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	7	0	0	5	5	4
Stage 1	-	-	-	-	-	-	4	4	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	-	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	1627	-	0	1022	894	1085
Stage 1	0	-	-	-	-	0	1024	897	-
Stage 2	0	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1627	-	-	1022	0	1085
Mov Cap-2 Maneuver	-	-	-	-	-	-	1022	0	-
Stage 1	-	-	-	-	-	-	1024	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1022	-	-	1627	-
HCM Lane V/C Ratio	0.004	-	-	-	-
HCM Control Delay (s)	8.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	0	49	14	0	5	25	372	2	0	659	23
Future Vol, veh/h	16	0	49	14	0	5	25	372	2	0	659	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	0	50	14	0	5	26	380	2	0	672	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	926	1118	348	769	1128	191	695	0	0	382	0	0
Stage 1	684	684	-	433	433	-	-	-	-	-	-	-
Stage 2	242	434	-	336	695	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	227	209	654	294	206	825	910	-	-	1188	-	-
Stage 1	410	452	-	577	585	-	-	-	-	-	-	-
Stage 2	746	585	-	657	447	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	221	203	654	265	200	825	910	-	-	1188	-	-
Mov Cap-2 Maneuver	321	320	-	381	309	-	-	-	-	-	-	-
Stage 1	398	452	-	560	568	-	-	-	-	-	-	-
Stage 2	720	568	-	607	447	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	13.4	0.6	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	910	-	-	321	-	654	381	-	825	1188	-	-
HCM Lane V/C Ratio	0.028	-	-	0.051	-	0.076	0.037	-	0.006	-	-	-
HCM Control Delay (s)	9.1	-	-	16.8	0	11	14.8	0	9.4	0	-	-
HCM Lane LOS	A	-	-	C	A	B	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	0.2	0.1	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	19	0	0	0	2	0	0	0	0	0
Future Vol, veh/h	0	0	19	0	0	0	2	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	21	0	0	0	2	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	21	0	0	12	12	11
Stage 1	-	-	-	-	-	-	11	11	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	-	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	-	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	-	1608	-	0	1013	887	1076
Stage 1	0	-	-	-	-	0	1017	890	-
Stage 2	0	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1608	-	-	1013	0	1076
Mov Cap-2 Maneuver	-	-	-	-	-	-	1013	0	-
Stage 1	-	-	-	-	-	-	1017	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1013	-	-	1608	-
HCM Lane V/C Ratio	0.002	-	-	-	-
HCM Control Delay (s)	8.6	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX 3.3:

EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

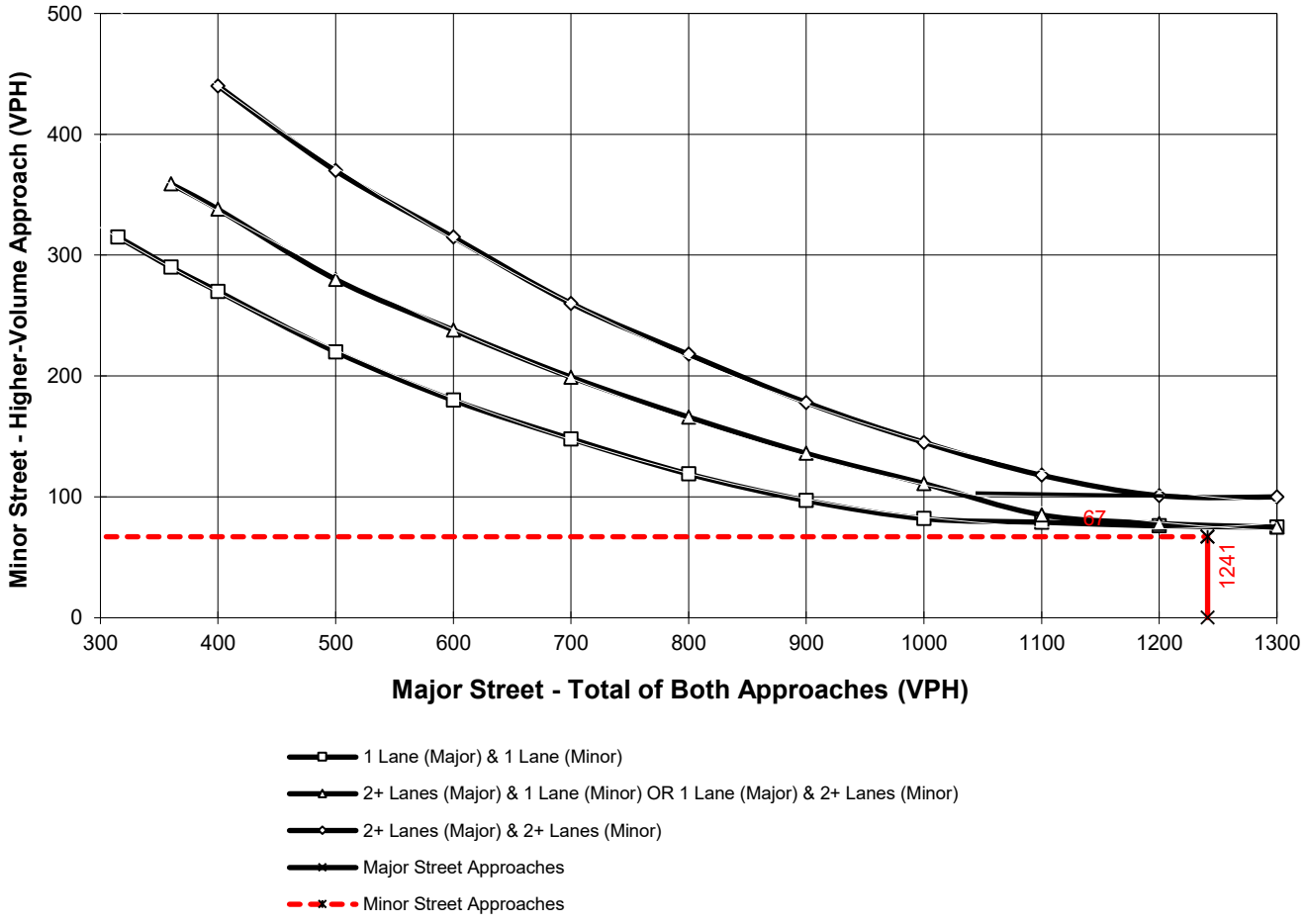
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Harvill Avenue**
Total of Both Approaches (VPH) = **1241**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street**
High Volume Approach (VPH) = **67**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

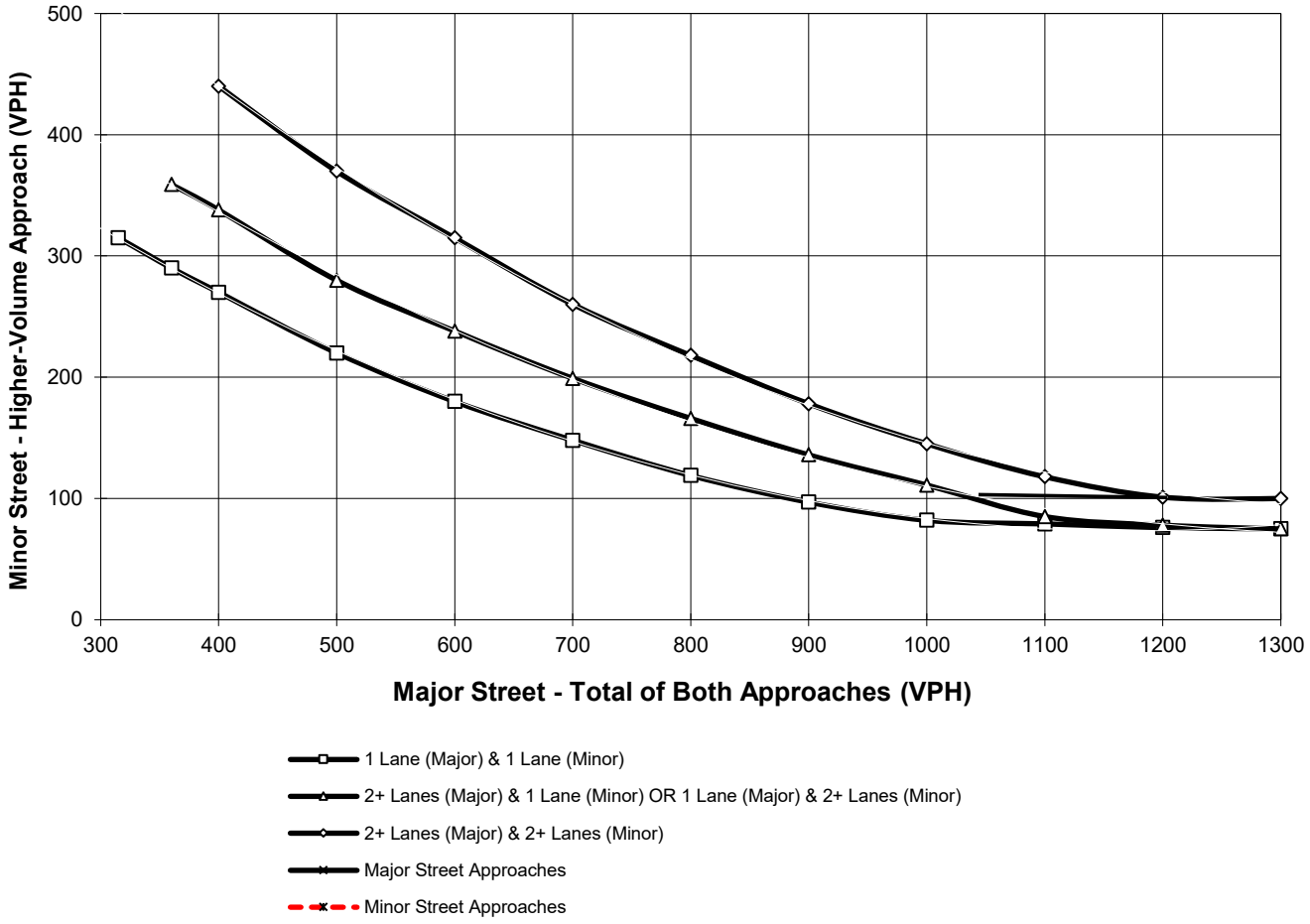
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2020) Conditions - Weekday PM Peak Hour**

Major Street Name = **Driveway 2**
Total of Both Approaches (VPH) = **19**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street**
High Volume Approach (VPH) = **2**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	825	4	32	357
Future Vol, veh/h	1	6	825	4	32	357
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	7	897	4	35	388

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1163	451	0	0	901	0
Stage 1	899	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	191	561	-	-	763	-
Stage 1	362	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	182	561	-	-	763	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	727	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	495	763	-
HCM Lane V/C Ratio	-	-	0.015	0.046	-
HCM Control Delay (s)	-	-	12.4	9.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	0	40	4	0	6	27	796	22	13	322	23
Future Vol, veh/h	27	0	40	4	0	6	27	796	22	13	322	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	30	0	44	4	0	7	30	875	24	14	354	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	893	1354	190	1152	1354	450	379	0	0	899	0	0
Stage 1	395	395	-	947	947	-	-	-	-	-	-	-
Stage 2	498	959	-	205	407	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	239	151	826	155	151	562	1191	-	-	764	-	-
Stage 1	607	608	-	285	342	-	-	-	-	-	-	-
Stage 2	528	338	-	784	601	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	228	145	826	142	145	562	1191	-	-	764	-	-
Mov Cap-2 Maneuver	349	246	-	229	250	-	-	-	-	-	-	-
Stage 1	592	597	-	278	333	-	-	-	-	-	-	-
Stage 2	509	330	-	729	590	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	15.3	0.3	0.4
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1191	-	-	349	-	826	229	-	562	764	-	-
HCM Lane V/C Ratio	0.025	-	-	0.085	-	0.053	0.019	-	0.012	0.019	-	-
HCM Control Delay (s)	8.1	-	-	16.3	0	9.6	21	0	11.5	9.8	-	-
HCM Lane LOS	A	-	-	C	A	A	C	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	-	0.2	0.1	-	0	0.1	-	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	0	6	0	0	0	4	0	0	0	0	6
Future Vol, veh/h	29	0	6	0	0	0	4	0	0	0	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	32	0	7	0	0	0	4	0	0	0	0	7

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1	0	0	7	0	0	69	69	4
Stage 1	-	-	-	-	-	-	68	68	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1635	-	-	1627	-	0	941	825	1085
Stage 1	-	-	-	-	-	0	960	842	-
Stage 2	-	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1635	-	-	1627	-	-	922	0	1085
Mov Cap-2 Maneuver	-	-	-	-	-	-	922	0	-
Stage 1	-	-	-	-	-	-	941	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT
Capacity (veh/h)	922	1635	-	-	1627	-
HCM Lane V/C Ratio	0.005	0.019	-	-	-	-
HCM Control Delay (s)	8.9	7.2	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	31	418	1	7	788
Future Vol, veh/h	4	31	418	1	7	788
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	34	454	1	8	857

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	900	228	0	0	455	0
Stage 1	455	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	282	781	-	-	1116	-
Stage 1	611	-	-	-	-	-
Stage 2	619	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	280	781	-	-	1116	-
Mov Cap-2 Maneuver	408	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	707	1116	-
HCM Lane V/C Ratio	-	-	0.054	0.007	-
HCM Control Delay (s)	-	-	10.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	0	49	33	0	13	25	390	6	2	767	23
Future Vol, veh/h	16	0	49	33	0	13	25	390	6	2	767	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	0	50	34	0	13	26	398	6	2	783	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1050	1255	403	849	1263	202	806	0	0	404	0	0
Stage 1	799	799	-	453	453	-	-	-	-	-	-	-
Stage 2	251	456	-	396	810	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	184	173	603	258	171	811	828	-	-	1166	-	-
Stage 1	350	401	-	561	573	-	-	-	-	-	-	-
Stage 2	737	572	-	606	396	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	176	167	603	231	165	811	828	-	-	1166	-	-
Mov Cap-2 Maneuver	274	285	-	350	273	-	-	-	-	-	-	-
Stage 1	339	400	-	544	555	-	-	-	-	-	-	-
Stage 2	702	554	-	555	395	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	14.5	0.6	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	828	-	-	274	-	603	350	-	811	1166	-	-
HCM Lane V/C Ratio	0.031	-	-	0.06	-	0.083	0.096	-	0.016	0.002	-	-
HCM Control Delay (s)	9.5	-	-	19	0	11.5	16.4	0	9.5	8.1	-	-
HCM Lane LOS	A	-	-	C	A	B	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	0.3	0.3	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	2	0	0	0	19	0	0	0	0	27
Future Vol, veh/h	6	0	2	0	0	0	19	0	0	0	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	2	0	0	0	21	0	0	0	0	29

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1	0	0	2	0	0	16	16	1
Stage 1	-	-	-	-	-	-	15	15	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1635	-	-	1634	-	0	1008	882	1090
Stage 1	-	-	-	-	-	0	1013	887	-
Stage 2	-	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1635	-	-	1634	-	-	1004	0	1090
Mov Cap-2 Maneuver	-	-	-	-	-	-	1004	0	-
Stage 1	-	-	-	-	-	-	1009	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	5.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT
Capacity (veh/h)	1004	1635	-	-	1634	-
HCM Lane V/C Ratio	0.021	0.004	-	-	-	-
HCM Control Delay (s)	8.7	7.2	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC CH	DATE	01/13/20
Jurisdiction: **County of Riverside**				CHK CH	DATE	01/13/20
Major Street: **Harvill Avenue**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **16,152** vpd Minor Street Future ADT = **251** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches)		Minimum Requirements EADT: Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	Urban	Rural	Urban	Rural
CONDITION A - Minimum Vehicular Volume				
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 / *1*	8,000	5,600	2,400	1,680
2 + **16,152** / *1* **251**	9,600	6,720 *	2,400	1,680
2 + / *2* +	9,600	6,720	3,200	2,240
1 / *2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 / *1*	12,000	8,400	1,200	850
2 + **16,152** / *1* **251**	14,400	10,080 *	1,200	850
2 + / *2* +	14,400	10,080	1,600	1,120
1 / *2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 15% B: 30%	2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

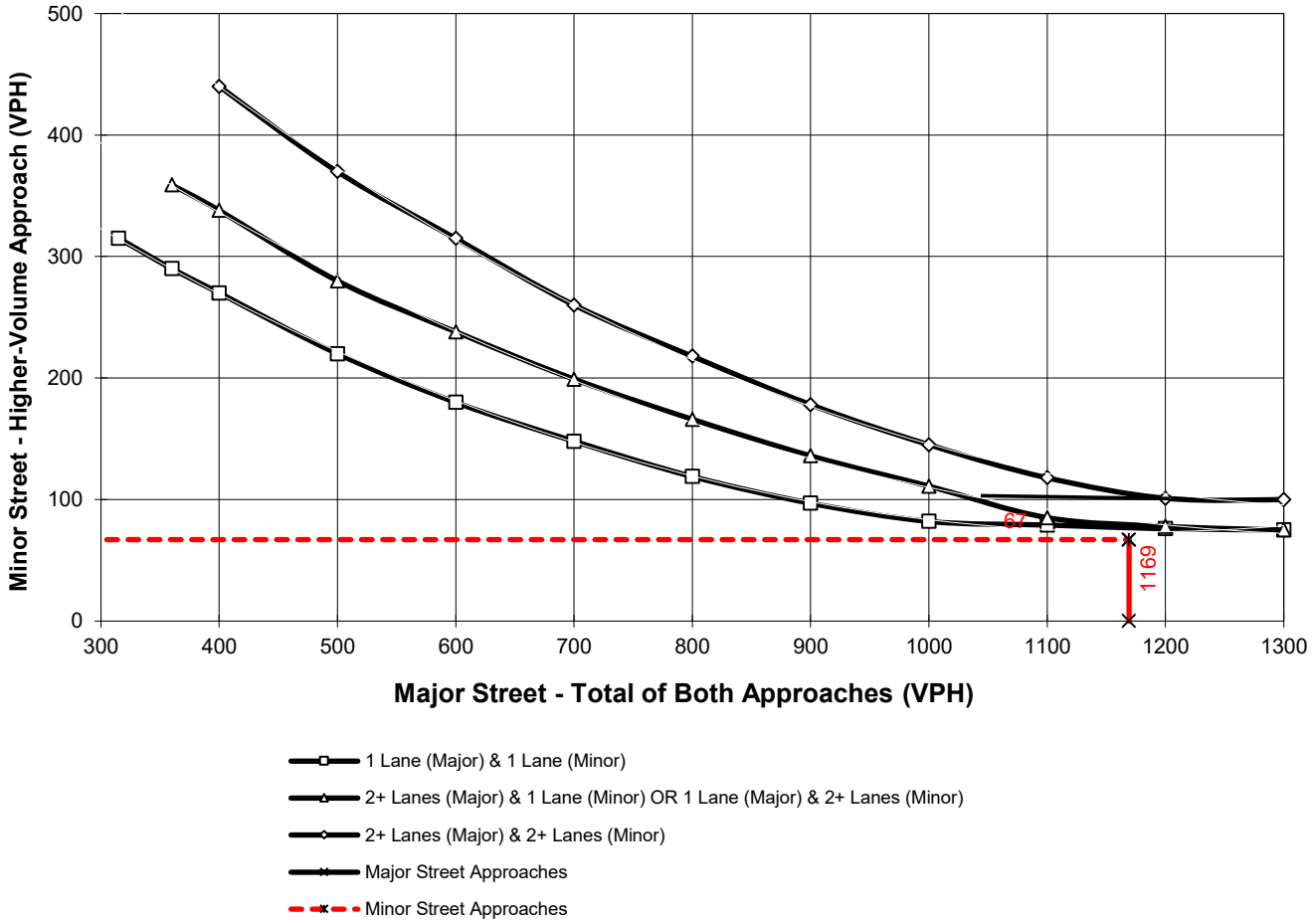
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P - Weekday AM Peak Hour**

Major Street Name = **Harvill Avenue**
Total of Both Approaches (VPH) = **1169**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street**
High Volume Approach (VPH) = **67**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

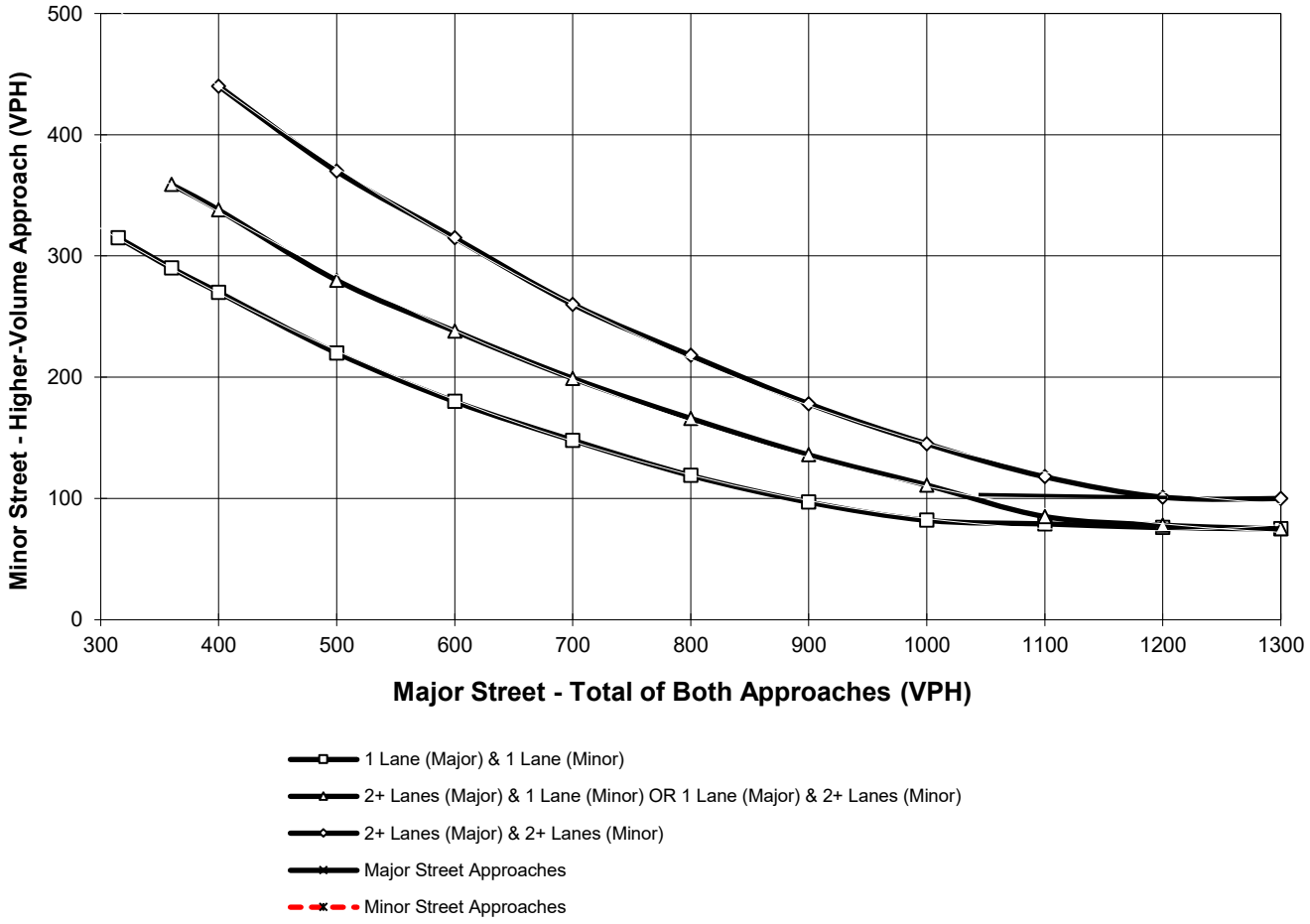
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P - Weekday AM Peak Hour**

Major Street Name = **Driveway 2**
Total of Both Approaches (VPH) = **46**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street**
High Volume Approach (VPH) = **8**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.1:

EAP (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	858	4	32	371
Future Vol, veh/h	1	6	858	4	32	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	7	933	4	35	403

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1207	469	0	0	937	0
Stage 1	935	-	-	-	-	-
Stage 2	272	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	179	546	-	-	739	-
Stage 1	347	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	171	546	-	-	739	-
Mov Cap-2 Maneuver	278	-	-	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	720	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	480	739	-
HCM Lane V/C Ratio	-	-	0.016	0.047	-
HCM Control Delay (s)	-	-	12.6	10.1	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	0	42	4	0	6	28	828	22	13	334	24
Future Vol, veh/h	28	0	42	4	0	6	28	828	22	13	334	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	31	0	46	4	0	7	31	910	24	14	367	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	925	1404	197	1196	1405	467	393	0	0	934	0	0
Stage 1	408	408	-	984	984	-	-	-	-	-	-	-
Stage 2	517	996	-	212	421	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	227	141	817	144	141	548	1177	-	-	741	-	-
Stage 1	596	600	-	270	329	-	-	-	-	-	-	-
Stage 2	515	325	-	776	592	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	217	135	817	131	135	548	1177	-	-	741	-	-
Mov Cap-2 Maneuver	338	235	-	217	240	-	-	-	-	-	-	-
Stage 1	581	589	-	263	320	-	-	-	-	-	-	-
Stage 2	495	317	-	718	581	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	15.7	0.3	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1177	-	-	338	-	817	217	-	548	741	-	-
HCM Lane V/C Ratio	0.026	-	-	0.091	-	0.056	0.02	-	0.012	0.019	-	-
HCM Control Delay (s)	8.1	-	-	16.7	0	9.7	21.9	0	11.6	10	-	-
HCM Lane LOS	A	-	-	C	A	A	C	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	-	0.2	0.1	-	0	0.1	-	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	0	6	0	0	0	4	0	0	0	0	6
Future Vol, veh/h	29	0	6	0	0	0	4	0	0	0	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	32	0	7	0	0	0	4	0	0	0	0	7

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1	0	0	7	0	0	69	69	4
Stage 1	-	-	-	-	-	-	68	68	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1635	-	-	1627	-	0	941	825	1085
Stage 1	-	-	-	-	-	0	960	842	-
Stage 2	-	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1635	-	-	1627	-	-	922	0	1085
Mov Cap-2 Maneuver	-	-	-	-	-	-	922	0	-
Stage 1	-	-	-	-	-	-	941	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT
Capacity (veh/h)	922	1635	-	-	1627	-
HCM Lane V/C Ratio	0.005	0.019	-	-	-	-
HCM Control Delay (s)	8.9	7.2	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	31	434	1	7	820
Future Vol, veh/h	4	31	434	1	7	820
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	34	472	1	8	891

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	935	237	0	0	473	0
Stage 1	473	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	268	771	-	-	1099	-
Stage 1	599	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	266	771	-	-	1099	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	696	1099	-
HCM Lane V/C Ratio	-	-	0.055	0.007	-
HCM Control Delay (s)	-	-	10.5	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	0	51	34	0	13	26	406	6	2	798	24
Future Vol, veh/h	16	0	51	34	0	13	26	406	6	2	798	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	0	52	35	0	13	27	414	6	2	814	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1091	1304	419	882	1313	210	838	0	0	420	0	0
Stage 1	830	830	-	471	471	-	-	-	-	-	-	-
Stage 2	261	474	-	411	842	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	172	162	589	244	160	802	805	-	-	1150	-	-
Stage 1	335	388	-	548	563	-	-	-	-	-	-	-
Stage 2	727	561	-	594	383	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	165	156	589	216	154	802	805	-	-	1150	-	-
Mov Cap-2 Maneuver	262	274	-	337	262	-	-	-	-	-	-	-
Stage 1	324	387	-	529	544	-	-	-	-	-	-	-
Stage 2	691	542	-	541	382	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	14.9	0.6	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	805	-	-	262	-	589	337	-	802	1150	-	-
HCM Lane V/C Ratio	0.033	-	-	0.062	-	0.088	0.103	-	0.017	0.002	-	-
HCM Control Delay (s)	9.6	-	-	19.7	0	11.7	16.9	0	9.6	8.1	-	-
HCM Lane LOS	A	-	-	C	A	B	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	0.3	0.3	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	2	0	0	0	20	0	0	0	0	27
Future Vol, veh/h	6	0	2	0	0	0	20	0	0	0	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	2	0	0	0	22	0	0	0	0	29

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1	0	0	2	0	0	16	16	1
Stage 1	-	-	-	-	-	-	15	15	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1635	-	-	1634	-	0	1008	882	1090
Stage 1	-	-	-	-	-	0	1013	887	-
Stage 2	-	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1635	-	-	1634	-	-	1004	0	1090
Mov Cap-2 Maneuver	-	-	-	-	-	-	1004	0	-
Stage 1	-	-	-	-	-	-	1009	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	5.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT
Capacity (veh/h)	1004	1635	-	-	1634	-
HCM Lane V/C Ratio	0.022	0.004	-	-	-	-
HCM Control Delay (s)	8.7	7.2	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

APPENDIX 6.2:

EAP (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAP (2021)
				CALC CH	DATE	01/13/20
Jurisdiction: **County of Riverside**				CHK CH	DATE	01/13/20
Major Street: **Harvill Avenue**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **16,789** vpd Minor Street Future ADT = **251** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX / XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach: Major Street / Minor Street				
1 / 1	8,000	5,600	2,400	1,680
2 + **16,789** / 1 **251**	9,600	6,720 *	2,400	1,680
2 + / 2 +	9,600	6,720	3,200	2,240
1 / 2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach: Major Street / Minor Street				
1 / 1	12,000	8,400	1,200	850
2 + **16,789** / 1 **251**	14,400	10,080 *	1,200	850
2 + / 2 +	14,400	10,080	1,600	1,120
1 / 2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 15% B: 30%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

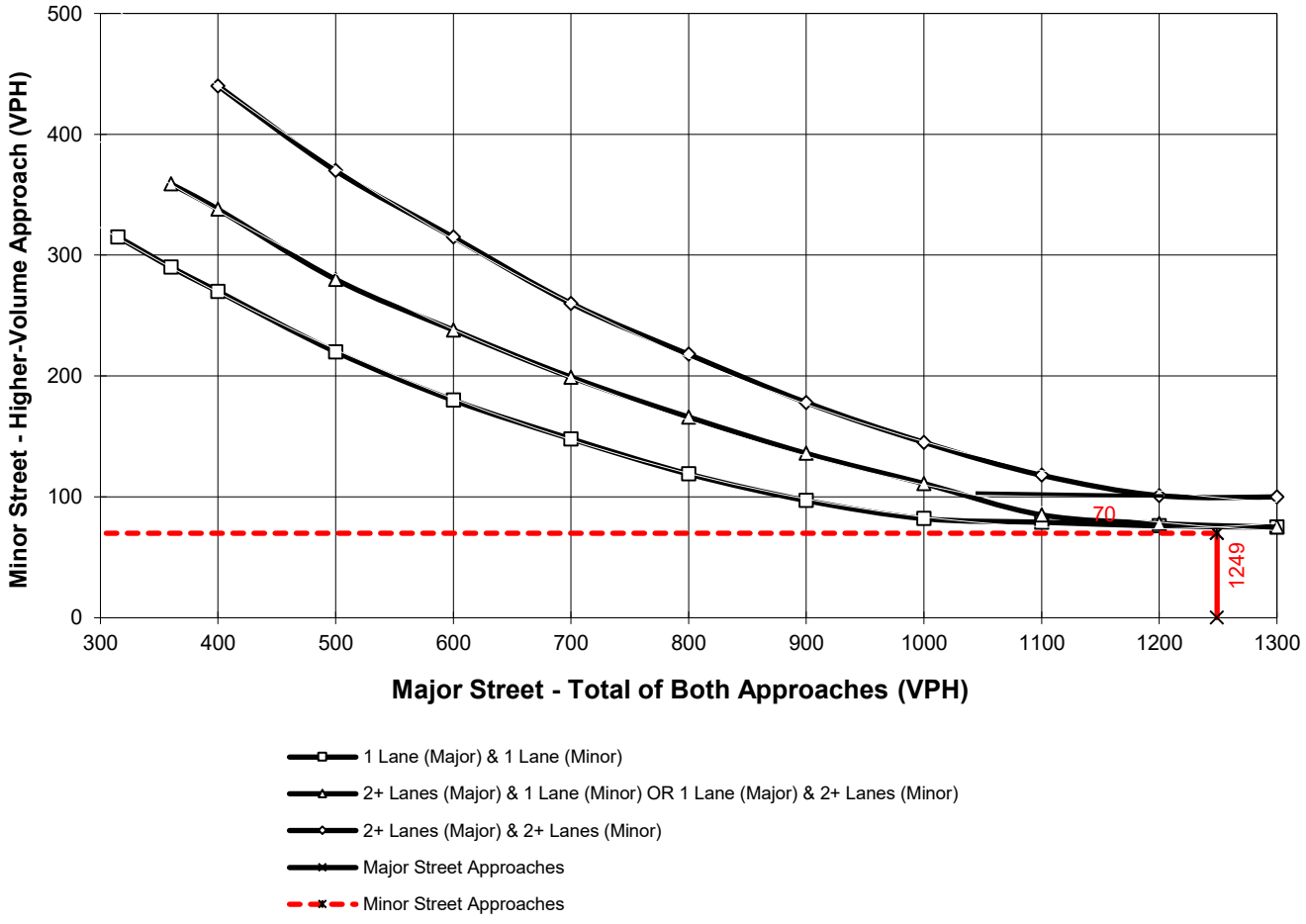
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP - Weekday AM Peak Hour**

Major Street Name = **Harvill Avenue**
Total of Both Approaches (VPH) = **1249**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street**
High Volume Approach (VPH) = **70**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

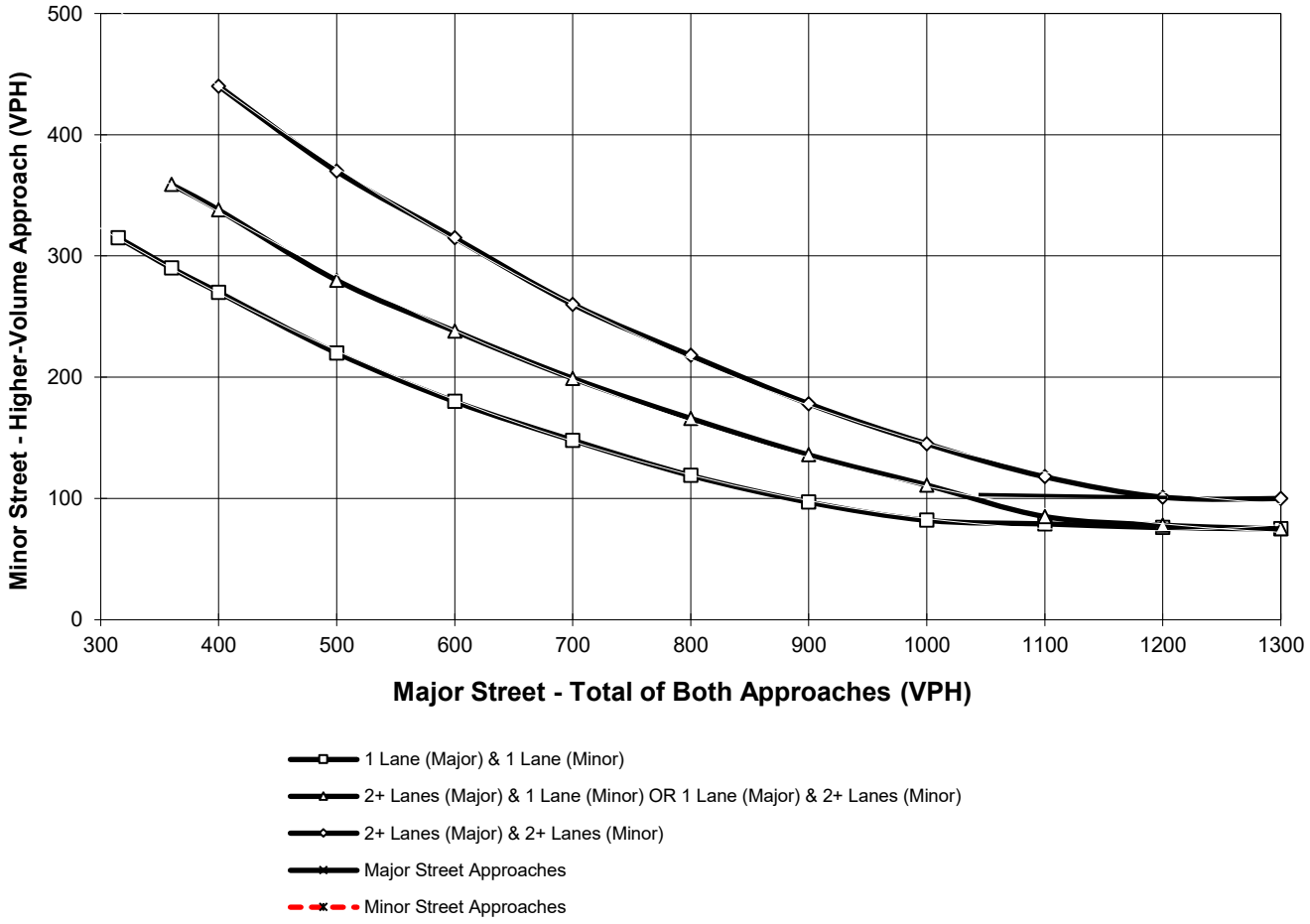
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP - Weekday PM Peak Hour**

Major Street Name = **Driveway 2**
Total of Both Approaches (VPH) = **47**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street**
High Volume Approach (VPH) = **8**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.1:

EAPC (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	978	4	32	682
Future Vol, veh/h	1	6	978	4	32	682
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	7	1063	4	35	741

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1506	534	0	0	1067	0
Stage 1	1065	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	114	496	-	-	661	-
Stage 1	297	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	108	496	-	-	661	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	297	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	422	661	-
HCM Lane V/C Ratio	-	-	0.018	0.053	-
HCM Control Delay (s)	-	-	13.7	10.7	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	46	4	0	6	41	921	22	13	606	57
Future Vol, veh/h	37	0	46	4	0	6	41	921	22	13	606	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	41	0	51	4	0	7	45	1012	24	14	666	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1322	1852	365	1475	1871	518	729	0	0	1036	0	0
Stage 1	726	726	-	1114	1114	-	-	-	-	-	-	-
Stage 2	596	1126	-	361	757	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	116	75	638	90	73	508	884	-	-	679	-	-
Stage 1	387	433	-	225	286	-	-	-	-	-	-	-
Stage 2	462	282	-	636	419	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	108	70	638	78	68	508	884	-	-	679	-	-
Mov Cap-2 Maneuver	228	174	-	167	172	-	-	-	-	-	-	-
Stage 1	367	424	-	214	271	-	-	-	-	-	-	-
Stage 2	433	268	-	574	410	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.9	18.2	0.4	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	884	-	-	228	-	638	167	-	508	679	-	-
HCM Lane V/C Ratio	0.051	-	-	0.178	-	0.079	0.026	-	0.013	0.021	-	-
HCM Control Delay (s)	9.3	-	-	24.2	0	11.1	27.1	0	12.2	10.4	-	-
HCM Lane LOS	A	-	-	C	A	B	D	A	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	-	0.3	0.1	-	0	0.1	-	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	0	6	0	0	0	4	0	0	0	0	6
Future Vol, veh/h	29	0	6	0	0	0	4	0	0	0	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	32	0	7	0	0	0	4	0	0	0	0	7

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1	0	0	7	0	0	69	69	4
Stage 1	-	-	-	-	-	-	68	68	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1635	-	-	1627	-	0	941	825	1085
Stage 1	-	-	-	-	-	0	960	842	-
Stage 2	-	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1635	-	-	1627	-	-	922	0	1085
Mov Cap-2 Maneuver	-	-	-	-	-	-	922	0	-
Stage 1	-	-	-	-	-	-	941	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT
Capacity (veh/h)	922	1635	-	-	1627	-
HCM Lane V/C Ratio	0.005	0.019	-	-	-	-
HCM Control Delay (s)	8.9	7.2	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	31	723	1	7	1007
Future Vol, veh/h	4	31	723	1	7	1007
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	34	786	1	8	1095

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1351	394	0	0	787	0
Stage 1	787	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	144	611	-	-	841	-
Stage 1	414	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	143	611	-	-	841	-
Mov Cap-2 Maneuver	277	-	-	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	537	841	-
HCM Lane V/C Ratio	-	-	0.071	0.009	-
HCM Control Delay (s)	-	-	12.2	9.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	0	65	34	0	13	31	646	6	2	952	39
Future Vol, veh/h	54	0	65	34	0	13	31	646	6	2	952	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	170	165	-	0	150	-	-	160	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	55	0	66	35	0	13	32	659	6	2	971	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1389	1724	506	1216	1741	333	1011	0	0	665	0	0
Stage 1	995	995	-	726	726	-	-	-	-	-	-	-
Stage 2	394	729	-	490	1015	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	104	90	517	139	88	669	694	-	-	934	-	-
Stage 1	266	325	-	387	433	-	-	-	-	-	-	-
Stage 2	608	431	-	534	318	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	98	86	517	117	84	669	694	-	-	934	-	-
Mov Cap-2 Maneuver	196	204	-	235	191	-	-	-	-	-	-	-
Stage 1	254	324	-	369	413	-	-	-	-	-	-	-
Stage 2	568	411	-	464	317	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.9	19.5	0.5	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	694	-	-	196	-	517	235	-	669	934	-	-
HCM Lane V/C Ratio	0.046	-	-	0.281	-	0.128	0.148	-	0.02	0.002	-	-
HCM Control Delay (s)	10.4	-	-	30.4	0	13	23	0	10.5	8.9	-	-
HCM Lane LOS	B	-	-	D	A	B	C	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	-	0.4	0.5	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	2	0	0	0	20	0	0	0	0	27
Future Vol, veh/h	6	0	2	0	0	0	20	0	0	0	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	2	0	0	0	22	0	0	0	0	29

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1	0	0	2	0	0	16	16	1
Stage 1	-	-	-	-	-	-	15	15	-
Stage 2	-	-	-	-	-	-	1	1	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1635	-	-	1634	-	0	1008	882	1090
Stage 1	-	-	-	-	-	0	1013	887	-
Stage 2	-	-	-	-	-	0	1028	899	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	1635	-	-	1634	-	-	1004	0	1090
Mov Cap-2 Maneuver	-	-	-	-	-	-	1004	0	-
Stage 1	-	-	-	-	-	-	1009	0	-
Stage 2	-	-	-	-	-	-	1028	0	-

Approach	EB	WB	NB
HCM Control Delay, s	5.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT
Capacity (veh/h)	1004	1635	-	-	1634	-
HCM Lane V/C Ratio	0.022	0.004	-	-	-	-
HCM Control Delay (s)	8.7	7.2	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

APPENDIX 7.2:

EAPC (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2021)
				CALC CH	DATE 01/13/20
Jurisdiction: **County of Riverside**				CHK CH	DATE 01/13/20
Major Street: **Harvill Avenue**				Critical Approach Speed (Major)	45 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)	25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **23,163** vpd Minor Street Future ADT = **251** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **23,163**	*1* **251**	9,600	6,720 *	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **23,163**	*1* **251**	14,400	10,080 *	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	A 15% B 30%	2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

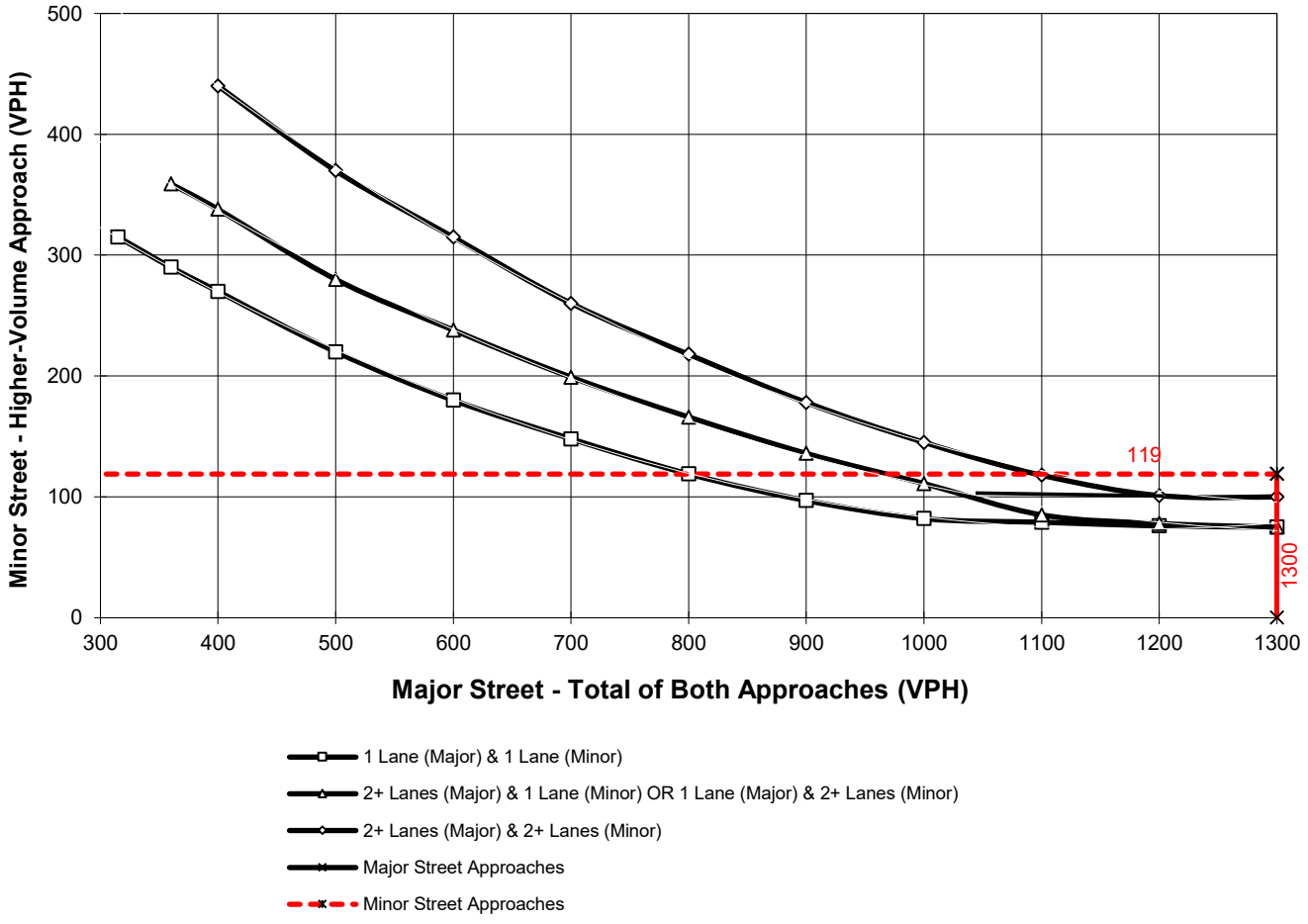
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2021) - Weekday PM Peak Hour**

Major Street Name = **Harvill Avenue** — Total of Both Approaches (VPH) = **1676**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street** — High Volume Approach (VPH) = **119**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

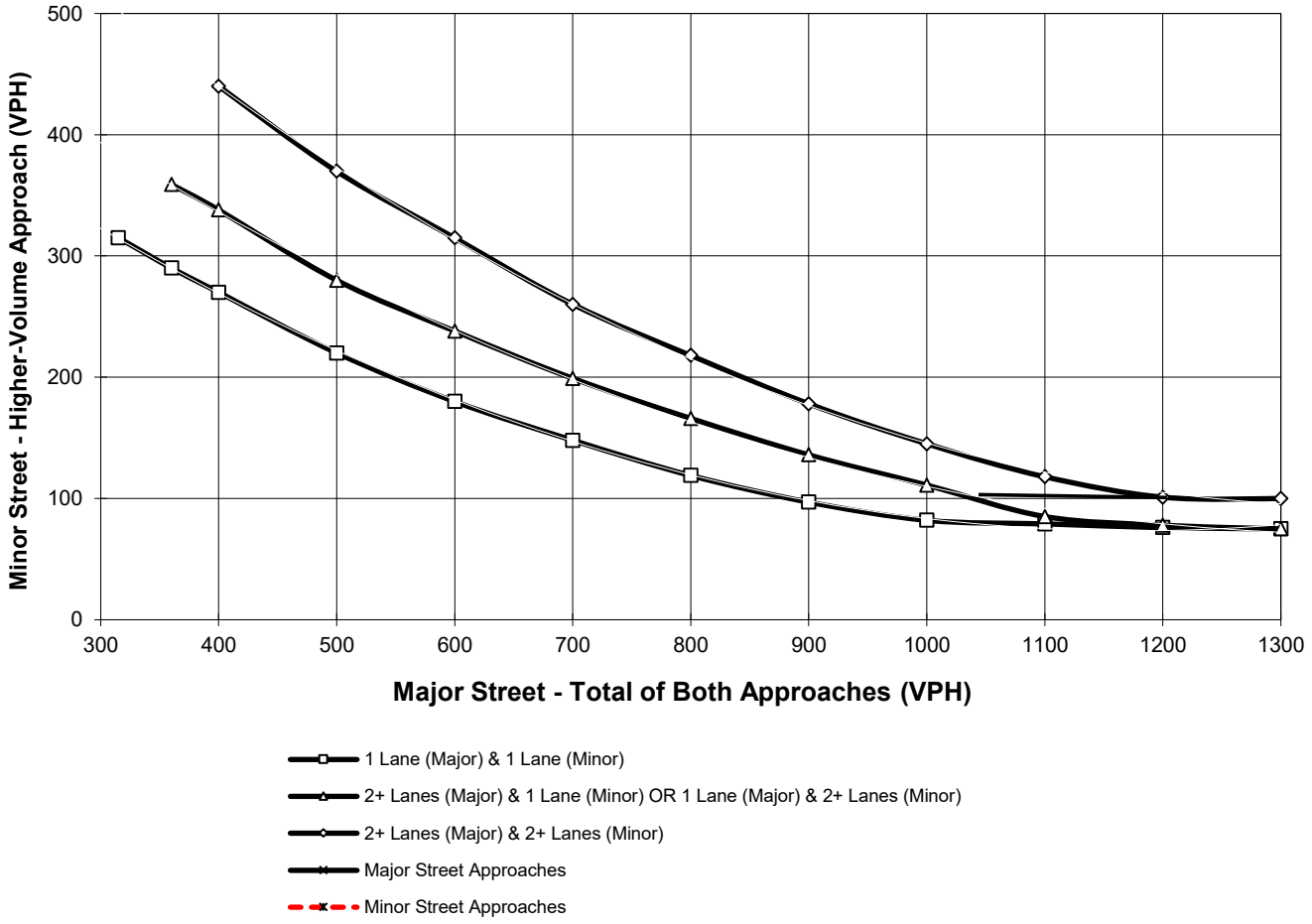
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2021) - Weekday PM Peak Hour**

Major Street Name = **Driveway 2**
Total of Both Approaches (VPH) = **47**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Rider Street**
High Volume Approach (VPH) = **8**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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