Appendix 16
Traffic Impact Analysis

SOUTH MILLIKEN DISTRIBUTION CENTER

Project No. PLN17-20013

INITIAL STUDY

S. Milliken Distribution Center

TRAFFIC IMPACT ANALYSIS

CITY OF EASTVALE

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ICU	Intersection Capacity Utilization
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
NP	No Project (or Without Project)
PCE	Passenger Car Equivalents
PHF	Peak Hour Factor
Project	S. Milliken Distribution Center
RBBD	Road and Bridge Benefit District
RivTAM	Riverside Transportation Analysis Model
RTA	Riverside Transport Authority
RTP	Regional Transportation Plan
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
sf	Square Feet
SHS	State Highway System
SR	State Route
TIA	Traffic Impact Analysis
TUMF	Transportation Uniform Mitigation Fee
WP	With Project

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed S. Milliken Distribution Center development ("Project"), which is located on the northeast corner of Milliken Avenue and the SR-60 Freeway in the City of Eastvale, as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. As directed by City of Eastvale staff, this traffic study has been prepared in accordance with the County of Riverside Traffic Impact Analysis Preparation Guidelines, the California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies, and consultation with City staff during the scoping process. (1) (2) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 PROJECT OVERVIEW

Exhibit 1-1 illustrates the preliminary Project site plan. The Project is proposed to consist of 280,000 square feet (sf) of high-cube warehouse/distribution center use and is anticipated to be operational by 2018. Regional access to the Project is provided by the State Route 60 (SR-60) via Milliken Avenue or Interstate 15 (I-15) via Jurupa Street. Access to the Project site will be provided via a single right-in/right-out only driveway on Milliken Avenue. An alternative access will also be evaluated which allows for right-in/right-out/left-in access only.

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition, 2012. (3) The proposed Project is anticipated to generate a net total of 737 passenger car equivalent (PCE) trip-ends per day, 43 PCE AM peak hour trips and 50 PCE PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.2 ANALYSIS SCENARIOS

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

- Existing (2017)
- Existing plus Project (E+P)
- Opening Year Cumulative (2018) Without Project
- Opening Year Cumulative (2018) With Project
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

EXHIBIT 1-1: PRELIMINARY SITE PLAN

1.2.1 EXISTING (2017) CONDITIONS

Information for Existing (2017) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.2.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions. The E+P analysis is intended to identify the project-specific traffic impacts associated solely with the development of the proposed Project based on a comparison of the E+P traffic conditions to Existing (2017) conditions. E+P traffic conditions has been evaluated for both the proposed right-in/right-out access and the right-in/right-out/left-in access alternative.

1.2.3 OPENING YEAR CUMULATIVE CONDITIONS

The Opening Year Cumulative traffic conditions analyses determine the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth factor from Existing conditions of 2.0% (for 2018 conditions) are included for Opening Year Cumulative traffic conditions. This comprehensive list was compiled from information provided by the City of Eastvale and other near-by agencies. Opening Year Cumulative With Project traffic conditions has been evaluated for both the proposed right-in/right-out access and the right-in/right-out/left-in access alternative.

1.2.4 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) with Project conditions were derived from the Riverside County Transportation Analysis Model (RivTAM) for the study area intersections located within the County of Riverside and the San Bernardino County Transportation Analysis Model (SBTAM) for the study area intersections located within the City of Ontario. The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's Development Impact Fee (DIF) program, County of Riverside Transportation Uniform Mitigation Fee (TUMF) program, Mira Loma Road and Bridge Benefit District (RBBD) or other approved funding mechanisms (such as fair share) can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Eastvale (lead agency). If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative mitigation. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF, non-TUMF, or non-RBBD facilities) are identified as such.

1.3 STUDY AREA

To ensure that this TIA satisfies the City of Eastvale's traffic study requirements, Urban Crossroads, Inc. prepared a project traffic study scoping package for review by City staff prior to

the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The Agreement approved by the City is included in Appendix 1.1.

1.3.1 INTERSECTIONS

The following 7 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with City of Eastvale staff. The "50 peak hour trip" criterion utilized by the City of Eastvale is consistent with the methodology employed by the County of Riverside, and generally represents a minimum number of trips at which a typical intersection would have the potential to be substantively impacted by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of impact (i.e., study area). The Project is anticipated to contribute less than 50 PCE peak hour trips to the study area intersections. As such, the development of the study area was based on direction from City staff.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Haven Av. & Mission Bl.	Ontario	No
2	Milliken Av. & Jurupa St.	Ontario	No
3	Milliken Av. & Mission Bl.	Eastvale / Ontario	No
4	Milliken Av. & Greystone Dr.	Eastvale / Ontario	No
5	Milliken Av. & Driveway 1 – Future Intersection	Eastvale / Ontario	No
6	Milliken Av. & SR-60 Westbound Ramps	Caltrans / Eastvale / Ontario	Yes
7	Milliken Av. & SR-60 Eastbound Ramps	Caltrans / Eastvale / Ontario	Yes

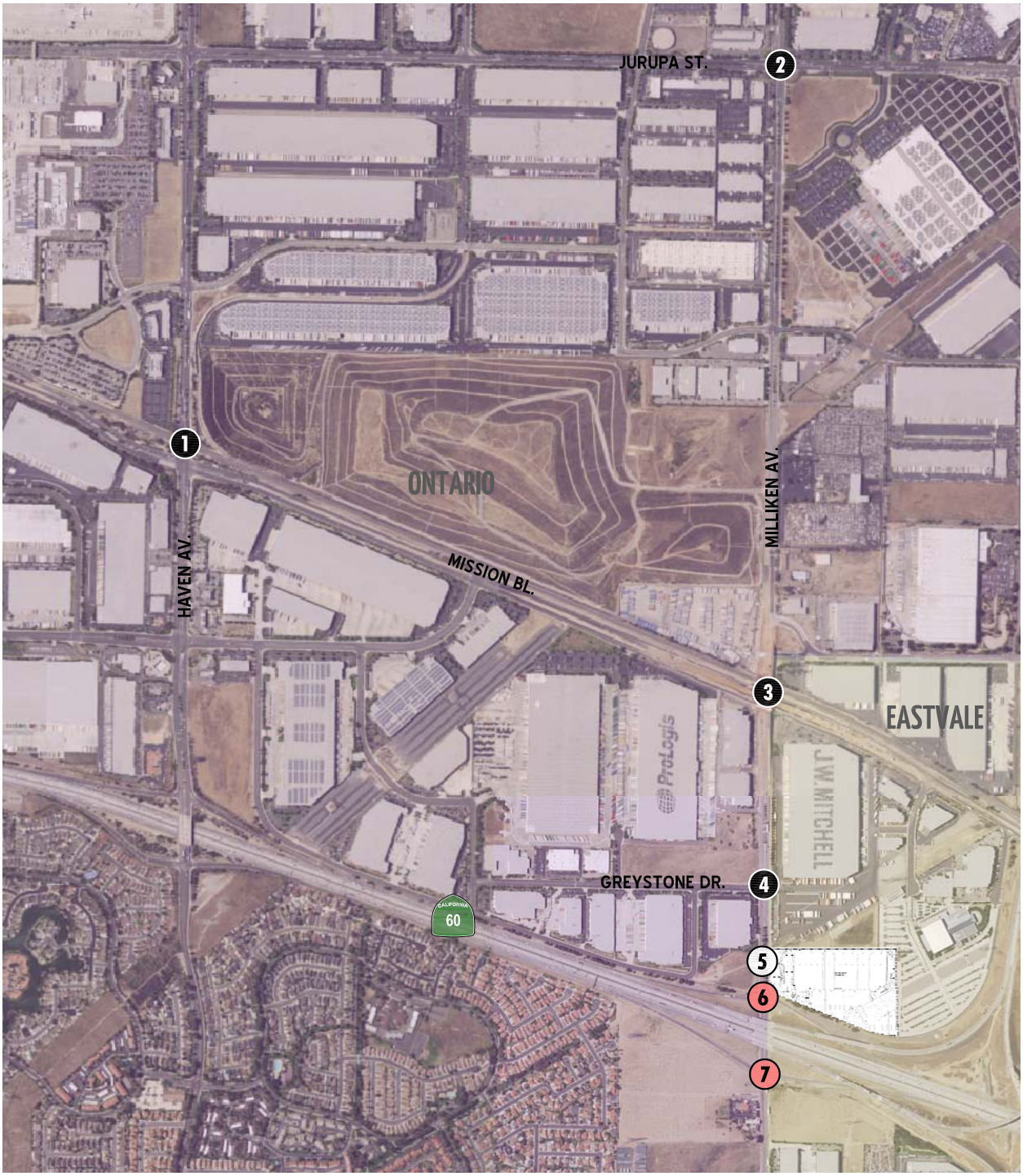
1.3.2 ROADWAY SEGMENTS

Pursuant to the direction of City staff, daily volume-to-capacity roadway analyses have been evaluated for the following roadway segments as shown on Table 1-2:

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Roadway Segment Location	Jurisdiction
1	Milliken Avenue, north of Project Driveway	Eastvale / Ontario
2	Milliken Avenue, Project Driveway to SR-60 Westbound Ramps	Eastvale / Ontario

EXHIBIT 1-2: LOCATION MAP



LEGEND:

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

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URBAN CROSSROADS

1.4 PROJECT IMPACTS AND MITIGATION MEASURES

This section provides a summary of recommended mitigation measures necessary to address Project impacts for E+P traffic conditions. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Analysis* includes the detailed analysis. The peak hour intersection operations for E+P traffic conditions indicates that the study area intersections are anticipated to operate at acceptable levels of service (LOS) during the peak hours with the addition of Project traffic. As such, the Project's impact to the off-site study area intersections is less than significant.

1.5 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Eastvale are funded through a combination of direct project mitigation, development impact fee programs or fair share contributions, such as the City of Eastvale DIF, County of Riverside TUMF, and Mira Loma RBBD programs. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors. Funds collected for the City's DIF, County TUMF, or RBBD fee programs are applicable to improvements located within the City of Eastvale or County of Riverside only.

1.5.1 CITY OF EASTVALE DEVELOPMENT IMPACT FEE PROGRAM

The City of Eastvale has prepared a Nexus Study to establish fees which has been adopted by the City as of July 1, 2012. It is our understanding that the DIF program includes widening of the Hellman Avenue bridge over Cucamonga Creek and the signalization of up to twenty-three intersections. The fee for industrial use is $645 per square feet of gross floor area as of July 1, 2016. In addition, an annual inflation adjustment is considered each year. Fee credits and reimbursements will be available as part of the Fee Program and will only be given to projects that are identified as a Fee Program facility. The Project's Conditions of Approval will establish and clarify eligibility.

The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of implementing the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds.

The Project Applicant will be subject to the City's DIF fee program, and will pay the requisite City DIF fees at the rates then in effect pursuant to the City's ordinance. The Project Applicant's payment of the requisite DIF at the rates then in effect, pursuant to the City DIF Program, would satisfy the Project's proportional mitigation requirements at potentially affected DIF-funded facilities.

1.5.2 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study completed in early 2003 and updated in 2009 to address major changes in right of way acquisition and improvement cost factors. TUMF identifies a network of backbone and local roadways that are needed to accommodate growth through 2035. 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 fees are imposed on new residential, industrial, and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit stage. The fee is $1.73 per square foot of gross floor area for industrial uses (applicable to the proposed Project). In addition, an annual inflation adjustment is considered each year in January. In this way, TUMF fees are adjusted upwards on a regular basis to ensure that the development impact fees collected keep pace with construction and labor costs, etc.

The Project Applicant will be subject to the TUMF fee program and will pay the requisite TUMF fees at the rates then in effect pursuant to the TUMF Ordinance. WRCOG has a successful track record funding and overseeing the construction of improvements funded through the TUMF program. In total, the TUMF program is anticipated to generate nearly $5 billion in transportation projects for Western Riverside County.

1.5.3 MIRA LOMA ROAD AND BRIDGE BENEFIT DISTRICT (RBBD) PROGRAM

Similar to other regions within Riverside County, the City of Eastvale is anticipated to experience substantial growth. Extensive improvements are necessitated by new development within the region. In particular, Riverside County recognized the impact of this growth on the vicinity of the study area when it formed the Mira Loma RBBD. The proposed Project lies within Zone A of the Mira Loma RBBD. Zone A is generally bounded by Philadelphia Avenue to the north, Milliken Avenue to the west, Bain Street to the east, and the Cantu-Galleano Ranch Road to the south. As discussed above, the facilities improvements that will be ultimately constructed as a result of the collection of these fees and assessments are significant. The fee for industrial use is $5,000 per gross acre within Zone A. They include:

Mira Loma Road and Bridge Benefits District (Zone A):

- Cantu-Galleano Rancho Road and I-15 Freeway interchange improvements
- Riverside Drive widening from Etiwanda Avenue to Hamner Avenue, including the I-15 Freeway undercrossing
- Riverside Avenue bridge at Day Creek

1.5.4 FAIR SHARE CONTRIBUTION

Project mitigation may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by

development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements.

1.6 CUMULATIVE IMPACTS

A summary of the cumulatively impacted study area intersections and recommended mitigation measures to address cumulatively significant impacts are described in detail within Section 6 *Opening Year Cumulative (2018) Traffic Conditions* and Section 7 *Horizon Year (2040) Traffic Conditions*. Cumulative impacts are deficiencies that would not be directly caused by the Project. The Project would, however, contribute traffic to these deficient facilities along with other cumulative development projects, resulting in a cumulatively considerable impact.

Although the peak hour intersection operations for Horizon Year (2040) traffic conditions indicates that the following study area intersections are anticipated to operate at unacceptable LOS during the peak hours, the addition of Project traffic is not anticipated to meet the City's significance threshold (i.e., resulting in an increase of 5.0 seconds or more with the addition of Project traffic):

- Haven Avenue & Mission Boulevard (#1) – LOS F AM and PM peak hours
- Milliken Avenue & SR-60 Westbound Ramps (#6) – LOS F PM peak hour only

As such, the Project's impact to the off-site study area intersections is less than significant.

1.7 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

This section summarizes Project site access and on-site circulation recommendations. The Project is proposed to have access on Milliken Avenue via the following driveway:

- Milliken Avenue / Driveway 1 – Right-in/right-out driveway providing access to both passenger cars and trucks. An alternative access has also been evaluated assuming right-in/right-out/left-in access only.

Regional access to the Project site is provided via the SR-60 Freeway at Milliken Avenue and the I-15 Freeway at Jurupa Street interchanges. Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements are required to be in place prior to occupancy.

1.7.1 SITE ADJACENT ROADWAY AND SITE ACCESS IMPROVEMENTS

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

Exhibit 1-3 also illustrates the on-site and site adjacent recommended roadway lane improvements for the Project under near term traffic conditions. Construction of on-site and site adjacent improvements are recommended to occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

Milliken Avenue – Milliken Avenue is a north-south oriented roadway located along the western boundary of the Project. Construct Milliken Avenue from the Project's northern boundary to the Project's southern boundary at its ultimate half-section width as a 6-lane Urban Arterial (ultimate 152-foot right-of-way) in compliance with the circulation recommendations found in the City of Eastvale's General Plan. The cross-section includes an ultimate curb-to-curb width of 110-feet with three travel lanes in each direction.

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

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

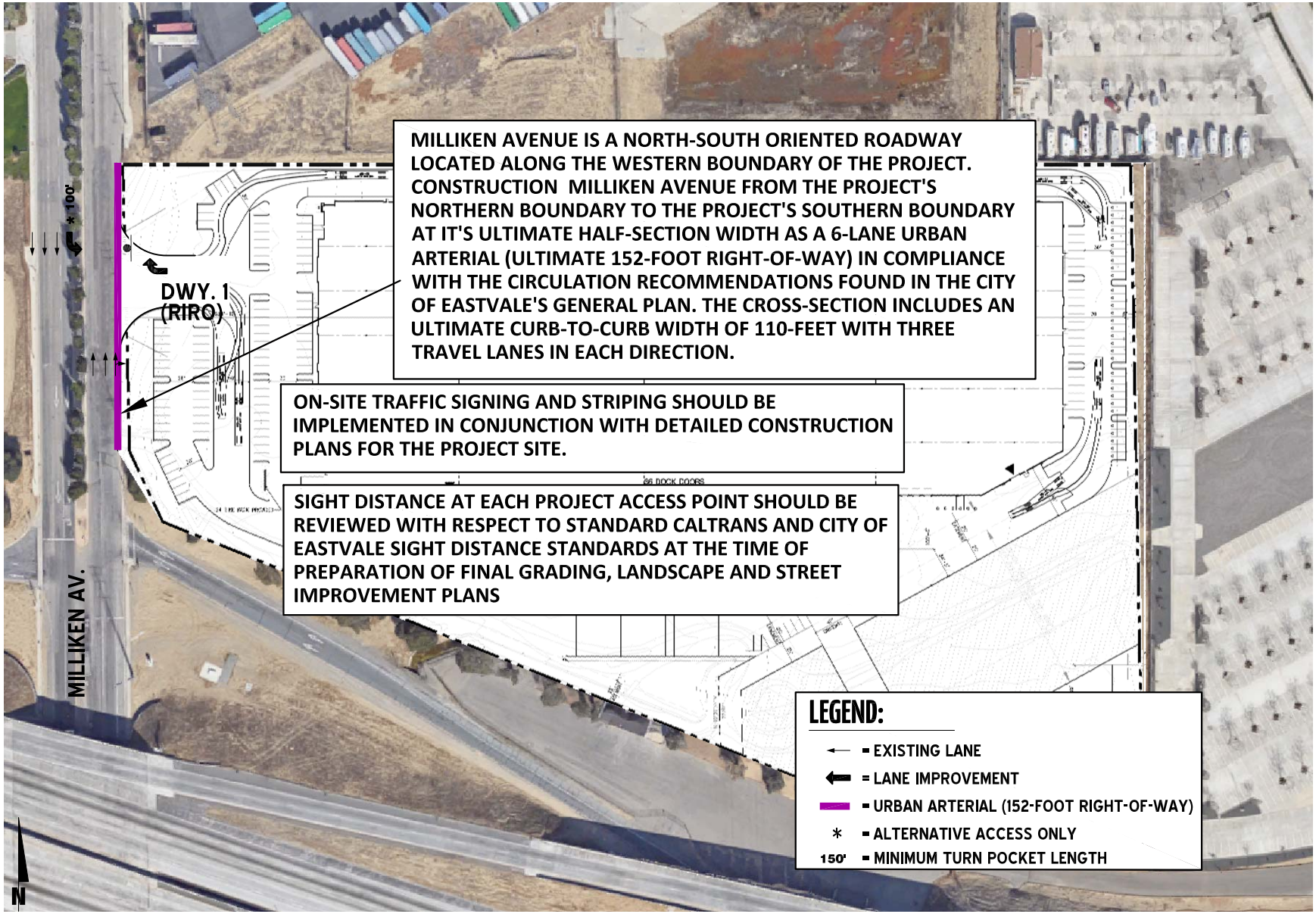
Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Eastvale sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

1.7.2 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted along the site adjacent roadways of Milliken Avenue for Horizon Year (2040) traffic conditions to determine the turn pocket lengths necessary to accommodate near term 95th percentile queues. The analysis was conducted for both the weekday AM and weekday PM peak hours and for both access alternatives.

The traffic modeling and signal timing optimization software package Synchro (Version 9.1) has been utilized to assess queues at the Project access points. Synchro is a macroscopic traffic software program that is based on the signalized and unsignalized intersection capacity analyses as specified in the HCM. 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 in Synchro. The LOS and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

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



SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). However, the average queue is the average of all the two-minute maximum queues observed by SimTraffic. The maximum back of queue observed for every two-minute period is recorded by SimTraffic.

SimTraffic has been utilized to assess peak hour queuing at the site access driveways for Horizon Year (2040) With Project traffic conditions. The random simulations generated by SimTraffic have been utilized to determine the 50th and 95th percentile queue lengths observed for each turn lane. A SimTraffic simulation has been recorded five (5) times, during the weekday AM and weekday PM peak hours, and has been seeded for 60-minute periods with 60-minute recording intervals.

A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. Although only the 95th percentile queue has been utilized for purposes of determining the necessary turn pocket storage lengths, the 50th percentile queues are also reported. The 50th percentile queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. In other words, if traffic were observed for 100 cycles, the 95th percentile queue would be the queue experienced with the 95th busiest cycle (or 5% of the time).

The storage length recommendations for the turning movements at the Project were shown previously on Exhibit 1-3. The Horizon Year (2040) queuing results are provided in Appendix 1.2 of this report.

1.8 PEDESTRIAN AND BICYCLE ACCOMMODATIONS

1.8.1 PEDESTRIAN ACCOMMODATIONS

The Project will construct its ultimate half-section of Milliken Avenue, including curb and gutter and sidewalk improvements, along its frontage.

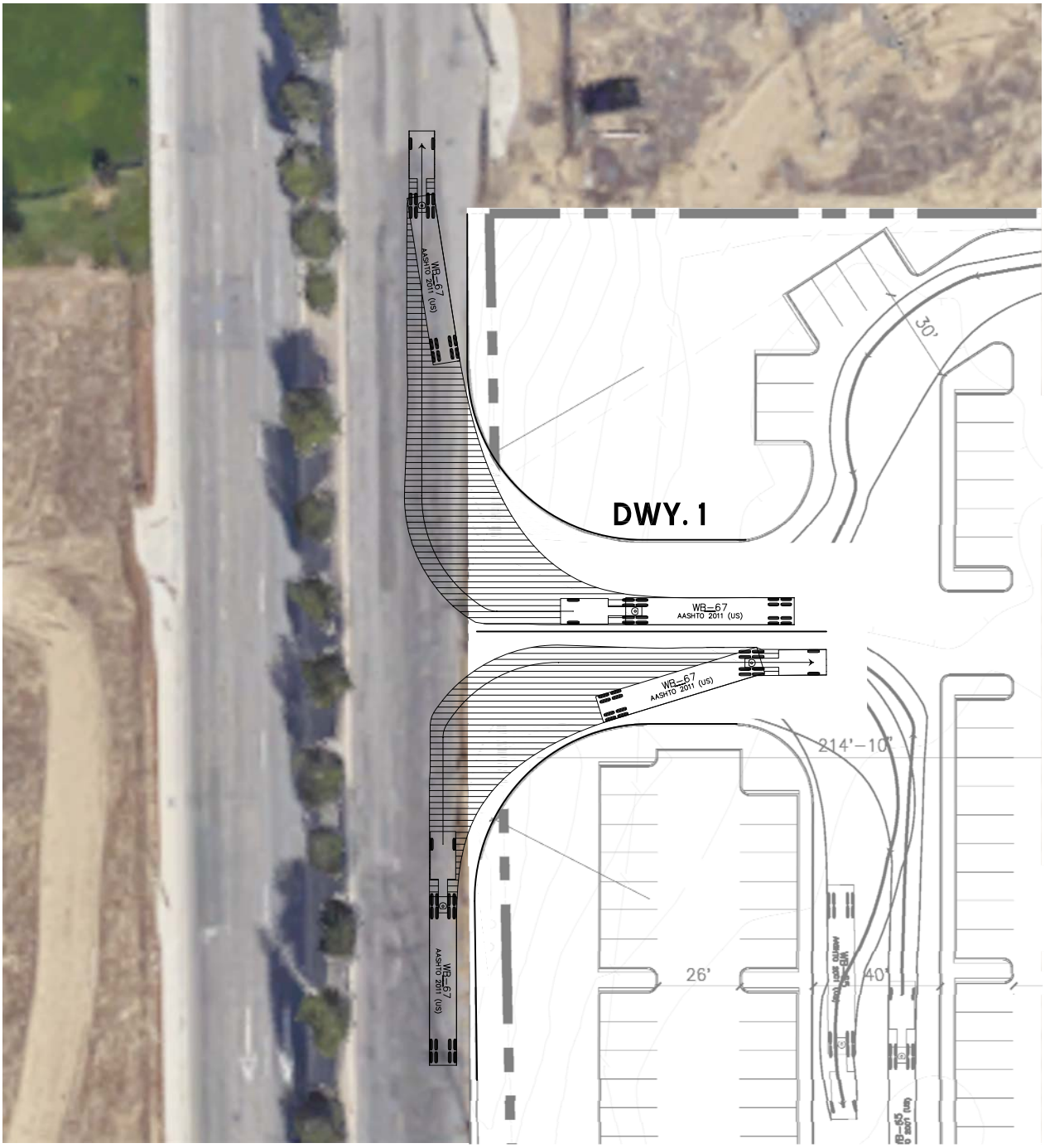
1.8.2 BICYCLE ACCOMMODATIONS

Based on the City's currently Bicycle Master Plan (adopted April 2016), there are no existing or planned bicycle routes within the vicinity of the proposed Project.

1.9 TRUCK ACCESS AND CIRCULATION

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 and site adjacent intersection 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 1-4). As shown, the Project driveway is anticipated to accommodate the wide turning radius of the heavy trucks. A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis.

EXHIBIT 1-4: TRUCK ACCESS



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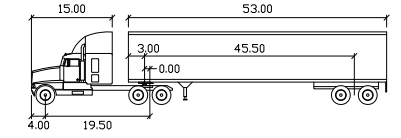

WB-67	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

GRAPHIC SCALE
0 50 100
1"=50'

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with City of Eastvale traffic study guidelines.

2.1 LEVEL OF SERVICE

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

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. LOS analysis was conducted to determine existing traffic conditions using the Intersection Capacity Utilization (ICU) methodology for signalized study intersections, with the exception of the Caltrans ramp-to-arterial intersections. The 2010 Highway Capacity Manual (HCM) methodology was also used to determine peak hour delay and associated LOS for all study area intersections. (4) In addition, in accordance with Caltrans' guidelines, 2010 HCM methodology was used for all State study intersections. The HCM 2010 methodology expresses the LOS at an intersection in terms of average control delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

City of Eastvale and City of Ontario

The City of Eastvale and City of Ontario require signalized intersection operations analysis based on the methodology described in the HCM. (4) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1.

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 2010

The traffic modeling and signal timing optimization software package Synchro (Version 9.1) has been utilized to analyze signalized intersections within the City of Eastvale and City of Ontario. 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.

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

The City of Eastvale also requires signalized intersections to be evaluated through ICU analysis which compares the peak hour traffic volumes to intersection capacity. Lane capacities of 1,600 vehicles per hour of green time have been assumed for the ICU calculations. 0.05 of V/C assumed representing 5 seconds of delay for the yellow and all-red signal indication and inherent vehicle

delay between cycles with an assumed signal cycle of 100 seconds. The ICU LOS definitions based on V/C ratio are presented in Table 2-2.

TABLE 2-2 INTERSECTION CAPACITY UTILIZATION (ICU) LOS DEFINITIONS

Level of Service	Critical Volume to Capacity Ratio
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	>1.00

California Department of Transportation (Caltrans)

Per the Caltrans *Guide for the Preparation of Traffic Impact Studies*, the traffic modeling and signal timing optimization software package Synchro (Version 9.1) has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e. Milliken Avenue and SR-60 Freeway). (2) Signal timing for the freeway arterial-to-ramp intersections have been obtained from Caltrans District 8 and were utilized for the purposes of this analysis.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Eastvale requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-3).

TABLE 2-3: 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 2010

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

2.3 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the daily roadway segment capacities for each type of roadway as summarized in Table 2-4.

TABLE 2-4: ROADWAY SEGMENT CAPACITIES

Roadway Lanes	City of Eastvale[1]	City of Ontario[2]
2-Lane	18,000	12,500
4-Lane	35,900	33,000
6-Lane	53,900	49,000

[1] Based on LOS E maximum two-way traffic volume (ADT) thresholds from the City of Eastvale General Plan (Table C-1) for an Urban Arterial.

[2] Based on LOS E maximum two-way traffic volume (ADT) thresholds from the City of Ontario Mobility Element for a Principal Arterial.

These roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic. As such, where the average daily volume (ADT) based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, for the purposes of this analysis, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

2.4 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. Traffic signal warrant analyses were not prepared for the purposes of this TIA as all of the existing study area intersections are currently signalized and the proposed Project driveway is anticipated to have restricted access and would not be signalized.

2.5 FREEWAY OFF-RAMP QUEUING ANALYSIS

The study area for this TIA includes the freeway-to-arterial interchanges of the SR-60 Freeway at Milliken Avenue off-ramps. Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing impacts at the freeway ramp intersections on Milliken Avenue. Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the SR-60 Freeway mainline from the off-ramps.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential impacts/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. There are two

footnotes which appear on the Synchro outputs. One footnote indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The other footnote indicates whether or not the volume for the 95th percentile queue is metered by an upstream signal. In many cases, the 95th percentile queue will not be experienced and may potentially be less than the 50th percentile queue due to upstream metering. If the upstream intersection is at or near capacity, the 50th percentile queue represents the maximum queue experienced.

A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. Although only the 95th percentile queue has been reported in the tables, the 50th percentile queue can be found in the appendix alongside the 95th percentile queue for each ramp location. The 50th percentile maximum queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. In other words, if traffic were observed for 100 cycles, the 95th percentile queue would be the queue experienced with the 95th busiest cycle (or 5% of the time). The queue length reported is for the lane with the highest queue in the lane group. The 50th percentile or average queue represents the typical queue length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed, it is simply based on statistical calculations.

2.6 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS) AND INTERSECTION DEFICIENCY CRITERIA

Minimum Acceptable Levels of Service (LOS) and associated definitions of intersection deficiencies has been obtained from each of the applicable surrounding jurisdictions.

2.6.1 CITY OF EASTVALE

The City of Eastvale General Plan Policy C-10 sets a standard of LOS C with LOS D as acceptable in commercial and employment areas and at intersections of any combination of major highways, urban arterials, secondary highways, or freeway ramps. Based on this criterion, where feasible, LOS D is the minimum acceptable LOS at each of the study intersections within the City of Eastvale.

Where the ADT based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis is undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. While this traffic study recognizes LOS C is the City's target LOS for roadway segments, a review of the more detailed peak hour intersection analysis is necessary to determine whether roadway widening along the segment is necessary. For the purposes of this analysis, if the peak hour intersection operations on either side of the roadway segment are anticipated to operate at LOS D or better, then additional roadway segment widening is not recommended. Therefore, for the purposes of this analysis, roadway segment widening is typically only recommended if the peak

hour intersection analysis indicates the need for additional through lanes. Furthermore, it is likely that a roadway segment can have a volume-to-capacity ratio of up to 1.10 if the adjacent intersections are anticipated to operate at acceptable LOS, without the need for additional widening. As the LOS threshold for the study area intersections is LOS D, LOS D has also been utilized as the minimum LOS criteria for roadway segments for the purposes of this analysis.

2.6.2 CITY OF ONTARIO

According to the City of Ontario's General Plan, LOS E is the minimum acceptable condition that should be maintained during the peak commute hours, where feasible. Therefore, any intersection operating at LOS F is considered deficient. LOS will also be reported by movement for the City's review.

2.6.3 CALTRANS

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway system (SHS) facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing LOS should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadway segments, and intersections is LOS D. Consistent with the City of Eastvale LOS threshold of LOS D and in excess of the City of Ontario stated LOS threshold of LOS E, LOS D will be used as the target LOS for freeway ramp-to-arterial intersections.

2.7 THRESHOLDS OF SIGNIFICANCE

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

2.7.1 INTERSECTIONS

Project related significant impacts will be identified by comparing the "Without Project" condition to the "With Project" condition based on the following criteria:

- If the LOS deteriorates from acceptable LOS (LOS D or better) to unacceptable LOS (LOS E or F); or
- If the intersection is already operating at an unacceptable LOS (LOS E or F) in "Without Project" conditions and the addition of Project traffic increases the delay by more than 5.0 seconds.

Cumulative traffic impacts are created as a result of a combination of the proposed Project together with other future developments contributing to the overall traffic impacts requiring additional improvements to maintain acceptable level of service operations with or without the Project. A Project's contribution to a significant cumulative impact can be reduced to less than significant if the Project is required to implement or fund its fair share of improvements designed to alleviate its cumulatively considerable contribution to the impact.

In the event that an intersection is operating at or is forecast to operate at a deficient LOS, the Congestion Management Program (CMP) guidelines have defined a series of steps to be

completed to determine the Project's contribution to the deficiency of intersections, which has been applied to both CMP and non-CMP study area intersections. The steps are as follows:

- Determine the mitigation measures necessary to achieve an acceptable service level,
- Calculate the Project's share in the future traffic volume projections for the peak hours,
- Estimate the cost to implement recommended mitigation measures, and
- Calculate the Project's fair-share contribution to mitigate the Project's traffic impacts

2.7.2 ROADWAY SEGMENTS

Project related significant impacts will be identified by comparing the "Without Project" condition to the "With Project" condition based on the following criteria:

- If the LOS deteriorates from acceptable LOS (LOS D or better) to unacceptable LOS (LOS E or F); or
- If the roadway segment is already operating at an unacceptable LOS (LOS E or F) in "Without Project" conditions and the addition of Project traffic increases the volume-to-capacity ratio by 0.01 or greater.

2.7.3 CALTRANS FACILITIES

To determine whether the addition of project traffic to the SHS freeway segments would result in a deficiency, the following will be utilized:

- The traffic study finds that the LOS of a segment will degrade from D or better to E or F.
- The traffic study finds that the project will exacerbate an already deficient condition by contributing 25 or more one-way peak hour trips. A segment that is operating at or near capacity is deemed to be deficient.

2.8 PROJECT FAIR SHARE CALCULATION METHODOLOGY

In cases where this TIA identifies that the Project would contribute additional traffic volumes to cumulative traffic deficiencies, Project fair share costs of improvements necessary to address deficiencies have been identified. The Project's fair share cost of improvements is determined based on the following equation, which is the ratio of Project traffic to new traffic, and new traffic is total future (Horizon Year) traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (2040 With Project Total Traffic – Existing Traffic)

The Project fair share contribution calculations are presented in Section 1.5 *Local and Regional Funding Mechanisms* of this TIA.

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Eastvale General Plan Circulation Network, and a review of existing peak hour intersection operations analysis.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Eastvale staff (Appendix 1.1), the study area includes a total of 7 existing and future intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF EASTVALE GENERAL PLAN CIRCULATION ELEMENT

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

The study area roadway that is classified as a 6-lane Urban Arterial is identified as having three lanes of travel in each direction and a 14-foot curbed or painted median. The following study area roadways within the City of Eastvale are classified as a 6-lane Principal Arterial:

- Milliken Avenue, south of Philadelphia Street

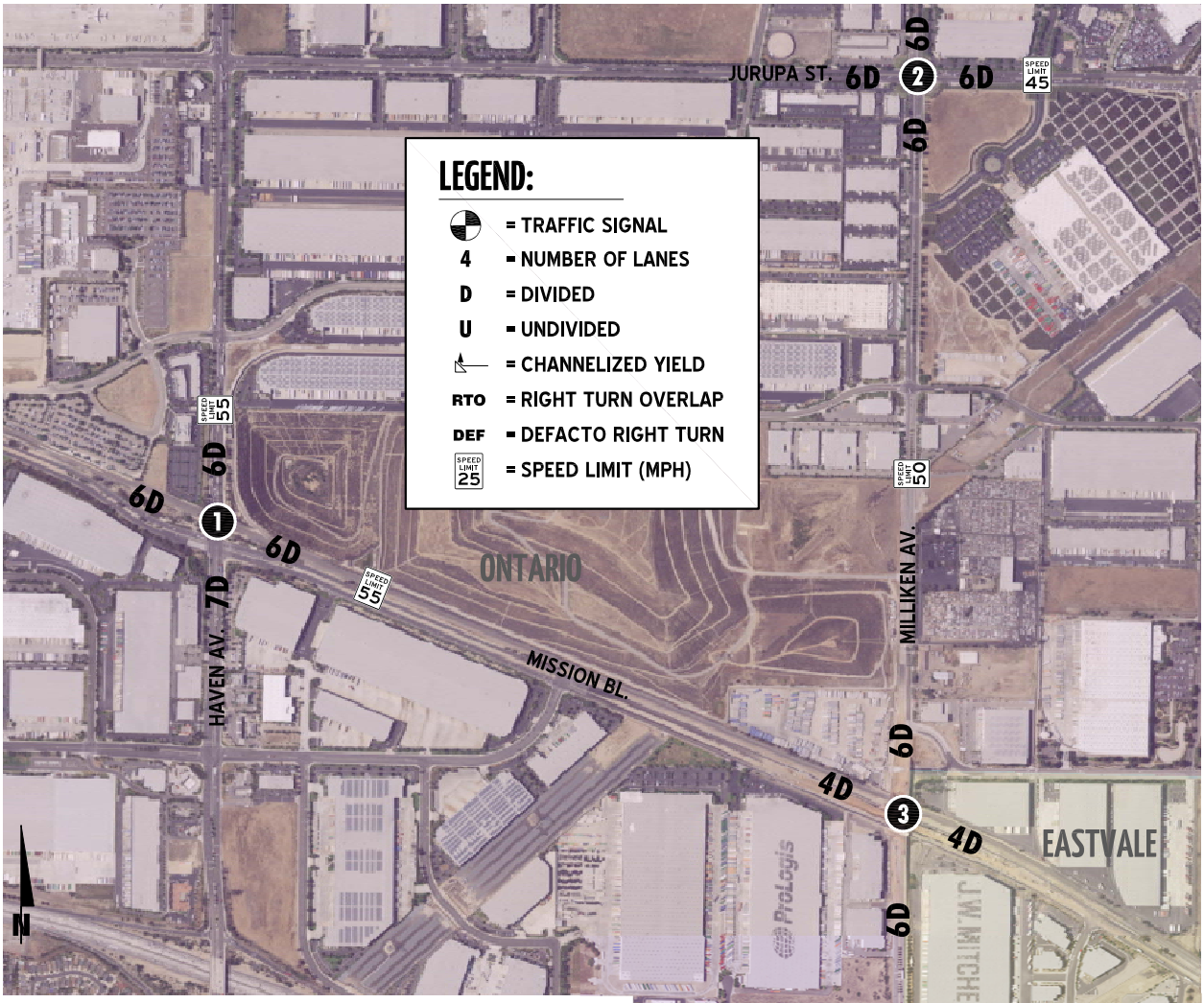
3.3 CITY OF ONTARIO GENERAL PLAN CIRCULATION ELEMENT

Exhibits 3-4 and 3-5 show the City of Ontario General Plan Circulation Element and roadway cross-sections, respectively.

3.4 TRUCK ROUTES

The City of Ontario designated truck route map is shown on Exhibit 3-6. Haven Avenue, Mission Boulevard, Jurupa Street, and Hamner Avenue/Milliken Avenue are designated as a Truck Route within the City of Ontario. The designated truck route map has been utilized to route truck traffic from both the proposed Project and future cumulative development projects throughout the study area.

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



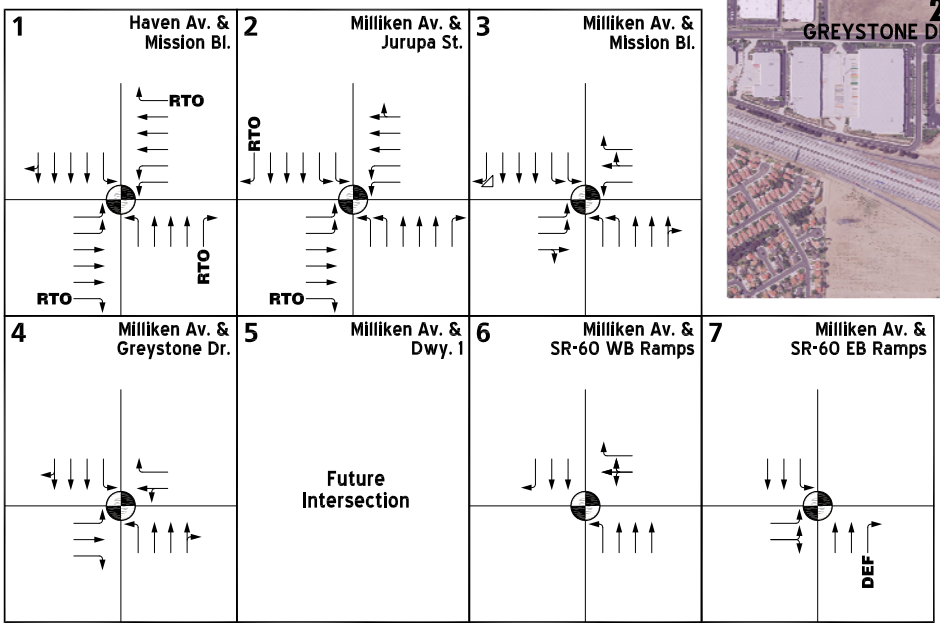
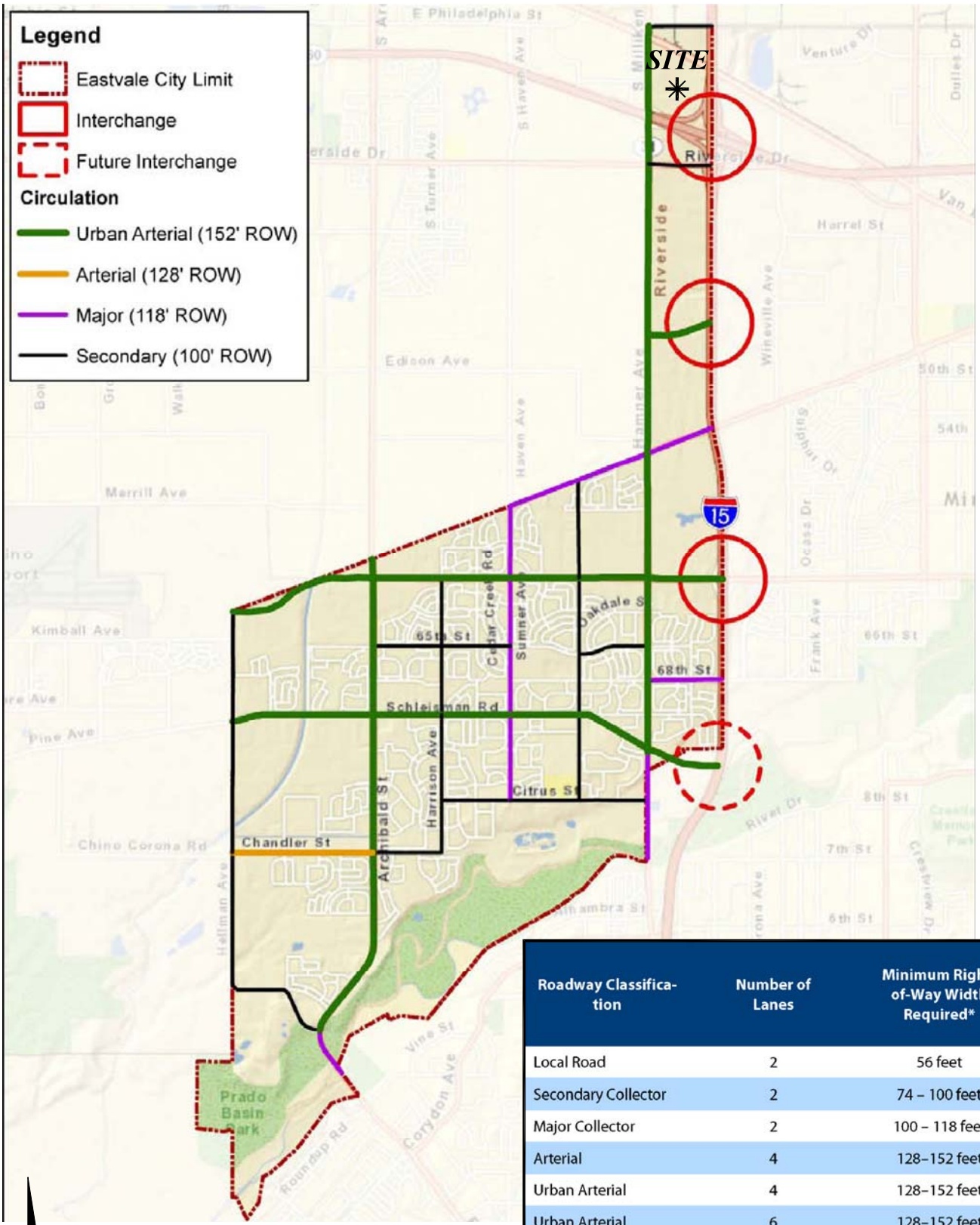


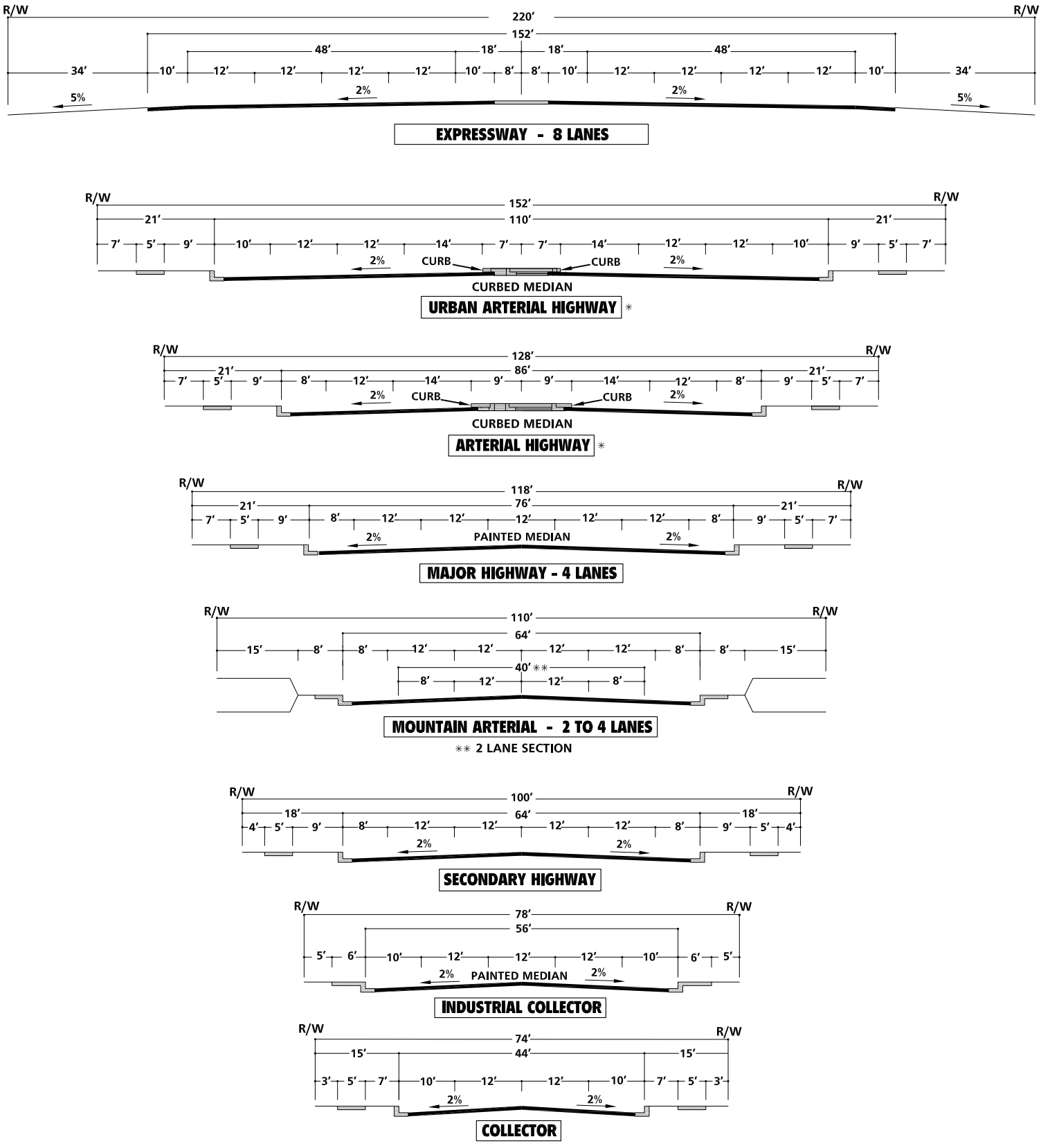
EXHIBIT 3-2: CITY OF EASTVALE GENERAL PLAN CIRCULATION ELEMENT



Roadway Classification	Number of Lanes	Minimum Right-of-Way Width Required*
Local Road	2	56 feet
Secondary Collector	2	74 – 100 feet
Major Collector	2	100 – 118 feet
Arterial	4	128–152 feet
Urban Arterial	4	128–152 feet
Urban Arterial	6	128–152 feet

SOURCE: CITY OF EASTVALE GENERAL PLAN
ADOPTED: JUNE 13, 2012

EXHIBIT 3-3: CITY OF EASTVALE 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

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EXHIBIT 3-4: CITY OF ONTARIO GENERAL PLAN CIRCULATION ELEMENT

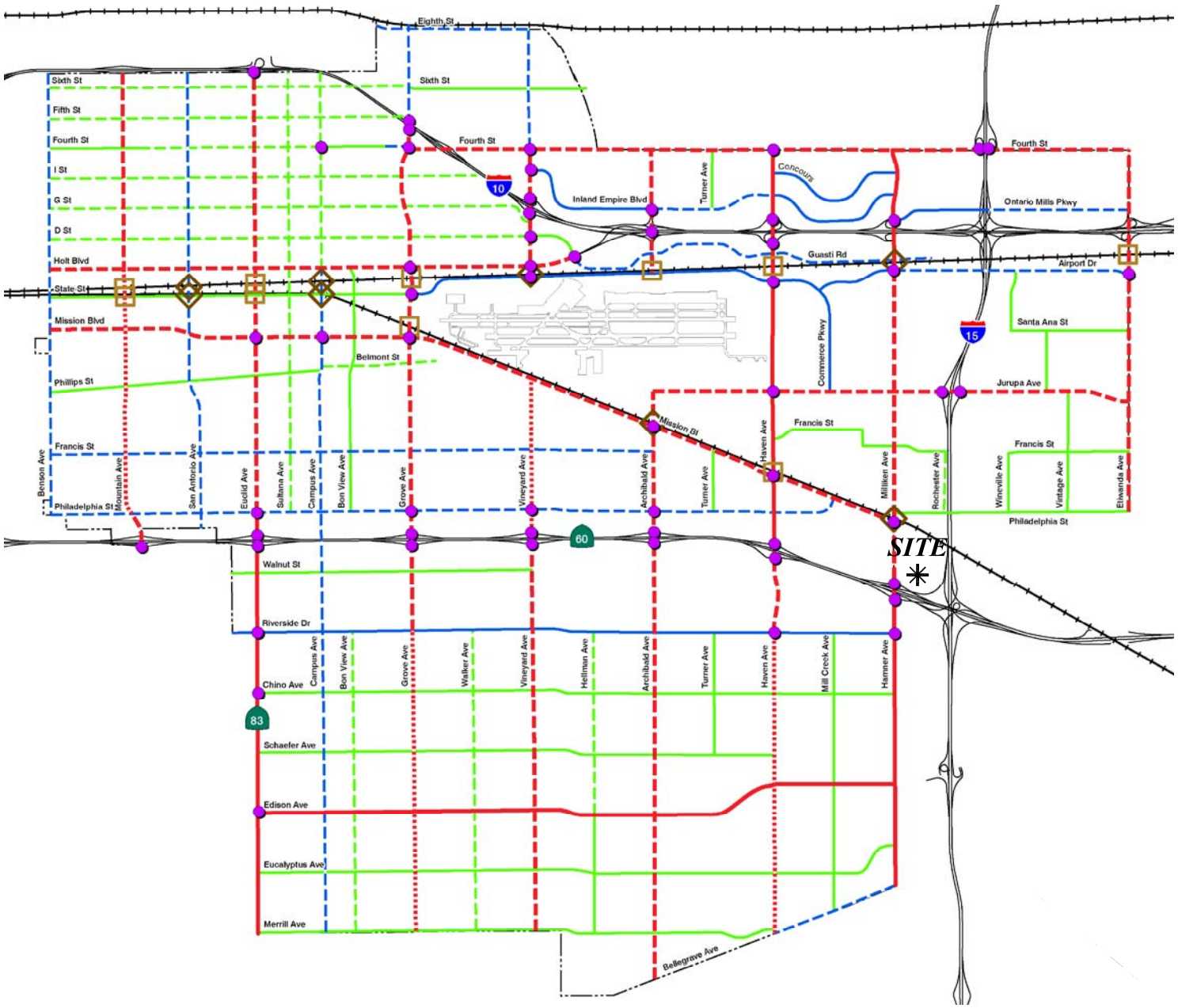
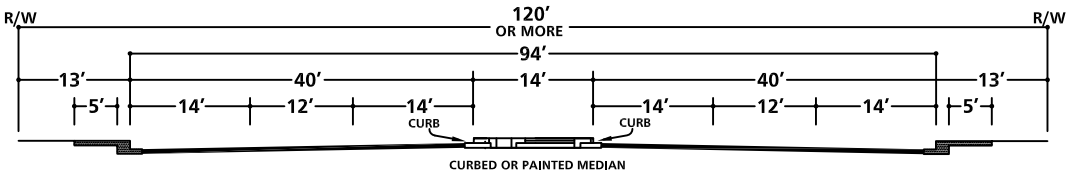
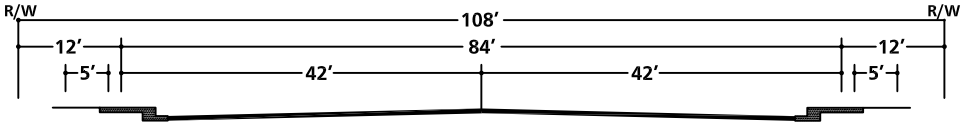


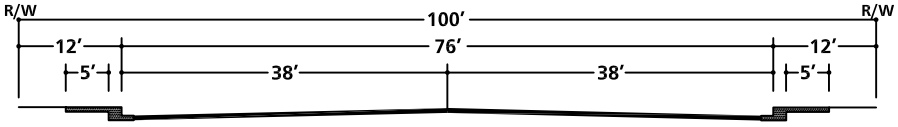
EXHIBIT 3-5: CITY OF ONTARIO GENERAL PLAN ROADWAY CROSS-SECTIONS



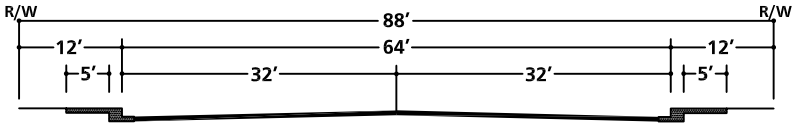
PRINCIPAL ARTERIAL



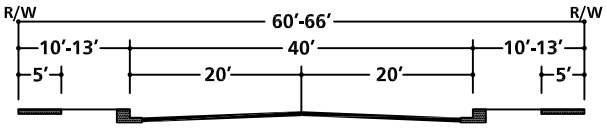
MINOR ARTERIAL



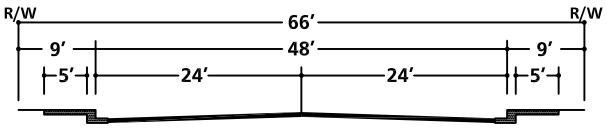
OTHER PRINCIPAL ARTERIAL



COLLECTOR STREET



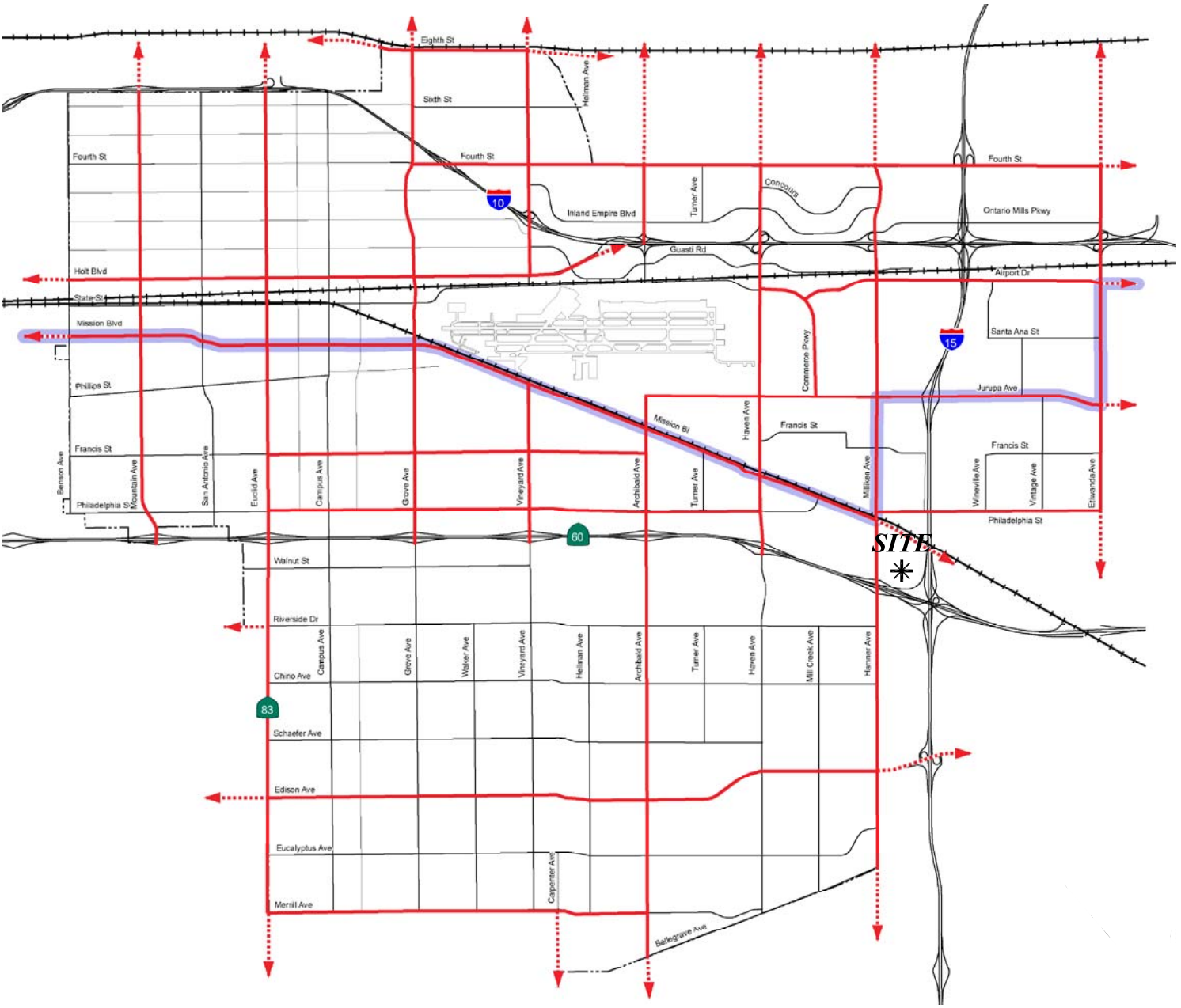
LOCAL STREET



LOCAL INDUSTRIAL STREET

SOURCE: CITY OF ONTARIO

EXHIBIT 3-6: CITY OF ONTARIO TRUCK ROUTES



LEGEND:

- Truck Routes
- State of California DOT Extralegal Load Network
- Railroad
- Adjacent Agency Truck Route
- Exisitng Streets

N

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3.5 BICYCLE, EQUESTRIAN, & PEDESTRIAN FACILITIES

Field observations conducted in June 2017 indicate nominal pedestrian and bicycle activity within the study area. Exhibit 3-7 illustrates the City of Eastvale trails and bikeway systems. Exhibit 3-8 illustrates the City of Ontario future planned bicycle facilities, which proposes Bicycle Corridors along Mission Boulevard and Haven Avenue in close proximity to the Project. Based on the City's currently Bicycle Master Plan (adopted April 2016), there are no existing or planned bicycle routes within the vicinity of the proposed Project. Existing pedestrian facilities within the study area are shown on Exhibit 3-9.

3.6 TRANSIT SERVICE

The study area within the City of Eastvale is currently served by the Riverside Transit Agency, a public transit agency serving various jurisdictions within Riverside County. However, there are currently no existing RTA bus routes near the vicinity of the Project. The study area within the City of Ontario is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County. Based on a review of the existing transit routes within the vicinity of the proposed Project, Omnitrans Route 81 operates on Haven Avenue west of the site, and Omnitrans Route 82 operates on Milliken Avenue north of Jurupa Street and along Jurupa Street east of Milliken Avenue.

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 applicant work in conjunction with RTA to potentially provide additional bus service to the site. Existing transit routes in the vicinity of the study area are illustrated on Exhibit 3-10.

3.7 EXISTING (2017) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in June of 2017 while local schools were still in session. The following peak hours were selected for analysis:

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

The weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

EXHIBIT 3-7: EASTVALE AREA TRAILS AND BIKEWAYS SYSTEM

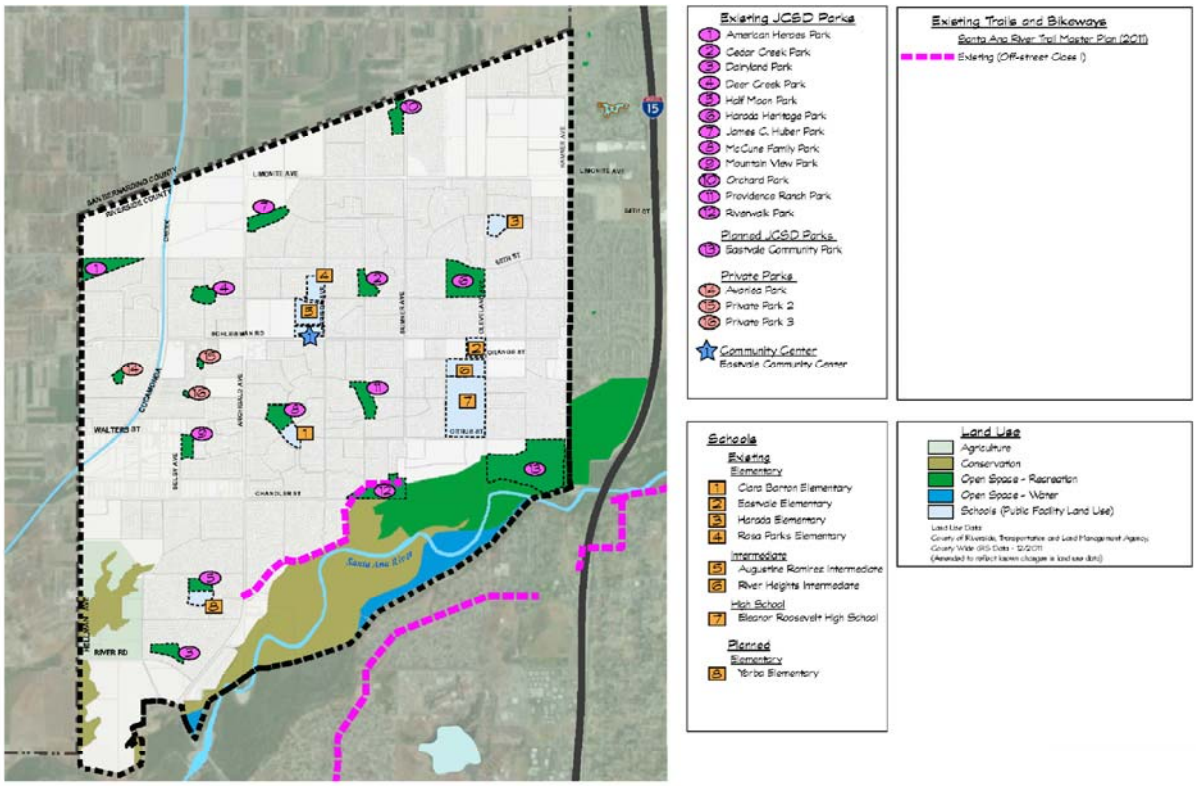


Exhibit 2.8-1 Existing Trails

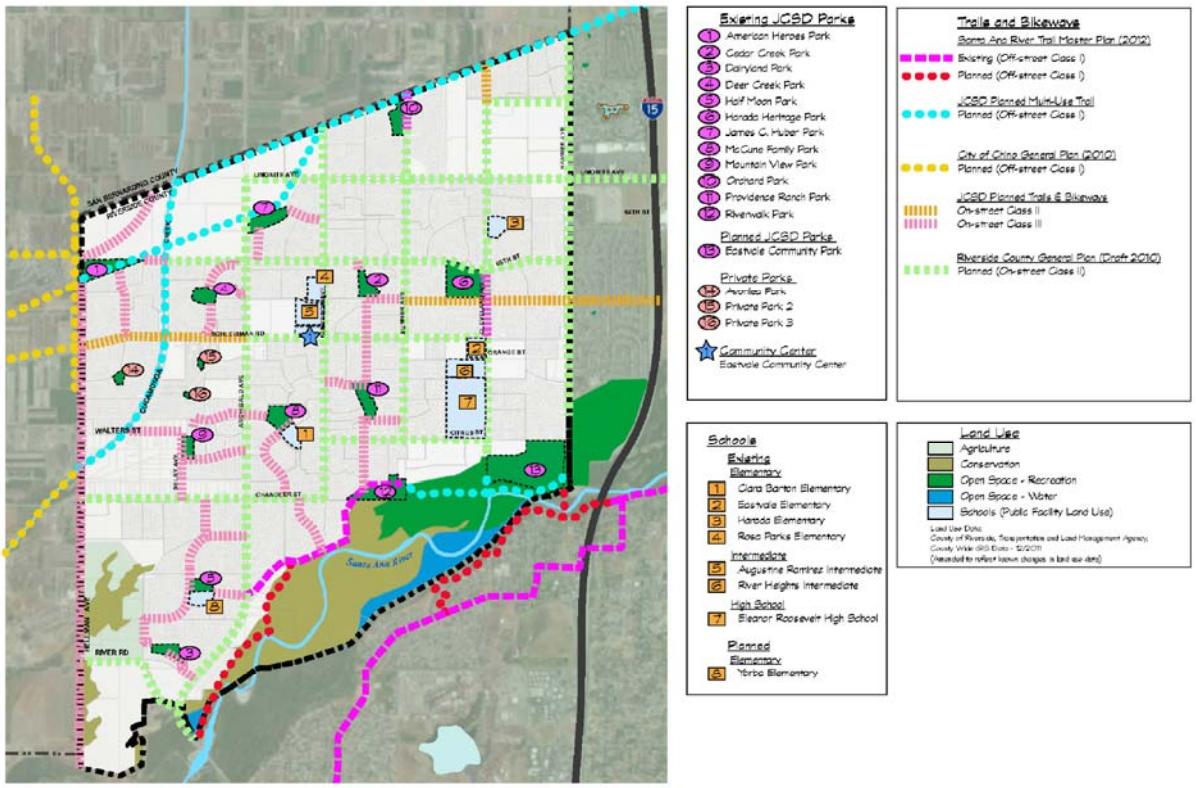
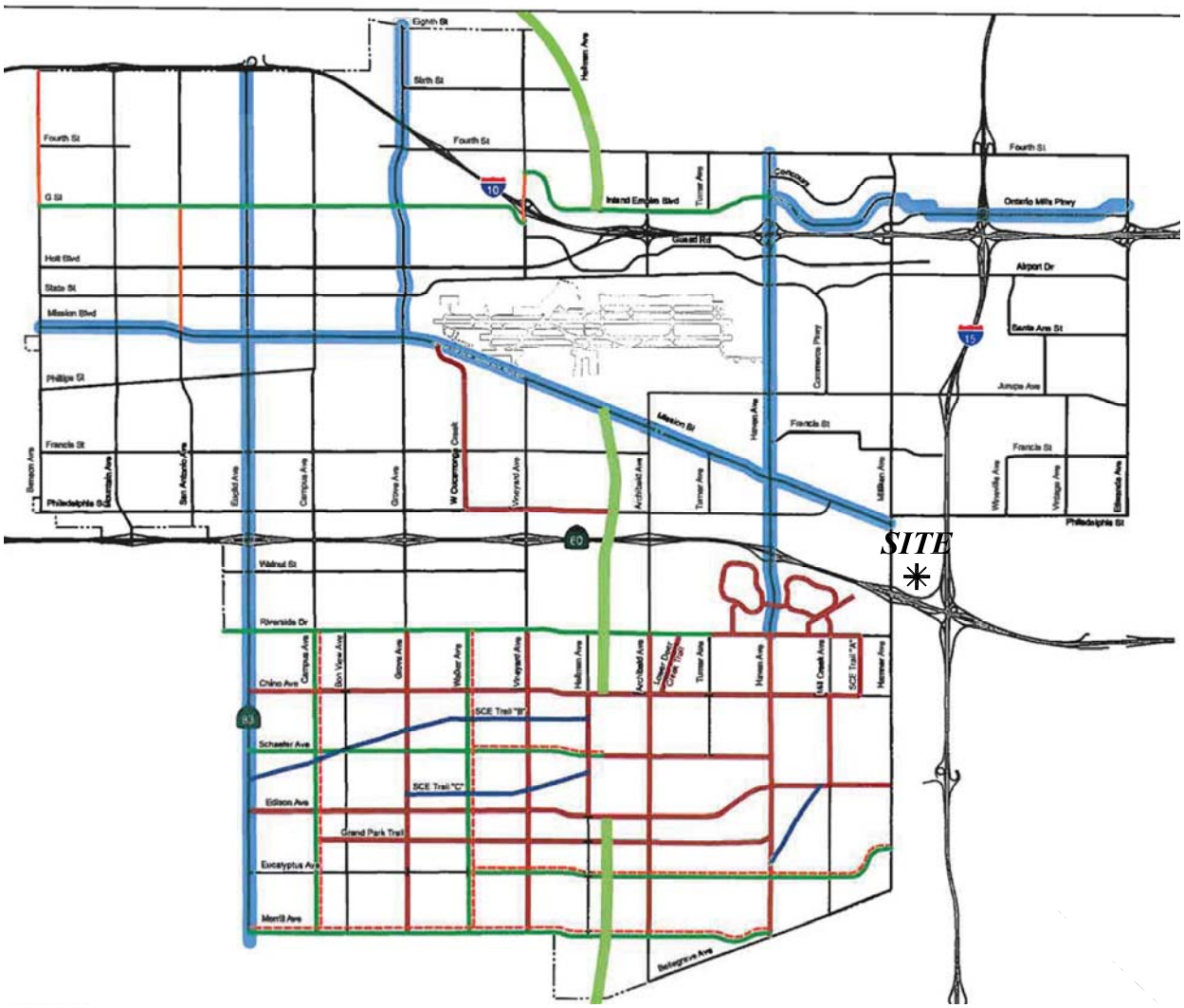


Exhibit 2.8-2 Planned Trails

N

EXHIBIT 3-8: CITY OF ONTARIO GENERAL PLAN TRAILS AND BIKEWAY SYSTEMS

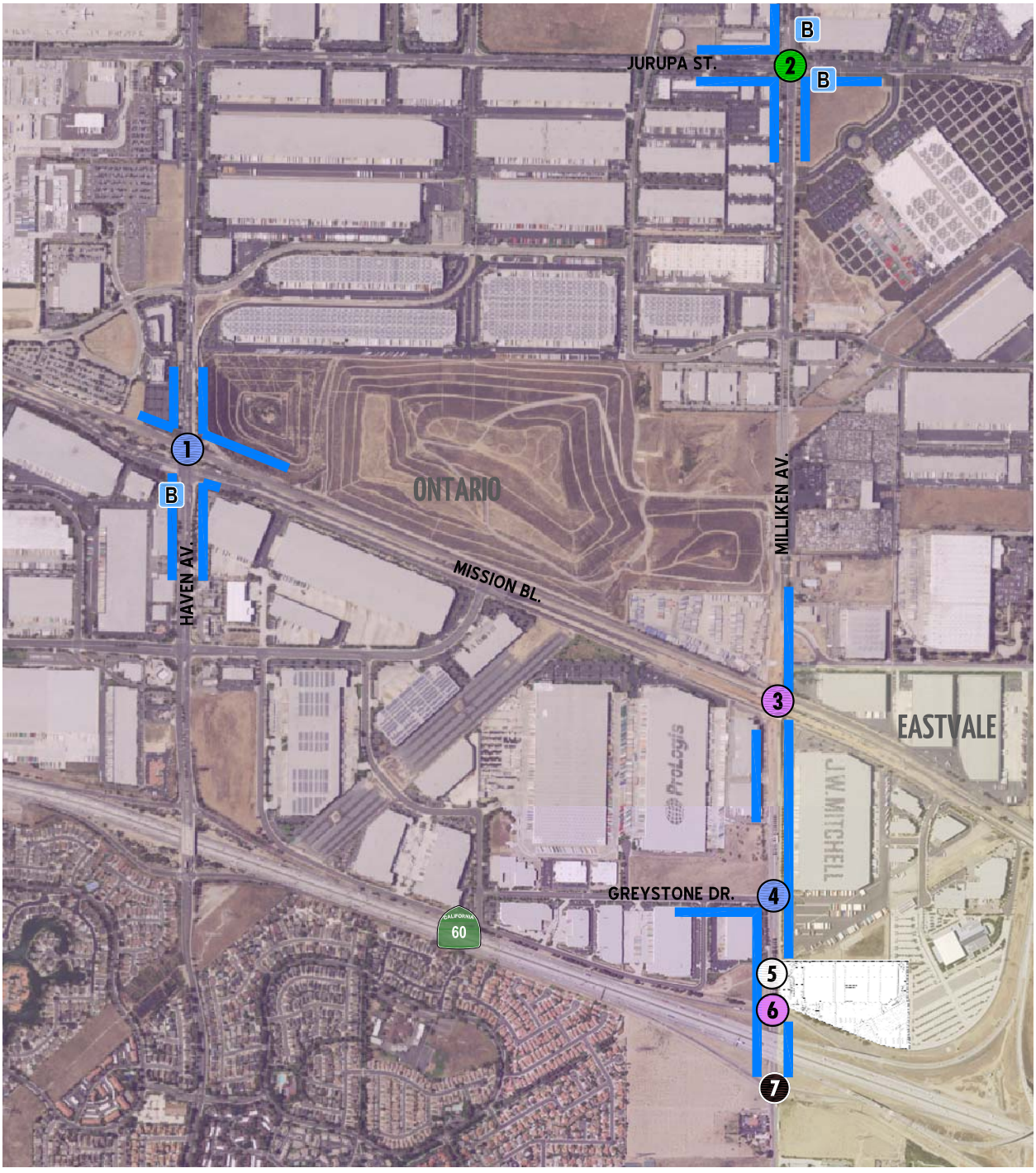


LEGEND:

- Freeways
- Backbone Street System
- Multipurpose Trail
- Class II & Multipurpose Trail
- Class II
- Class III
- SCE Trails
- Cucamonga Creek Multipurpose Trail
- Bicycle Corridors

N

EXHIBIT 3-9: EXISTING PEDESTRIAN FACILITIES



LEGEND:

- = SIDEWALK
- B = BUS STOP
- 0 = NO CROSSWALK
- 0 = FUTURE INTERSECTION
- 0 = CROSSWALK ON ALL APPROACHES
- 0 = CROSSWALK ON THREE APPROACHES
- 0 = CROSSWALK ON ONE APPROACH

N

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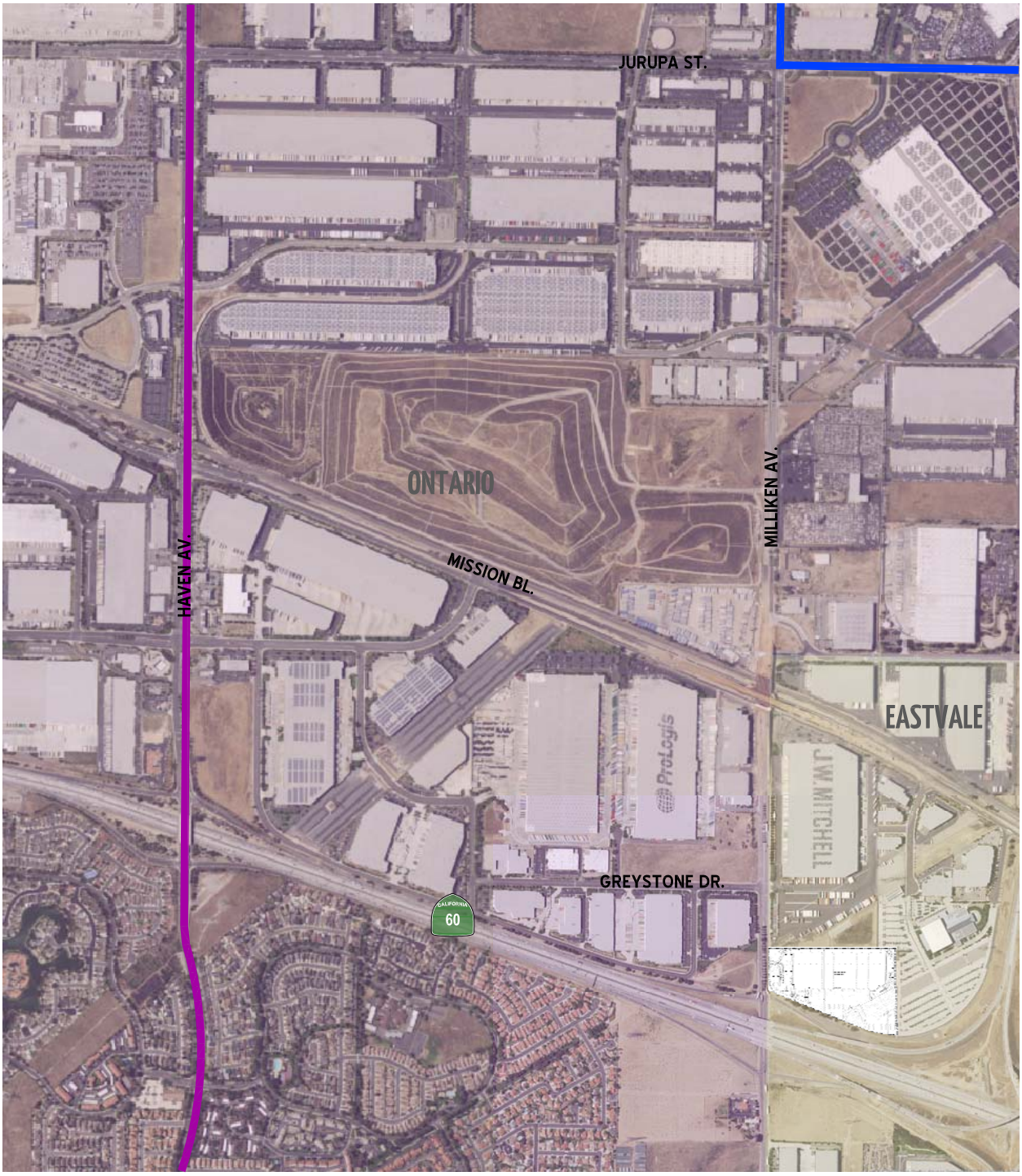
EXHIBIT 3-10: EXISTING TRANSIT ROUTES



The traffic counts collected in June of 2017 include the following vehicle classifications: Passenger Cars, 2-Axle Trucks, 2-Axle Trucks, and 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 much longer than for passenger cars, and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the San Bernardino County CMP and are in excess of the 2.0 factor recommended for use in the County of Riverside.

Existing weekday ADT volumes are shown on Exhibit 3-11. 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 9.4024 = 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 10.64 percent. As such, the above equation utilizing a factor of 9.4024 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 10.64 percent (i.e., 1/0.1064 = 9.4024) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes (in PCE) are also shown on Exhibit 3-11.

3.8 INTERSECTION OPERATIONS ANALYSIS

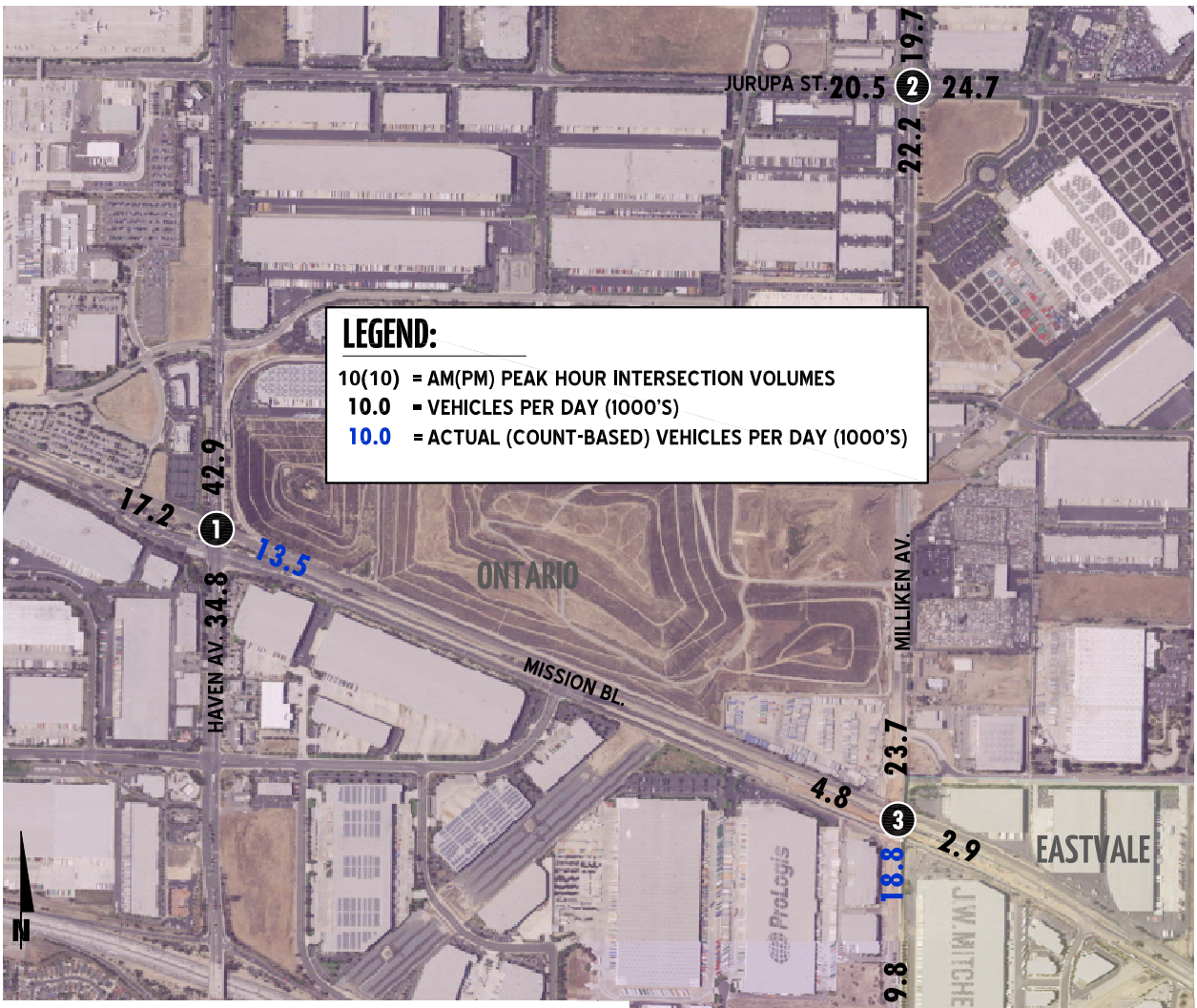
Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that all existing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

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-12. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.9 TRAFFIC SIGNAL WARRANTS ANALYSIS

All existing study area intersections are currently signalized. As such, a traffic signal warrant analysis has not been prepared for Existing (2017) traffic conditions.

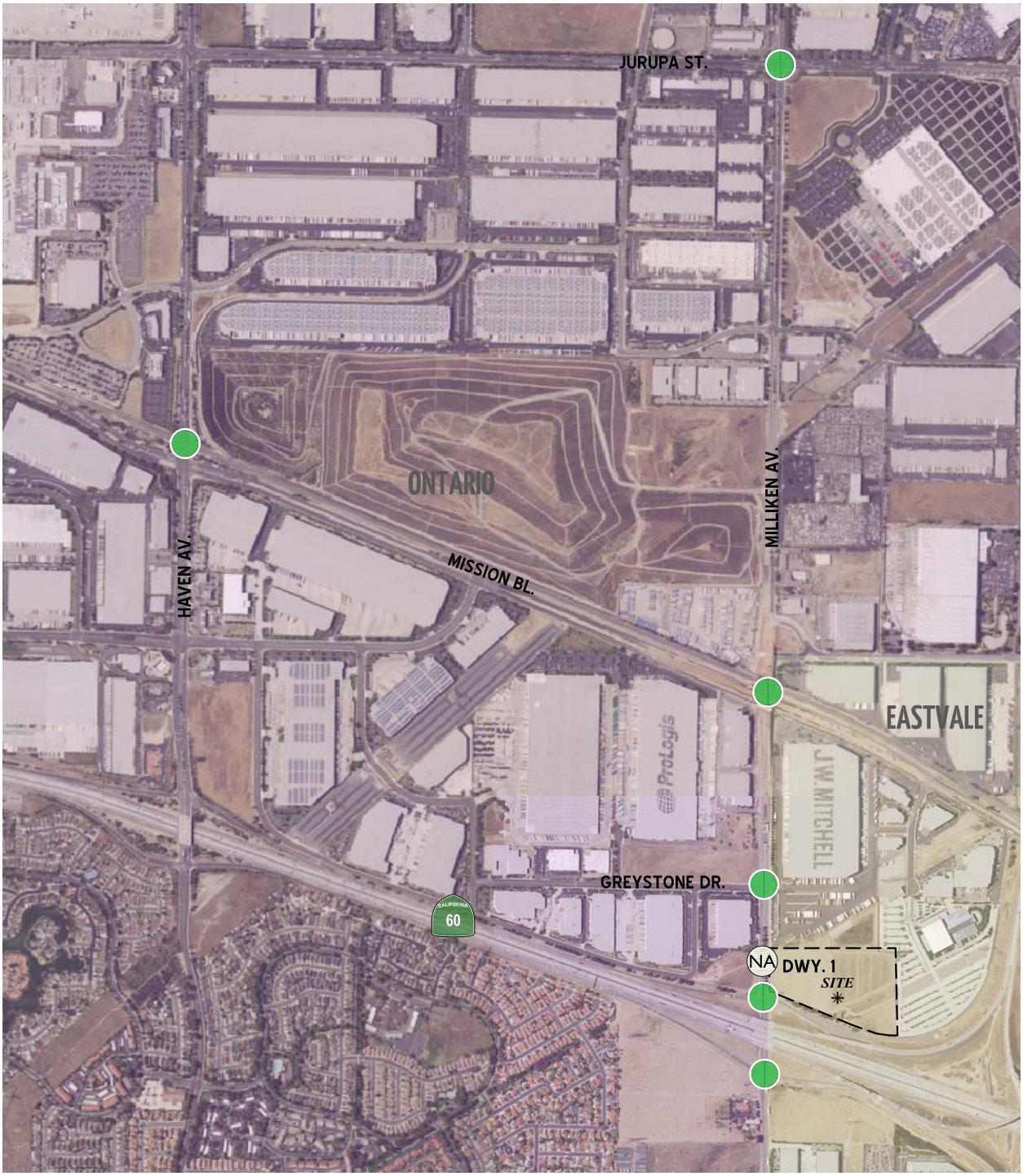
EXHIBIT 3-11: EXISTING (2017) TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.	2 Milliken Av. & Jurupa St.	3 Milliken Av. & Mission Bl.
232(159) 1084(1897) 154(301) → 367(223) 567(315) 36(22) ←	109(101) 410(762) 111(255) → 169(141) 905(606) 299(294) ←	181(145) 500(1139) 49(180) → 116(86) 3(5) 60(10) ←
225(504) 228(578) 90(132) →	87(154) 395(1010) 54(143) →	140(283) 0(0) 26(46) →
← 109(147) 1538(1475) 19(33) ↑	← 147(165) 646(680) 220(321) ↑	← 159(36) 1015(687) 18(27) ↑

4 Milliken Av. & Greystone Dr.	5 Milliken Av. & Dwy. 1	6 Milliken Av. & SR-60 WB Ramps	7 Milliken Av. & SR-60 EB Ramps
54(24) 450(1356) 3(6) → 2(0) 0(0) 1(1) ←	Future Intersection	222(584) 265(860) → 567(166) 14(2) 182(91) ←	406(631) 41(320) →
45(41) 0(1) 36(87) →			423(223) 373(168) →
← 109(20) 1288(675) 0(1) ↑		← 279(265) 830(530) ↑	← 685(572) 122(228) ↑

EXHIBIT 3-12: EXISTING (2017) SUMMARY OF LOS



LEGEND:

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

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Table 3-1

Intersection Analysis for Existing (2017) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												ICU[2] (v/c)		Level of Service		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	AM	PM	AM	PM
1	Haven Av. / Mission Bl.	TS	1	3	1>	1	4	0	2	3	1>	2	3	1>	0.77	0.84	C	D	38.8	72.1	D	E
2	Milliken Av / Jurupa St.	TS	2	3	1	2	3	1	2	3	1	2	3	0	0.47	0.63	A	B	27.0	32.9	C	C
3	Milliken Av. / Mission Bl.	TS	2	3	0	2	3	1	2	1	0	1	1	1	0.36	0.42	A	A	19.5	20.5	B	C
4	Milliken Av. / Greystone Dr.	TS	1	3	0	1	3	0	1	1	1	0	1	1	0.35	0.41	A	A	8.1	7.8	A	A
5	Milliken Av. / Driveway 1		Future Intersection												Not Applicable[2]							
6	Milliken Av. / SR-60 Westbound Ramps	TS	1	3	0	0	2	1	0	0	0	0	1	1	Not Applicable[4]				27.5	19.7	C	B
7	Milliken Av. / SR-60 Eastbound Ramps	TS	0	2	d	1	2	0	1	1	0	0	0	0	Not Applicable[4]				20.1	26.4	C	C

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

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

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

[2] ICU reported in volume-to-capacity (v/c) using the Traffix software and HCM delay reported in seconds using the Synchro software. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown

[3] TS = Traffic Signal

[4] Only delay reported as Caltrans does not utilize the ICU methodology.

3.10 ROADWAY SEGMENT ANALYSIS

The roadway segment capacities utilized for the purposes of this analysis are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2017) conditions roadway segment capacity analysis based on the applicable roadway segment capacities. As shown on Table 3-2, the study area roadway segments are currently operating at an acceptable LOS based on the applicable planning level daily roadway capacity thresholds.

3.11 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the SR-60 Freeway and Milliken Avenue interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-60 Freeway mainline. Queuing analysis findings are presented in Table 3-3. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 3-3, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. Worksheets for Existing traffic conditions off-ramp queuing analysis are provided in Appendix 3.3.

3.12 RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections, roadway segments, and freeway segments that have been identified as impacted under Existing (2017) traffic conditions in an effort to achieve an acceptable LOS (i.e., LOS D/E or better).

3.12.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

All study area intersections are anticipated to operate at acceptable LOS for Existing (2017) traffic conditions. As such, no intersection improvements have been recommended.

3.12.2 RECOMMENDED IMPROVEMENTS TO ADDRESS ROADWAY SEGMENTS

As shown previously on Table 3-2, there are no existing roadway segment deficiencies within the study area. As such, no roadway widening improvements have been recommended.

3.12.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 3-3, there are no peak hour queuing issues at SR-60 Freeway and Milliken Avenue interchange. As such, no improvements have been recommended.

Table 3-2

Roadway Segment Analysis for Existing (2017) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing (2017)	V/C[2]	LOS[3]	Acceptable LOS[4]
1	Milliken Avenue	North of Project Driveway	6D	49,000	20,117	0.41	A	D
2		Project Driveway to SR-60 Westbound Ramps	6D	49,000	20,117	0.41	A	D

[1] These maximum roadway capacities have been extracted from the following source: City of Ontario Mobility Element for each applicable roadway type. These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS "E" service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

[2] v/c = Volume-to-capacity

[3] LOS = Level of Service

Table 3-3

Peak Hour Off-Ramp Queuing Analysis for Existing (2017) Conditions

Intersection	Movement	Stacking Distance (Feet)	95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
SR-60 WB Off-Ramp / Milliken Av.						
	WBL/T/R	1,600	286	126	Yes	Yes
	WBR	350	225	49	Yes	Yes
SR-60 EB Off-Ramp / Milliken Av.						
	EBL	1,420	282	194	Yes	Yes
	EBL/EBR	1,200	138	70	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project's trip assignment onto the study area roadway network. The Project is proposed to consist of 280,000 sf of high-cube warehouse/distribution center use and is anticipated to be operational by 2018. Regional access to the Project is provided by the SR-60 Freeway via Milliken Avenue or the I-15 Freeway via Jurupa Street.

The Project is located on the northeast corner of Milliken Avenue and the SR-60 Freeway in the City of Eastvale. Access to the Project site will be provided via a single right-in/right-out only driveway on Milliken Avenue. An alternative access will also be evaluated which allows for right-in/right-out/left-in access only.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Trip generation rates used to estimate Project traffic are shown in Table 4-1. The trip generation rates used for this analysis are based upon information collected by the ITE as provided in their Trip Generation Manual, 9th Edition, 2012. (3) For purposes of this analysis, the following ITE land use code and vehicle mix has been utilized:

- ITE land use code 152 (High-Cube Warehousing) has been used to derive site specific trip generation estimates for Building 9. Total vehicle mix percentages were also obtained from the ITE *Trip Generation* manual in conjunction with the South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type. The SCAQMD is currently recommending the use of the ITE Trip Generation Manual in conjunction with their truck mix by axle-type to better quantify trip rates associated with local warehouse and distribution projects, as truck emission represent more than 90 percent of air quality impacts from these projects. This recommended procedure has been utilized for the purposes of this analysis in effort to be consistent with other technical studies being prepared for the Project. The percentage of trucks has been determined from the table shown on page 267 of the ITE Trip Generation Manual. As shown on page 267, the truck trip generation rate for weekday daily traffic is 0.64 or 38.1% of the total traffic. Similarly, the truck trip generation rate for the weekday AM peak hour is 0.03 (27.3% of the total traffic) and 0.04 (or 33.3% of the total traffic) for the weekday PM peak hour. 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 high-cube warehousing/distribution 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: 22.0% of the total trucks as 2-axle trucks, 17.7% of the total trucks as 3-axle trucks, and 60.3% of the total trucks as 4+-axle trucks.

Table 4-1

Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates (PCE)									
High-Cube Warehouse/Distribution Center[3]	TSF	152	0.076	0.034	0.110	0.037	0.083	0.120	1.680
Passenger Cars			0.055	0.025	0.080	0.025	0.055	0.080	1.040
2-Axle Trucks (PCE = 1.5)			0.007	0.003	0.010	0.004	0.009	0.013	0.211
3-Axle Trucks (PCE = 2.0)			0.007	0.003	0.011	0.004	0.010	0.014	0.226
4-Axle+ Trucks (PCE = 3.0)			0.037	0.017	0.054	0.022	0.050	0.072	1.158

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates (Actual Vehicles)									
High-Cube Warehouse/Distribution Center[3]	TSF	152	0.076	0.034	0.110	0.037	0.083	0.120	1.680
Passenger Cars			0.055	0.025	0.080	0.025	0.055	0.080	1.040
2-Axle Trucks			0.005	0.002	0.007	0.003	0.006	0.009	0.141
3-Axle Trucks			0.004	0.002	0.005	0.002	0.005	0.007	0.113
4-Axle+ Trucks			0.012	0.006	0.018	0.007	0.017	0.024	0.386

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

[2] TSF = thousand square feet

[3] High Cube Warehouse Vehicle Mix Source: Total truck percentage source from ITE Trip Generation manual.
Truck mix (by axle type) source from SCAQMD. PCE rates are per SANBAG.
AM peak hour = 72.7% passenger cars, 6.01% 2-Axle trucks, 4.83% 3-Axle trucks, 16.46% 4-Axle trucks
PM peak hour = 66.7% passenger cars, 7.33% 2-Axle trucks, 5.89% 3-Axle trucks, 20.08% 4-Axle trucks
ADT = 61.9% passenger cars, 8.38% 2-Axle trucks, 6.74% 3-Axle trucks, 22.98% 4-Axle 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. For the purposes of this analysis, the percentage of trucks, by axle type, were obtained from the ITE Trip Generation Manual or the City of Fontana's Truck Trip Generation Study. (3) (5) Lastly, 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 CMP 2016 Update. Trip generation rates for actual vehicles and with PCE factors are shown on Table 4-1.

A summary of the Project's trip generation based on PCE is shown in Table 4-2 while the trip generation based on actual vehicles is shown on Table 4-3 for informational purposes. As shown on Table 4-2, the proposed Project is anticipated to generate a net total of 737 passenger car equivalent (PCE) trip-ends per day, 43 PCE AM peak hour trips and 50 PCE PM peak hour trips. In comparison, the proposed Project is anticipated to generate a net total of 470 actual vehicle trip-ends per day with 30 AM peak hour trips and 35 PM peak hour trips (see Table 4-3).

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. The trip distribution pattern of passenger cars is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The trip distribution pattern for truck traffic is also influenced by the local truck routes approved by the City of Eastvale, City of Ontario, and Caltrans. Given these differences, separate trip distributions were generated for both passenger cars and truck trips.

Exhibit 4-1 illustrates the truck trip distribution patterns for the proposed Project. Exhibit 4-2 illustrates the proposed Project passenger car trip distribution patterns. Exhibit 4-3 illustrates the truck trip distribution patterns for Project (Alternative Access) Buildout conditions. Exhibit 4-4 illustrates the passenger car trip distribution patterns for Project (Alternative Access) Buildout conditions.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes (non-truck trips only).

Table 4-2

Project Trip Generation Summary (PCE)

Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
High-Cube Warehouse/Distribution Center	280.000	TSF							
Passenger Cars:			15	7	22	7	15	22	291
Truck Trips:									
2-axle:			*2*	*1*	*3*	*1*	*3*	*4*	*59*
3-axle:			*2*	*1*	*3*	*1*	*3*	*4*	*63*
4+-axle:			*10*	*5*	*15*	*6*	*14*	*20*	*324*
- Net Truck Trips (PCE)[2]			*14*	*7*	*21*	*8*	*20*	*28*	*446*
TOTAL NET TRIPS (PCE)[3]			***29***	***14***	***43***	***15***	***35***	***50***	***737***

[1] TSF = thousand square feet

[2] High Cube Warehouse Vehicle Mix Source: Total truck percentage source from ITE Trip Generation manual. Truck mix (by axle type) source from SCAQMD. PCE rates are per SANBAG.

[3] TOTAL NET TRIPS (PCE) = Passenger Cars + Net Truck Trips (PCE).

Table 4-3

Project Trip Generation Summary (Actual Vehicles)

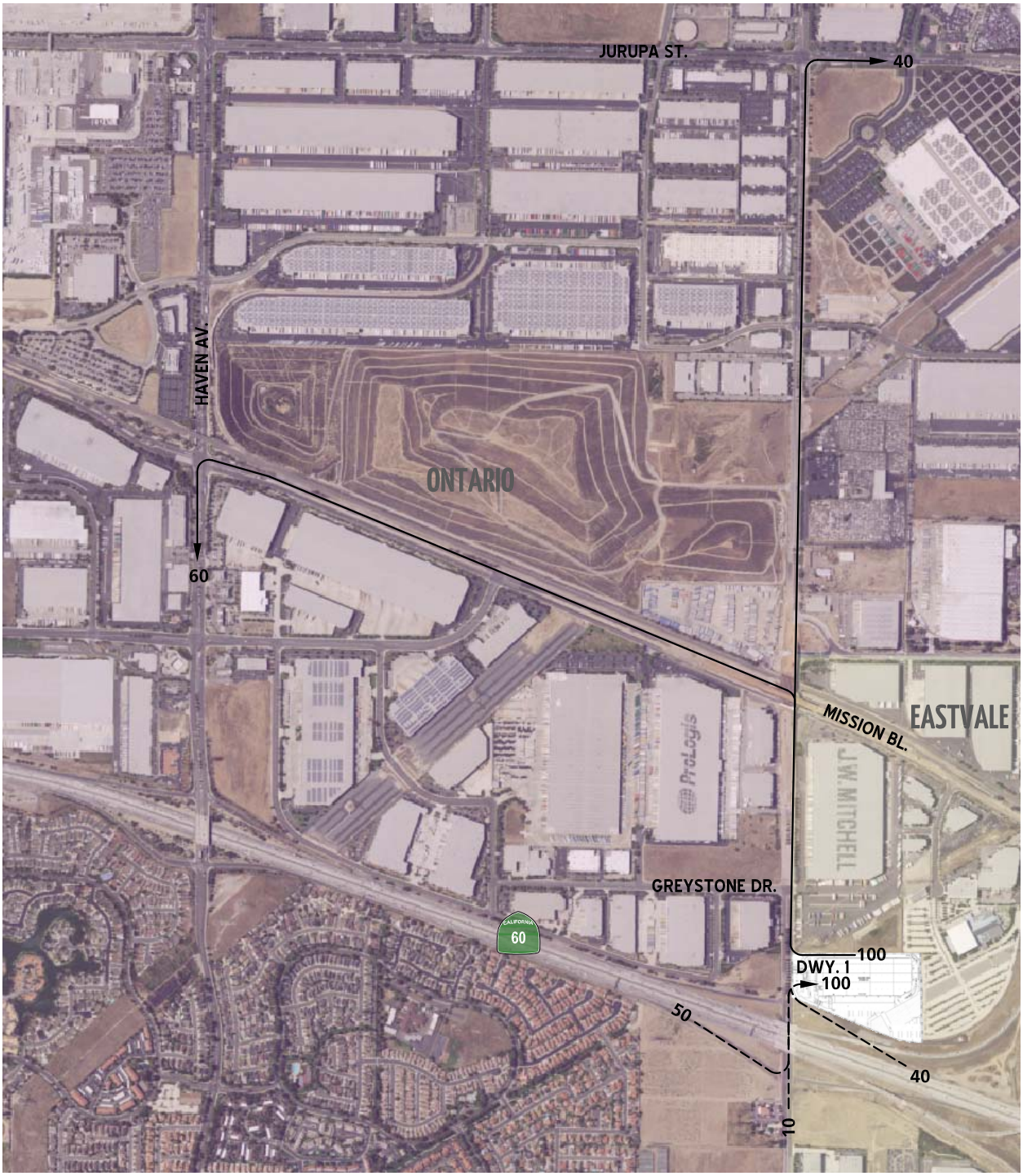
Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
High-Cube Warehouse/Distribution Center	280.000	TSF							
Passenger Cars:			15	7	22	7	15	22	291
Truck Trips:									
2-axle:			*1*	*1*	*2*	*1*	*2*	*3*	*39*
3-axle:			*1*	*0*	*1*	*1*	*1*	*2*	*32*
4+-axle:			*3*	*2*	*5*	*2*	*5*	*7*	*108*
- Net Truck Trips[2]			*5*	*3*	*8*	*4*	*8*	*12*	*178*
TOTAL NET TRIPS (PCE)[3]			***20***	***11***	***30***	***11***	***23***	***35***	***470***

[1] TSF = thousand square feet

[2] High Cube Warehouse Vehicle Mix Source: Total truck percentage source from ITE Trip Generation manual. Truck mix (by axle type) source from SCAQMD. PCE rates are per SANBAG.

[3] TOTAL NET TRIPS = Passenger Cars + Net Truck Trips.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

◄—— = OUTBOUND

◄- - - = INBOUND

N

11136 - trip.dwg

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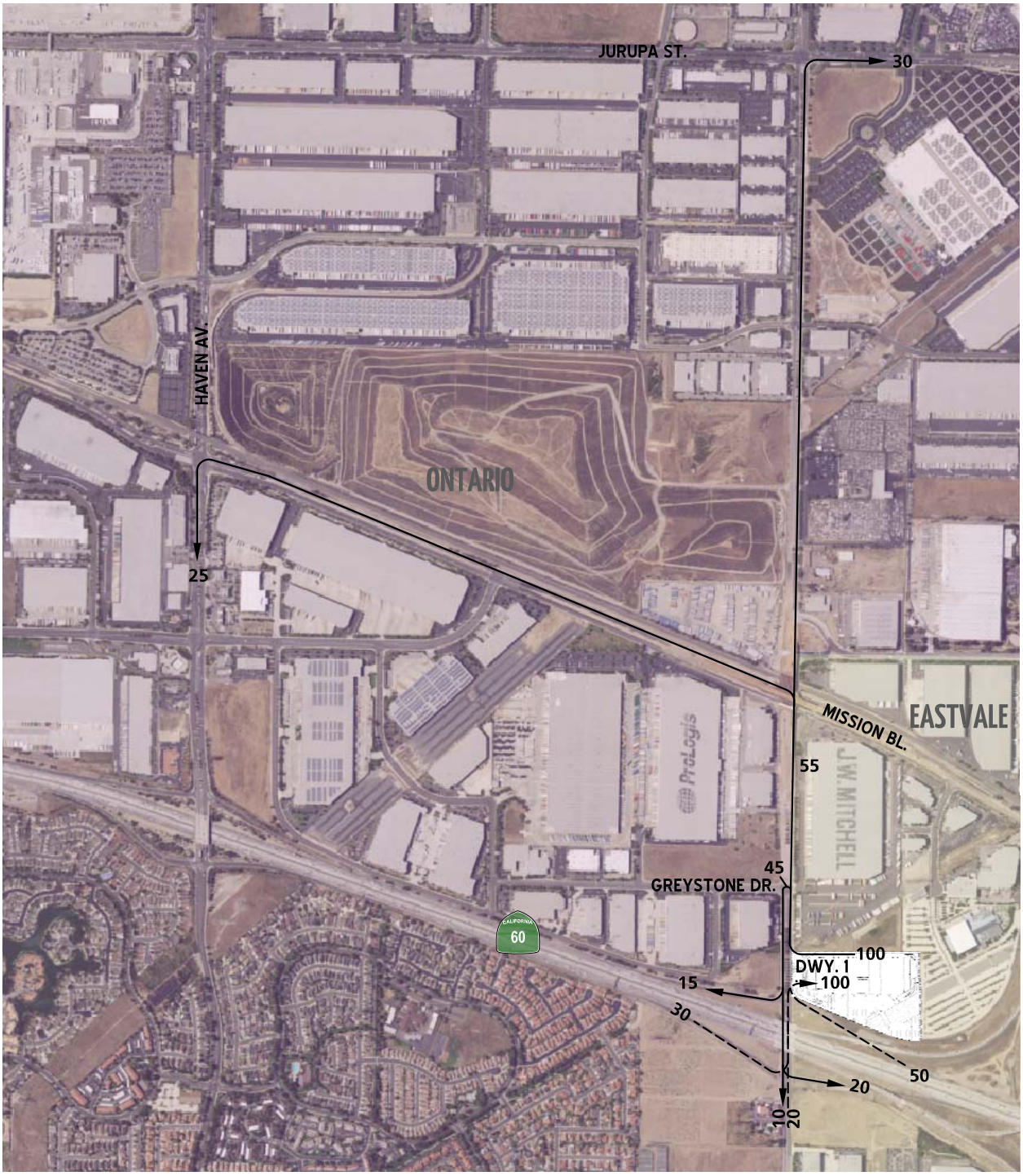
EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

◄—— = OUTBOUND

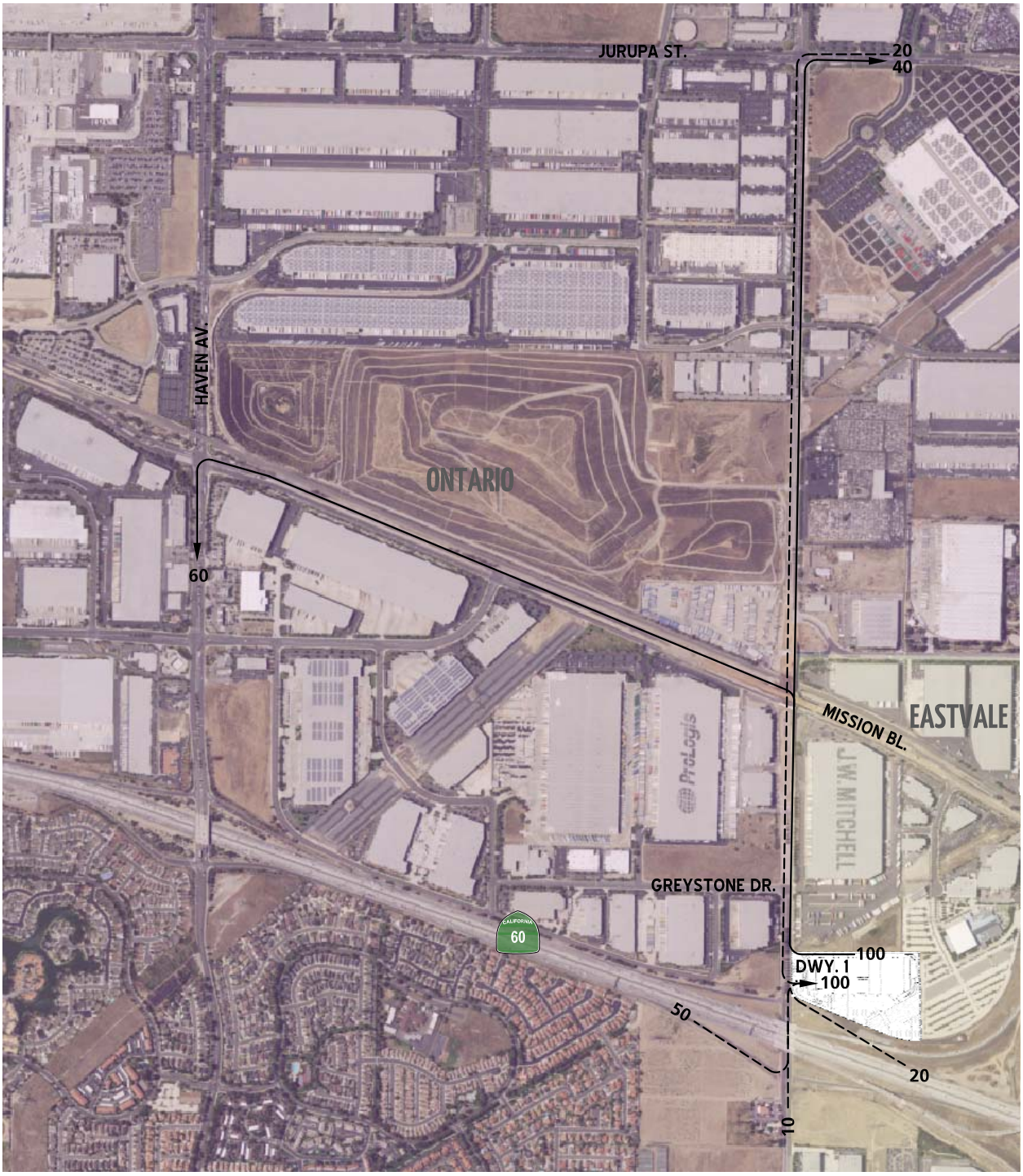
◄- - - = INBOUND

N

11136 - trip.dwg

URBAN CROSSROADS

EXHIBIT 4-3: PROJECT (TRUCK) (ALTERNATIVE ACCESS) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

◄—— = OUTBOUND

◄- - - = INBOUND

N

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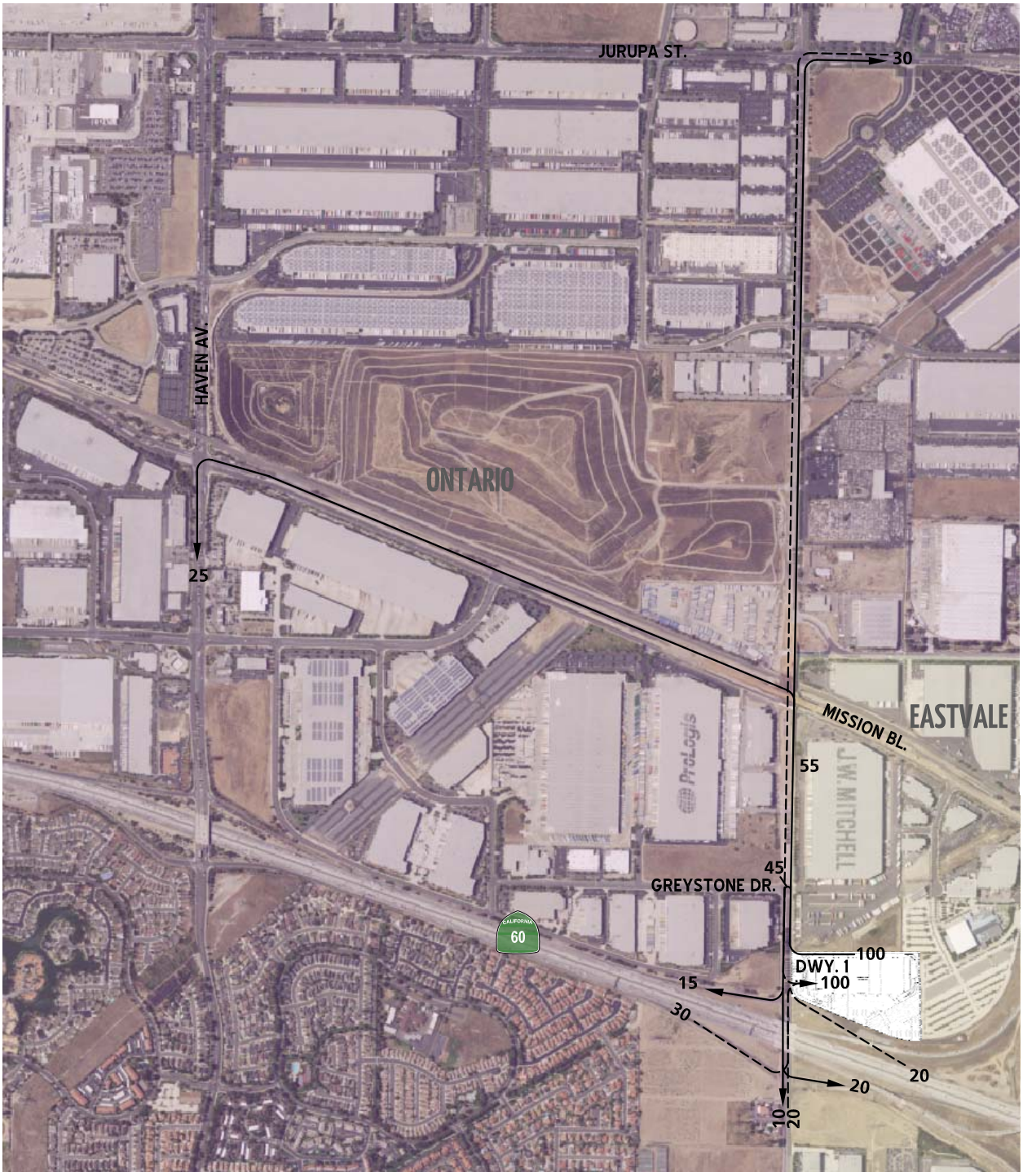
URBAN CROSSROADS

EXHIBIT 4-4: PROJECT (PASSENGER CAR) (ALTERNATIVE ACCESS) TRIP DISTRIBUTION



4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5, and Project (Alternative Access) ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-6.

4.5 BACKGROUND TRAFFIC

4.5.1 OPENING YEAR CUMULATIVE CONDITIONS

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year for 2018 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. The total ambient growth is 2.0% for 2018 traffic conditions (growth of 2.0 percent per year over 1 year). This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

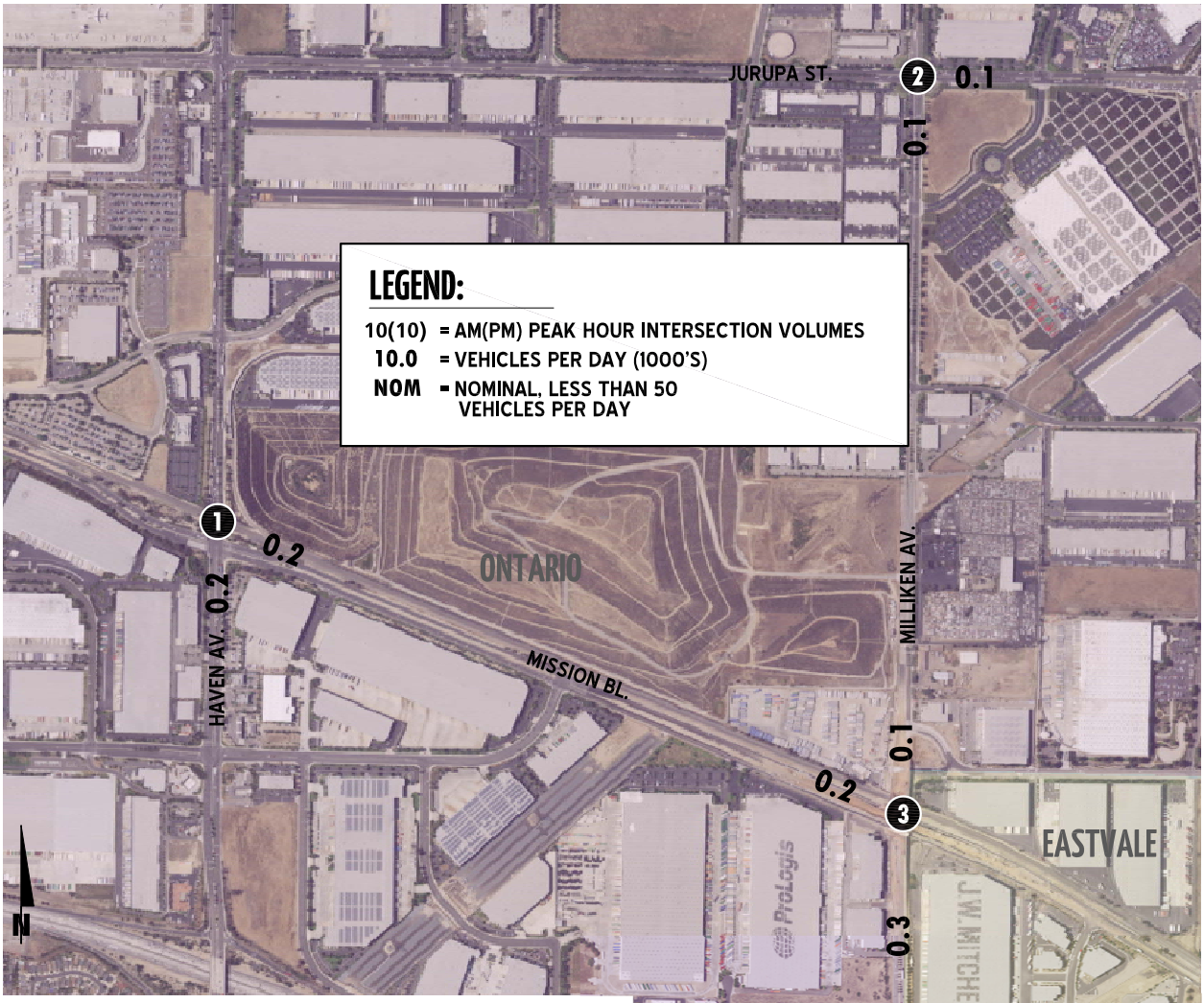
Opening Year Cumulative (2018) traffic volumes are provided in Section 6 *Opening Year Cumulative (2018) Traffic Conditions* of this report. The traffic generated by the proposed Project was then manually added to the base volume to determine Opening Year Cumulative "With Project" forecasts for 2018.

4.5.2 HORIZON YEAR (2040) CONDITIONS

The adopted *Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)* (April 2016) growth forecasts for the City of Eastvale identifies projected growth in population of 56,500 in 2012 to 65,400 in 2040, or a 15.75% increase over the 28-year period. (6) The change in population equates to roughly a 0.52% growth rate, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 17.02%, or a 0.56% annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 127.91%, or a 2.99% annual growth rate.

Based on a comparison of Existing (2017) traffic volumes to the Horizon Year (2040) forecasts, the average growth rate is estimated at approximately 1.80%, compounded annually between Existing (2017) and 2040 traffic conditions. The annual growth rate at each individual intersection is not lower than 1.45% compounded annually to as high as 2.71% compounded annually over the same time period.

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



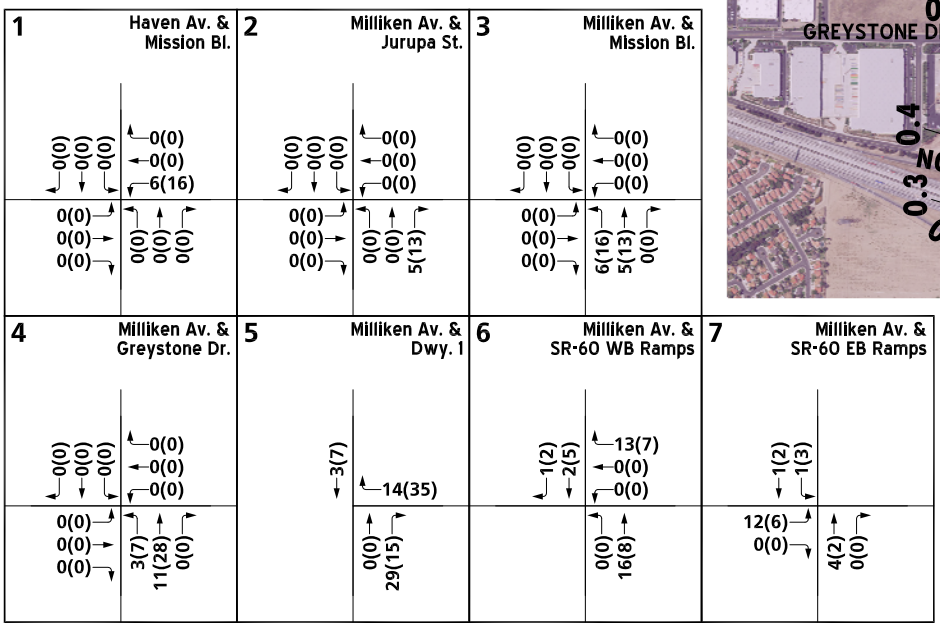
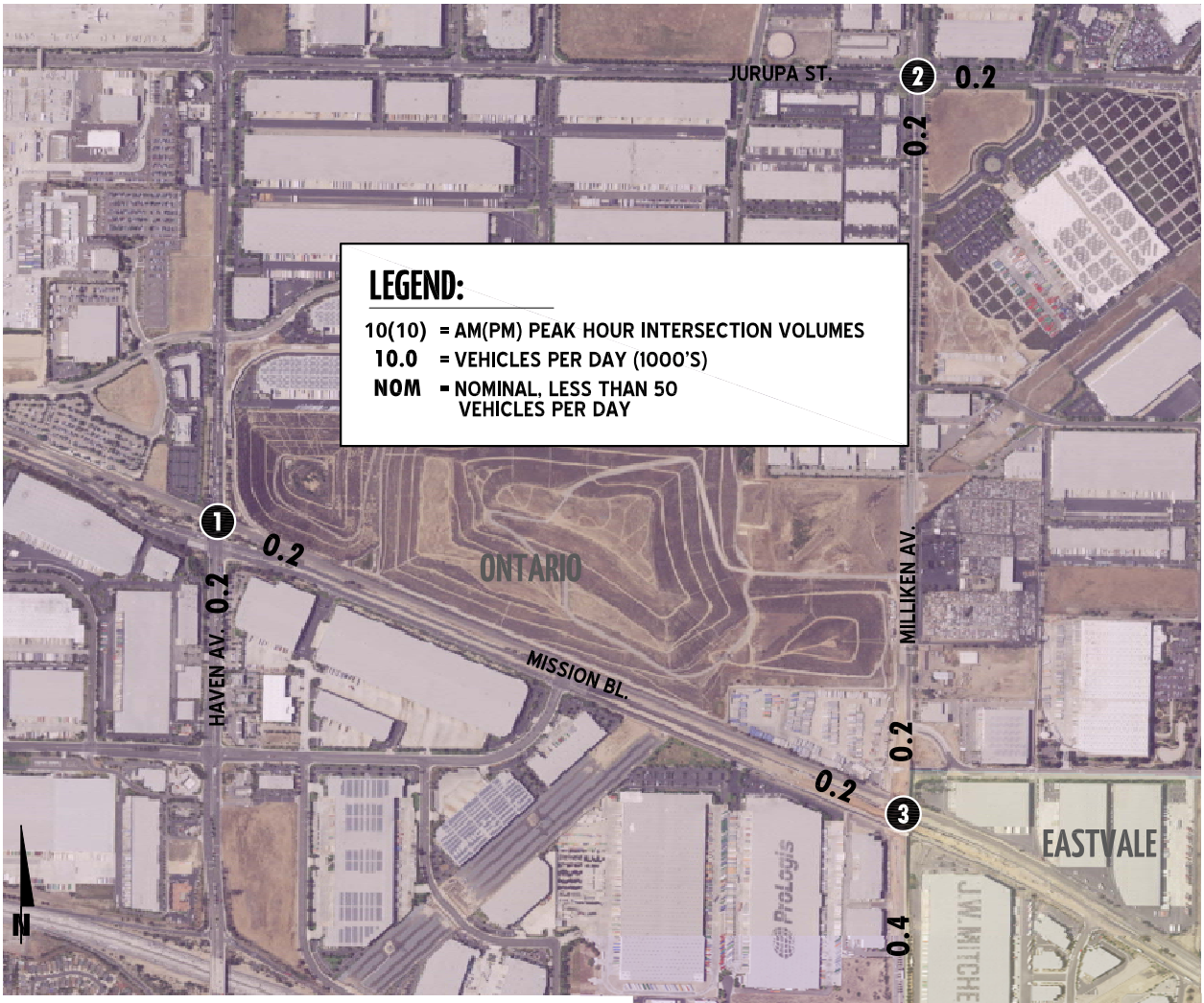
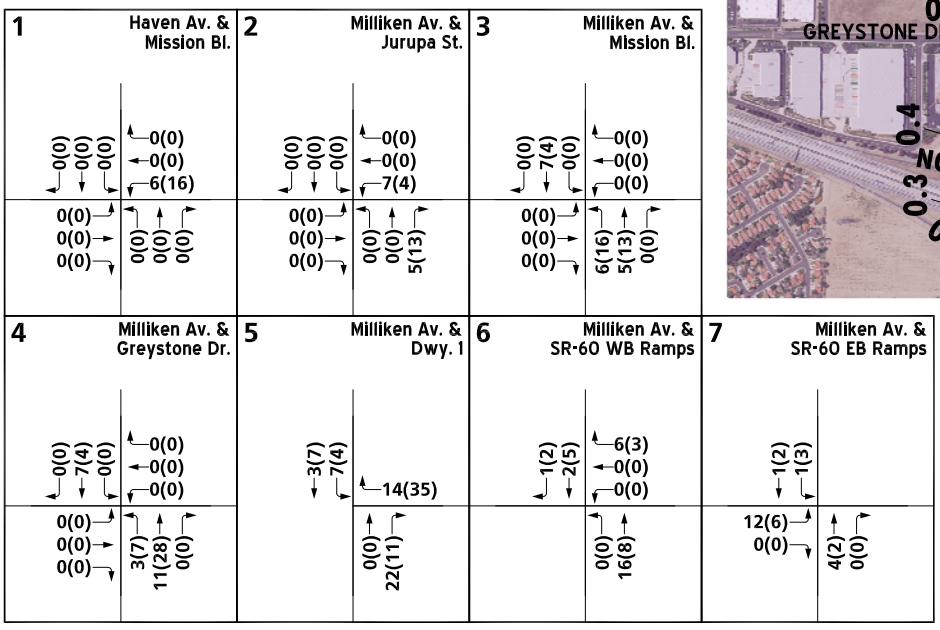


EXHIBIT 4-6: PROJECT ONLY (ALTERNATIVE ACCESS) TRAFFIC VOLUMES (IN PCE)





Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Eastvale for Opening Year Cumulative (2018) and Horizon Year (2040) traffic conditions, especially when considered along with the addition of project-related traffic. As such, the growth in traffic volumes assumed in this traffic impact analysis would tend to overstate as opposed to understate the potential impacts to traffic and circulation.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Eastvale. The neighboring jurisdictions of Ontario, Jurupa Valley, and Norco have also been contacted to include key projects in their respective cities.

Exhibit 4-7 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-4. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-4 are reflected as part of the background traffic. Cumulative ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-8.

4.7 HORIZON YEAR (2040) VOLUME DEVELOPMENT

Traffic projections for Horizon Year (2040) without Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of San Bernardino. The current version of the SBTAM reflects the local input in the adopted 2016 SCAG RTP within the County of San Bernardino.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2017) conditions and Horizon Year (2040) traffic conditions. In most instances, the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in June of 2017. The SBTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period. The Riverside Transportation Analysis Model (RivTAM) has a base (validation) year of 2008 and a horizon (future forecast) year of 2035. The RivTAM 2035 model utilized for the purposes of this analysis assumes buildout of the City of Eastvale. A compounded growth rate consistent with the SCAG RTP/SCS has been applied to the Eastvale locations to determine 2040 forecasts.

EXHIBIT 4-7: CUMULATIVE DEVELOPMENT LOCATION MAP

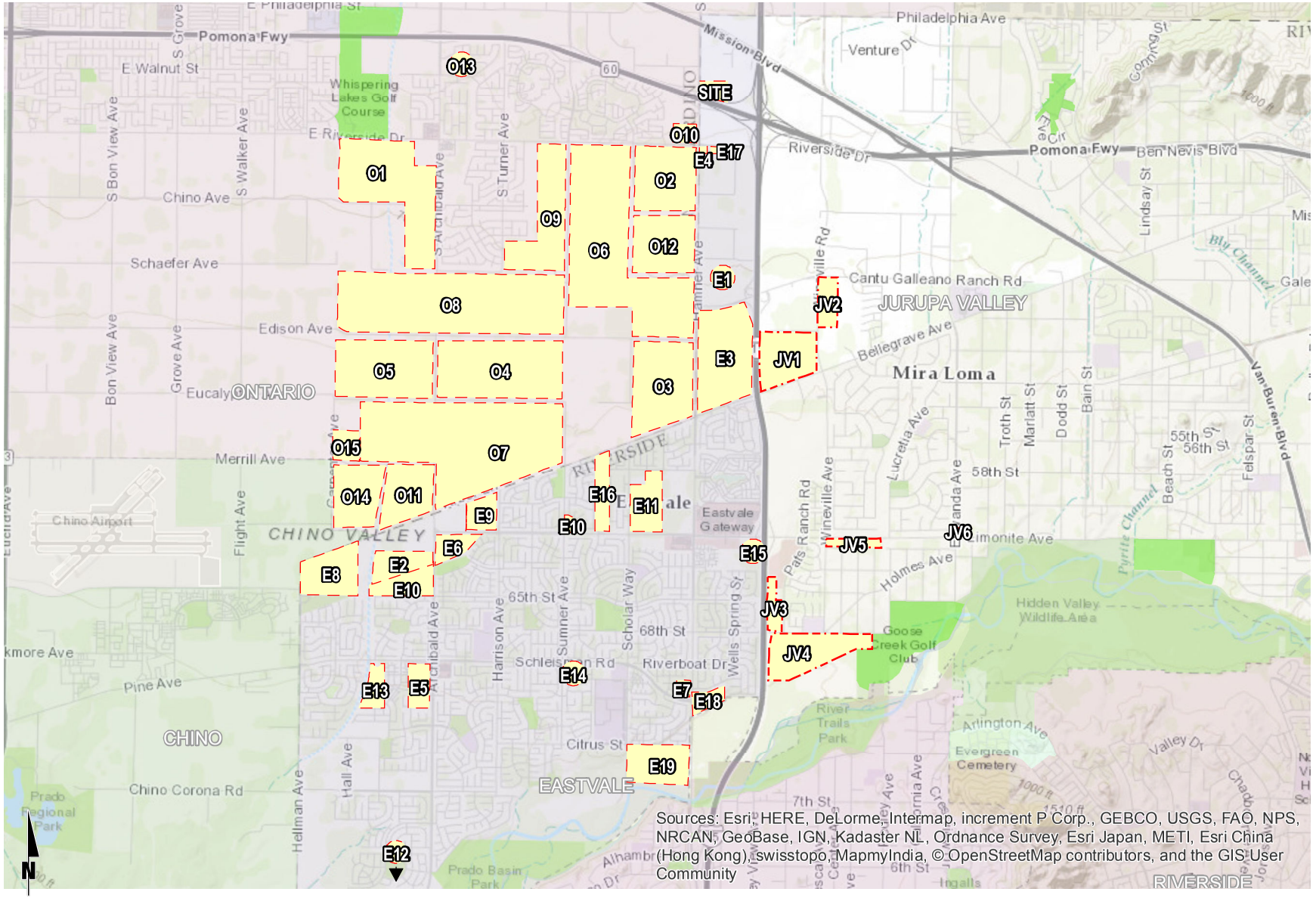


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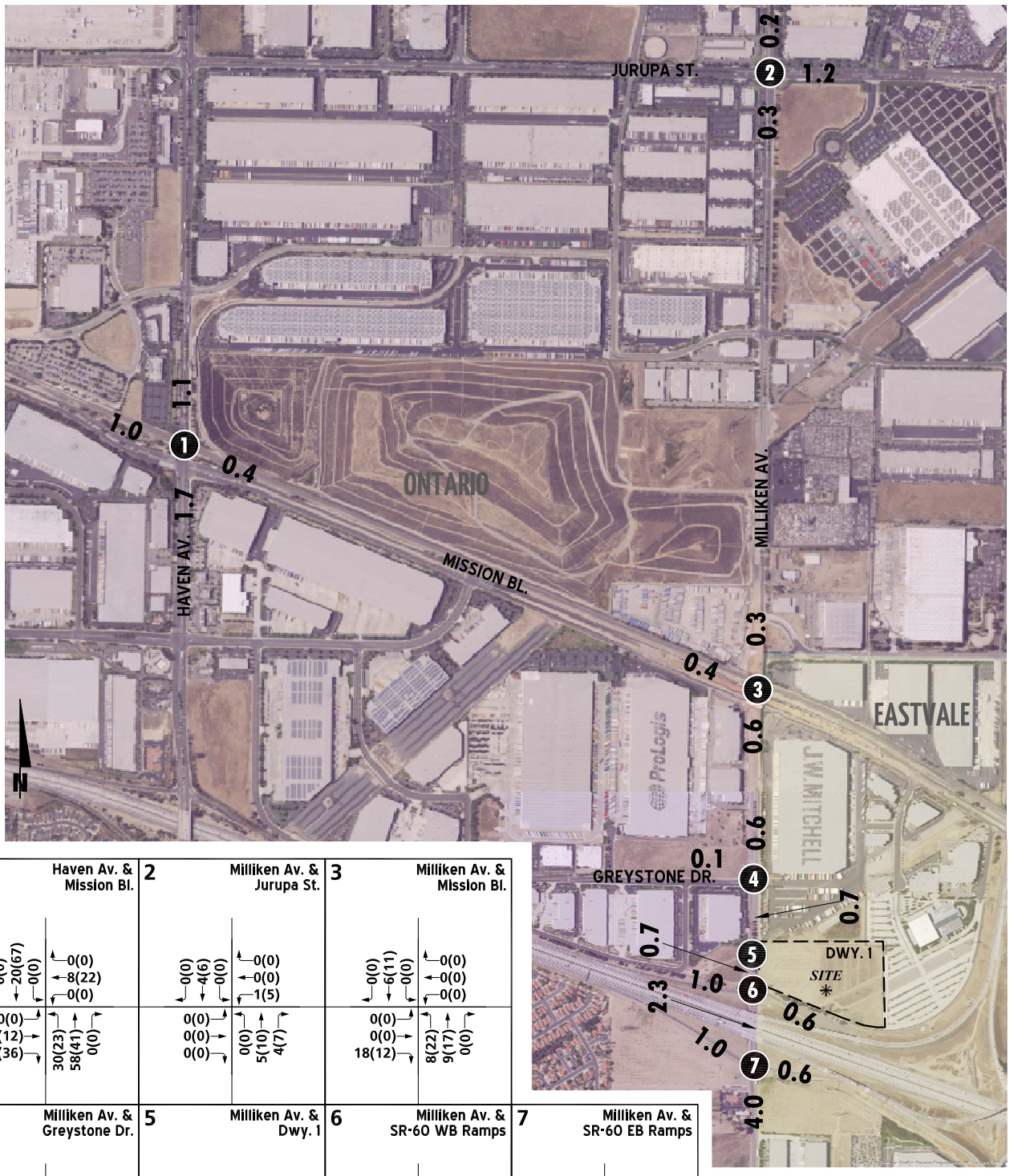
EXHIBIT 4-8: CUMULATIVE TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.	2 Milliken Av. & Jurupa St.	3 Milliken Av. & Mission Bl.
0(0) 20(67) 0(0) → 0(0) ← 8(22) ← 0(0)	0(0) 4(6) 0(0) → 0(0) ← 0(0) ← 1(5)	0(0) 6(11) 0(0) → 0(0) ← 0(0) ← 0(0)
0(0) → 18(12) → 11(36) → 30(23) 58(41) ↑ 0(0)	0(0) → 0(0) → 0(0) → 0(0) 5(10) ↑ 4(7)	0(0) → 0(0) → 18(12) → 8(22) 9(17) ↑ 0(0)

4 Milliken Av. & Greystone Dr.	5 Milliken Av. & Dwy. 1	6 Milliken Av. & SR-60 WB Ramps	7 Milliken Av. & SR-60 EB Ramps
0(0) 23(24) 0(0) → 0(0) ← 0(0) ← 0(0)	Future Intersection	0(0) 25(26) → 0(0) ← 0(0) ← 57(45)	82(71) 0(0) →
0(0) → 0(0) → 2(3) → 2(3) 17(39) ↑ 0(0)		48(123) 19(42) ↑	0(0) → 97(72) → 67(165) 31(74) ↑

Table 4-4
Page 1 of 2

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
City of Eastvale				
E1	14-1077 - Grainger Site (APN:156-050-025, 156-050-026, 156-020-027)	Industrial	546.000	TSF
E2	The Campus	Business Park	776.000	TSF
E3	11-0271 - Eastvale Commerce Center (Goodman Commerce Center)	Shopping Center	399.782	TSF
		High-Cube Warehouse	2,040.897	TSF
		Costco	158.000	TSF
		Business Park	191.356	TSF
E4	11-0354 - Chevron Gas Station	Gas Station w/ convenience store and car wash	18.000	VFP
E5	17-0038 - The Marketplace at Enclave (Dialysis Center)	Medical Office Building	40.000	TSF
E6	12-0051 - Eastvale Shopping Center	Free-Standing Discount Superstore	177.719	TSF
		Specialty Retail	9.200	TSF
		Fast-Food Without Drive-Thru	7.200	TSF
		Coffee/Donut Shop w/ Drive Thru	2.000	TSF
		Fast-Food with Drive-Thru	3.500	TSF
		Gas Station w/ convenience store and car wash	16	VFP
E7	13-1601 - 99 Cents Only	Discount Store	19.104	TSF
E8	15-0783 - The Ranch	Warehousing	985.000	TSF
E9	14-1398 - Sendero Planned Residential Development	SFDR	323	TSF
E10	15-0958 - Eastvale Marketplace	Shopping Center	72.779	TSF
E11	Leal Master Plan	Lifestyle Center (Commercial)	1,300.000	TSF
		General Commercial	225.000	TSF
		Office	920.000	TSF
		Hotel	450	Room
		Civic Center		TSF
		Medium Density Residential		DU
		High Density Residential	500-660	DU
E12	15-1174 - Vantage Point Church	Church	85.000	TSF
E13	PM35751	Condo/Townhouse	243	DU
E14	13-0632 - Sumner Residential (Stratham Homes)	SFDR	129	DU
E15	14-0046 - Kasbergen/William Lyons Homes	Condo/Townhouse	220	DU
E16	10-0124 - The Lodge	Condo/Townhouse	12	DU
E17	15-1508 - Industrial Warehouse	Warehousing	155.000	TSF
E18	Polopolus-Lewis	Civic Center	50.000	TSF
		Hotel	150	Room
		Commercial	65.340	TSF
E19	Van Leeuwn General Plan Amendment	SFDR	224	DU

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
City of Ontario				
O1	Countryside	SFDR	819	DU
	Armstrong Ranch	SFDR	994	DU
O2	Edenglen	SFDR	310	DU
		Multi-Family Attached (Condo)	274	DU
		Shopping Center	217.520	TSF
		Business Park	550.000	TSF
O3	Esperanza	SFDR	914	DU
		Multi-Family Attached (Apartments)	496	DU
O4	Grand Park	SFDR	484	DU
		Multi-Family Attached (Apartments)	843	DU
O5	Parkside	SFDR	437	DU
		Multi-Family Attached (Apartments)	1,510	DU
		Shopping Center	115.000	TSF
O6	Rich Haven	SFDR	2,732	DU
		Multi-Family Attached (Condo)	1,524	DU
		Shopping Center	317.400	TSF
O7	Subarea 29 & Amendment	SFDR	2,149	DU
		Shopping Center	87.000	TSF
O8	The Avenue	SFDR	2,020	DU
		Multi-Family Attached (Apartments)	586	DU
		Shopping Center	250.000	TSF
O9	West Haven	SFDR	753	DU
		Shopping Center	87.000	TSF
O10	Tuscana Village	SFDR	176	DU
		Shopping Center	26.000	TSF
O11	Colony Commerce East	High-Cube Warehouse	998.680	TSF
		Warehousing	505.440	TSF
		Manufacturing	168.480	TSF
O12	PDEV10-008 - Dry Food Storage	Mini-Warehouse	17.000	TSF
O13	PDEV08-008	Shopping Center	3.920	TSF
O14	Colony Commerce West	High-Cube Warehouse	2213.360	TSF
		Manufacturing	737.786	TSF
O15	West Ontario Commerce Center SP	High-Cube Warehouse	1976.535	TSF
		Manufacturing	658.845	TSF
		Business Park	548.856	TSF
City of Jurupa Valley				
JV1	Thoroughbred Farms	General Light Industrial	42.6	AC
		Business Park	35.5	AC
		Commercial	19.1	AC
JV2	Harmony Trails	SFDR	176	DU
JV3	Vernola Marketplace Apartments	Apartments	397	DU
JV4	Riverbend	Residential	466	DU
JV5	Wineville Marketplace	Commercial	37.657	TSF
JV6	Express Car Wash	Car Wash		
City of Norco				
N1	Silverlakes Equestrian[6]	Soccer Field	14	Fields
		Equestrian Facility	400	Stalls

[1] SFDR = Single Family Detached Residential

[2] TSF = Ten Thousand Square Feet; DU = Dwelling Unit; VFP = Vehicle Fueling Position ; AC = Acres

[3] Source: Eastvale South Trip Generation Analysis, Albert A. Webb Associates, May 27, 2011

[4] Source: Trip Generation Comparison for Cloverdale Marketplace, Phase II, Eastvale CA, Albert A. Webb Associates, August 15, 2011.

[5] Source: Altfillisch Residential Project TIA Memorandum, LSA Associates, Inc., July 25, 2011.

[6] Source: From Silverlakes TIA (Revised), Kunzman Associates, September 25, 2008.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The SBTAM uses an AM peak period-to-peak hour factor of 0.35 and a PM peak period-to-peak hour factor of 0.28. These factors represent the relationship of the highest single AM peak hour to the modeled 3 hour AM peak period (an even distribution would result in a factor of 0.33) and the highest single PM peak hour to the modeled 4 hour PM peak period (an even distribution would result in a factor of 0.25). The model data from RivTAM represents peak hour data and therefore did not require adjustments.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year Cumulative traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of cumulative projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year (2040) forecasts. Horizon Year (2040) turning volumes were compared to Opening Year Cumulative (2018) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year Cumulative (2018) and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2017) and Opening Year Cumulative (2018) conditions. Adjustments have not been made to study area intersections that may be affected by new future roadway connections, where travel patterns would likely get affected and forecasts may potentially decrease from the Opening Year cumulative conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (2040) peak hour forecasts.

The future Horizon Year (2040) without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis.

The SBTAM and RivTAM do not include a truck component or have data that is unusually low. As such, in an effort to conduct a conservative analysis, the presence of trucks has been accounted for based on the manual volume adjustments made to demonstrate growth above Opening Year Cumulative (2018) traffic forecasts, which are presented and evaluated in PCE (see Section 3.7 *Existing Traffic Counts* for discussion on PCE). As such, the Horizon Year (2040) forecasts are also assumed to be in PCE for the purposes of this analysis. Post-processing worksheets for Horizon Year (2040) without Project traffic conditions are provided in Appendix 4.1.

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5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations analysis.

5.1 ROADWAY IMPROVEMENTS

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

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

5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The E+P ADT and weekday AM and PM peak hour intersection turning movement volumes are shown on Exhibit 5-1. The E+P (Alternative Access) ADT and weekday AM and PM peak hour intersection turning movement volumes are shown on Exhibit 5-2.

5.3 INTERSECTION OPERATIONS ANALYSIS

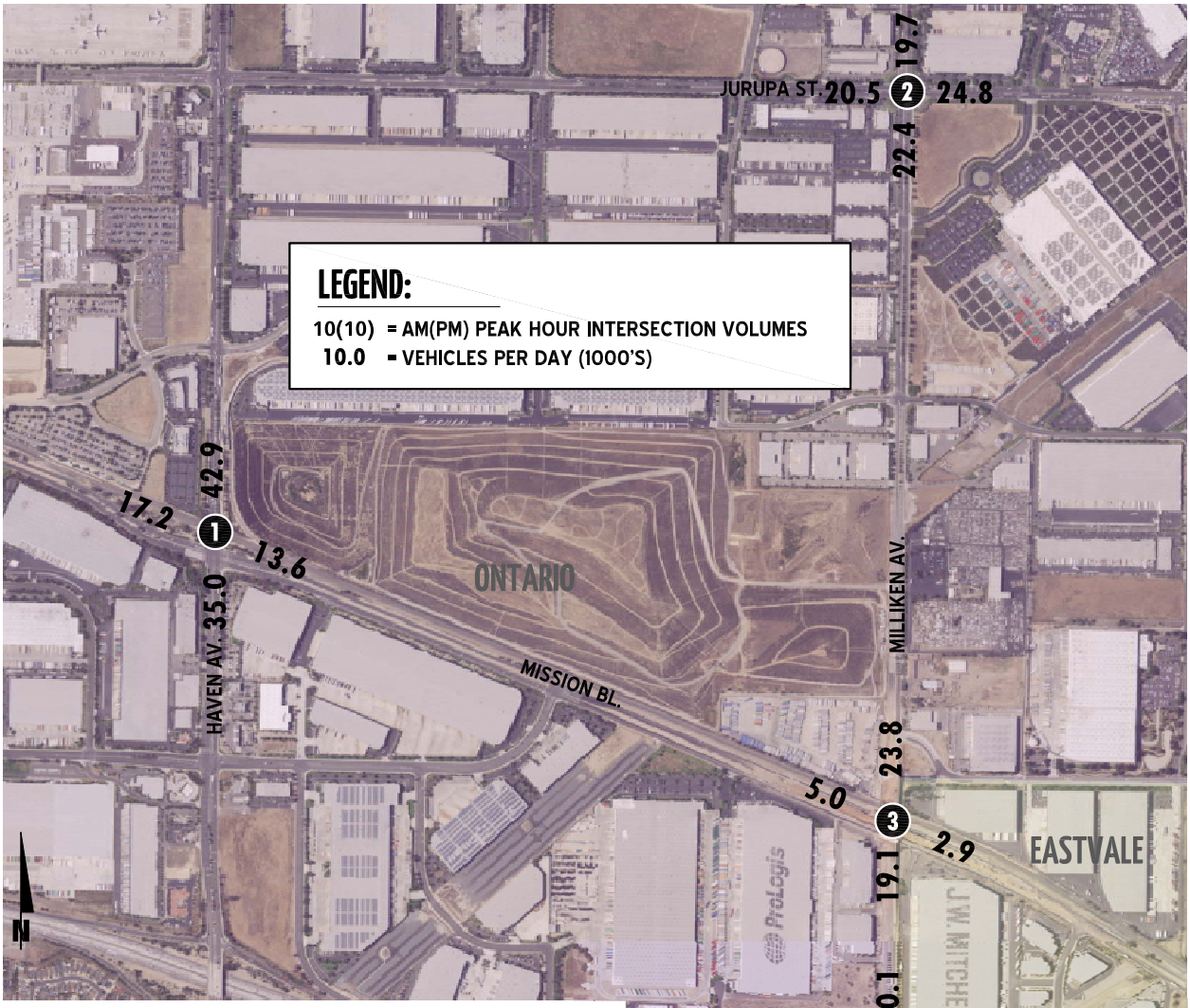
E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that all of the study area intersections are anticipated to operate at an acceptable LOS with the addition of either Project or Project (Alternative Access) traffic. These findings are consistent with those identified previously for Existing (2017) traffic conditions.

Consistent with Table 5-1, a summary of the peak hour intersection LOS for E+P conditions is shown on Exhibit 5-3. Consistent with Table 5-1, a summary of the peak hour intersection LOS for E+P (Alternative Access) conditions is shown on Exhibit 5-4. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA. The intersection operations analysis worksheets for E+P (Alternative Access) traffic conditions are included in Appendix 5.2 of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

All existing study area intersections are currently signalized. The proposed driveway is anticipated to have restricted access and would likely never be signalized. As such, a traffic signal warrant analysis has not been prepared for E+P traffic conditions.

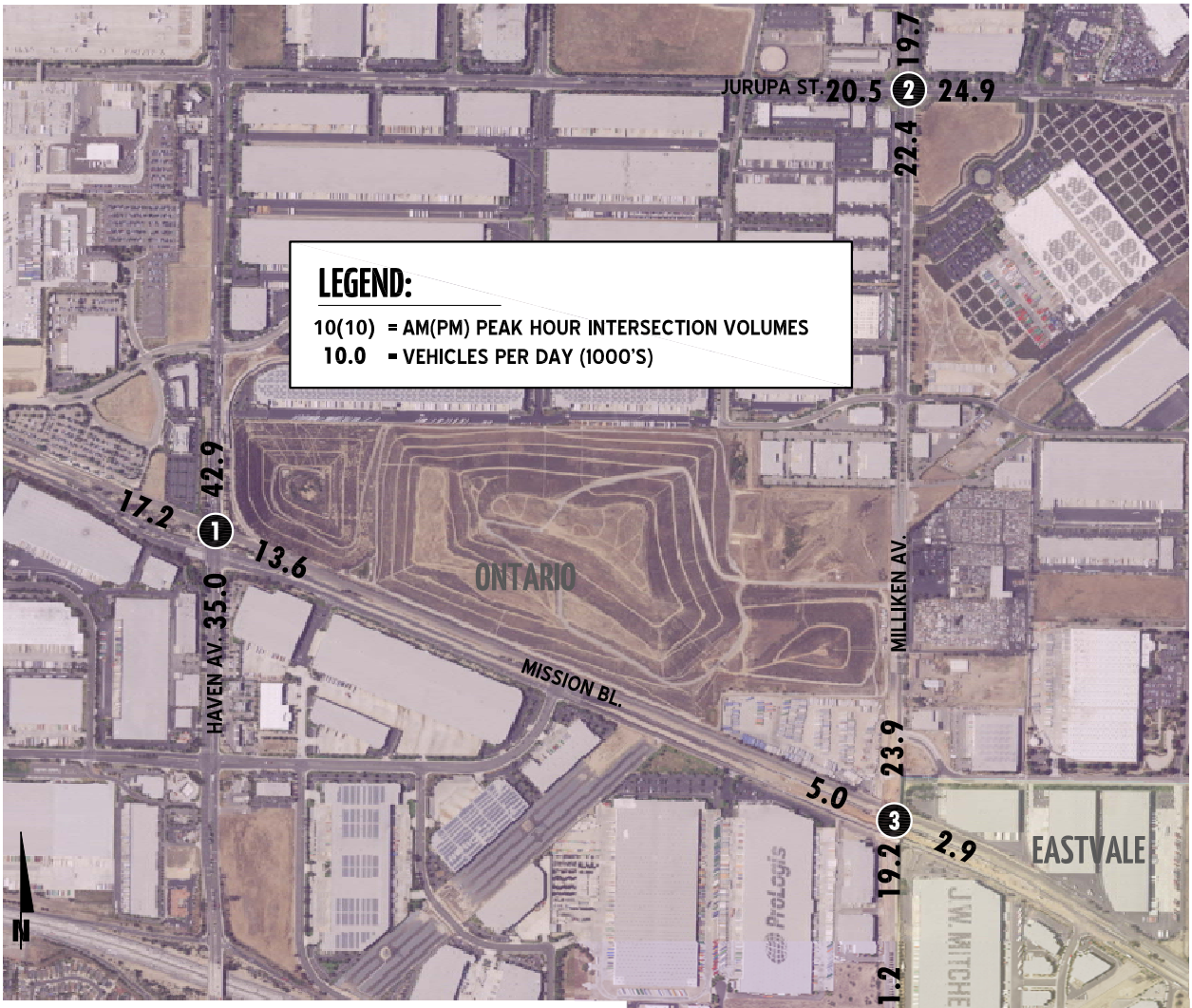
EXHIBIT 5-1: E+P TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.	2 Milliken Av. & Jurupa St.	3 Milliken Av. & Mission Bl.
232(159) 1084(1897) 154(301) → 367(223) ← 567(315) ← 42(38)	109(101) 410(762) 111(255) → 169(141) ← 905(606) ← 299(294)	181(145) 500(1139) 49(180) → 116(86) ← 3(5) ← 60(10)
225(504) → 228(578) → 90(132) → 109(147) 1538(1475) 19(33) ↑	87(154) → 395(1010) → 54(143) → 147(165) 646(680) 225(334) ↑	140(283) → 0(0) → 26(46) → 165(52) 1020(700) 18(27) ↑

4 Milliken Av. & Greystone Dr.	5 Milliken Av. & Dwy. 1	6 Milliken Av. & SR-60 WB Ramps	7 Milliken Av. & SR-60 EB Ramps
54(24) 450(1356) 3(6) → 2(0) ← 0(0) ← 1(1)	489(1451) → 14(35)	223(586) 267(865) → 580(173) ← 14(2) ← 182(91)	407(633) 42(323) →
45(41) → 0(1) → 36(87) → 112(27) 1299(703) 0(1) ↑	1397(696) 29(15) ↑	279(265) 846(538) ↑	435(229) → 373(168) → 689(574) 122(228) ↑

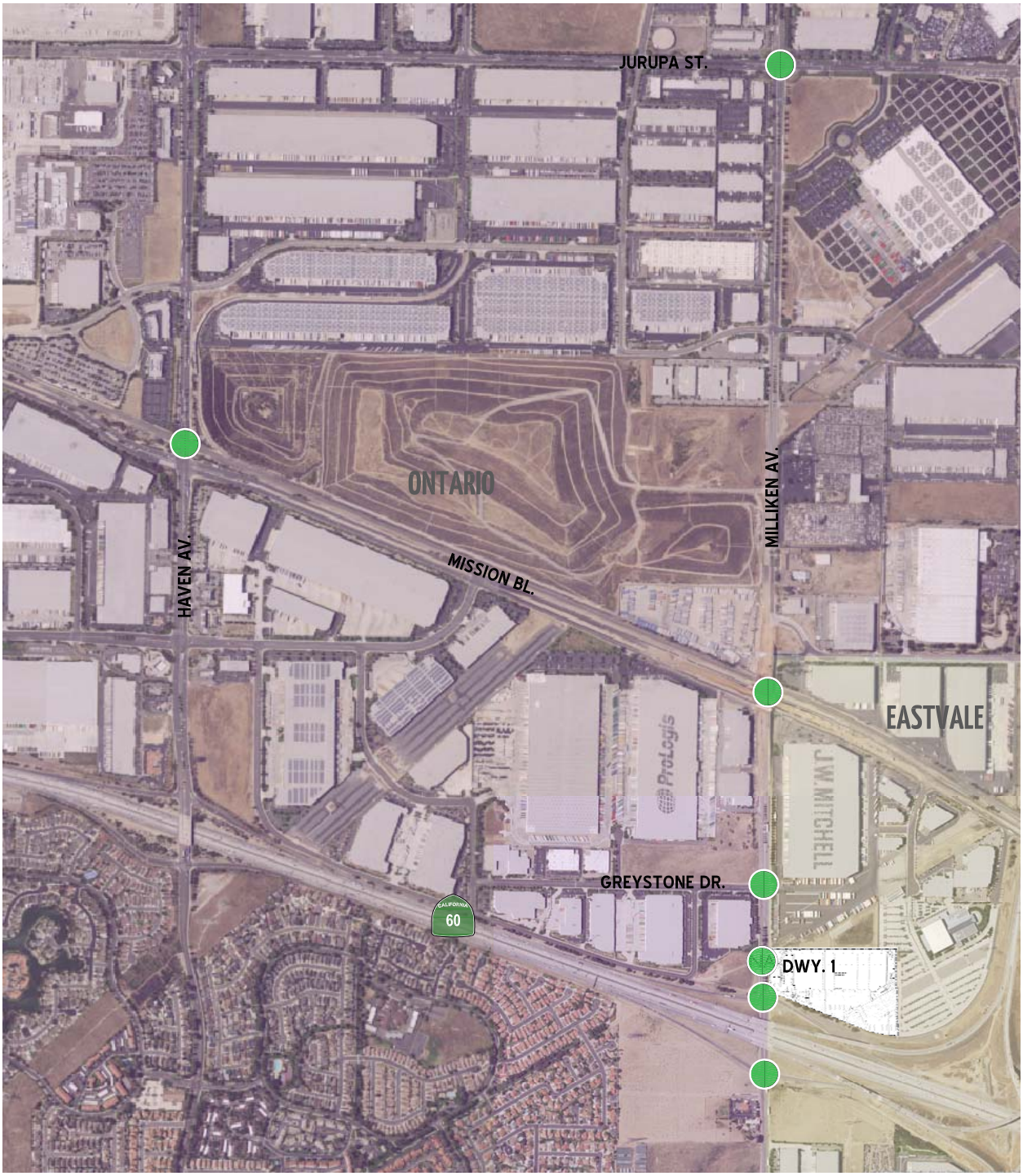
EXHIBIT 5-2: E+P (ALTERNATIVE ACCESS) TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.			2 Milliken Av. & Jurupa St.			3 Milliken Av. & Mission Bl.		
232(159)	1084(1897)	154(301)	109(101)	410(762)	111(255)	181(145)	507(1143)	49(180)
225(504)	228(578)	90(132)	87(154)	395(1010)	54(143)	140(283)	0(0)	26(46)
109(147)	1538(1475)	19(33)	147(165)	646(680)	225(334)	165(52)	1020(700)	18(27)
367(223)	567(315)	42(38)	169(141)	905(606)	306(298)	116(86)	3(5)	60(10)

4 Milliken Av. & Greystone Dr.			5 Milliken Av. & Dwy. 1		6 Milliken Av. & SR-60 WB Ramps		7 Milliken Av. & SR-60 EB Ramps	
54(24)	457(1360)	3(6)	489(1451)	7(4)	223(586)	267(865)	407(633)	42(323)
45(41)	0(1)	36(87)	1397(696)	22(11)	279(265)	846(538)	435(229)	373(168)
112(27)	1299(703)	0(1)					689(574)	122(228)
2(0)	0(0)	1(1)	14(35)		573(169)	14(2)	182(91)	

EXHIBIT 5-3: E+P SUMMARY OF LOS



LEGEND:

- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS

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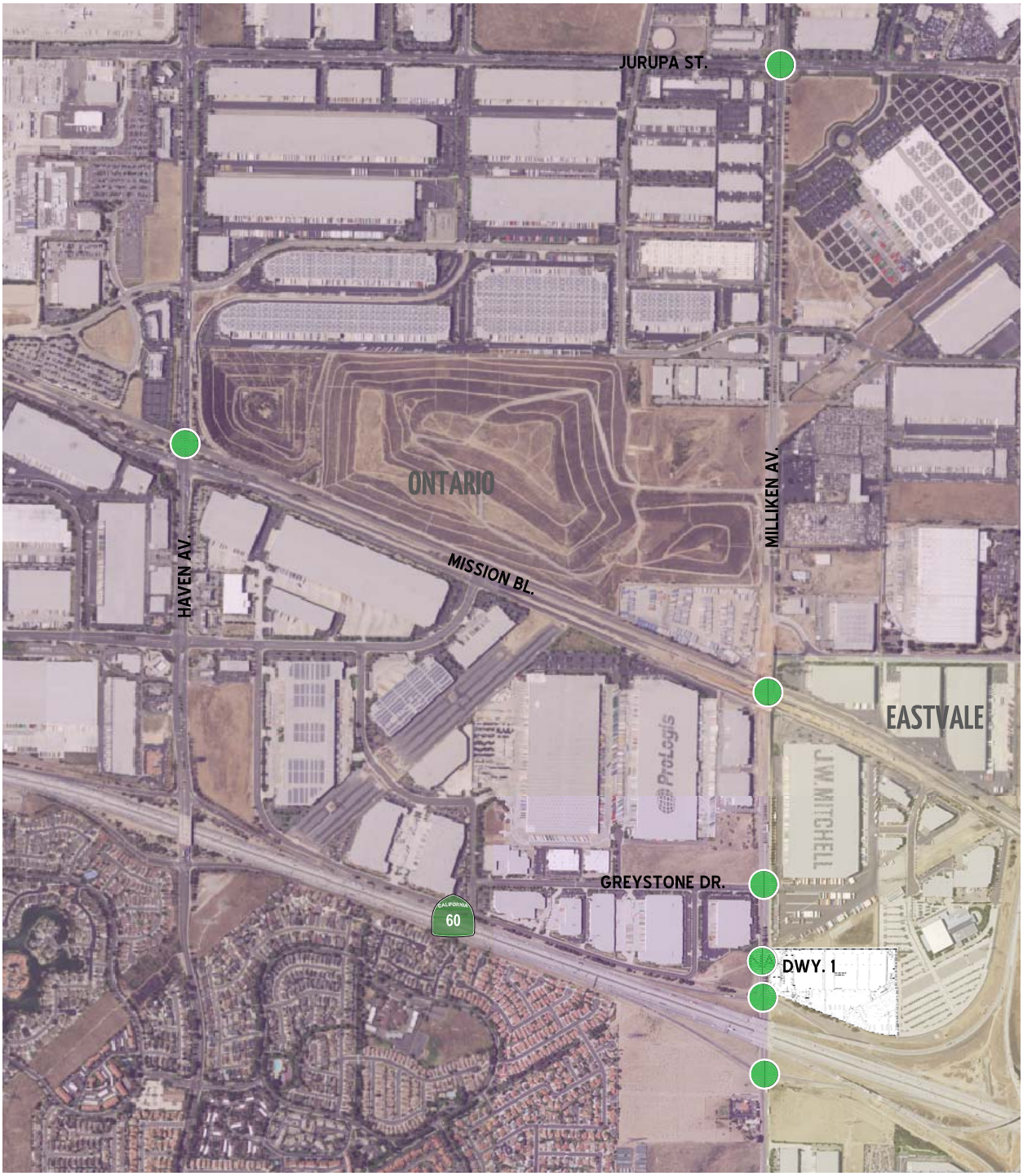
URBAN CROSSROADS

EXHIBIT 5-4: E+P (ALTERNATIVE ACCESS) SUMMARY OF LOS



LEGEND:

- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS

Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2017)								E+P								E+P (Alternative Access)							
			ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service		ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service		ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Haven Av. / Mission Bl.	TS	0.77	0.84	C	D	38.8	72.1	D	E	0.77	0.84	C	D	38.8	72.3	D	E	0.77	0.84	C	D	38.8	72.3	D	E
2	Milliken Av / Jurupa St.	TS	0.47	0.63	A	B	27.0	32.9	C	C	0.48	0.64	A	B	27.0	33.2	C	C	0.48	0.64	A	B	27.0	33.3	C	C
3	Milliken Av. / Mission Bl.	TS	0.36	0.42	A	A	19.5	20.5	B	C	0.36	0.42	A	A	19.6	20.9	B	C	0.36	0.42	A	A	19.6	21.0	B	C
4	Milliken Av. / Greystone Dr.	TS	0.35	0.41	A	A	8.1	7.8	A	A	0.35	0.41	A	A	8.1	7.7	A	A	0.35	0.41	A	A	8.1	7.7	A	A
5	Milliken Av. / Driveway 1	--/CSS	Not Applicable[1]								Not Applicable[1]				10.8	9.8	B	A	Not Applicable[1]				10.8	9.8	B	A
6	Milliken Av. / SR-60 Westbound Ramps	TS	Not Applicable[3]				27.5	19.7	C	B	Not Applicable[3]				27.7	19.8	C	B	Not Applicable[3]				27.6	19.7	C	B
7	Milliken Av. / SR-60 Eastbound Ramps	TS	Not Applicable[3]				20.1	26.4	C	C	Not Applicable[3]				20.3	26.5	C	C	Not Applicable[3]				20.3	26.5	C	C

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

[1] ICU reported in volume-to-capacity (v/c) using the Traffix software and HCM delay reported in seconds using the Synchro software. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

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

[3] Only delay reported as Caltrans does not utilize the ICU methodology.

5.5 ROADWAY SEGMENT ANALYSIS

The roadway segment capacities utilized for the purposes of this analysis are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 5-2 provides a summary of the E+P conditions roadway segment capacity analysis based on the applicable roadway segment capacity. As shown on Table 5-2, all the study area roadway segments are anticipated to operate at an acceptable LOS under E+P conditions with the addition of either Project or Project (Alternative Access) traffic, consistent with Existing traffic conditions.

5.6 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for E+P are presented in Table 5-3. As shown on Table 5-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of either Project or Project (Alternative Access) traffic. Worksheets for E+P traffic conditions off-ramp queuing analysis are provided in Appendix 5.3 and worksheets for E+P (Alternative Access) traffic conditions off-ramp queuing analysis are provided in Appendix 5.4.

5.7 PROJECT IMPACTS AND RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. Based on the City of Eastvale significance criteria discussed in Section 2.7 *Thresholds of Significance*, the following intersections were found to be impacted by Project. Improvements necessary to reduce project-related traffic impacts to less than significant are also discussed below.

5.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

As shown previously on Table 5-1, there are no peak hour intersection operations deficiencies within the study area. As such, no improvements have been recommended.

5.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS ROADWAY SEGMENTS

As shown previously on Table 5-2, there are no roadway segment deficiencies within the study area. As such, no roadway widening improvements have been recommended.

5.7.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 5-3, there are no peak hour queuing issues at SR-60 Freeway and Milliken Avenue interchange. As such, no improvements have been recommended.

Table 5-2

Roadway Segment Analysis for E+P Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	E+P	V/C[2]	LOS[3]	E+P ALT	V/C[2]	LOS[3]	Acceptable LOS[4]
1	Milliken Avenue	North of Project Driveway	6D	49,000	20,552	0.42	A	20,638	0.42	A	D
2		Project Driveway to SR-60 Westbound Ramps	6D	49,000	20,551	0.42	A	20,463	0.42	A	D

[1] These maximum roadway capacities have been extracted from the following source: City of Ontario Mobility Element for each applicable roadway type.
These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS "E" service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

[2] v/c = Volume-to-capacity

[3] LOS = Level of Service

Table 5-3

Peak Hour Off-Ramp Queuing Analysis for E+P Conditions

Intersection	Movement	Stacking Distance (Feet)	E+P				E+P (Alternative Access)			
			95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]		95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
SR-60 WB Off-Ramp / Milliken Av.										
	WBL/T/R	1,600	288	127	Yes	Yes	282	126	Yes	Yes
	WBR	350	236	51	Yes	Yes	227	50	Yes	Yes
SR-60 EB Off-Ramp / Milliken Av.										
	EBL	1,420	292	197	Yes	Yes	292	197	Yes	Yes
	EBL/EBR	1,200	140	70	Yes	Yes	140	70	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

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6 OPENING YEAR CUMULATIVE (2018) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2018) Without and With Project traffic forecasts, and the resulting intersection operations analysis.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2018) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

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

6.2 OPENING YEAR CUMULATIVE (2018) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 2.00% plus traffic from pending and approved but not yet constructed known development projects in the area. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2018) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2018) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Opening Year Cumulative (2018) Without Project traffic in conjunction with the addition of Project traffic. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2018) With Project and With Project (Alternative Access) traffic conditions are shown on Exhibits 6-2 and 6-3, respectively.

6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2018) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2018) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, the study area intersections are anticipated to continue to operate at an acceptable LOS under Opening Year Cumulative (2018) Without Project traffic conditions, consistent with Existing (2017) traffic conditions. A summary of the peak hour intersection LOS for Opening Year Cumulative (2018) Without Project conditions is shown on Exhibit 6-4. The intersection operations analysis worksheets for Opening Year Cumulative (2018) Without Project traffic conditions are included in Appendix 6.1 of this TIA.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2018) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)

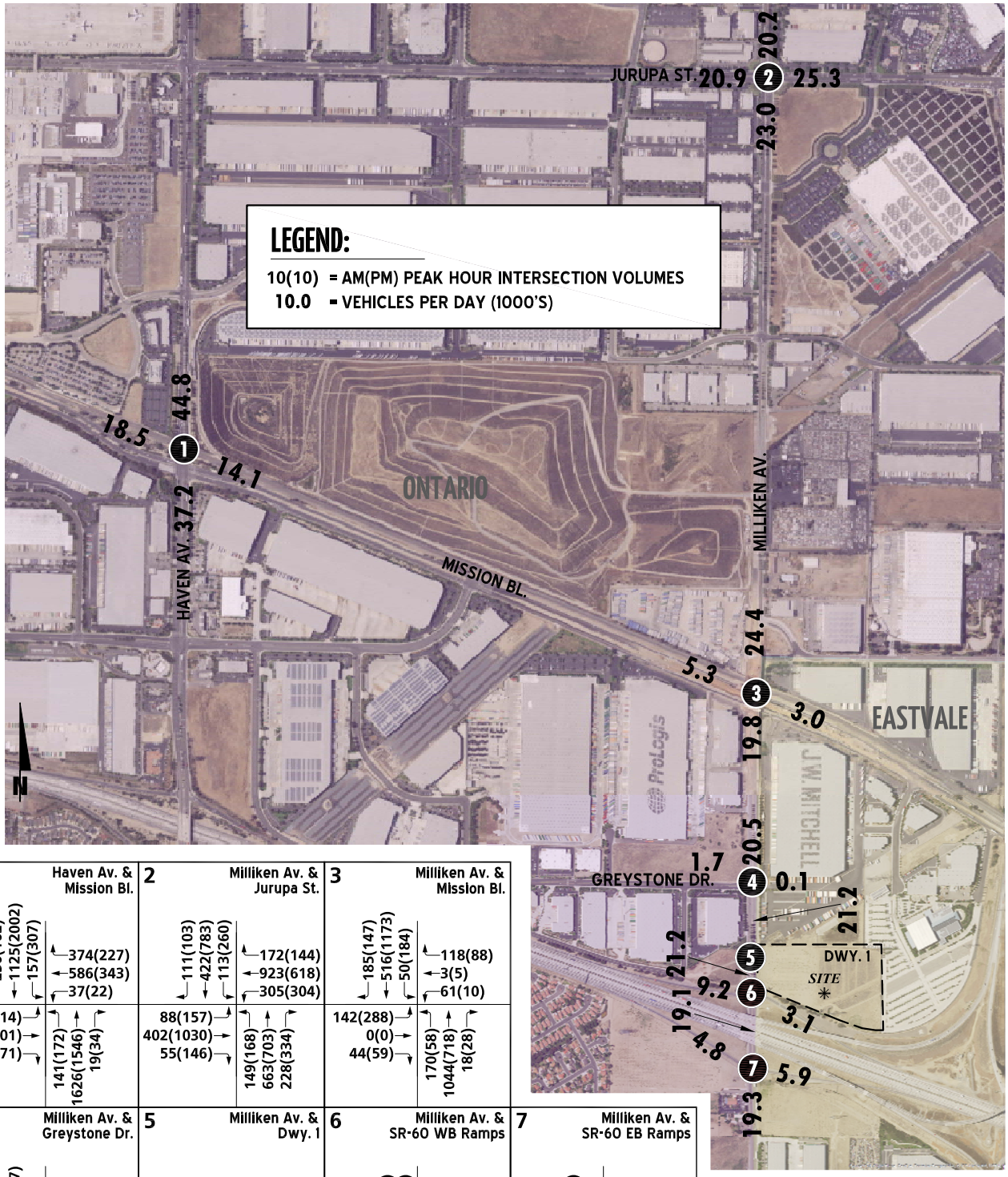
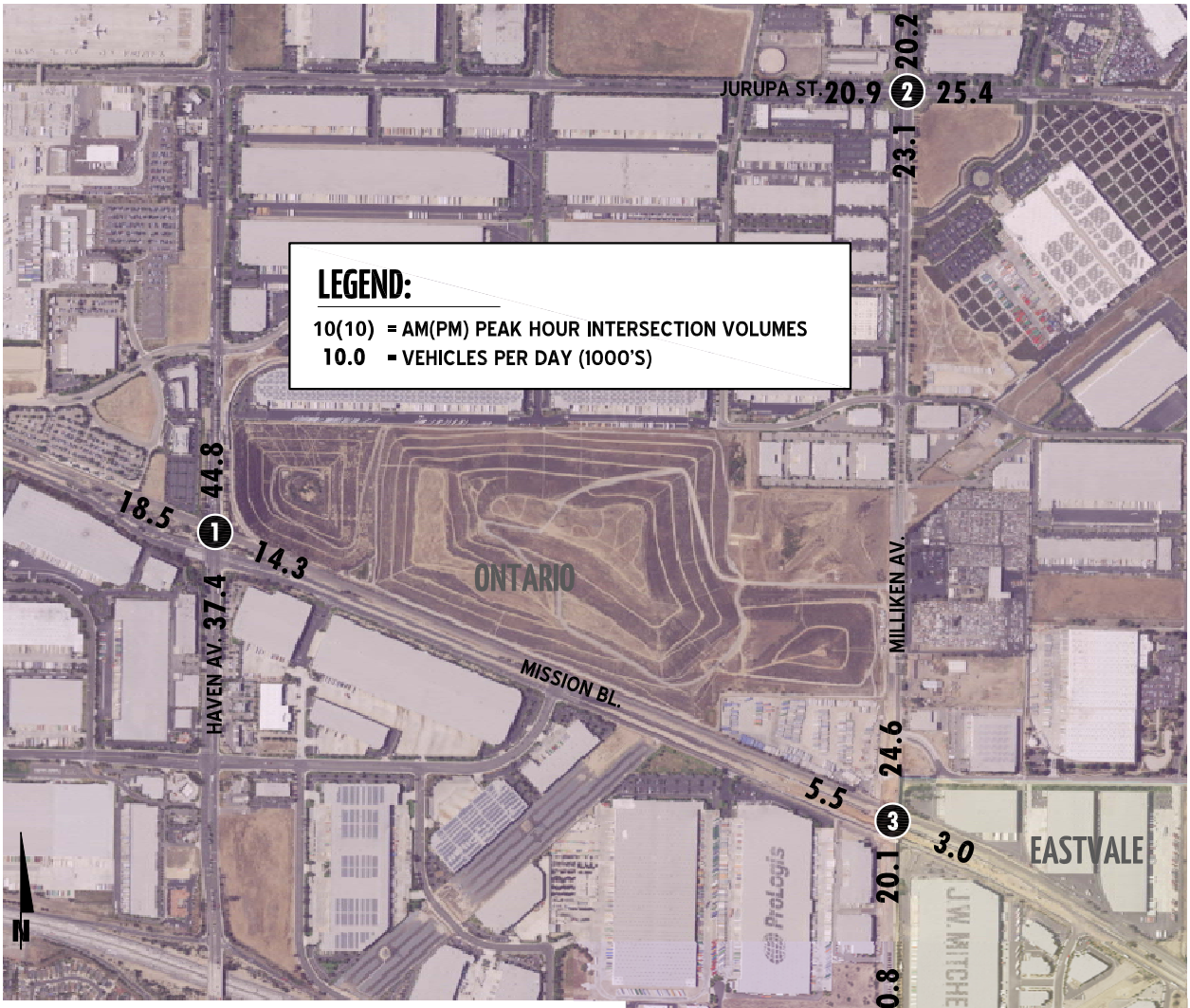


EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2018) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.			2 Milliken Av. & Jurupa St.			3 Milliken Av. & Mission Bl.		
236(162)	1125(2002)	157(307)	111(103)	422(783)	113(260)	185(147)	516(1173)	50(184)
		374(227)			172(144)			118(88)
		586(343)			923(618)			3(5)
		43(38)			305(304)			61(10)
229(514)			88(157)			142(288)		
250(601)			402(1030)			0(0)		
102(171)			55(146)			44(59)		
	141(172)	1626(1546) 19(34)		149(168)	663(703) 233(347)		176(74)	1049(731) 18(28)

4 Milliken Av. & Greystone Dr.			5 Milliken Av. & Dwy. 1		6 Milliken Av. & SR-60 WB Ramps			7 Milliken Av. & SR-60 EB Ramps	
55(24)	481(1407)	3(6)	524(1506)		227(598)	297(908)		497(717)	43(329)
		2(0)		14(35)			591(176)		
		0(0)					14(2)		
		1(1)					243(137)		
45(42)								443(233)	
0(1)								477(243)	
38(92)									
	116(30)	1342(756) 0(1)		1443(751) 29(15)			332(393) 881(590)		770(750) 155(306)

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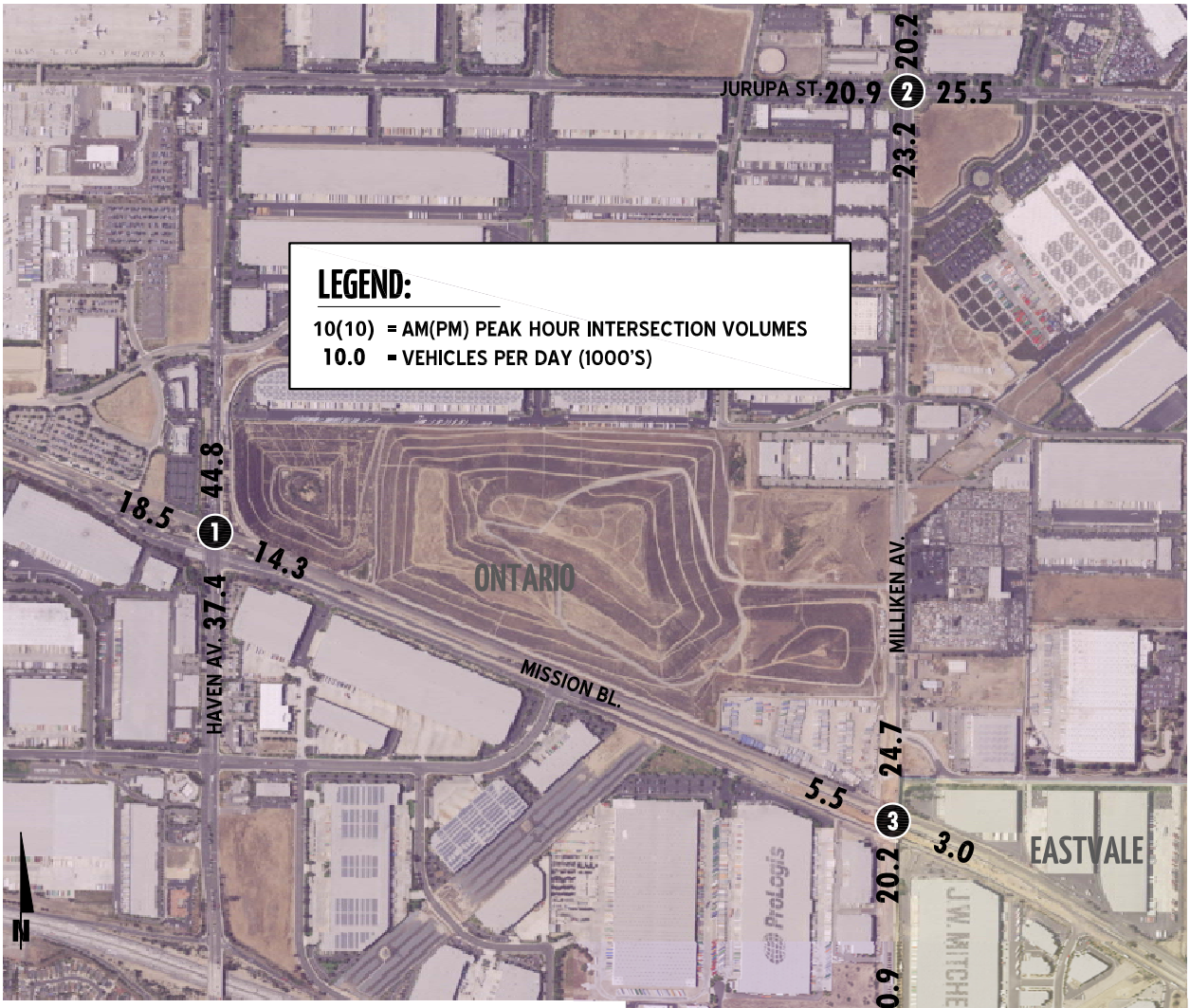
EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2018) WITH PROJECT (ALTERNATIVE ACCESS) TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.			2 Milliken Av. & Jurupa St.			3 Milliken Av. & Mission Bl.		
236(162)	1125(2002)	157(307)	111(103)	422(783)	113(260)	185(147)	523(1177)	50(184)
229(514)	250(601)	102(171)	88(157)	402(1030)	55(146)	142(288)	0(0)	44(59)
141(172)	1626(1546)	19(34)	149(168)	663(703)	233(347)	176(74)	1049(731)	18(28)
374(227)	586(343)	43(38)	172(144)	923(618)	312(308)	118(88)	3(5)	61(10)

4 Milliken Av. & Greystone Dr.			5 Milliken Av. & Dwy. 1			6 Milliken Av. & SR-60 WB Ramps			7 Milliken Av. & SR-60 EB Ramps	
55(24)	488(1411)	3(6)	524(1506)	7(4)		227(598)	297(908)		497(717)	43(329)
45(42)	0(1)	38(92)	1443(751)	22(11)		332(393)	881(590)		443(233)	477(243)
116(30)	1342(756)	0(1)							770(750)	155(306)
2(0)	0(0)	1(1)	14(35)			584(172)	14(2)	243(137)		

EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2018) WITHOUT PROJECT SUMMARY OF LOS

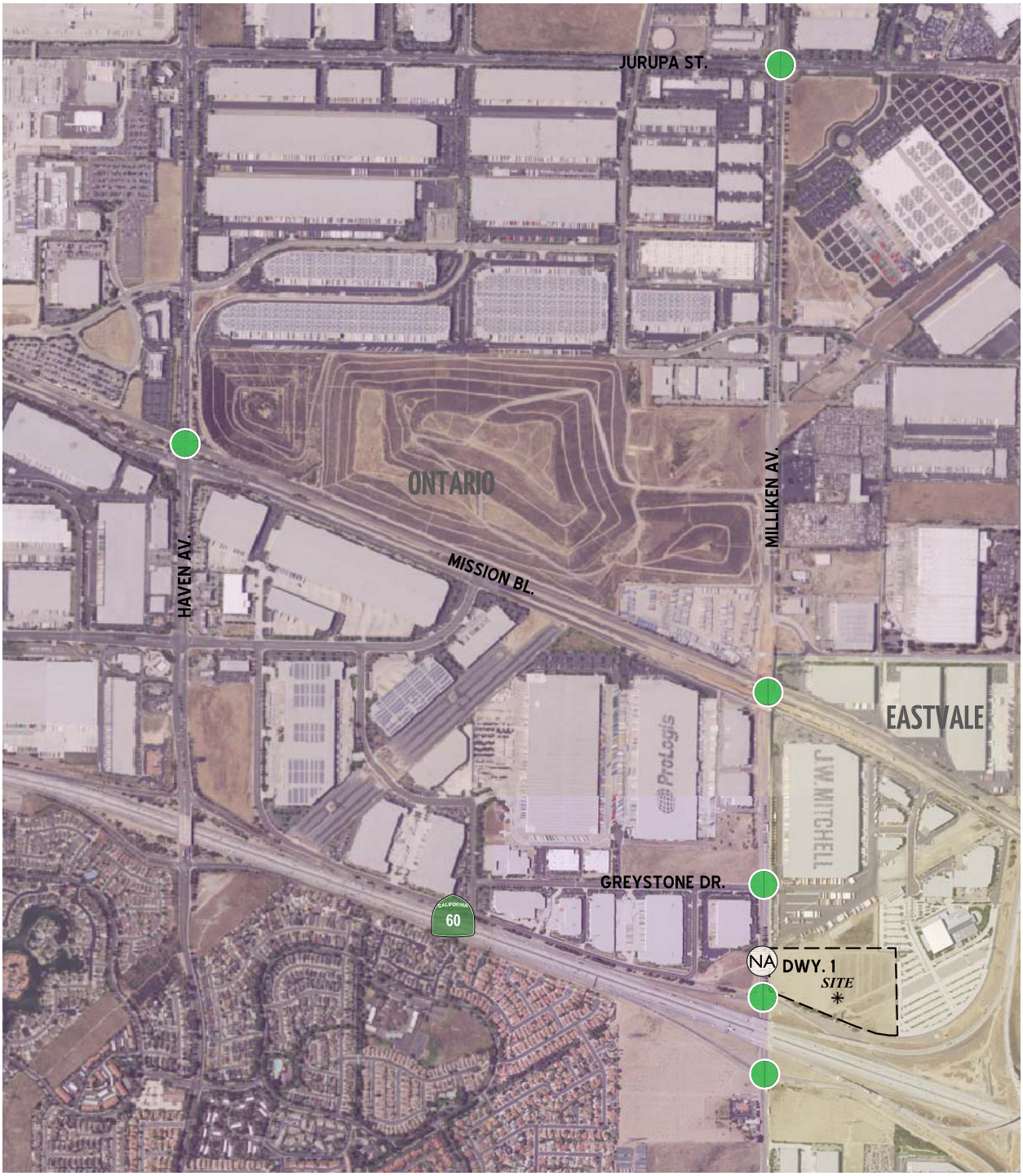


Table 6-1

Intersection Analysis for Opening Year Cumulative (2018) Conditions

#	Intersection	Traffic Control[2]	2018 Without Project								2018 With Project								2018 With Project (Alternative Access)							
			ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service		ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service		ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Haven Av. / Mission Bl.	TS	0.79	0.87	C	D	41.8	78.3	D	E	0.79	0.87	C	D	41.9	78.5	D	E	0.79	0.87	C	D	41.9	78.5	D	E
2	Milliken Av / Jurupa St.	TS	0.48	0.65	A	B	27.5	34.1	C	C	0.49	0.66	A	B	27.5	34.6	C	C	0.49	0.66	A	B	27.6	34.7	C	C
3	Milliken Av. / Mission Bl.	TS	0.37	0.43	A	A	19.8	21.5	B	C	0.37	0.44	A	A	19.9	21.8	B	C	0.37	0.44	A	A	19.9	21.9	B	C
4	Milliken Av. / Greystone Dr.	TS	0.36	0.42	A	A	8.2	7.9	A	A	0.36	0.43	A	A	8.2	7.9	A	A	0.36	0.43	A	A	8.2	7.9	A	A
5	Milliken Av. / Driveway 1	--/CSS	Not Applicable[1]								Not Applicable[1]				10.8	9.8	B	A	Not Applicable[1]				10.8	9.8	B	A
6	Milliken Av. / SR-60 Westbound Ramps	TS	Not Applicable[3]				29.8	27.8	C	C	Not Applicable[3]				30.1	27.8	C	C	Not Applicable[3]				29.9	27.8	C	C
7	Milliken Av. / SR-60 Eastbound Ramps	TS	Not Applicable[3]				22.3	27.9	C	C	Not Applicable[3]				22.5	28.1	C	C	Not Applicable[3]				22.5	28.1	C	C

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

[1] ICU reported in volume-to-capacity (v/c) using the Traffix software and HCM delay reported in seconds using the Synchro software. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

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

[3] Only delay reported as Caltrans does not utilize the ICU methodology.

6.4.2 OPENING YEAR CUMULATIVE (2018) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 6-1 and illustrated on Exhibit 6-5, the study area intersections are anticipated to continue to operate at an acceptable LOS with the addition of Project traffic during the peak hours. The intersection operations analysis worksheets for Opening Year Cumulative (2018) With Project traffic conditions are included in Appendix 6.2 of this TIA.

As shown on Table 6-1 and illustrated on Exhibit 6-6, the study area intersections are anticipated to continue to operate at an acceptable LOS with the addition of Project (Alternative Access) traffic during the peak hours. The intersection operations analysis worksheets for Opening Year Cumulative (2018) With Project (Alternative Access) traffic conditions are included in Appendix 6.3 of this TIA.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

All existing study area intersections are currently signalized. The proposed driveway is anticipated to have restricted access and would likely never be signalized. As such, a traffic signal warrant analysis has not been prepared for Opening Year Cumulative traffic conditions.

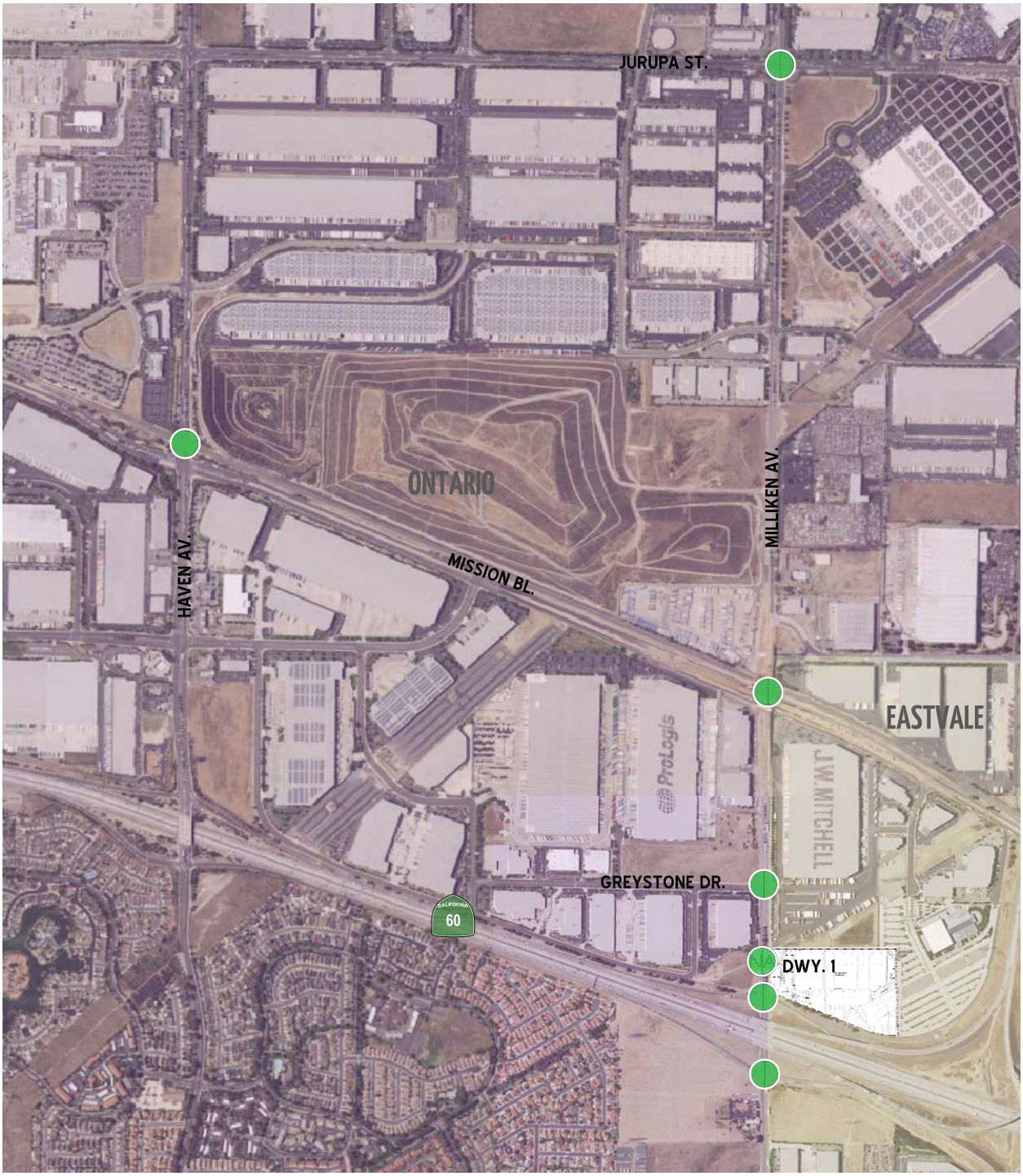
6.6 ROADWAY SEGMENT ANALYSIS

The roadway segment capacities utilized for the purposes of this analysis are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 6-2 provides a summary of the Opening Year Cumulative (2018) conditions roadway segment capacity analysis based on the applicable roadway segment capacity. As shown on Table 6-2, all the study area roadway segments are anticipated to operate at an acceptable LOS under Opening Year Cumulative (2018) Without and With Project traffic conditions.

6.7 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for Opening Year Cumulative (2018) Without and With Project traffic conditions are shown in Table 6-3. As shown on Table 6-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of either Project or Project (Alternative Access) traffic. Worksheets for Opening Year Cumulative (2018) Without, With Project, and With Project (Alternative Access) traffic conditions off-ramp queuing analysis are provided in Appendices 6.4, 6.5, and 6.6, respectively.

EXHIBIT 6-5: OPENING YEAR CUMULATIVE (2018) WITH PROJECT SUMMARY OF LOS



LEGEND:

- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS

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URBAN CROSSROADS

EXHIBIT 6-6: OPENING YEAR CUMULATIVE (2018) WITH PROJECT (ALTERNATIVE ACCESS) SUMMARY OF LOS

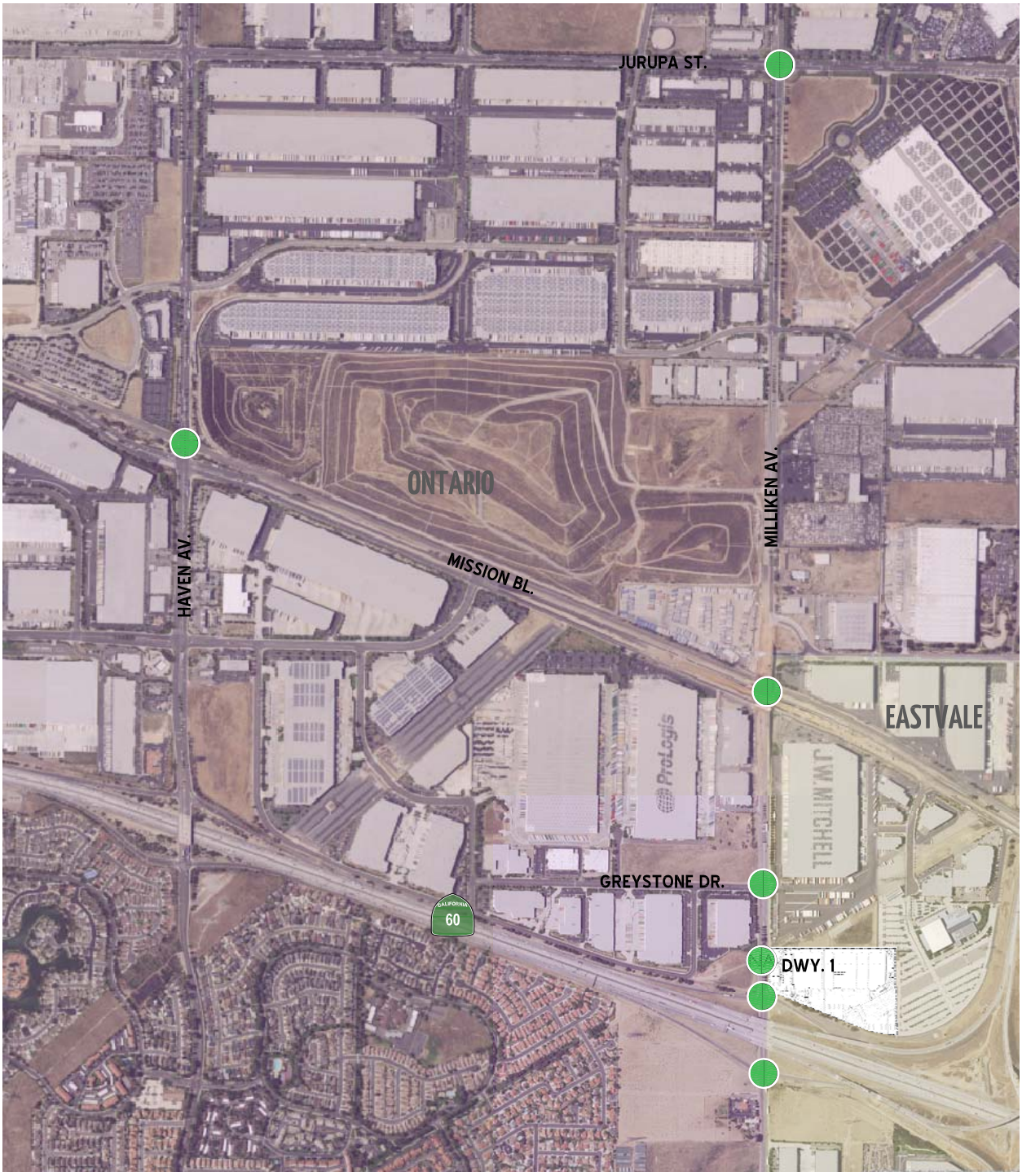

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Table 6-2

Roadway Segment Analysis for Opening Cumulative (2018) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2018 NP	V/C[2]	LOS[3]	2018 WP	V/C[2]	LOS[3]	2018 WP ALT	V/C[2]	LOS[3]	Acceptable LOS[4]
1	Milliken Avenue	North of Project Driveway	6D	49,000	21,217	0.43	A	21,652	0.44	A	21,738	0.44	A	D
2		Project Driveway to SR-60 Westbound Ramps	6D	49,000	21,217	0.43	A	21,651	0.44	A	21,563	0.44	A	D

[1] These maximum roadway capacities have been extracted from the following source: City of Ontario Mobility Element for each applicable roadway type.
These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS "E" service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

[2] v/c = Volume-to-capacity

[3] LOS = Level of Service

Table 6-3

Peak Hour Off-Ramp Queuing Analysis for Opening Year Cumulative (2018) Conditions

Intersection	Movement	Stacking Distance (Feet)	2018 Without Project				2018 With Project				2018 With Project (Alternative Access)			
			95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]		95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]		95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
SR-60 WB Off-Ramp / Milliken Av.														
	WBL/T/R	1,600	333	155	Yes	Yes	344 [2]	157	Yes	Yes	334	156	Yes	Yes
	WBR	350	267	52	Yes	Yes	274	51	Yes	Yes	275	52	Yes	Yes
SR-60 EB Off-Ramp / Milliken Av.														
	EBL	1,420	289	200	Yes	Yes	298	206	Yes	Yes	298	206	Yes	Yes
	EBL/EBR	1,200	295	108	Yes	Yes	296	109	Yes	Yes	296	109	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

6.8 RECOMMENDED IMPROVEMENTS

6.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

As shown previously on Table 6-1, there are no peak hour intersection operations deficiencies within the study area. As such, no improvements have been recommended.

6.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS ROADWAY SEGMENTS

As shown previously on Table 6-2, there are no roadway segment deficiencies within the study area. As such, no roadway widening improvements have been recommended.

6.8.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 6-3, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with addition of either Project or Project (Alternative Access) traffic. As such, no improvements have been recommended.

7 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations analysis.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).
- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area.

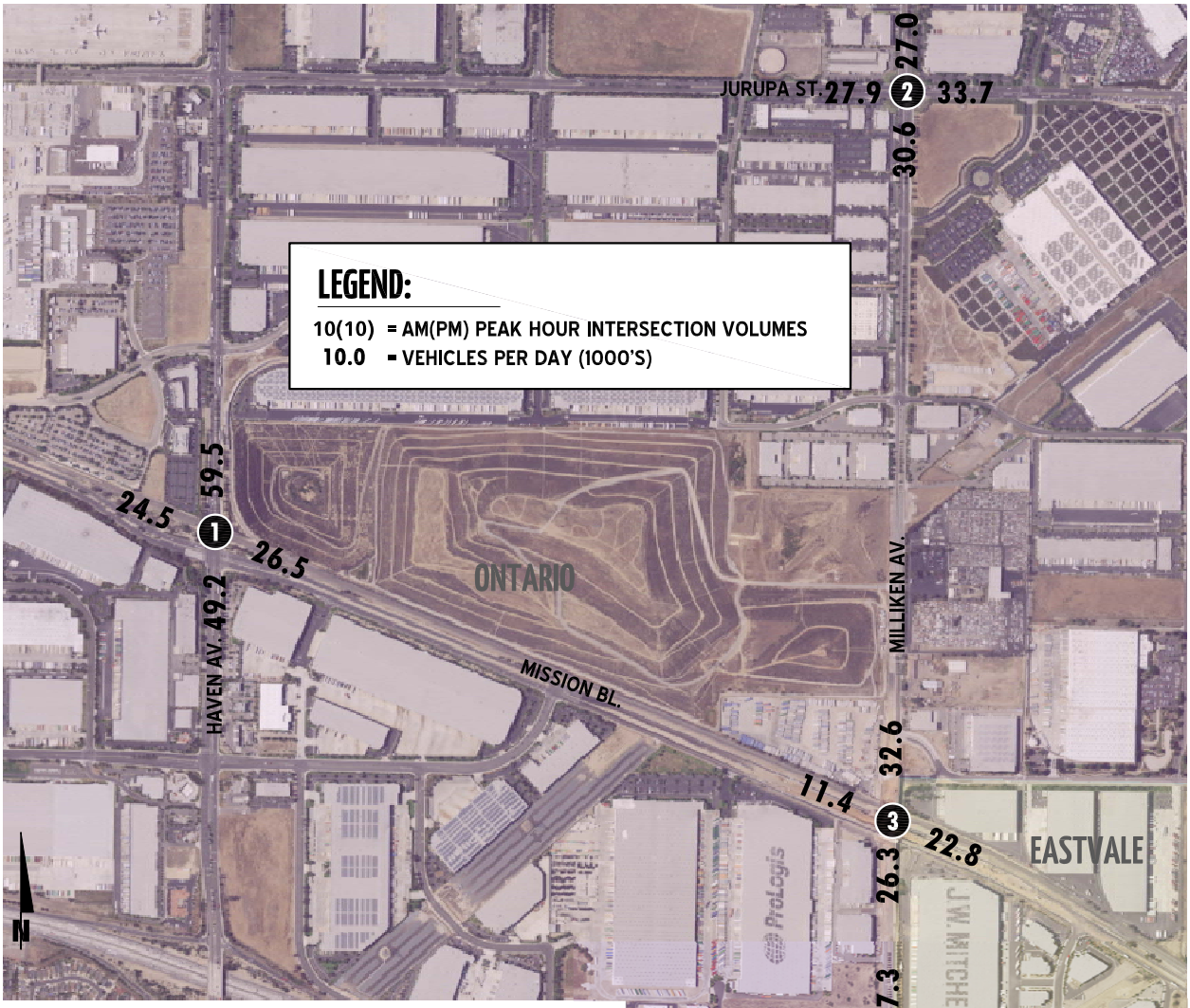
7.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the SBTAM and RivTAM (see Section 4.7 *Horizon Year (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the SBTAM and RivTAM, plus the traffic generated by the proposed Project (see Section 4.7 *Horizon Year (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). Horizon Year (2040) With Project traffic forecasts reflects buildout of the Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project and With Project (Alternative Access) traffic conditions are shown on Exhibits 7-2 and 7-3, respectively.

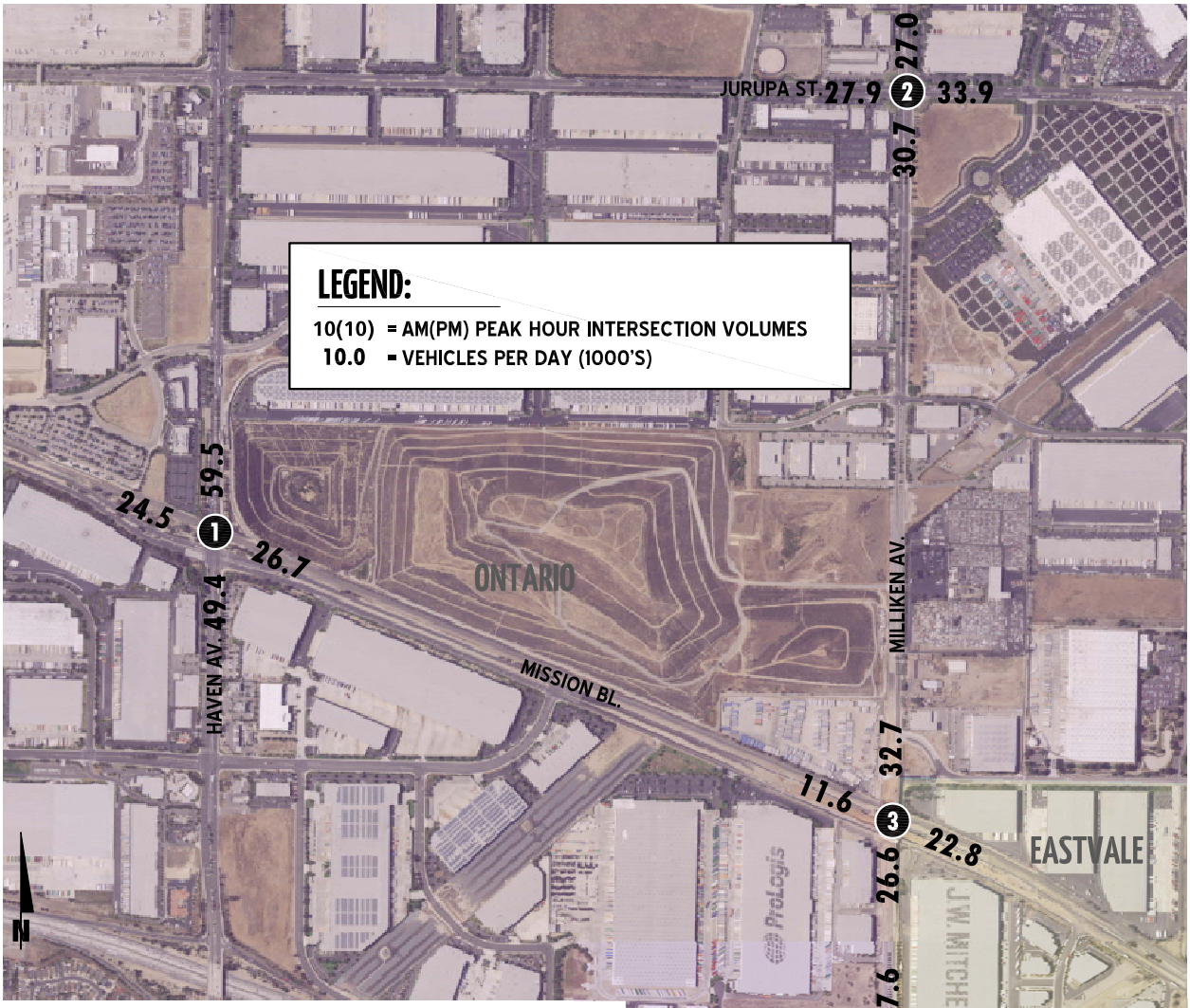
EXHIBIT 7-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.	2 Milliken Av. & Jurupa St.	3 Milliken Av. & Mission Bl.
316(217) 1585(2702) 259(475) → 500(304) ← 781(451) ← 58(31)	150(137) 788(1269) 177(347) → 230(200) ← 1233(826) ← 416(491)	266(348) 688(1564) 179(248) → 205(252) ← 4(12) ← 81(13)
306(687) → 453(799) → 154(216) → 179(223) 2155(2153) 40(56) ↑	118(210) → 538(1377) → 74(204) → 200(225) 989(1140) 330(487) ↑	357(392) → 0(0) → 53(75) → 224(70) 1393(954) 44(37) ↑

4 Milliken Av. & Greystone Dr.	5 Milliken Av. & Dwy. 1	6 Milliken Av. & SR-60 WB Ramps	7 Milliken Av. & SR-60 EB Ramps
73(33) 636(1873) 4(8) → 2(0) ← 0(0) ← 1(1)	Future Intersection	302(796) 386(1292) → 773(269) ← 19(5) ← 305(393)	635(1315) 78(436) →
61(56) → 0(1) → 50(122) → 150(30) 1773(959) 0(1) ↑		428(484) 1150(764) ↑	577(304) → 648(358) → 1001(944) 532(592) ↑

EXHIBIT 7-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.

316(217)	1585(2702)	259(475)
306(687)	453(799)	154(216)
179(223)	2155(2153)	40(56)
500(304)	781(451)	64(47)

2 Milliken Av. & Jurupa St.

150(137)	788(1269)	177(347)
118(210)	538(1377)	74(204)
200(225)	989(1140)	335(500)
230(200)	1233(826)	416(491)

3 Milliken Av. & Mission Bl.

266(348)	688(1564)	179(248)
357(392)	0(0)	53(75)
230(86)	1398(967)	44(37)
205(252)	4(12)	81(13)

4 Milliken Av. & Greystone Dr.

73(33)	636(1873)	4(8)
61(56)	0(1)	50(122)
153(37)	1784(987)	0(1)
2(0)	0(0)	1(1)

5 Milliken Av. & Dwy. 1

691(2002)	
1923(990)	29(15)
	14(35)

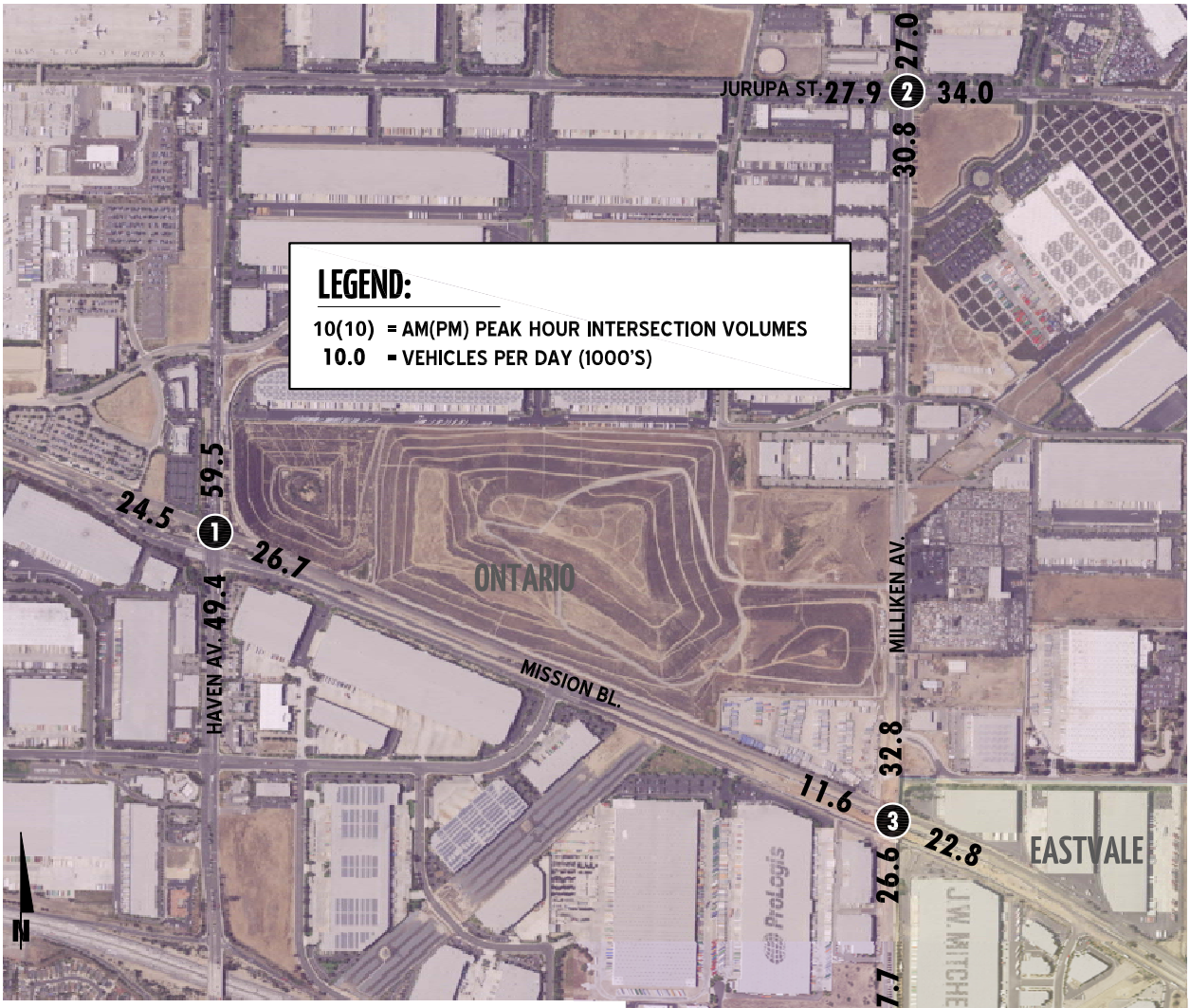
6 Milliken Av. & SR-60 WB Ramps

303(798)	388(1297)	
428(484)	1166(772)	
786(276)	19(5)	305(393)

7 Milliken Av. & SR-60 EB Ramps

636(1317)	79(439)	
589(310)	648(358)	
1005(946)	532(592)	

EXHIBIT 7-3: HORIZON YEAR (2040) WITH PROJECT (ALTERNATIVE ACCESS) TRAFFIC VOLUMES (IN PCE)



1 Haven Av. & Mission Bl.			2 Milliken Av. & Jurupa St.			3 Milliken Av. & Mission Bl.		
316(217)	1585(2702)	259(475)	150(137)	788(1269)	177(347)	266(348)	695(1568)	179(248)
		500(304)			230(200)			205(252)
		781(451)			1233(826)			4(12)
		64(47)			423(495)			81(13)
306(687)			118(210)			357(392)		
453(799)			538(1377)			0(0)		
154(216)			74(204)			53(75)		
	179(223)	2155(2153) 40(56)		200(225)	989(1140) 335(500)		230(86)	1398(967) 44(37)

4 Milliken Av. & Greystone Dr.			5 Milliken Av. & Dwy. 1		6 Milliken Av. & SR-60 WB Ramps			7 Milliken Av. & SR-60 EB Ramps	
73(33)	643(1877)	4(8)	691(2002)		303(798)	388(1297)		636(1317)	79(439)
		2(0)		14(35)			779(272)		
		0(0)					19(5)		
		1(1)					305(393)		
61(56)								589(310)	
0(1)								648(358)	
50(122)									
	153(37)	1784(987) 0(1)		1923(990) 22(11)		428(484)	1166(772)		1005(946) 532(592)

7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown in Table 7-1, the following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without Project traffic conditions:

- Haven Av. / Mission Bl. – LOS F AM and PM peak hours
- Milliken Av. / SR-60 Westbound Ramps – LOS F PM peak hour only

A summary of the peak hour intersection LOS for Horizon Year (2040) Without Project conditions is shown on Exhibit 7-4. The intersection operations analysis worksheets for Horizon Year (2040) Without Project traffic conditions are included in Appendix 7.1 of this TIA.

7.4.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 7-1 and illustrated on Exhibits 7-5 and 7-6, there are no additional study area intersections anticipated to experience unacceptable LOS with the addition of either Project or Project (Alternative Access) traffic during one or more peak hours. The intersection operations analysis worksheets for Horizon Year (2040) With Project and With Project (Alternative Access) traffic conditions are included in Appendices 7.2 and 7.3 of this TIA.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

All existing study area intersections are currently signalized. The proposed driveway is anticipated to have restricted access and would likely never be signalized. As such, a traffic signal warrant analysis has not been prepared for Horizon Year traffic conditions.

7.6 ROADWAY SEGMENT ANALYSIS

The roadway segment capacities utilized for the purposes of this analysis are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 7-2 provides a summary of the Horizon Year (2040) conditions roadway segment capacity analysis based on the applicable roadway segment capacity. As shown on Table 7-2, all the study area roadway segments are anticipated to operate at an acceptable LOS under Horizon Year (2040) Without and With Project traffic conditions.

Table 7-1

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project								2040 With Project								2040 With Project (Alternative Access)							
			ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service		ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service		ICU[1] (v/c)		Level of Service		Delay [1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Haven Av. / Mission Bl.	TS	**1.07**	**1.20**	**F**	**F**	**108.3**	**193.3**	**F**	**F**	**1.07**	**1.20**	**F**	**F**	**108.8**	**193.4**	**F**	**F**	**1.07**	**1.20**	**F**	**F**	**108.8**	**193.4**	**F**	**F**
2	Milliken Av / Jurupa St.	TS	0.65	0.90	B	E	39.6	58.5	D	E	0.65	0.91	B	E	39.6	59.1	D	E	0.65	0.91	B	E	39.9	59.5	D	E
3	Milliken Av. / Mission Bl.	TS	0.58	0.60	A	B	30.9	29.7	C	C	0.58	0.61	A	B	30.9	30.1	C	C	0.58	0.61	A	B	30.9	30.1	C	C
4	Milliken Av. / Greystone Dr.	TS	0.46	0.54	A	A	9.4	9.0	A	A	0.46	0.55	A	A	9.4	9.0	A	A	0.46	0.55	A	A	9.4	9.0	A	A
5	Milliken Av. / Driveway 1	--/CSS	Not Applicable[1]								Not Applicable[1]				11.9	10.1	B	B	Not Applicable[1]				13.1	10.1	B	B
6	Milliken Av. / SR-60 Westbound Ramps	TS	Not Applicable[3]				38.3	**100.3**	D	**F**	Not Applicable[3]				38.8	**100.8**	D	**F**	Not Applicable[3]				38.5	**100.9**	D	**F**
7	Milliken Av. / SR-60 Eastbound Ramps	TS	Not Applicable[3]				40.2	52.0	D	D	Not Applicable[3]				41.1	52.9	D	D	Not Applicable[3]				41.1	52.9	D	D

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

[1] ICU reported in volume-to-capacity (v/c) using the Traffix software and HCM delay reported in seconds using the Synchro software. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

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

[3] Only delay reported as Caltrans does not utilize the ICU methodology.

Table 7-2

Roadway Segment Analysis for Horizon Year (2040) Conditions

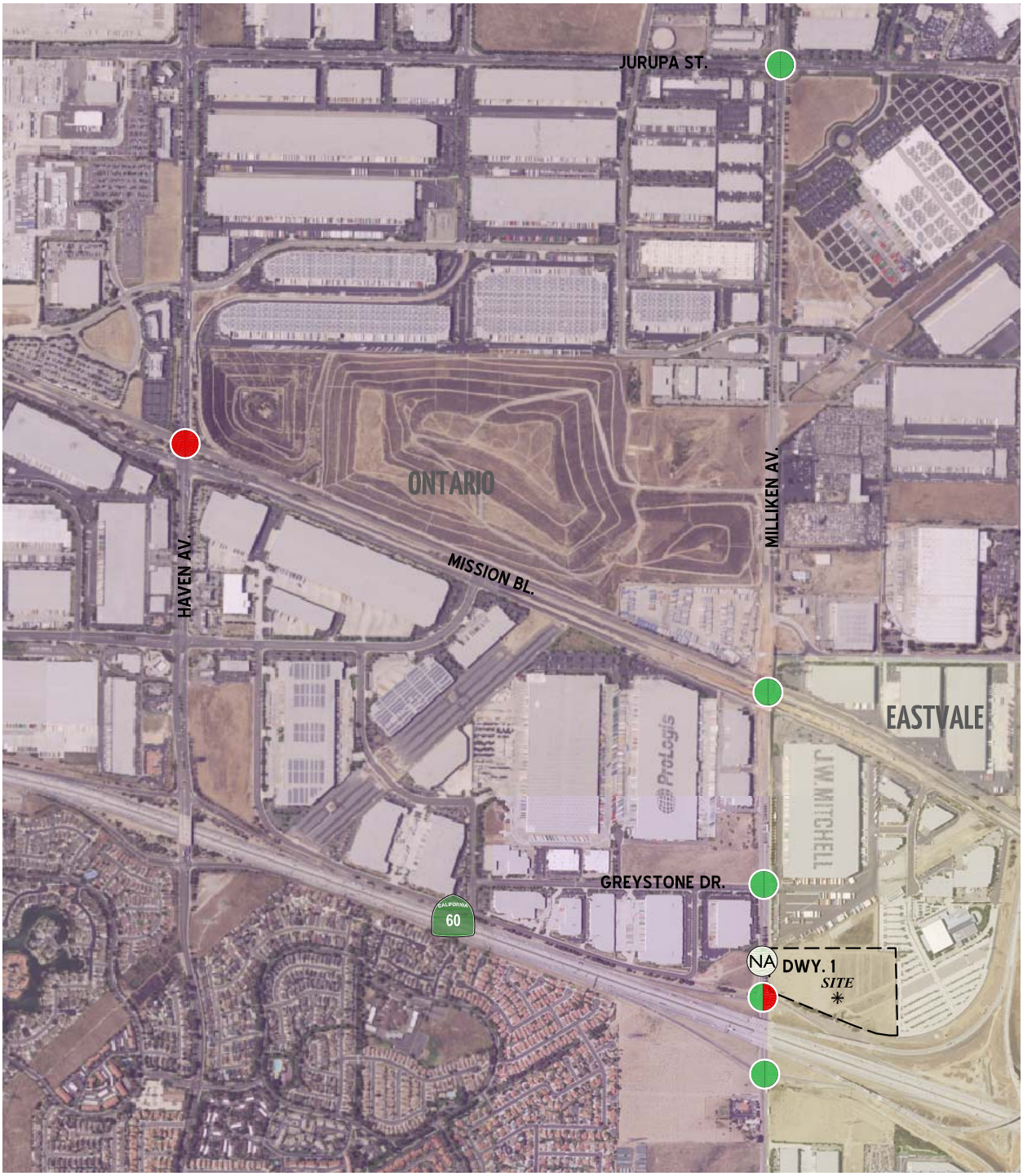
#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2040 NP	V/C[2]	LOS[3]	2040 WP	V/C[2]	LOS[3]	2040 WP ALT	V/C[2]	LOS[3]	Acceptable LOS[4]
1	Milliken Avenue	North of Project Driveway	6D	49,000	28,129	0.57	A	28,564	0.58	A	28,650	0.58	A	D
2		Project Driveway to SR-60 Westbound Ramps	6D	49,000	28,129	0.57	A	28,563	0.58	A	28,475	0.58	A	D

[1] These maximum roadway capacities have been extracted from the following source: City of Ontario Mobility Element for each applicable roadway type.
These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS "E" service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic.

[2] v/c = Volume-to-capacity

[3] LOS = Level of Service

EXHIBIT 7-4: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS



LEGEND:

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

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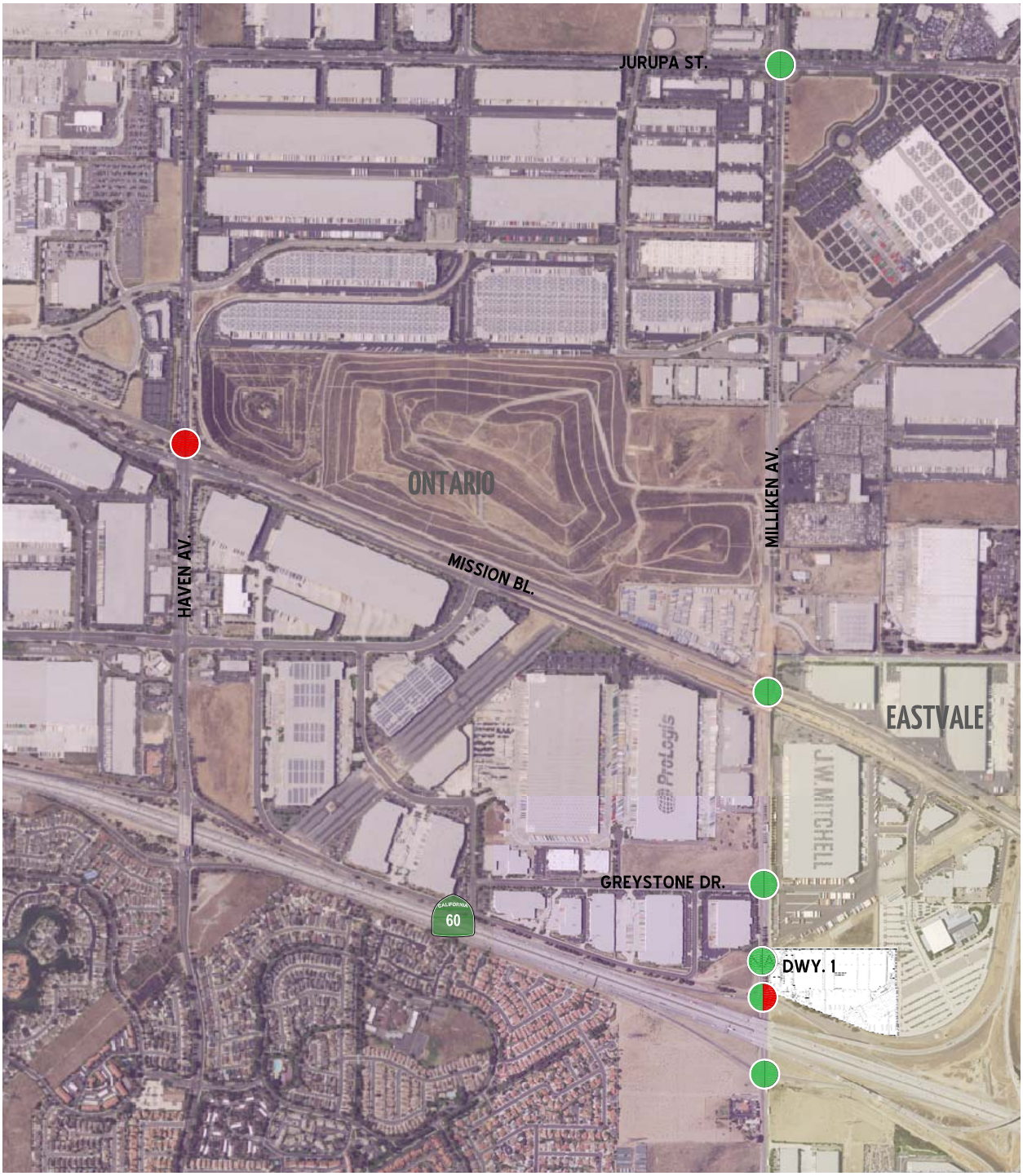
EXHIBIT 7-5: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS



LEGEND:

- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS

N

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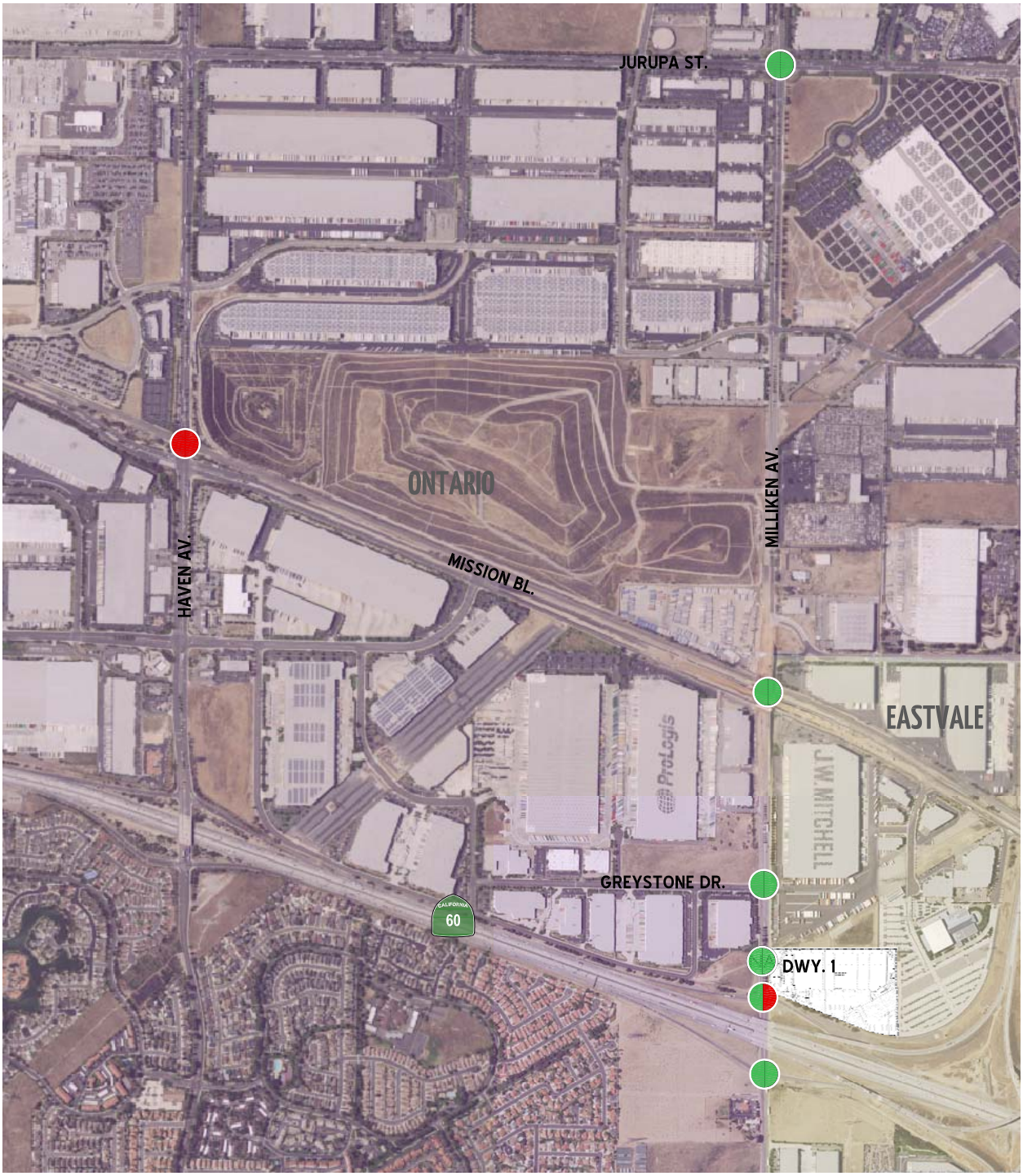
EXHIBIT 7-6: HORIZON YEAR (2040) WITH PROJECT (ALTERNATIVE ACCESS) SUMMARY OF LOS



7.7 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for Horizon Year (2040) traffic conditions are presented in Table 7-3. As shown on Table 7-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of either Project or Project (Alternative Access) traffic. Worksheets for Horizon Year (2040) traffic conditions off-ramp queuing analysis are provided in Appendices 7.4, 7.5, and 7.6, respectively.

7.8 HORIZON YEAR (2040) DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

7.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

As shown on Table 7-4, although the peak hour intersection operations for Horizon Year (2040) traffic conditions indicates that the following study area intersections are anticipated to operate at unacceptable LOS during the peak hours, the addition of Project traffic is not anticipated to meet the City's significance threshold (i.e., resulting in an increase of 5.0 seconds or more with the addition of Project traffic):

- Haven Avenue & Mission Boulevard (#1) – LOS F AM and PM peak hours
- Milliken Avenue & SR-60 Westbound Ramps (#6) – LOS F PM peak hour only

As such, the Project's impact to the off-site study area intersections is less than significant.

7.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS ROADWAY SEGMENTS

As shown previously on Table 7-2, there are no roadway segment deficiencies within the study area. As such, no roadway widening improvements have been recommended.

7.8.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 7-3, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with addition of either Project or Project (Alternative Access) traffic. As such, no improvements have been recommended.

Table 7-3

Peak Hour Off-Ramp Queuing Analysis for Horizon Year (2040) Conditions

Intersection	Movement	Stacking Distance (Feet)	2040 Without Project				2040 With Project				2040 With Project (Alternative Access)			
			95th Percentile Stacking Distance Required (Feet)		Acceptable?[1]		95th Percentile Stacking Distance Required (Feet)		Acceptable?[1]		95th Percentile Stacking Distance Required (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
SR-60 WB Off-Ramp / Milliken Av.														
	WBL/T/R	1,600	570 [2]	545 [2]	Yes	Yes	587 [2]	545 [2]	Yes	Yes	571 [2]	545 [2]	Yes	Yes
	WBR	350	500 [2]	110	Yes[3]	Yes	503 [2]	118	Yes[3]	Yes	506 [2]	115	Yes[3]	Yes
SR-60 EB Off-Ramp / Milliken Av.														
	EBL	1,420	445 [2]	289 [2]	Yes	Yes	480 [2]	298 [2]	Yes	Yes	422	298 [2]	Yes	Yes
	EBL/EBR	1,200	673 [2]	397 [2]	Yes	Yes	674 [2]	400 [2]	Yes	Yes	667 [2]	400 [2]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] The 95th percentile queues indicates potential queuing for the movements and peak hours identified above. However, while the potential queues would exceed the turn pocket lengths and could spillback into the adjacent through lanes, none are anticipated to result in spillback onto the SR-60 Freeway mainline since the adjacent through lanes all have sufficient capacity.

Table 7-4

Determination of Significant Impacts for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project							2040 With Project (Alternative Access)						
			Delay [1] (secs.)		Level of Service		Delay [1] (secs.)		Level of Service		Change in Delay		Significant Impact?	Delay [1] (secs.)		Level of Service		Change in Delay		Significant Impact?
			AM	PM	AM	PM	AM	PM	AM	PM				AM	PM	AM	PM			
1	Haven Av. / Mission Bl.	TS	**108.3**	**193.3**	**F**	**F**	**108.8**	**193.4**	**F**	**F**	**0.5**	**0.1**	No	**108.8**	**193.4**	**F**	**F**	**0.5**	**0.1**	No
2	Milliken Av / Jurupa St.	TS	39.6	58.5	D	E	39.6	59.1	D	E	--	--	No	39.9	59.5	D	E	--	--	No
3	Milliken Av. / Mission Bl.	TS	30.9	29.7	C	C	30.9	30.1	C	C	--	--	No	30.9	30.1	C	C	--	--	No
4	Milliken Av. / Greystone Dr.	TS	9.4	9.0	A	A	9.4	9.0	A	A	--	--	No	9.4	9.0	A	A	--	--	No
5	Milliken Av. / Driveway 1	--/CSS					11.9	10.1	B	B	--	--	No	13.1	10.1	B	B	--	--	No
6	Milliken Av. / SR-60 Westbound Ramps	TS	38.3	**100.3**	D	**F**	38.8	**100.8**	D	**F**	--	**0.5**	No	38.5	**100.9**	D	**F**	--	**0.6**	No
7	Milliken Av. / SR-60 Eastbound Ramps	TS	40.2	52.0	D	D	41.1	52.9	D	D	--	--	No	41.1	52.9	D	D	--	--	No

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

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

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

[3] Only delay reported as Caltrans does not utilize the ICU methodology.

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8 REFERENCES

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

2. **California Department of Transportation.** *Guide for the Preparation of Traffic Impact Studies.* December 2002.

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

4. **Transportation Research Board.** *Highway Capacity Manual (HCM).* s.l. : National Academy of Sciences, 2010.

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

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

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