Appendix 11

Traffic Analysis

Magnolia Ranch Residential Project

Initial Study

URBAN | CROSSROADS

MAGNOLIA RANCH

TRAFFIC ANALYSIS

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Reference Number	Agency	Date
15629-01 TA Report	City of Eastvale	August 10, 2023

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
OPR	Office of Planning and Research
PHF	Peak Hour Factor
PMP	Parking Management Plan
Project	Magnolia Ranch
RBBD	Road and Bridge Benefit District
RCTC	Riverside County Transportation Commission
RivTAM	Riverside County Transportation Analysis Model
ROW	Right-of-Way
RTA	Riverside Transit Authority
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
TA	Traffic Analysis
TUMF	Transportation Uniform Mitigation Fee
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
vphgpl	Vehicles per Hour Green per Lane
WRCOG	Western Riverside Council of Governments

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1 INTRODUCTION

This report presents the results of the traffic analysis (**TA**) for the proposed Magnolia Ranch development (**Project**), which is bounded by Schleisman Road to the north and Orange Street to the south in the City of Eastvale. The Project's location relative to the surrounding area is shown on Exhibit 1-1.

The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and 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 Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled, and consultation with City staff during the scoping process. (1) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

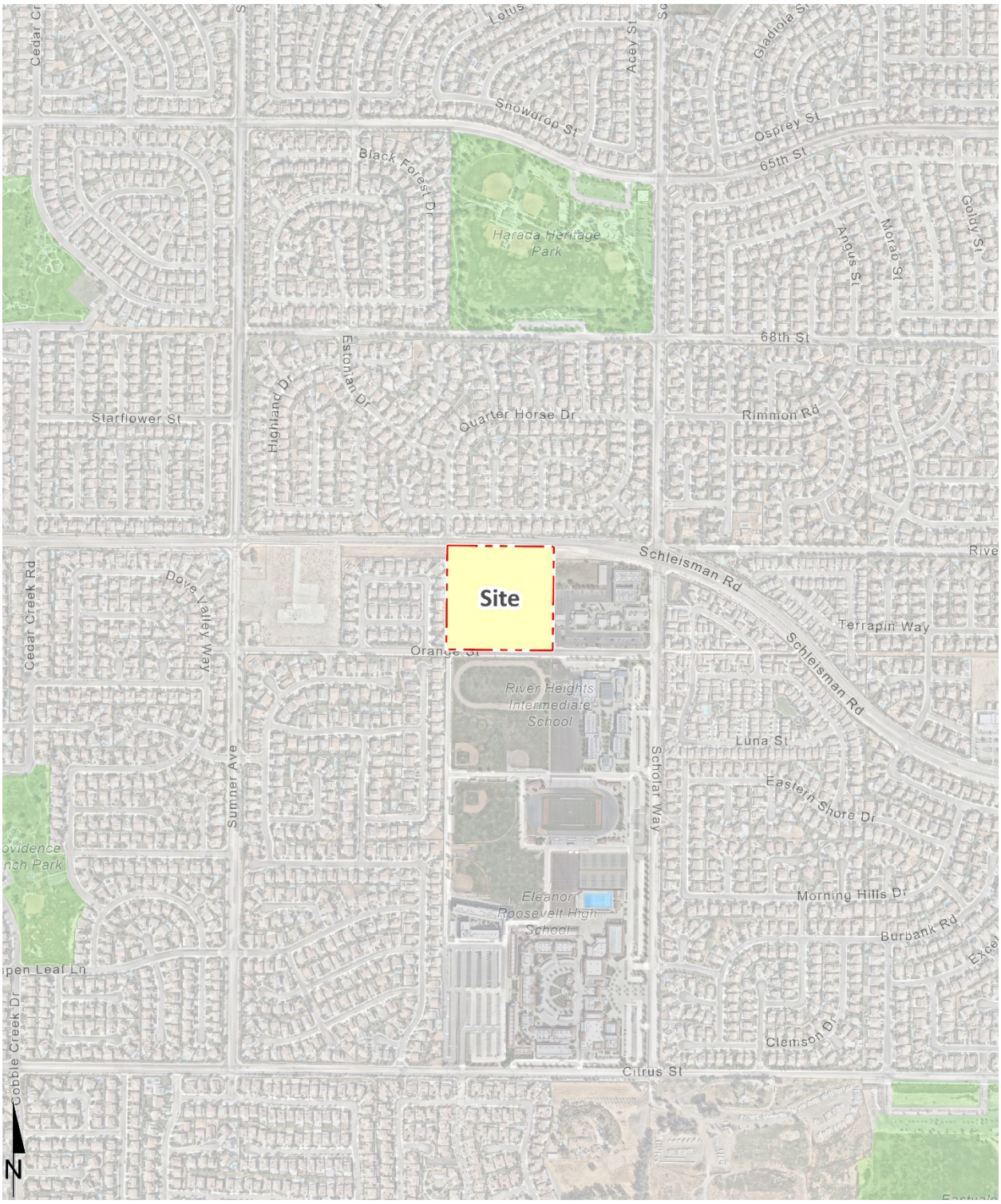
1.1 SUMMARY OF FINDINGS

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

- Project to install stop sign for egress traffic from the proposed Project at Driveway 1 on Orange Street, which is proposed for full access.
- The Project will construct Orange Street from the western Project boundary to the eastern Project boundary at its ultimate half-section width as a 2-lane Collector (ultimate 74-foot right-of-way) in compliance with the circulation recommendations found in the City of Eastvale's General Plan.

Additional details and intersection lane geometrics are provided in Section 1.7 *Recommendations* of this report. The addition of Project traffic is not anticipated to result in any operational deficiencies at the study area intersections under any of the future traffic conditions.

EXHIBIT 1-1: LOCATION MAP



1.2 PROJECT OVERVIEW

Exhibit 1-2 illustrates the preliminary site plan. As indicated on Exhibit 1-2, the Project is proposed to consist of up to 41 single family detached residential units. Regional access to the Project site is available via the I-15 Freeway at Limonite Avenue interchange. Vehicular traffic access will be provided via the following driveway:

- Driveway 1 via Orange Street – Full access

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, 11th Edition, 2017. (2) The proposed Project is anticipated to generate a total of 388 vehicle trip-ends per day with 28 AM peak hour trips and 38 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.

1.3 ANALYSIS SCENARIOS

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

- Existing (2021) Conditions
- Existing plus Project (**E+P**) Conditions
- Opening Year Cumulative (2025) Without Project Conditions
- Opening Year Cumulative (2025) With Project Conditions
- Horizon Year (2040) Without Project Conditions
- Horizon Year (2040) With Project Conditions

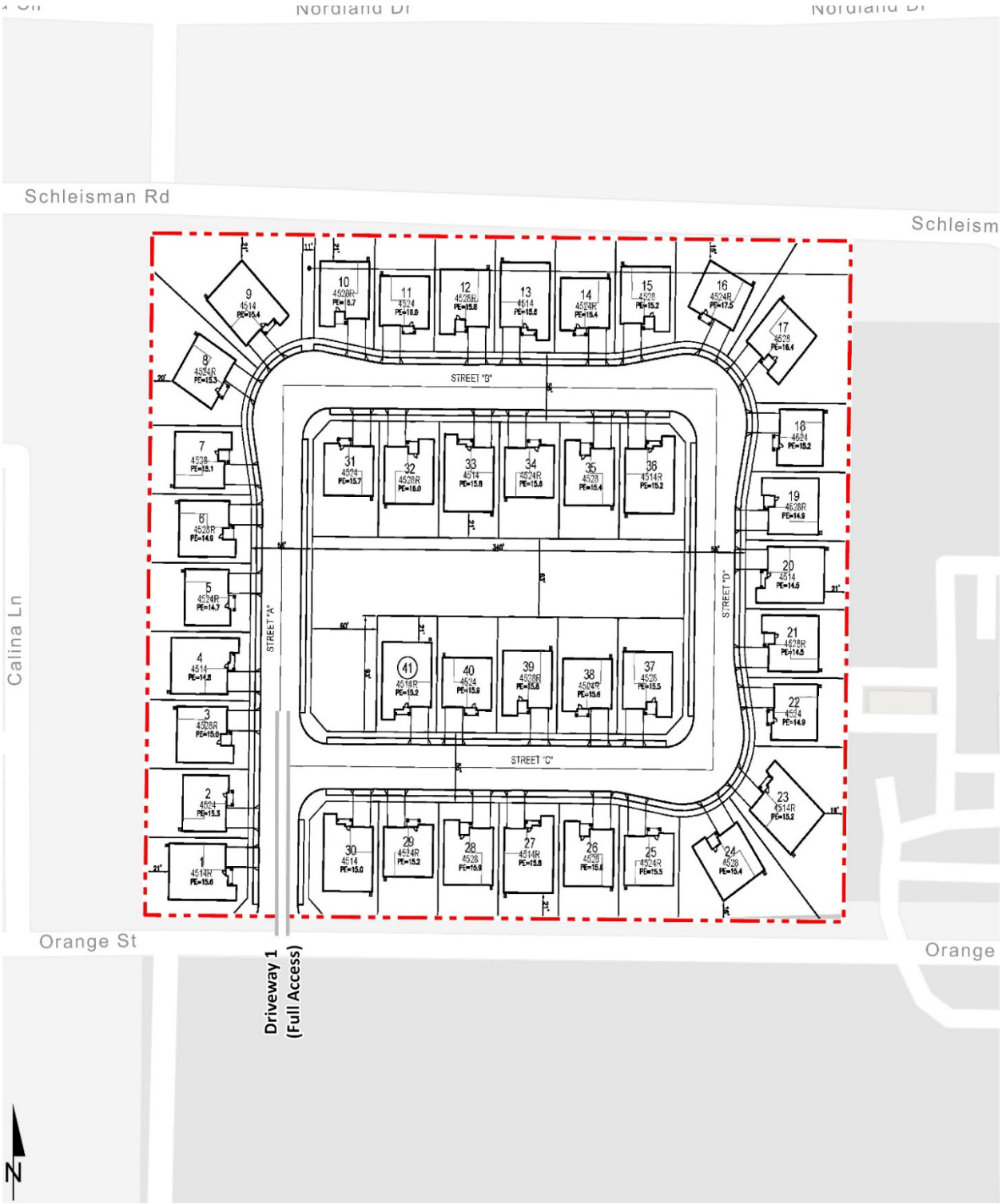
1.3.1 EXISTING (2021) CONDITIONS

Information for Existing (2021) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Due to the currently ongoing COVID-19 pandemic, the traffic counts utilized for the purposes of this analysis relied on both historic data and adjusted 2021 count data. Details on adjustments to the existing traffic counts are discussed in Section 3.5 *Existing (2021) Traffic Counts* of this TA.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The 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 deficiencies associated solely with the development of the proposed Project based on a comparison of the E+P traffic conditions to Existing (2021) conditions.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



1.3.3 OPENING YEAR CUMULATIVE CONDITIONS

The Opening Year Cumulative traffic conditions analysis determines 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 6.81 (for 2025 conditions – 1.6 percent per year compounded over 4 years) are included for Opening Year Cumulative traffic conditions. This list was compiled from information provided by the City of Eastvale.

1.3.4 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year Without Project conditions were derived from the Riverside Transportation Analysis Model (**RivTAM**) for study area intersections located in Riverside County. The Horizon Year conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Western Riverside Council of Governments Transportation Uniform Mitigation Fee (**TUMF**), City of Eastvale Development Impact Fee (**DIF**) programs, or other approved funding mechanism (e.g., Mira Loma Road and Bridge Benefit District (**RBBD**), etc.) can accommodate the long-range cumulative traffic at the target Level of Service (**LOS**) identified in the City of Eastvale (lead agency) General Plan. (3) Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF, non-DIF, or non-RBBD facilities) are identified as such.

1.4 STUDY AREA

To ensure that this TA 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 (see Appendix 1.1).

1.4.1 INTERSECTIONS

The following 8 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for this TA 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 deficient 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 analysis (i.e., study area).

EXHIBIT 1-3: STUDY AREA

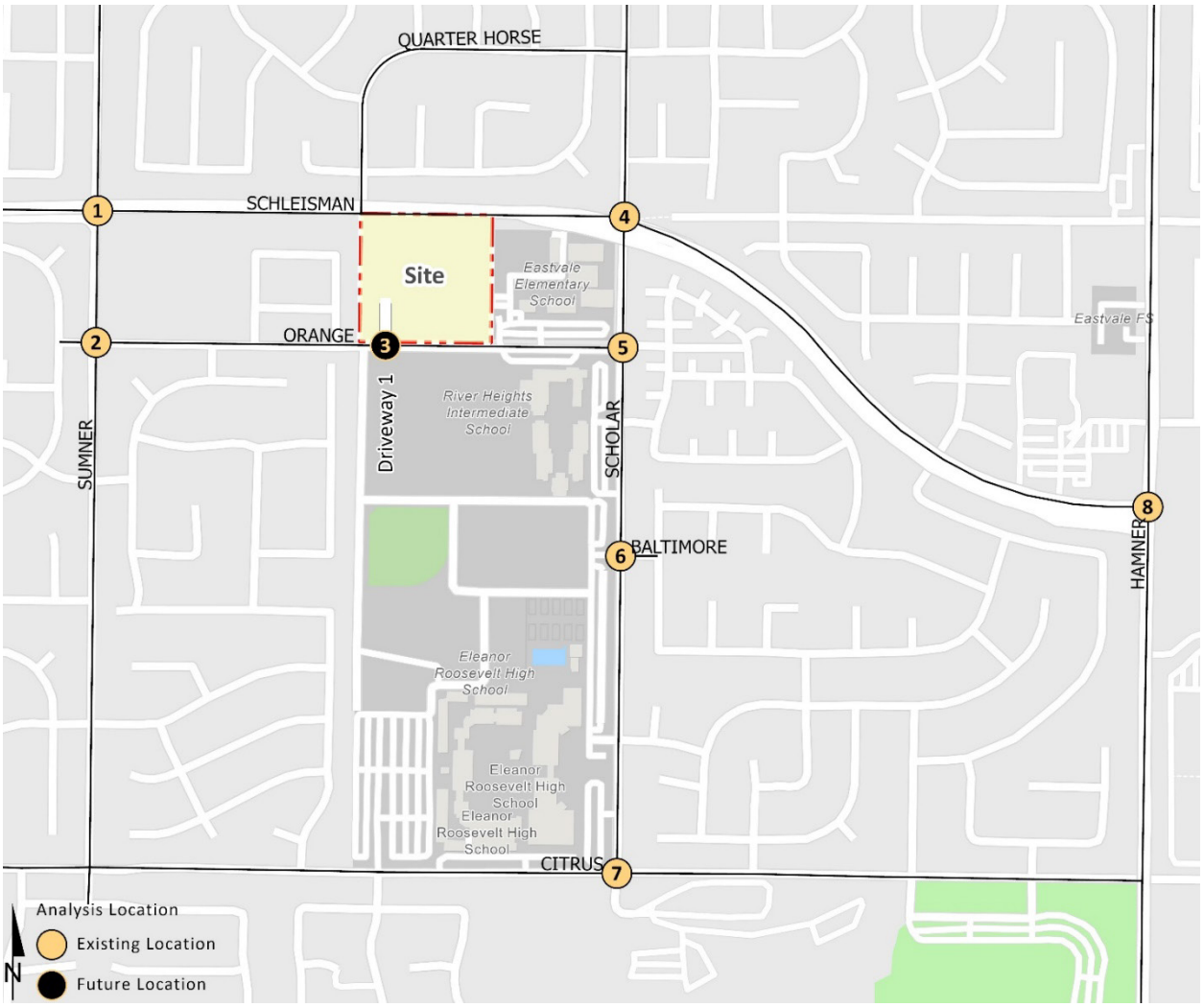


TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersection	Jurisdiction	CMP?
1	Sumner Av. & Schleisman Rd.	Eastvale	No
2	Sumner Av. & Orange St.	Eastvale	No
3	Driveway 1 & Orange St.	Eastvale	No
4	Scholar Wy. & Schleisman Rd.	Eastvale	No
5	Scholar Wy. & Orange St.	Eastvale	No
6	Scholar Wy. & Baltimore St.	Eastvale	No
7	Scholar Wy. & Citrus St.	Eastvale	No
8	Hamner Av. & Schleisman Rd.	Eastvale	No

The intent of a Congestion Management Program (**CMP**) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently updated in 2011. The Riverside County Transportation Commission (**RCTC**) adopted the 2011 CMP for the County of Riverside in December 2011. (4) No study area intersections are CMP intersections.

1.5 SENATE BILL 743 – VEHICLE MILES TRAVELED (VMT)

Senate Bill 743 (**SB 743**), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (**CEQA**). The Office of Planning and Research (**OPR**) has recommended the use of vehicle miles traveled (**VMT**) as the replacement for automobile delay-based LOS. In December 2018, the Natural Resources Agency finalized updates to CEQA Guidelines to incorporate SB 743 (i.e., VMT). The VMT thresholds and methodology outlined in the City's TA guidelines will be utilized to conduct the VMT analysis for the Project. The City's TA Guidelines provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed project level analysis. Based on our review of applicable VMT screening thresholds, the proposed Project meets the screening thresholds and would therefore be assumed to result in a less than significant VMT impact; no additional VMT analysis is required. The VMT screening thresholds are provided in Appendix 1.1.

1.6 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions*, Section 6 *Opening Year Cumulative (2025) Traffic Conditions*, and Section 7 *Horizon Year (2040) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-2.

TABLE 1-2: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing AM	Existing PM	E+P AM	E+P PM	2025 Without Project AM	2025 Without Project PM	2025 With Project AM	2025 With Project PM	2040 Without Project AM	2040 Without Project PM	2040 With Project AM	2040 With Project PM
1	Sumner Av. & Schleisman Rd.	F	E	F	E	F	E	F	E	F	F	F	F
2	Sumner Av. & Orange St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
3	Driveway 1 & Orange St.	N/A	N/A	A-D	A-D	N/A	N/A	A-D	A-D	N/A	N/A	A-D	A-D
4	Scholar Wy. & Schleisman Rd.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
5	Scholar Wy. & Orange St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
6	Scholar Wy. & Baltimore St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
7	Scholar Wy. & Citrus St.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D
8	Hamner Av. & Schleisman Rd.	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D	A-D

= A - D = E = F

1.6.1 EXISTING (2021) CONDITIONS

The following study area intersection is anticipated to operate at a deficient LOS during one or both peak hours for Existing traffic conditions:

- Sumner Av. & Schleisman Rd. (#1) – LOS F AM peak hour; LOS E PM peak hour

1.6.2 E+P CONDITIONS

The following study area intersection is anticipated continue to operate at a deficient LOS during one or both peak hours for E+P traffic conditions:

- Sumner Av. & Schleisman Rd. (#1) – LOS F AM peak hour; LOS E PM peak hour

1.6.3 OPENING YEAR CUMULATIVE (2025) CONDITIONS

The following study area intersection is anticipated to operate at a deficient LOS during one or both peak hours for Opening Year Cumulative (2025) Without Project traffic conditions:

- Sumner Av. & Schleisman Rd. (#1) – LOS F AM peak hour; LOS E PM peak hour

There are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic under Opening Year Cumulative (2025) With Project traffic conditions.

1.6.4 HORIZON YEAR (2040) CONDITIONS

The following study area intersection is anticipated to operate at a deficient LOS during one or both peak hours under Horizon Year (2040) Without Project traffic conditions:

- Sumner Av. & Schleisman Rd. (#1) – LOS F AM and PM peak hours

There are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic under Horizon Year (2040) With Project traffic conditions.

1.7 RECOMMENDATIONS

1.7.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

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

Recommendation 1 – Driveway 1 & Orange Street (#4) – The following improvements are necessary to accommodate site access:

- Project to install a stop control for the southbound exiting Project traffic with a shared left-right turn lane.
- Project to restripe the existing eastbound through lane to provide an eastbound shared left-through lane.

Recommendation 2 – **Orange Street** – Orange Street is an east-west oriented roadway located along the southern boundary of the Project. Project to construct Orange Street from the western Project boundary to the eastern Project boundary at its ultimate half-section width as a 2-lane Collector (ultimate 74-foot right-of-way) in compliance with the circulation recommendations found in the City of Eastvale's General Plan.

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.

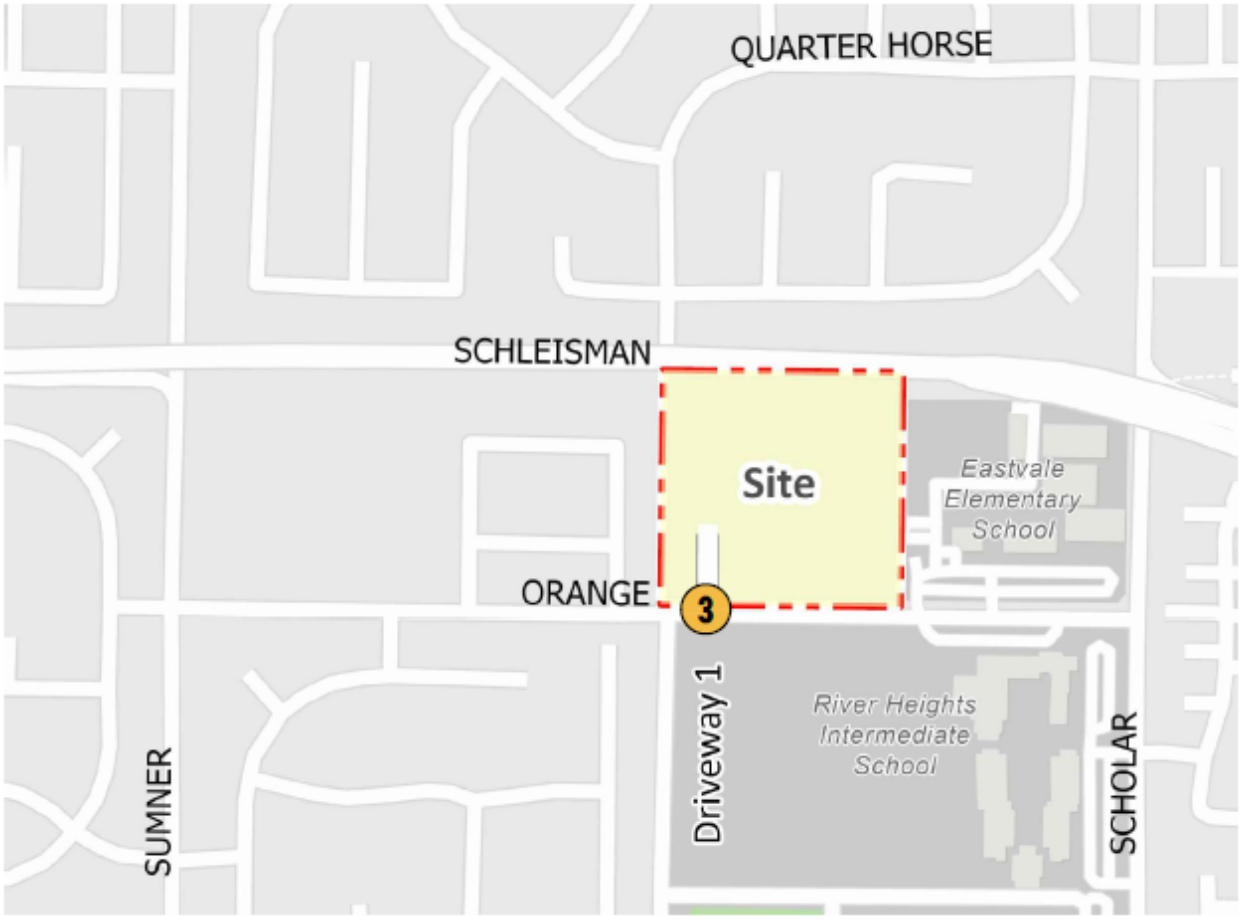
On-site traffic signing and striping should be implemented in compliance with the provisions of the California Department of Transportation (Caltrans) California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

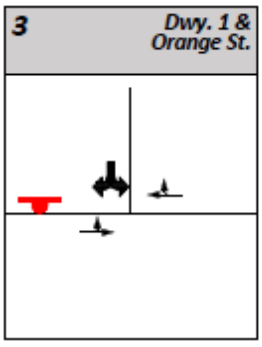
Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Eastvale sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

1.7.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the cumulative deficiencies identified under Existing (2021), E+P, Opening Year Cumulative (2025), and Horizon Year (2040) traffic conditions are shown in Table 1-3. For those improvements listed in Table 1-3 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fees or fair share that would be assigned to construction of the identified recommended improvements.

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS





= Stop Sign Improvement
= Existing Lane
= Lane Improvement

TABLE 1-3: SUMMARY OF IMPROVEMENTS AND ROUGH ORDER OF MAGNITUDE COSTS

#	Intersection	Jurisdiction	E+P	2025 With Project	Horizon Year (2040) With Project	Improvements in County DIF?[1]	Project Responsibility[2]	Total Cost[3,4]	Fair Share %[5]	Fair Share Cost[6]
1	Sumner Av. & Schleisman Rd.	Eastvale	Restripe the EB and WB lanes to accommodate 1 left turn lane and 1 shared through-right lane	Same	Same	No	Fair Share	$40,300	0.63%	$255
					Add 2nd NB through lane	No	Fair Share	$290,160		$1,838
					Add 2nd EB through lane	No	Fair Share	$290,160		$1,838
					Add 2nd WB through lane	No	Fair Share	$290,160		$1,838
					Add a WB left turn lane	No	Fair Share	$80,600		$511
							Total	$991,380		$6,280
							Total Costs for Horizon Year Improvements	**$991,380**		**$6,280**
							Total Project Fair Share Contribution to the City of Eastvale[7]			**$6,280**

[1] Improvements included in City of Eastvale DIF program for local and regional components.

[2] Identifies the Project's responsibility to construct an improvement or contribute fair share or fee payment towards the implementation of the improvement shown.

[3] Costs have been estimated using the data provided in Appendix "G" of the CMP for preliminary construction costs.

[4] Appendix "G" costs escalated by a factor of 1.612 except Traffic Signals.

[5] Program improvements constructed by project may be eligible for fee credit, at discretion of City. See Table 8-1 for Fair Share Calculations.

[6] Rough order of magnitude cost estimate.

[7] Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within the City of Eastvale.

1.8 QUEUING ANALYSIS

A queuing analysis was conducted along the site adjacent roadways of Orange Street, Schleisman Road, and at the Project driveways for Horizon Year (2040) traffic conditions to determine the turn pocket lengths and lane geometric necessary to accommodate long-term 95th percentile queues and recommend storage lengths for the turning movements shown on Exhibit 1-4. The analysis was conducted for the weekday AM and weekday PM peak hours using the SimTraffic modeling software. The Horizon Year (2040) queuing results are provided in Table 1-4 and Appendix 7.5 of this TA.

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 (Version 11) 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). The random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each turn lane. A SimTraffic simulation has been recorded 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 30-minute periods with 60-minute recording intervals.

As shown in Table 1-4, the available storage area would be able to accommodate Horizon Year (2040) With Project 95th percentile queues.

TABLE 1-4: QUEUING ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS

#	Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet) AM Peak Hour	95th Percentile Queue (Feet) PM Peak Hour	Acceptable? [1] AM	Acceptable? [1] PM
4	Driveway 1 & Orange St.	EBL/T	1,500	0	10	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 in this table, where applicable.

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. The Highway Capacity Manual (**HCM**) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Eastvale requires signalized intersection operations analysis based on the methodology described in the HCM. (5) Intersection LOS operations are based on an intersection's average control delay. Control delays include 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. A saturation flow rate of 1900 has been utilized for all study area intersections located within the County of Riverside. The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections within the City of Eastvale.

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. New intersections utilize a PHF of 0.92. 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. (5)

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

Source: HCM, 6th Edition

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

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Eastvale requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. The worst delay and associated LOS for a controlled movement is utilized for the overall intersection delay and LOS for two-way stop-controlled intersections. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

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

Source: HCM, 6th Edition

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

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA update uses the signal warrant criteria presented in the latest edition of the Caltrans' California Manual on Uniform Traffic Control Devices (**CA MUTCD**), for all applicable study area intersections. (6) As shown in Table 2-3, traffic signal warrant analyses were performed for the following unsignalized study area intersection based on the average daily traffic (Figure 4C-103 (CA) of the CA MUTCD): (6)

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

#	Intersection	Jurisdiction
3	Driveway 1 & Orange St.	Eastvale

The traffic signal warrant analyses are presented in Section 5 *E+P Traffic Conditions*, Section 6 *Opening Year Cumulative (2025) Traffic Conditions*, and Section 7 *Horizon Year (2040) Traffic Conditions* of this report. It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

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.

2.5 DEFICIENCY CRITERIA

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

For the study area intersections that lie within the City of Eastvale, Project related deficiencies 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 2.5 seconds.

Based on discussions with City staff, when the pre-Project condition is already below LOS D (i.e., unacceptable LOS), the Project will be responsible for improving its deficiencies to a level of service equal to or better than it was under pre-project traffic conditions for intersections that receive 50 or more project-related peak hour trips. This is a standard protocol in many urban jurisdictions to meet the circulation policies outlined in the respective General Plans. Thus, for intersections currently operating at unacceptable LOS during either the AM and/or PM peak hour under Without Project traffic conditions, improvements have been identified to bring the project's effect to a deficient intersection LOS that is equal to or better than pre-Project conditions.

Cumulative traffic deficiencies are created as a result of a combination of the proposed Project together with other future developments contributing to the overall traffic deficiencies requiring additional improvements to maintain acceptable level of service operations with or without the Project. A project's contribution to a cumulative deficiency can be improved if the project is required to implement or fund its fair share of improvements designed to alleviate its contribution to the deficiency. A deficiency has been deemed cumulatively considerable if the project contributes 50 or more peak hour trips.

2.6 PROJECT FAIR SHARE CALCULATION METHODOLOGY

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

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

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 and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Eastvale staff (Appendix 1.1), the study area includes a total of 8 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 roadways that are classified as 6-lane Urban Arterials are identified as having three lanes of travel in each direction. The following study area roadways within the City of Eastvale are classified as 6-lane Urban Arterials:

- Schleisman Road
- Hamner Avenue

The study area roadway that is classified as a 2-lane Major Collector is identified as having one lane of travel in each direction. The following study area roadway is classified as a 2-lane Major Collector:

- Sumner Avenue

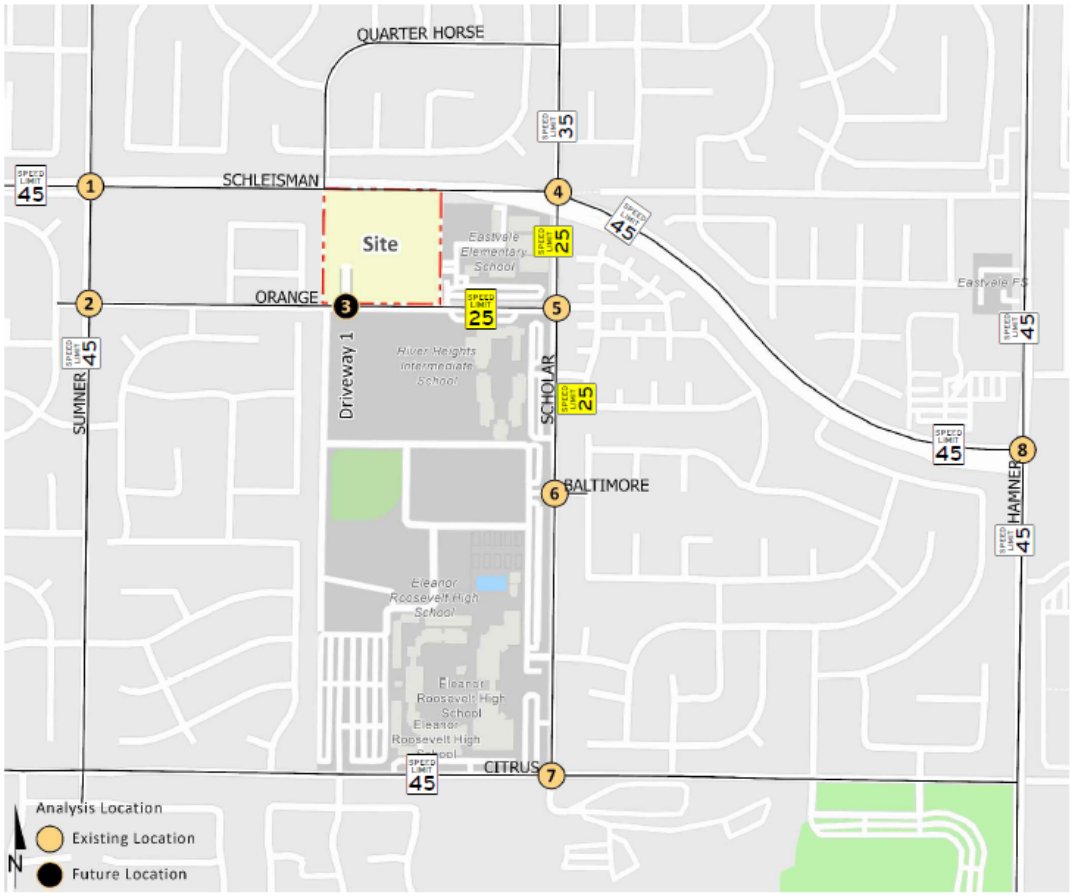
The study area roadways that are classified as 2-lane Secondary Collectors are identified as having one lane of travel in each direction. The following study area roadways are classified as Secondary Collectors:

- Scholar Way
- Citrus Street

The study area roadway that is classified as a 2-lane Local Road is identified as having one lane of travel in each direction. The following study area roadways are classified as Local Roads:

- Orange Street

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



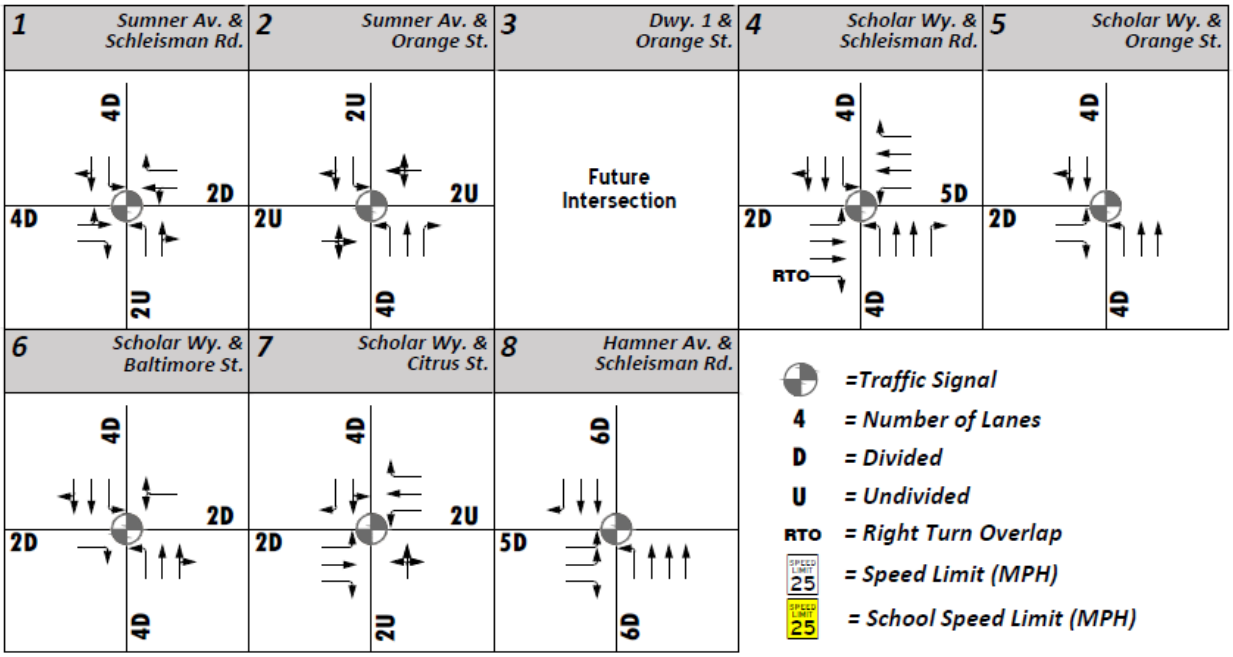


EXHIBIT 3-2: CITY OF EASTVALE GENERAL PLAN CIRCULATION ELEMENT

CHAPTER 4:
CIRCULATION AND INFRASTRUCTURE

CITY OF EASTVALE

FIGURE C-1: CIRCULATION PLAN

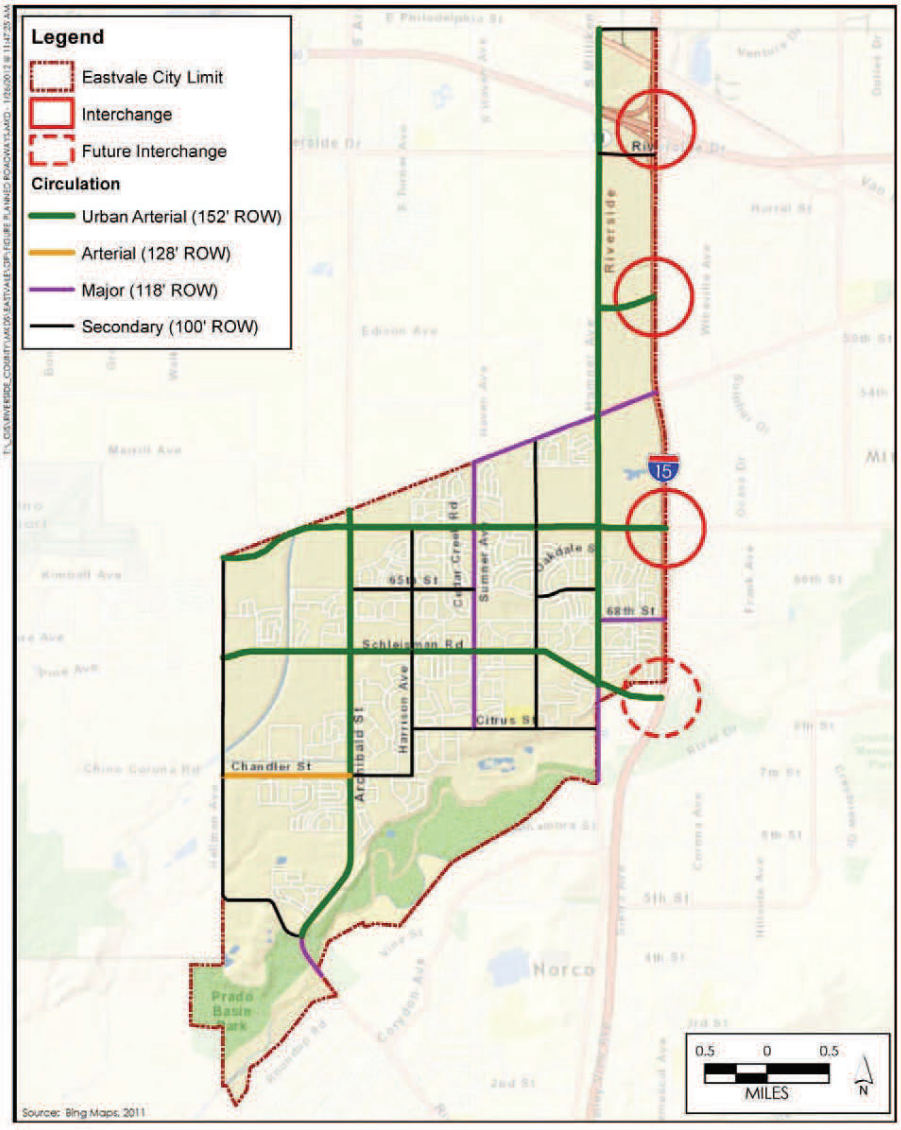
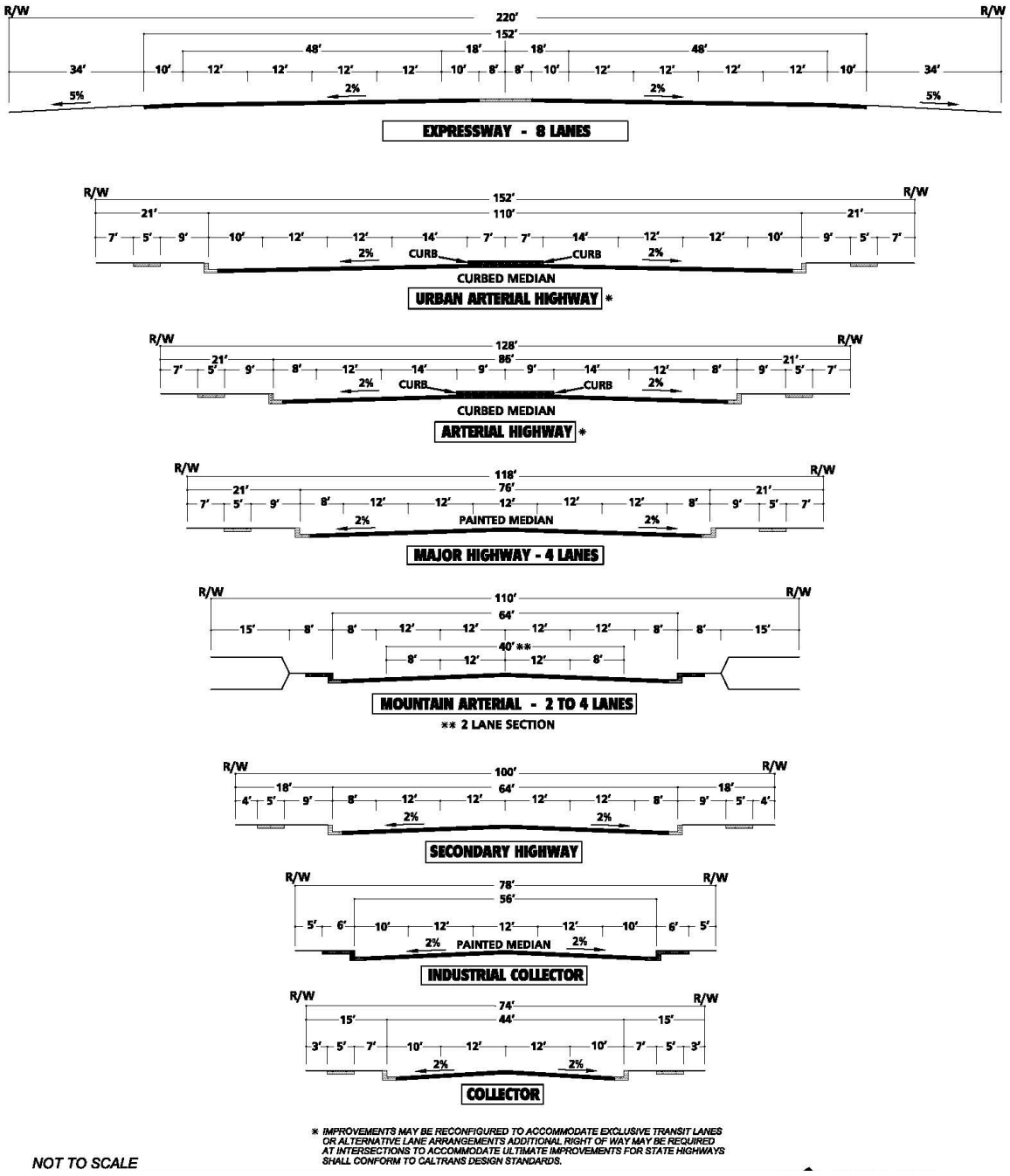


EXHIBIT 3-3: CITY OF EASTVALE GENERAL PLAN ROADWAY CROSS-SECTIONS



3.3 BICYCLE & PEDESTRIAN FACILITIES

Exhibit 3-4 illustrates the City of Eastvale current and future trails and bikeway systems which proposes off-street Class I multi-use trails along Schleisman Road. On-street Class II bike lanes are also proposed along Orange Street near the vicinity of the site. Existing pedestrian facilities within the study area are shown on Exhibit 3-5.

3.4 TRANSIT SERVICE

The Riverside Transit Authority (**RTA**) serves the City of Eastvale. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Based on a review of the existing transit routes within the vicinity of the proposed Project, RTA Route 3 currently operates on 68th Street, Sumner Avenue, and Citrus Street. Existing transit routes in the vicinity of the study area are illustrated on Exhibit 3-6. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.5 EXISTING (2021) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in October 2016, February 2018, January 2019, and January 2021. 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)

Due to the currently ongoing COVID-19 pandemic, schools and businesses within the study area were closed or operating at less than full capacity at the time this study was prepared. As such, historic traffic counts were utilized in conjunction with a 1.6% compounded growth rate per year (compounded annually) to reflect 2021 conditions. The comparison of historical counts and adjustment factor calculation are included in Appendix 3.1. The historical 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.

Historic traffic counts were not available for the intersections of Scholar Way & Orange Street, Scholar Way & Baltimore Street, and Scholar Way & Citrus Street. As such, new traffic counts were conducted in August 2021. August 2021 traffic counts were also conducted at the intersection of Hamner Avenue & Schleisman Road in order to determine an adjustment factor between the adjusted historic count data (to 2021) and the August 2021 traffic count for this location. This adjustment factor was then applied to August 2021 counts to determine the adjusted 2021 baseline to be used for the operations analysis. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. Existing weekday ADT volumes are shown on Exhibit 3-7. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 14.88 = Leg Volume

EXHIBIT 3-4: EASTVALE AREA TRAILS AND BIKEWAY SYSTEM

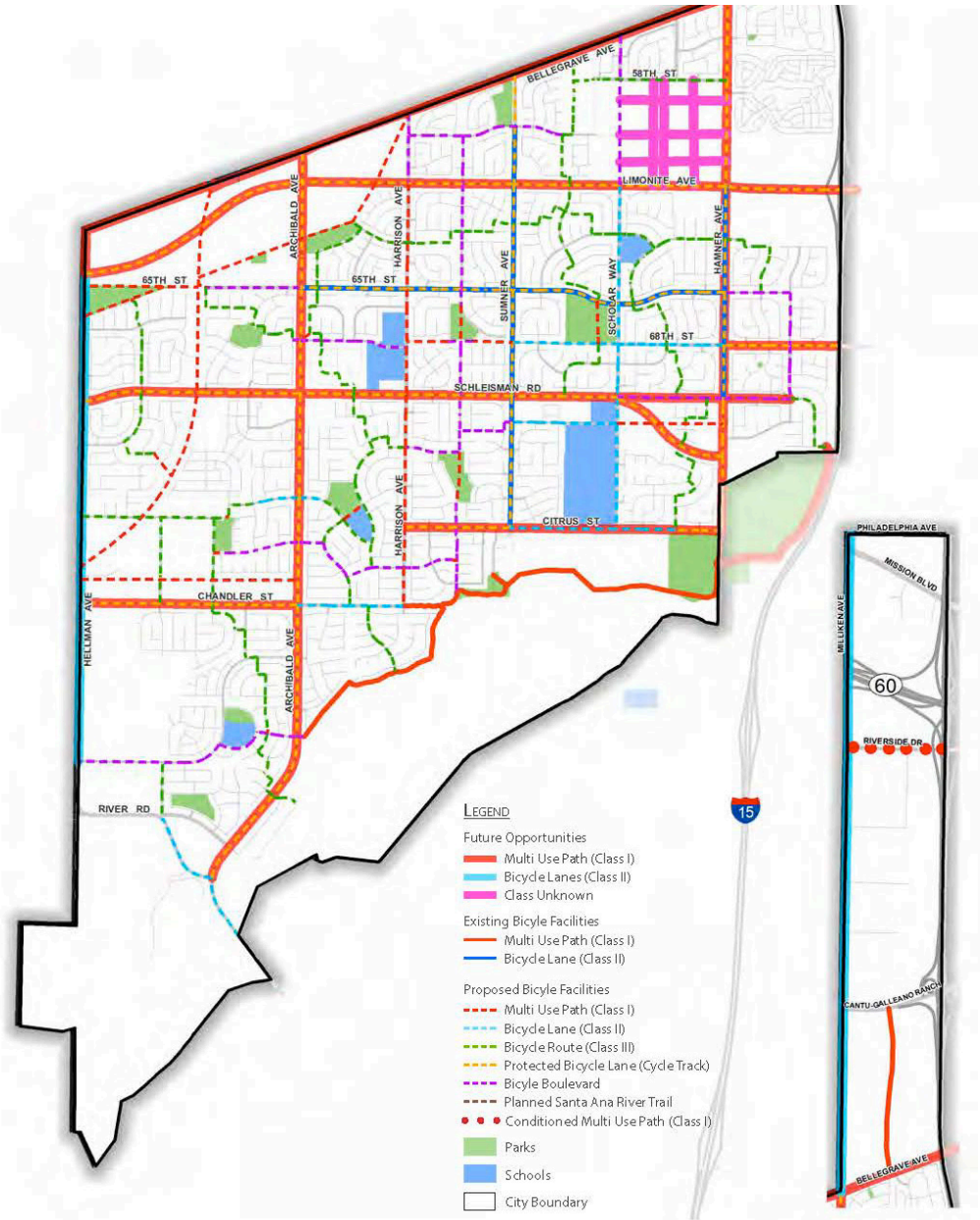


EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES

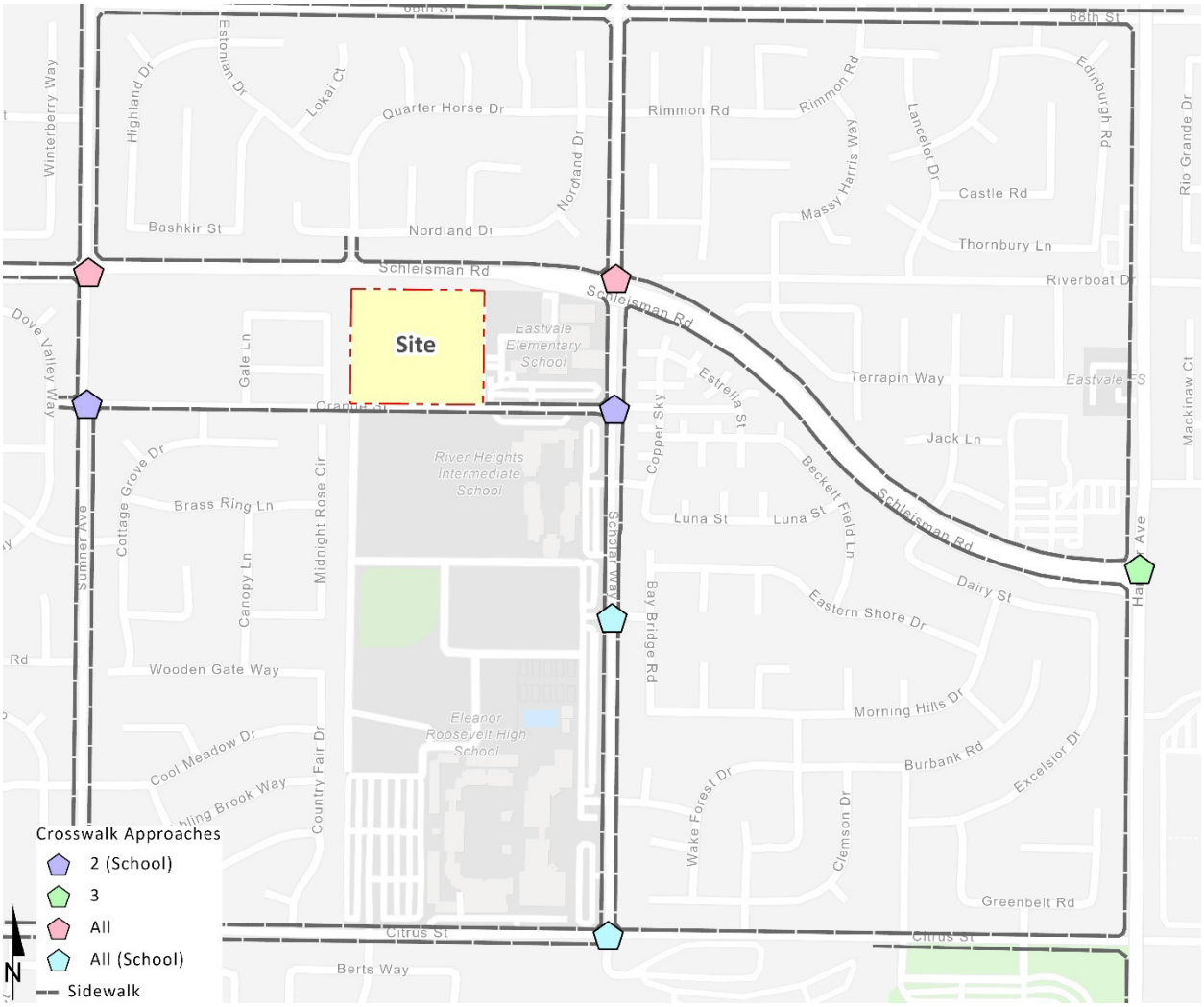


EXHIBIT 3-6: EXISTING TRANSIT ROUTES

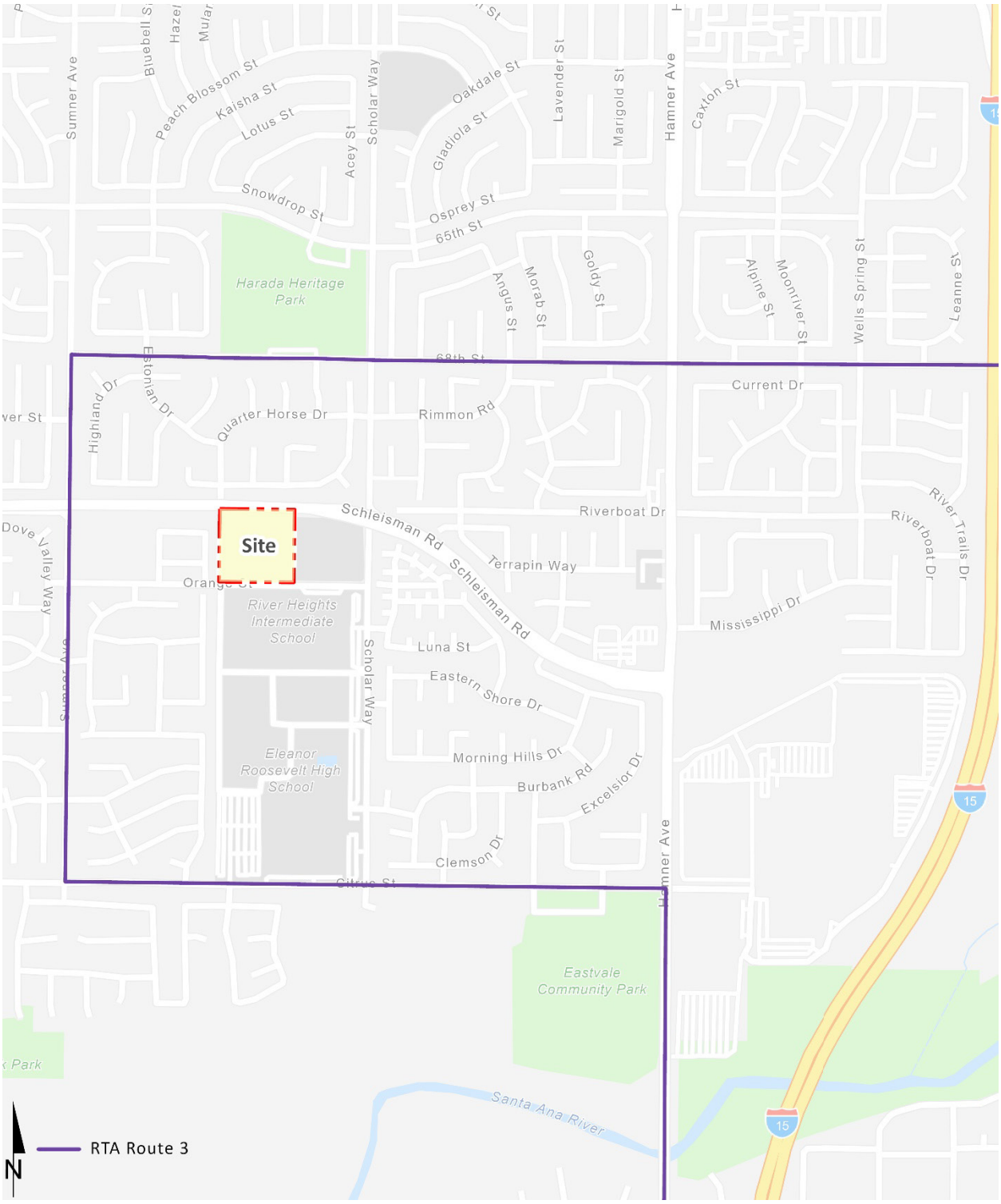


EXHIBIT 3-7: EXISTING (2021) TRAFFIC VOLUMES

1 Sumner Av. & Schleisman Rd.

10,950 — 9,600

162(177) ↲	250(223) ←	104(31) ↳
181(229) ↳		↱ 66(39)
256(347) →		← 378(288)
302(291) ↲		↰ 13(13)
↰ 155(60)	↑ 349(129)	↱ 14(9)

18,400 — 9,600

2 Sumner Av. & Orange St.

9,600 — 1,100

15(24) ↲	519(451) ←	31(52) ↳
46(14) ↳		↱ 28(13)
6(3) →		← 0(4)
0(1) ↲		↰ 6(1)
↰ 0(1)	↑ 444(171)	↱ 6(9)

600 — 8,400

3 Orange St. & Driveway 1

Future Intersection

4 Scholar Wy. & Schleisman Rd.

7,450 — 8,550

23(34) ↲	605(221) ←	25(16) ↳
31(94) ↳		↱ 122(41)
334(296) →		← 300(217)
136(28) ↲		↰ 205(39)
↰ 133(42)	↑ 450(157)	↱ 147(38)

9,400 — 6,950

5 Scholar Wy. & Orange St.

6,950

267(30) ↲	679(258) ←	
126(54) ↳		
245(81) ↲		
↰ 153(21)	↑ 600(183)	

2,450 — 7,200

6 Scholar Wy. & Baltimore St.

8,400 — 1,200

344(240) ↲	501(156) ←	82(28) ↳
		↱ 154(30)
383(162) ↲		← 29(8)
		↰ 19(8)
↰ 132(68)	↑ 596(181)	↱ 21(17)

6,300 — 7,850

7 Scholar Wy. & Citrus St.

9,000 — 16,200

439(240) ↲	2(2) ←	339(162) ↳
303(169) ↳		↱ 277(106)
408(580) →		← 308(365)
29(7) ↲		↰ 10(6)
↰ 20(6)	↑ 4(1)	↱ 20(5)

18,100 — 350

8 Hamner Av. & Schleisman Rd.

24,600

491(180) ↲	593(687) ←	1(1) ↳
376(182) ↳		
199(111) ↲		
↰ 172(254)	↑ 603(811)	

9,600 — 24,650

##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.56 percent. As such, the above equation utilizing a factor of 14.88 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.56 percent (i.e., 1/0.0756 = 14.88) 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 are also shown on Exhibit 3-7.

3.6 EXISTING (2021) TRAFFIC SPEED SURVEY

Count and speed data collection devices were placed along Orange Street, adjacent to the Project site. Existing traffic speed data by direction was collected, for 48 hours beginning on August 31, 2021, and ending on September 1, 2021.

The speed survey for Orange Street indicates that the vehicle pace speed is within the 31-40 MPH range with an 85th percentile speed of 39 MPH. The speed survey results on Orange Street indicate that vehicles are travelling above the 25 MPH speed limit. Approximately 60% of vehicles in the 48-hour survey exceeded the 25 MPH posted speed limit. The raw data is included in Appendix 3.2 of this TA.

3.7 EXISTING (2021) INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that the following study area intersection operating at an unacceptable LOS under Existing (2021) traffic conditions:

- Sumner Av. & Schleisman Rd. (#1) – LOS F AM peak hour; LOS E PM peak hour

The intersection operations analysis worksheets are included in Appendix 3.3 of this TA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2021) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM
1	Sumner Av. & Schleisman Rd.	TS	**111.2**	**58.6**	**F**	**E**
2	Sumner Av. & Orange St.	TS	8.6	8.5	A	A
3	Driveway 1 & Orange St.		Future Intersection			
4	Scholar Wy. & Schleisman Rd.	TS	23.1	17.6	C	B
5	Scholar Wy. & Orange St.	TS	3.6	6.4	A	A
6	Scholar Wy. & Baltimore St.	TS	21.0	10.8	C	B
7	Scholar Wy. & Citrus St.	TS	40.1	18.8	D	B
8	Hamner Av. & Schleisman Rd.	TS	14.6	11.9	B	B

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

1 CSS = Cross-street Stop; TS = Traffic Signal

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

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

All of the study area intersections are currently signalized. As such, no traffic signal warrants have bene evaluated for Existing traffic conditions.

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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 up to 41 single family detached residential units.

Regional access to the Project site is available from the I-15 Freeway at Limonite Avenue interchange. The Project is bounded by Schleisman Road to the north and Orange Street to the south in the City of Eastvale. Vehicular traffic access will be provided via the following driveway:

- Driveway 1 via Orange Street – Full access

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 represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. The Single Family Detached Residential (ITE Land Use Code 210) trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (**ITE**) as provided in their Trip Generation Manual (11th Edition, 2017). (2) Trip generation rates used to estimate Project traffic are shown in Table 4-1.

The resulting trip generation for the proposed Project is also shown in Table 4-1. As shown in Table 4-1, the proposed Project is anticipated to generate a total of 388 vehicle trip-ends per day with 28 AM peak hour trips and 38 PM peak hour trips.

TABLE 4-1: PROJECT TRIP GENERATION SUMMARY

	ITE		AM Peak Hour			PM Peak Hour			
Land Use	Code	Units[2]	In	Out	Total	In	Out	Total	Daily
Trip Generation Rates[1]									
Single Family Detached Residential	210	DU	0.18	0.52	0.70	0.59	0.35	0.94	9.43

			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[2]	In	Out	Total	In	Out	Total	Daily
Trip Generation Summary									
Single Family Detached Residential	41	DU	7	21	28	24	14	38	388

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] DU = Dwelling Units

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. Exhibit 4-1 illustrates the Project trip distribution patterns.

4.3 MODAL SPLIT

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

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-2.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION

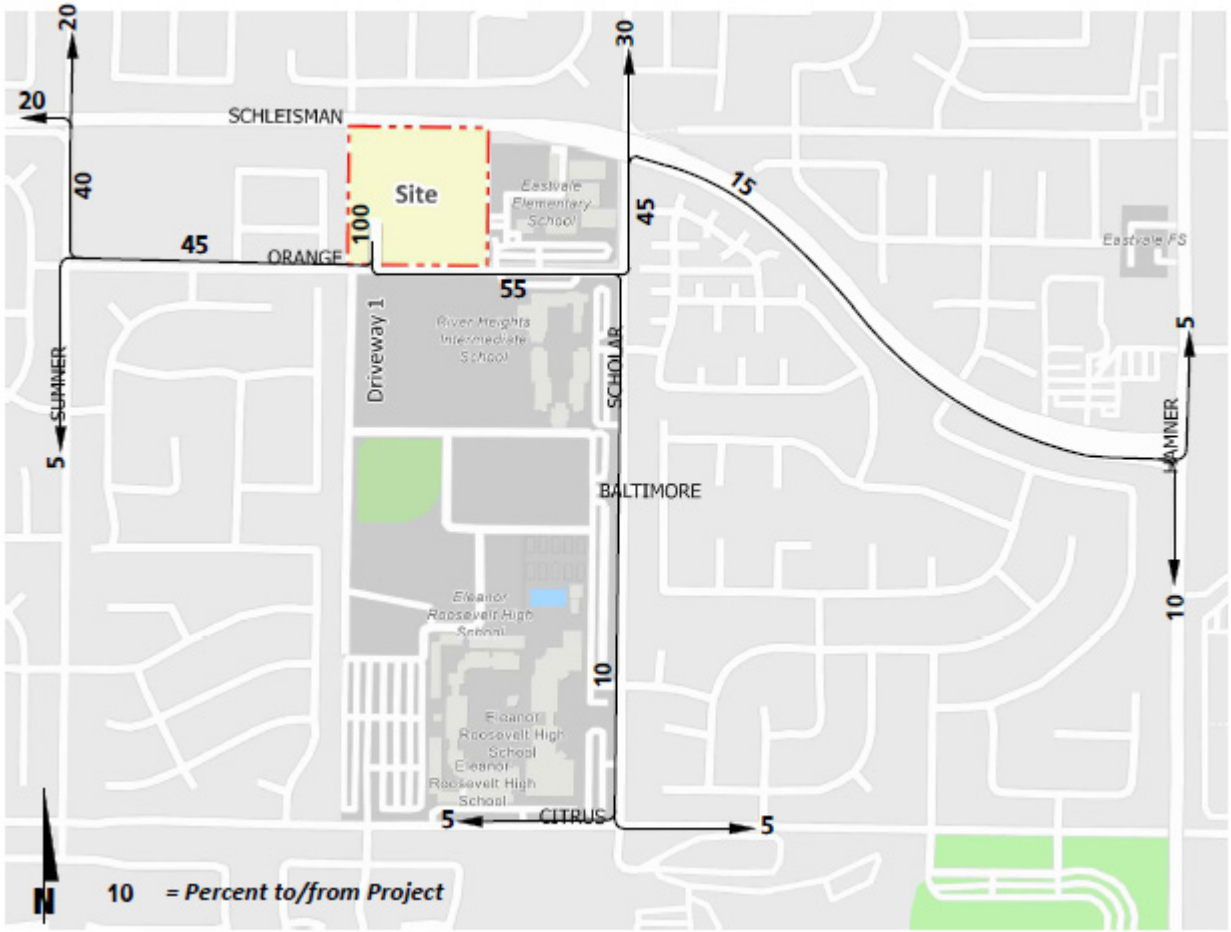

EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES

1 Sumner Av. & Schleisman Rd.	2 Sumner Av. & Orange St.	3 Orange St. & Driveway 1	4 Scholar Wy. & Schleisman Rd.
100 ← 1(5) 1(5) ↵ 4(3) ↰ 4(3) ↑ *100* *150*	*150* 3(10) ↳ ↱ 8(6) ↰ 1(1) 0(1) ↱ *200*	*400* 9(6) ↵ 12(8) ↳ 3(11) ↳ ↱ 4(13) *150* *200*	*100* ← 2(7) ↰ 1(4) 6(4) → 3(2) ↱ *150* *Nominal*

5 Scholar Wy. & Orange St.	6 Scholar Wy. & Baltimore St.	7 Scholar Wy. & Citrus St.	8 Hamner Av. & Schleisman Rd.
150 ↵ 3(11) 9(6) ↳ 2(1) ↵ ↰ 1(2) *200* *Nominal*	*Nominal* ← 2(1) 1(2) → ↱ *Nominal*	*Nominal* ↵ 1(1) ↳ 1(1) 0(1) ↳ ↱ 0(1)	↵ 0(1) 1(1) ↳ 2(1) ↵ ↰ 1(2) *Nominal* *Nominal*

##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

4.5 BACKGROUND TRAFFIC

4.5.1 OPENING YEAR CUMULATIVE CONDITIONS

Future year traffic forecasts have been based upon background (ambient) growth at 1.6% per year for 2025 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. The total ambient growth factor is 6.81 for 2025 traffic conditions (growth of 1.6 percent per year compounded over 4 years). This ambient growth rate is applied to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth traffic volumes have 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 (2025) traffic volumes are provided in Section 6 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 2025.

4.5.2 HORIZON YEAR CONDITIONS

Horizon Year conditions represent the General Plan Buildout of the City of Eastvale and is based on the Riverside County Transportation Analysis Model (**RivTAM**) (see Section 4.7 *Horizon Year Volume Development* for additional discussion). The adopted Southern California Association of Governments (**SCAG**) 2020 Regional Transportation Plan/Sustainable Communities Strategy (**RTP/SCS**) (adopted September 2020) growth forecasts for the City of Eastvale identifies projected growth in population of 63,900 in 2016 to 72,700 in 2045, or a 13.77% increase over the 29-year period. (7) The change in population equates to roughly a 0.45% growth rate, compounded annually. Similarly, growth over the same 29-year period in households is projected to increase by 13.50%, or a 0.44% annual growth rate. Finally, growth in employment over the same 29-year period is projected to increase by 191.89%, or a 3.76% annual growth rate.

Based on a comparison of Existing (2021) traffic volumes to the Horizon Year forecasts, the average growth rate is estimated at approximately 2.46%, compounded annually between Existing (2021) and 2040 traffic conditions. The annual growth rate at each individual intersection is not lower than 0.62% compounded annually to as high as 6.55% compounded annually over the same time period.

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 and Horizon Year traffic conditions, especially when considered along with the addition of project-related traffic. As such, the growth in traffic volumes assumed in this traffic analysis would tend to overstate as opposed to understating the potential deficiencies to traffic and circulation.

EXHIBIT 4-3: CUMULATIVE DEVELOPMENT LOCATION MAP

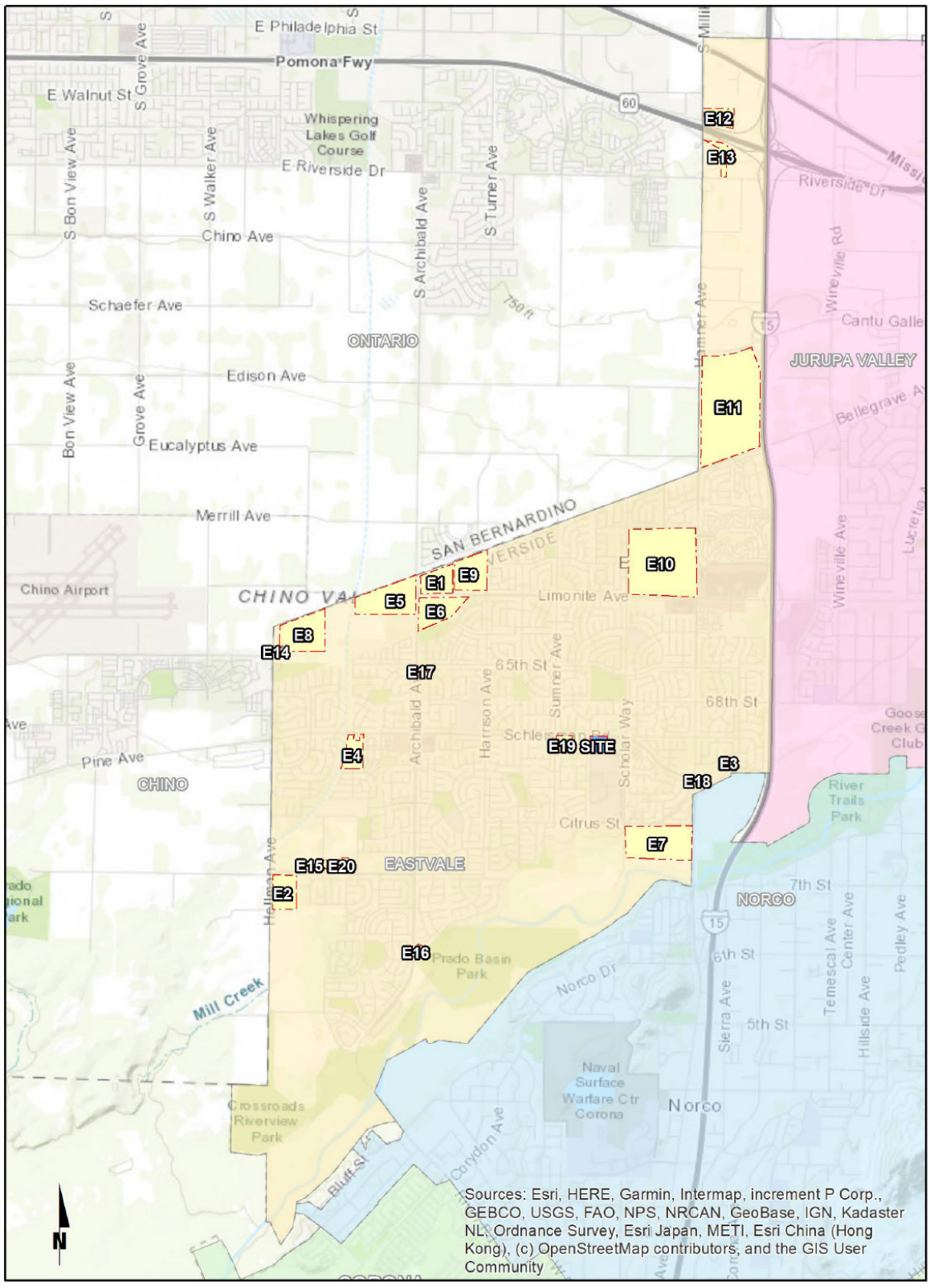

EXHIBIT 4-4: CUMULATIVE ONLY TRAFFIC VOLUMES

1 Sumner Av. & Schleisman Rd.

1,100 | 2,650
- 1(1) ↲ 35(25) ← 8(12) ↳
- 7(12) ↰ 47(92) ← 16(12) ↑
- 1(1) ↳ 78(97) → 21(4) ↲
- 35(12) ↱ 37(19) → 21(14) ↱

2,550 | 1,850

2 Sumner Av. & Orange St.

1,250 | 650
- 20(19) ← 65(28) ↳
- 89(46) →

650 | 600

3 Orange St. & Driveway 1

650 | 650

650 | 650

4 Scholar Wy. & Schleisman Rd.

750 | 2,850
- 10(1) ↲ 7(23) ← 13(10) ↳
- 6(12) ↰ 68(112) ← 6(10) ↑
- 6(1) ↳ 100(95) → 11(18) ↲
- 16(15) ↱ 20(13) → 12(9) ↱

2,850 | 950

5 Scholar Wy. & Orange St.

950 | 950
- 24(51) ←
- 48(37) →

650 | 950

6 Scholar Wy. & Baltimore St.

950 | 950
- 24(51) ←
- 48(37) →

950 | 950

7 Scholar Wy. & Citrus St.

100 | 400
- 24(51) ↲
- 28(27) ↱
- 20(10) ↳

400 | 950

8 Hamner Av. & Schleisman Rd.

9,850 | 9,050
- 40(51) ↲ 26(145) ↳
- 117(160) ↰ 20(54) ← 169(171) ↑
- 26(8) ↳ 49(40) → 50(66) ↲
- 20(30) ↱ 208(133) ↱

2,850 | 9,150

##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

TABLE 4-2: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

#	Project/Location	Land Use[1]	Quantity	Units[2]
E1	The Merge	Warehousing	336.501	TSF
		Shopping Center	4.750	TSF
		Supermarket	30.000	TSF
		Gas Station w/ convenience store	16	VFP
		Pharmacy/Drugstore with Drive-Thru	14.600	TSF
		Fast-Food with Drive-Thru	6.000	TSF
		Automated Car Wash	4.000	TSF
		Fast-Food Without Drive-Thru	7.750	TSF
		Coffee/Donut Shop With Drive-Thru	2.500	TSF
E2	TR29997	SFDR	122	DU
E3	Hamner Place	Hotel	120	RM
		Civic Center	50.000	TSF
		Shopping Center	33	TSF
E4	TR35751	Condo/Townhouse	243	DU
E5	PP23219 (PM35865) (50% complete)	General Light Industrial	738.430	TSF
E6	Eastvale Shopping Center	Free-Standing Discount Superstore	192.000	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	Van Leeuwen	Senior Housing	224	DU
E8	SP00358 - The Ranch at Eastvale	Shopping Center	267.200	TSF
		General Light Industrial	801.500	TSF
		Business Park	801.500	TSF
E9	SC Limonite, LLC	SFDR	330.000	TSF
E10	Leal Master Plan	Lifestyle Center (Commercial)	1,300.000	TSF
		General Commercial	225.000	TSF
		Office	920.000	TSF
		Hotel	450	RM
		High Density Residential	500-660	DU
E11	Eastvale Goodman Center	Shopping Center	677.000	TSF
		Supermarket	35.000	TSF
		Food Hall	16.500	TSF
E12	S. Milliken Warehouse	High-Cube Warehouse	280.000	TSF
E13	15-1508 - Industrial Warehouse	Warehousing	155.000	TSF
E14	Beyond Mart Development	Gas Station w/ convenience store and car wash	20.000	VFP
E15	PLN19-20047	Self-Storage	158.000	TSF
E16	Vantage Point Church	Church	10.000	AC
E17	Campus at Eastvale	Warehousing	733.688	TSF
		Gas Station w/ convenience stor and car wash	16	VFP
		Self-Storage	152.268	TSF
E18	PLN18-20037	Shopping Center	19.104	TSF
E-19	Sumner Place	Multifamily Housing (Low-Rise)	22	DU
		Multifamily Housing (Mid-Rise)	194	DU
		Retail	2.500	TSF
		Fast-Food without Drive-Thru	2.500	TSF
E 20	Gossett Self-Storage	Office	158.267	TSF
		Storage	950	Units

[1] SFDR = Single Family Detached Residential

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

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 forecasts. Horizon Year turning volumes were compared to Opening Year Cumulative (2025) 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 (2025) and Horizon Year traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2021) and Opening Year Cumulative (2025) 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 peak hour forecasts.

The future Horizon Year 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 in order 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.

RivTAM does not include a truck component or has 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 (2025) traffic forecasts. Post-processing worksheets for Horizon Year 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 and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

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

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

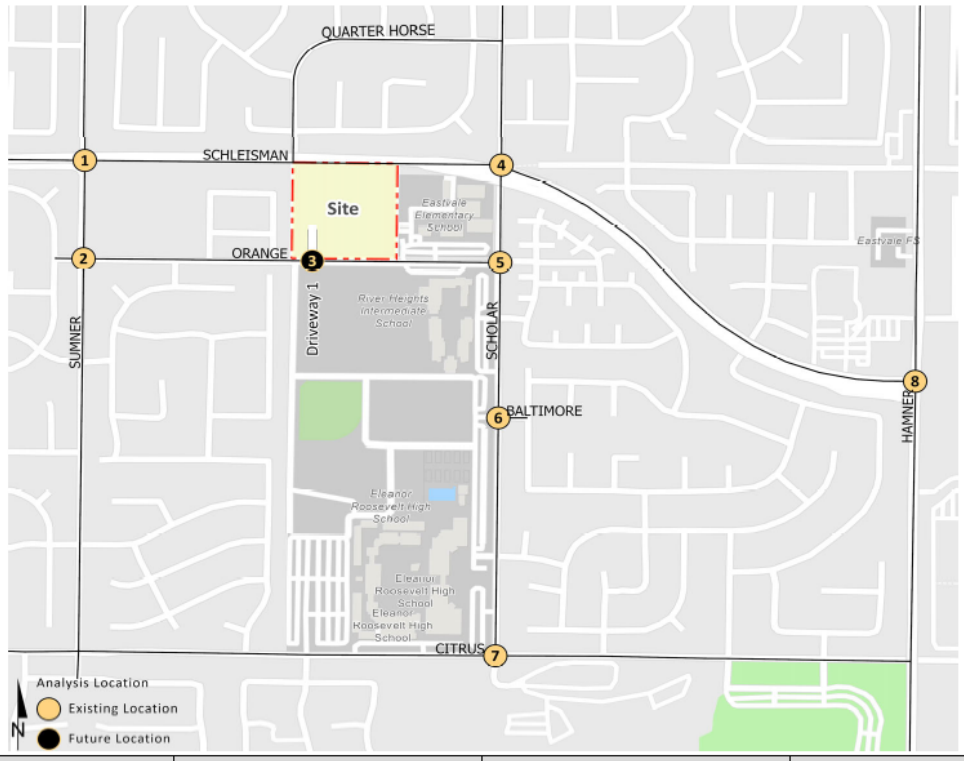
5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The ADT volumes and weekday AM and PM peak hour intersection turning movement volumes which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

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 TA. The intersection analysis results are summarized in Table 5-1, which indicates no additional intersections are anticipated to operate at an unacceptable LOS with addition of Project traffic, consistent with Existing (2021) traffic conditions. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TA.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



1 Sumner Av. & Schleisman Rd.

11,050 | 162(177) ↲ 251(228) ↓ 104(31) ↳ | *9,600* | 66(39) ↱ 378(288) ← 13(13) ↰
181(229) → | 159(63) ↰ 353(132) ↑ 14(9) ↱
256(347) → |
303(296) ↳ | *9,750*
18,500

2 Sumner Av. & Orange St.

9,750 | 15(24) ↲ 519(451) ↓ 34(62) ↳ | *1,250* | 36(19) ↱ 0(4) ← 7(2) ↰
46(14) → | 0(1) ↰ 444(171) ↑ 6(10) ↱
6(3) →
0(1) ↳ | *8,400*
600

3 Orange St. & Driveway 1

400 | 9(6) ↲ 12(8) ↳ | *1,300* | 4(13) ↱ 34(18) ←
3(11) → |
43(64) → |
1,250

4 Scholar Wy. & Schleisman Rd.

7,550 | 23(34) ↲ 607(228) ↓ 25(16) ↳ | *8,600* | 122(41) ↱ 300(217) ← 206(43) ↰
31(94) → | 133(42) ↰ 456(161) ↑ 150(40) ↱
334(296) →
136(28) ↳ | *7,100*
9,400

5 Scholar Wy. & Orange St.

7,100 | 270(41) ↲ 679(258) ↓ |
135(60) → | 154(23) ↰ 600(183) ↑
247(82) ↳ | *7,200*
2,650

6 Scholar Wy. & Baltimore St.

8,450 | 344(240) ↲ 503(157) ↓ 82(28) ↳ | *1,200* | 154(30) ↱ 29(8) ← 19(8) ↰
383(162) ↳ | 132(68) ↰ 597(183) ↑ 21(17) ↱ | *7,850*
6,300

7 Scholar Wy. & Citrus St.

9,050 | 440(241) ↲ 2(2) ↓ 340(163) ↳ | *16,200* | 277(107) ↱ 308(365) ← 10(6) ↰
303(170) → | 20(6) ↰ 4(1) ↑ 20(5) ↱
408(580) →
29(7) ↳ | *350*
18,100

8 Hamner Av. & Schleisman Rd.

24,650 | 491(181) ↲ 593(687) ↓ 1(1) ↳ |
377(183) → | 173(256) ↰ 603(811) ↑
201(112) ↳ | *24,700*
9,700

##(##) AM(PM) Peak Hour Intersection Volumes
*## **Average Daily Trips***

TABLE 5-1: INTERSECTION ANALYSIS FOR E+P CONDITIONS

#	Intersection	Traffic Control[2]	Existing (2021) Delay[1] (secs.) AM	Existing (2021) Delay[1] (secs.) PM	Existing (2021) Level of Service AM	Existing (2021) Level of Service PM	E+P Delay[1] (secs.) AM	E+P Delay[1] (secs.) PM	E+P Level of Service AM	E+P Level of Service PM
1	Sumner Av. & Schleisman Rd.	TS	**111.2**	**58.6**	**F**	**E**	**114.2**	**60.1**	**F**	**E**
2	Sumner Av. & Orange St.	TS	8.6	8.5	A	A	9.0	8.9	A	A
3	Driveway 1 & Orange St.	--/CSS	Future Intersection				9.0	9.0	A	A
4	Scholar Wy. & Schleisman Rd.	TS	23.1	17.6	C	B	24.9	17.6	C	B
5	Scholar Wy. & Orange St.	TS	3.6	6.4	A	A	3.6	6.6	A	A
6	Scholar Wy. & Baltimore St.	TS	21.0	10.8	C	B	21.0	10.8	C	B
7	Scholar Wy. & Citrus St.	TS	40.1	18.8	D	B	40.2	18.9	D	B
8	Hamner Av. & Schleisman Rd.	TS	14.6	11.9	B	B	14.7	12.0	B	B

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

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

2 CSS = Cross-street Stop; TS = Traffic Signal; CSS = Improvement

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

No study area intersections are anticipated to meet average daily volume-based traffic signal warrants for E+P traffic conditions (see Appendix 5.2) of this report.

5.5 DEFICIENCIES AND IMPROVEMENTS

Improvements have been identified for each of the study area intersections that are operating at an unacceptable LOS during the peak hours. The effectiveness of the recommended improvement strategies to address E+P traffic deficiencies are presented on Table 5-2. Worksheets for E+P Conditions, with improvements, HCM calculation worksheets are provided in Appendix 5.3.

TABLE 5-2: SUMMARY OF INTERSECTION ANALYSIS FOR E+P CONDITIONS WITH IMPROVEMENTS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1] Northbound L	T	R	Southbound L	T	R	Eastbound L	T	R	Westbound L	T	R	Delay[2] (secs.) AM	PM	Level of Service AM	PM
1	Sumner Av. & Schleisman Rd.																	
	-Without Improvements	TS	1	1	0	1	1	0	0	1	1	0	1	1	**114.2**	**60.1**	**F**	**E**
	-With Improvements[4]	TS	1	1	0	1	1	0	**1**	1	**0**	**1**	1	**0**	38.8	27.0	D	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes: L = Left; T = Through; R = Right; **1** = Improvement

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

[3] TS = Traffic Signal

[4] Improvements require additional right-of-way. The improvements are assumed to be constructed by a future project adjacent to the intersection.

6 OPENING YEAR CUMULATIVE (2025) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2025) Without and With Project traffic forecasts, and the resulting intersection operations and traffic signal warrant, analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2025) 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 at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).

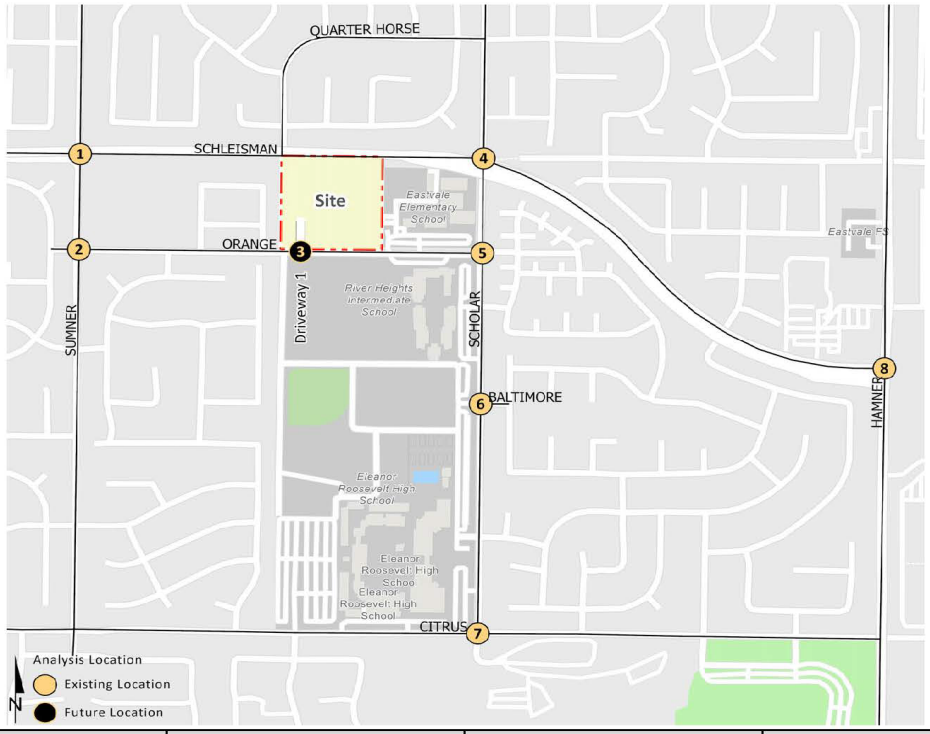
6.2 OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth of 6.8% 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 (2025) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Opening Year Cumulative (2025) 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 (2025) With Project traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC VOLUMES



1 Sumner Av. & Schleisman Rd.

12,000 | 11,050 | 10,800 | 20,400

193(244) →	176(68)	21(14)
296(399) →	383(143)	
328(311) ↲		
↲ 173(189)	↑ 72(45)	
↓ 277(245)	↑ 417(334)	
↳ 113(37)	↱ 19(17)	

2 Sumner Av. & Orange St.

10,600 | 1,350 | 9,100 | 650

49(15) →	0(1)	6(10)
6(3) →	500(196)	
0(1) ↲		
↲ 16(26)	↑ 30(14)	
↓ 559(486)	↑ 0(4)	
↳ 53(64)	↱ 6(1)	

3 Orange St. & Driveway 1

Future Intersection

4 Scholar Wy. & Schleisman Rd.

8,150 | 10,000 | 7,700 | 10,900

35(100) →	147(49)	160(43)
386(344) →	485(171)	
148(35) ↲		
↲ 28(37)	↑ 132(47)	
↓ 647(242)	↑ 347(295)	
↳ 31(20)	↱ 220(45)	

5 Scholar Wy. & Orange St.

7,700 | 7,950 | 2,800

134(58) →	163(22)	
261(86) ↲	658(206)	
↲ 285(32)		
↓ 731(290)		

6 Scholar Wy. & Baltimore St.

9,250 | 1,300 | 8,650 | 6,750

408(173) ↲	141(72)	22(18)
	649(204)	
	↰ 164(32)	
↓ 367(256)	↑ 31(9)	
↓ 541(182)	↰ 20(9)	
↳ 87(30)		

7 Scholar Wy. & Citrus St.

9,600 | 17,400 | 650 | 19,400

329(183) →	21(6)	21(5)
435(618) →	4(1)	
31(7) ↲		
↲ 475(271)	↑ 304(121)	
↓ 2(2)	↑ 328(389)	
↳ 361(173)	↰ 11(6)	

8 Hamner Av. & Schleisman Rd.

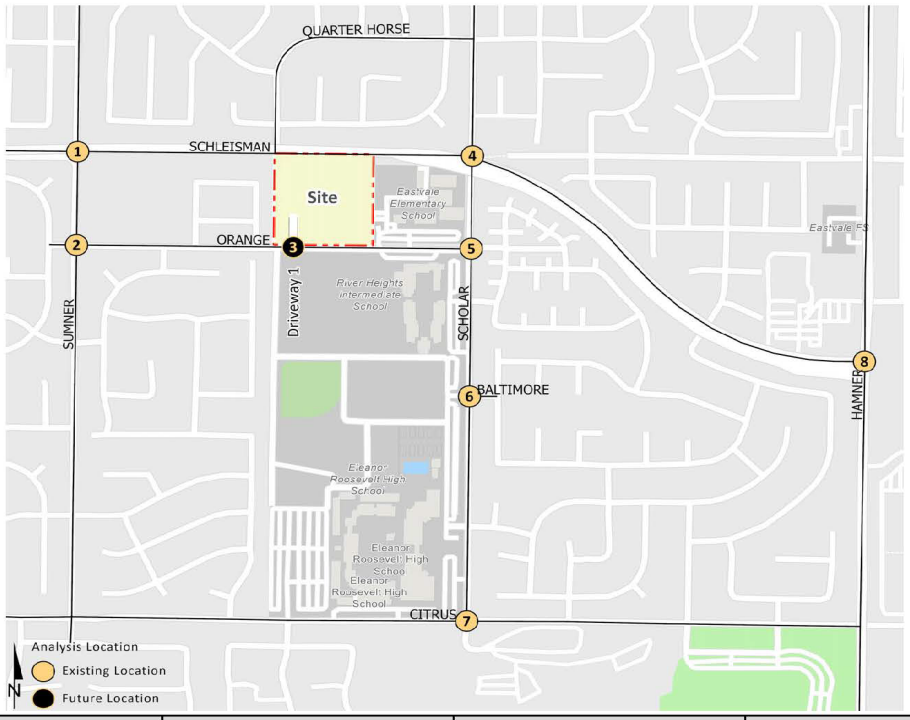
29,200 | 2,750 | 29,000 | 11,100

408(196) →	189(280)	62(40)
15(12) →	643(864)	
227(138) ↲		
↲ 535(207)	↑ 35(48)	
↓ 632(732)	↑ 6(16)	
↳ 9(45)	↱ 51(51)	

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

Average Daily Trips

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC VOLUMES



1 Sumner Av. & Schleisman Rd. — 11,050

12,100	173(189) ↲	278(250) ↓	113(37) ↳
193(244) ↳	180(71) ↰	387(146) ↑	21(14) ↱
296(399) →			
329(316) ↲			10,950
20,450			

2 Sumner Av. & Orange St. — 1,500

10,750	16(26) ↲	559(486) ↓	56(74) ↳
49(15) ↳	0(1) ↰	500(196) ↑	6(11) ↱
6(3) →			
0(1) ↲			9,150
650			

3 Orange St. & Driveway 1 — 1,550

400	9(6) ↲	12(8) ↳
3(11) ↳		4(13) ↱
65(77) →		36(19) ←
1,500		

4 Scholar Wy. & Schleisman Rd. — 10,050

8,300	28(37) ↲	649(249) ↓	31(20) ↳
35(100) ↳	147(49) ↰	491(175) ↑	163(45) ↱
386(344) →			
148(35) ↲			7,850
10,900			

5 Scholar Wy. & Orange St.

7,850	288(43) ↲	731(290) ↓	
143(64) ↳	164(24) ↰	658(206) ↑	
263(87) ↲			7,950
3,050			

6 Scholar Wy. & Baltimore St. — 1,300

9,250	367(256) ↲	543(183) ↓	87(30) ↳
			164(32) ↱
			31(9) ←
408(173) ↲			20(9) ↰
	141(72) ↰	650(206) ↑	22(18) ↱
6,750			8,650

7 Scholar Wy. & Citrus St. — 17,400

9,650	476(272) ↲	2(2) ↓	362(174) ↳
			304(122) ↱
			328(389) ←
			11(6) ↰
329(184) ↳	21(6) ↰	4(1) ↑	21(5) ↱
435(618) →			
31(7) ↲			650
19,400			

8 Hamner Av. & Schleisman Rd. — 2,750

29,200	535(208) ↲	632(732) ↓	9(45) ↳
			35(48) ↱
			6(16) ←
			51(51) ↰
409(197) ↳	190(282) ↰	643(864) ↑	62(40) ↱
15(12) →			
229(139) ↲			29,050
11,150			

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

Average Daily Trips

6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2025) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown on Table 6-1, the following study area intersection is anticipated to operate at an unacceptable LOS under Opening Year Cumulative (2025) Without Project traffic conditions, consistent with Existing (2021) traffic conditions:

- Sumner Av. & Schleisman Rd. (#1) – LOS F AM peak hour; LOS E PM peak hour

The intersection operations analysis worksheets for Opening Year Cumulative (2025) Without Project traffic conditions are included in Appendix 6.1 of this TA.

6.4.2 OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 6-1, no additional study area intersections are anticipated to operate at a deficient LOS during the peak hours with the addition of Project traffic. The intersection operations analysis worksheets for Opening Year Cumulative (2025) With Project traffic conditions are included in Appendix 6.2 of this TA.

TABLE 6-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

			2025 Without Project				2025 With Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
#	Intersection	Traffic Control[2]	AM	PM	AM	PM	AM	PM	AM	PM
1	Sumner Av. & Schleisman Rd.	TS	**157.8**	**76.8**	**F**	**E**	**161.5**	**78.3**	**F**	**E**
2	Sumner Av. & Orange St.	TS	9.3	8.7	A	A	9.6	9.1	A	A
3	Driveway 1 & Orange St.	--/**CSS**	Future Intersection				9.1	9.1	A	A
4	Scholar Wy. & Schleisman Rd.	TS	26.4	18.2	C	B	28.5	18.2	C	B
5	Scholar Wy. & Orange St.	TS	3.8	6.4	A	A	3.7	6.6	A	A
6	Scholar Wy. & Baltimore St.	TS	24.0	11.2	C	B	24.1	11.2	C	B
7	Scholar Wy. & Citrus St.	TS	50.6	19.6	D	B	50.8	19.6	D	B
8	Hamner Av. & Schleisman Rd.	TS	52.4	21.3	D	C	52.7	24.5	D	C

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

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

2 CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The following study area intersection is not anticipated to meet average daily traffic volume-based traffic signal warrants for Opening Year Cumulative (2025) With Project traffic conditions (see Appendix 6.3).

6.6 DEFICIENCIES AND IMPROVEMENTS

Improvements have been identified for each of the study area intersections anticipated operating at an unacceptable LOS during the peak hours. The effectiveness of the recommended improvement strategies to address its traffic deficiencies are presented on Table 6-2. HCM calculation worksheets for Opening Year Cumulative (2025) With Project With Improvements are provided in Appendix 6.4 of this TA.

TABLE 6-2: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Sumner Av. & Schleisman Rd.																	
	-Without Improvements	TS	1	1	0	1	1	0	0	1	1	0	1	1	**161.5**	**78.3**	**F**	**E**
	-With Improvements[4]	TS	1	1	0	1	1	0	**1**	1	**0**	**1**	1	**0**	54.0	31.8	D	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes: L = Left; T = Through; R = Right; **1** = Improvement

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

[3] TS = Traffic Signal; **TS** = Improvement

[4] Improvements require additional right-of-way. The improvements are assumed to be constructed by a future project adjacent to the intersection.

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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 and traffic signal warrant analyses.

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 Horizon Year 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 Horizon Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).

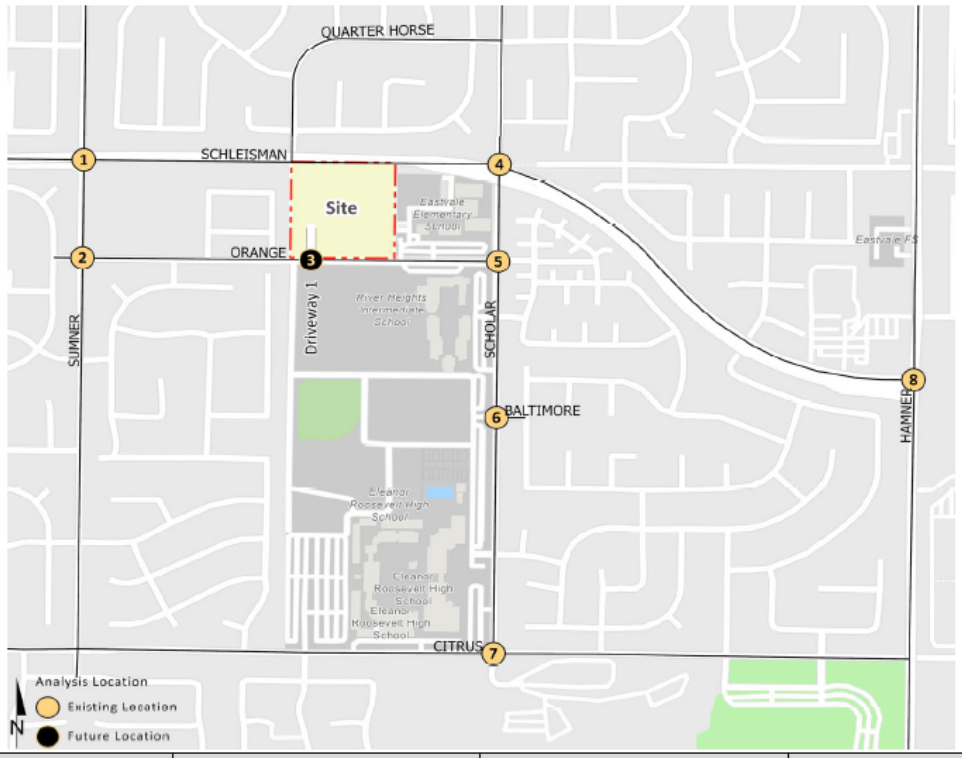
7.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the RivTAM (see Section 4.7 *Horizon Year Volume Development* of this TA for a detailed discussion on the post-processing methodology) and represents the General Plan buildout of the City of Eastvale. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year 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-processed volumes obtained from the RivTAM, plus the traffic generated by the proposed Project (see Section 4.7 *Horizon Year Volume Development* of this TA for a detailed discussion on the post-processing methodology). Horizon Year 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 With Project traffic conditions are shown on Exhibit 7-2.

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



1 Sumner Av. & Schleisman Rd.

12,500 | 181(198) ↲ 315(267) ← 119(39) ↳ | 28,300 | 76(48) ↱ 934(1495) ← 28(19) ↰
203(256) ↳ | 208(77) ↰ 423(156) ↑ 33(17) ↱
1046(1449) → |
360(325) ↲ |
30,900 | 11,750

2 Sumner Av. & Orange St.

11,150 | 17(27) ↲ 595(512) ← 103(79) ↳ | 1,650 | 23(9) ↱ 0(4) ← 6(0) ↰
51(16) ↳ | 0(1) ↰ 518(200) ↑ 7(9) ↱
7(3) → |
0(1) ↲ |
650 | 9,300

3 Orange St. & Driveway 1

Future Intersection

4 Scholar Wy. & Schleisman Rd.

8,150 | 37(39) ↲ 676(248) ← 32(21) ↳ | 26,350 | 27(50) ↱ 1026(1727) ← 230(43) ↰
41(106) ↳ | 155(56) ↰ 504(176) ↑ 165(43) ↱
1206(1517) → |
159(40) ↲ |
33,000 | 7,600

5 Scholar Wy. & Orange St.

7,950 | 306(40) ↲ 759(291) ← | |
149(65) ↳ | 174(25) ↰ 675(210) ↑
279(93) ↲ |
2,900 | 8,200

6 Scholar Wy. & Baltimore St.

9,450 | 391(273) ↲ 580(196) ← 93(32) ↳ | 1,300 | 175(34) ↱ 33(9) ← 22(9) ↰
435(184) ↲ | 150(77) ↰ 694(221) ↑ 24(19) ↱
6,850 | 8,850

7 Scholar Wy. & Citrus St.

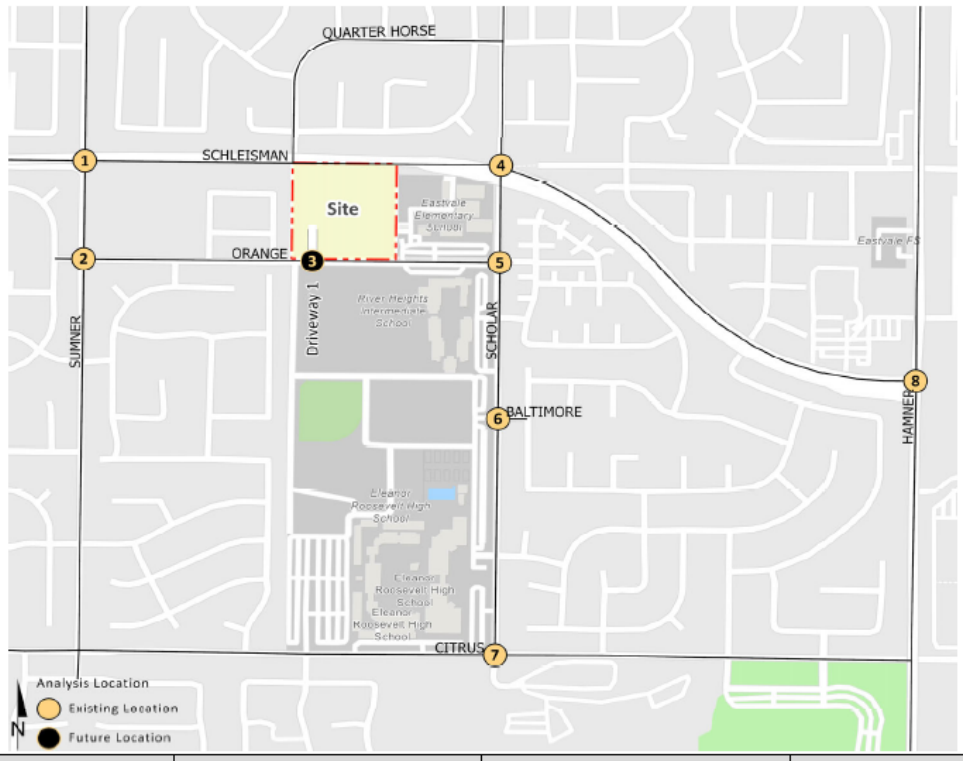
9,950 | 508(289) ↲ 2(2) ← 386(184) ↳ | 17,950 | 325(130) ↱ 350(414) ← 11(7) ↰
352(196) ↳ | 23(7) ↰ 5(1) ↑ 23(6) ↱
463(659) → |
33(8) ↲ |
20,050 | 700

8 Hamner Av. & Schleisman Rd.

29,800 | 572(222) ↲ 673(780) ← 26(145) ↳ | 9,050 | 117(160) ↱ 20(54) ← 169(171) ↰
437(209) ↳ | 203(302) ↰ 685(921) ↑ 208(133) ↱
49(40) → |
246(150) ↲ |
11,400 | 29,650

##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

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



1 Sumner Av. & Schleisman Rd. — 28,300 ADT

12,550	181(198) ↳ 316(272) ← 119(39) ↳	↰ 76(48) ← 934(1495) ↰ 28(19)
203(256) ↳	↱	↱
1046(1449) →	212(80) →	427(159) →
361(330) ↴	33(17) ↱	11,900
31,000		

2 Sumner Av. & Orange St. — 1,850 ADT

11,300	17(27) ↳ 595(512) ← 106(89) ↳	↰ 31(15) ← 0(4) ↰ 7(1)
51(16) ↳	↱	↱
7(3) →	0(1) →	518(200) →
0(1) ↴	7(10) ↱	9,350
650		

3 Orange St. & Driveway 1 — 1,600 ADT

400	9(6) ↳ 12(8) ↳	↱ 4(13) ← 39(21)
3(11) ↳		
71(83) →		
1,600		

4 Scholar Wy. & Schleisman Rd. — 26,400 ADT

8,300	37(39) ↳ 678(255) ← 32(21) ↳	↰ 27(50) ← 1026(1727) ↰ 231(47)
41(106) ↳	↱	↱
1206(1517) →	155(56) →	510(180) →
159(40) ↴	168(45) ↱	7,800
33,000		

5 Scholar Wy. & Orange St. — 8,250 ADT

8,150	309(51) ↳ 759(291) ←	
158(71) ↳	↰	↰
281(94) ↴	175(27) →	675(210) →
3,150		8,250

6 Scholar Wy. & Baltimore St. — 1,300 ADT

9,500	391(273) ↳ 582(197) ← 93(32) ↳	↰ 175(34) ← 33(9) ↰ 22(9)
435(184) ↴	↱	↱
6,850	150(77) →	695(223) →
	24(19) ↱	8,900

7 Scholar Wy. & Citrus St. — 18,000 ADT

10,000	509(290) ↳ 2(2) ← 387(185) ↳	↰ 325(131) ← 350(414) ↰ 11(7)
352(197) ↳	↰	↰
463(659) →	23(7) →	5(1) →
33(8) ↴	23(6) ↱	700
20,050		

8 Hamner Av. & Schleisman Rd. — 9,050 ADT

29,850	572(223) ↳ 673(780) ← 26(145) ↳	↰ 117(160) ← 20(54) ↰ 169(171)
438(210) ↳	↰	↰
49(40) →	204(304) →	685(921) →
248(151) ↴	208(133) ↱	29,700
11,450		

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

Average Daily Trips

7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS

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

- Sumner Av. & Schleisman Rd. (#1) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for Horizon Year Without Project traffic conditions are included in Appendix 7.1 of this TA.

7.4.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 7-1, no additional study area intersections are anticipated to operate at a deficient LOS during the peak hours with the addition of Project traffic, consistent with Horizon Year Without Project traffic conditions. The intersection operations analysis worksheets for Horizon Year With Project traffic conditions are included in Appendix 7.2 of this TA.

TABLE 7-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS

			2040 Without Project				2040 With Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
#	Intersection	Traffic Control[2]	AM	PM	AM	PM	AM	PM	AM	PM
1	Sumner Av. & Schleisman Rd.	TS	**>200.0**	**>200.0**	**F**	**F**	**>200.0**	**>200.0**	**F**	**F**
2	Sumner Av. & Orange St.	TS	10.1	8.6	B	A	10.4	9.1	B	A
3	Driveway 1 & Orange St.	--/**CSS**	Future Intersection				9.1	9.1	A	A
4	Scholar Wy. & Schleisman Rd.	TS	32.3	43.1	C	D	34.4	43.6	C	D
5	Scholar Wy. & Orange St.	TS	8.1	6.7	A	A	8.1	6.8	A	A
6	Scholar Wy. & Baltimore St.	TS	28.4	11.5	C	B	28.6	11.5	C	B
7	Scholar Wy. & Citrus St.	TS	53.8	21.5	D	C	53.9	21.6	D	C
8	Hamner Av. & Schleisman Rd.	TS	48.7	45.1	D	D	48.9	45.3	D	D

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

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

2 CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

3 The change in delay is calculated between pre-project and With Project scenarios for City of Eastvale intersections already operating at an unacceptable LOS in the pre-project traffic condition.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

No study area intersections are anticipated to meet average daily traffic volume-based traffic signal warrants for Horizon Year (2040) With Project traffic conditions (see Appendix 7.3).

7.6 DEFICIENCIES AND IMPROVEMENTS

Improvements have been identified for each of the study area intersections that would be operating at an unacceptable LOS during the peak hours. The effectiveness of the recommended improvement strategies to address its traffic deficiencies are presented on Table 7-4. HCM calculation worksheets for Horizon Year With Project With Improvements are provided in Appendix 7.4 of this TA.

TABLE 7-3: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Sumner Av. & Schleisman Rd.																	
	-Without Improvements	TS	1	1	0	1	1	0	0	1	1	0	1	1	**>200.0**	**>200.0**	**F**	**F**
	-With Improvements[4]	TS	1	**2**	0	1	1	0	**1**	**2**	**0**	**1**	**2**	**1**	51.9	51.2	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes: L = Left; T = Through; R = Right; **1** = Improvement

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

[3] TS = Traffic Signal; **TS** = Improvement

[4] Improvements require additional right-of-way. The improvements are assumed to be constructed by a future project adjacent to the intersection.

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8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Eastvale are funded through a combination of construction of improvements, development impact fee programs or fair share contributions, such as the City of Eastvale Development Impact Fee (**DIF**) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

8.1 RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (3) 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 $10,104 per dwelling unit for single family detached residential dwelling units (applicable to the proposed Project, effective January 1, 2022). 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.

8.2 CITY OF EASTVALE DEVELOPMENT IMPACT FEE (DIF) 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 single family detached residential is $9,146 per dwelling unit as of December 2019. 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.

8.3 MIRA LOMA ROAD AND BRIDGE BENEFIT DISTRICT

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 D of the Mira Loma RBBD. Zone D is generally bounded by Bellegrave Avenue to the north, Hellman Avenue to the west, Hamner Avenue to the east, and the Eastvale city boundary 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 residential use is $2,681 per single family residential dwelling unit within Zone D. They include:

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

- Limonite Avenue interchange at the I-15 Freeway and between Hamner Avenue and Wineville Avenue
- Bellegrave Avenue overcrossing improvement at the I-15 Freeway
- Archibald Avenue roadway from River Road to the San Bernardino and Riverside County jurisdictional line
- Limonite Avenue roadway from Hamner Avenue to Archibald Avenue
- Schleisman Road roadway from Hamner Avenue to the San Bernardino and Riverside County jurisdictional line
- Archibald Avenue landscaped median from River Road to the San Bernardino and Riverside County jurisdictional line
- Hamner Avenue landscaped median between Bellegrave Avenue and the Santa Ana River
- Limonite Avenue landscaped median between Hamner Avenue and Archibald Avenue
- Schleisman Road landscaped median from Hamner Avenue to the San Bernardino and Riverside County jurisdictional line

8.4 FAIR SHARE CONTRIBUTION

Project improvement 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. Detailed fair share calculations, for each peak hour, has been provided on Table 8-1 for the applicable deficient study area intersections.

These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases.

TABLE 8-1: PROJECT FAIR SHARE CALCULATIONS

#	Intersection		Existing	Total Project	2040 With Project	Total New Traffic	Project % of New Traffic
1	Sumner Av. & Schleisman Rd.						
		AM:	2,230	10	3,936	1,706	0.59%
		PM:	1,836	16	4,362	2,526	**0.63%**

BOLD = Denotes highest fair share percentage.

[1] Fair share based on total traffic only.

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9 REFERENCES

1. **Riverside County Transportation Department.** *Guidelines Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled.* County of Riverside : s.n., December 2020.
2. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.
3. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.
4. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.
5. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
6. **Caltrans.** Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.
7. **Southern California Association of Governments.** *2020 Regional Transportation Plan/Sustainable Communities Strategy.* Adopted September 2020.

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