URBAN | CROSSROADS

EDEN MIXED-USE (PL23-0111)

TRAFFIC ANALYSIS

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Reference Number	Agency	Date
14698-08 TA Report	City of Chino	October 26, 2023

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
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
PHF	Peak Hour Factor
Project	Eden Mixed-Use
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
TA	Traffic Analysis
v/c	Volume to Capacity
vphgpl	Vehicles per Hour Green per Lane

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1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for Eden Mixed-Use (Project), which is located on the northwest corner of Euclid Avenue (SR-83) and Schaefer Avenue in the City of Chino, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This traffic study has been prepared in accordance with the City of Chino's Transportation Impact Study Guidelines, the San Bernardino County Congestion Management Program (CMP) Guidelines for CMP Traffic Impact Analysis Reports, and consultation with City staff during the traffic study scoping process. (1) (2) 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:

- The proposed driveways will be stop controlled for exiting (egress) traffic. Street A on Fern Avenue and Driveway 2 on Schaefer Avenue are proposed for full access. Driveway 1 on Fern Avenue, and Street A and Driveway 3 on Euclid Avenue (SR-83) will be restricted to right-in/right-out access only.
- Project to construct Schaefer Avenue at its ultimate half-section width as a Primary roadway (98-foot right-of-way) from Fern Avenue to Euclid Avenue (SR-83), consistent with the City's Standards.
- Both Fern Avenue and Euclid Avenue (SR-83) are built to their ultimate half-sections widths according to the City of Chino General Plan. However, curb, gutter, and sidewalk improvements are recommended along Fern Avenue and Euclid Avenue (SR-83) along the Project frontage, as needed to accommodate the proposed Project driveways.

Additional details and intersection lane geometrics are provided in Section 1.6 *Recommendations* of this report. The proposed Project is not anticipated to require the construction of any off-site improvements.

1.2 PROJECT OVERVIEW

The proposed Project is to consist of the development of the following uses:

- Four-story residential component with 282 multifamily (mid-rise) residential dwelling units
- Four-story self-storge component with 145,000 square feet of self-storage use
- A retail component that consists of 2 fast-food restaurant with drive-through window pads totaling 7,000 square feet and a 12,500 square foot retail pad (assuming 9,400 square feet of fast-food restaurant without drive-through window use and 3,100 square feet of retail use)

A preliminary site plan for the proposed Project is shown on Exhibit 1-2. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024. As indicated on Exhibit 1-2, access to the Project site will be provided to the site fronting roadways of Fern Avenue, Schaefer Avenue, and Euclid Avenue (SR-83).

EXHIBIT 1-1: LOCATION MAP

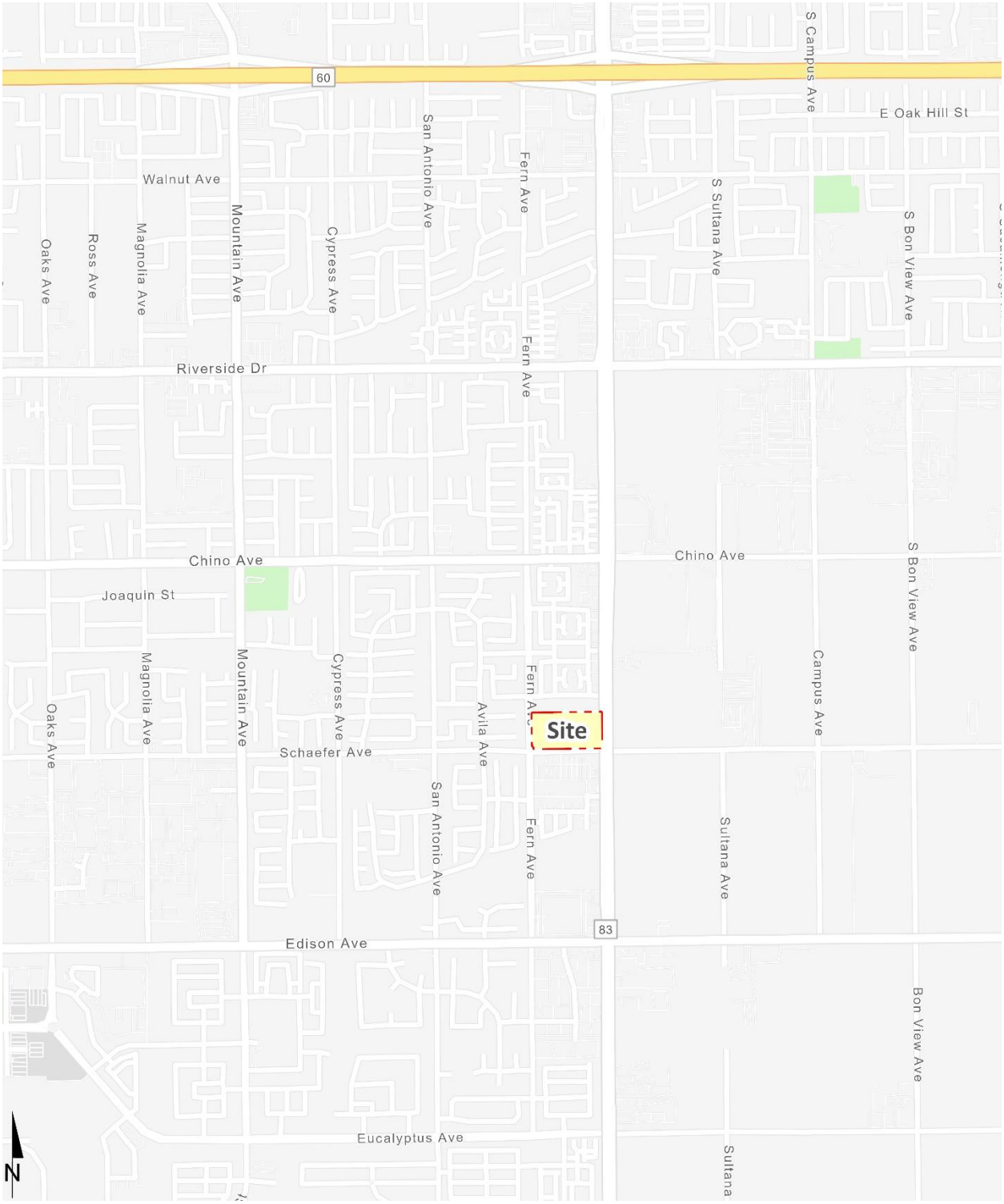
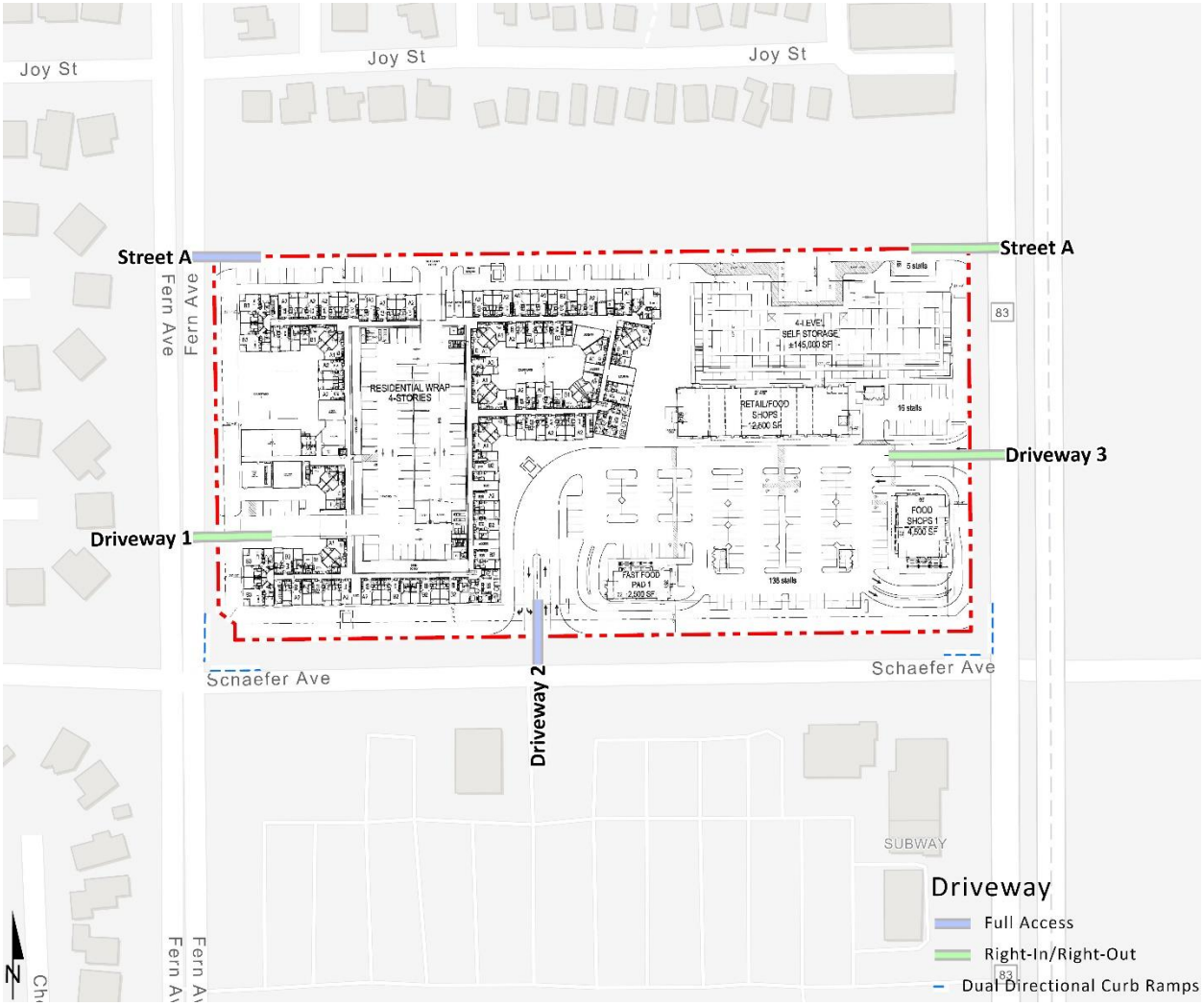


EXHIBIT 1-2: PRELIMINARY SITE PLAN



Access to the site will be accommodated as follows:

- Fern Avenue at Street A – full access (no turn restrictions, will require existing median modifications)
- Fern Avenue at Driveway 1 – right-in/right-out access only
- Driveway 2 at Schaefer Avenue – full access (to align with existing driveway to the south)
- Euclid Avenue (SR-83) at Street A – right-in/right-out access only
- Euclid Avenue (SR-83) at Driveway 3 – right-in/right-out access only

Regional access to the Project site is accommodated from the SR-71 Freeway via Euclid Avenue (SR-83) Avenue, and the SR-60 Freeway via Euclid Avenue (SR-83).

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) have been utilized. (3) The Project is anticipated to generate a total of 4,540 actual two-way trips per day with 427 AM peak hour trips, 357 PM peak hour trips, and 510 Saturday 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 (2023) Conditions
- Existing plus Project (E+P) Conditions
- Opening Year Cumulative (2024) Without Project Conditions
- Opening Year Cumulative (2024) With Project Conditions
- Horizon Year (2045) Without Project
- Horizon Year (2045) With Project

1.3.1 EXISTING (2023) CONDITIONS

Information for Existing (2023) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Local schools were in session and operating on normal bell schedules at the time traffic counts were collected.

1.3.2 E+P CONDITIONS

The E+P conditions analysis determines the potential circulation system deficiencies based on a comparison of the E+P traffic conditions to Existing conditions. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. Cumulative development projects and ambient growth are not included for E+P traffic conditions.

1.3.3 OPENING YEAR CUMULATIVE (2024) CONDITIONS

The Opening Year Cumulative (2024) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. To account for background traffic growth, an ambient growth factor from Existing (2023) conditions of 2% is included for Opening Year Cumulative (2024) traffic conditions. Conservatively, this TA estimates the area ambient traffic growth and then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed ambient growth rates; and some of these related projects may not be implemented and operational within the 2024 Opening Year time frame assumed for the Project. The resulting traffic growth utilized in the TA (ambient growth factor plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic deficiencies under 2024 traffic conditions.

1.3.4 HORIZON YEAR (2045) CONDITIONS

Traffic projections for Horizon Year (2045) conditions were derived from the San Bernardino County Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing. The Horizon Year conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs can accommodate the long-range cumulative traffic at the target Level of Service (LOS) identified in the City of Chino (lead agency) General Plan. Each of the applicable transportation fee programs are discussed in more detail in Section 8 *Local and Regional Funding Mechanisms*.

1.4 STUDY AREA

1.4.1 INTERSECTIONS

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

The 20 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with City of Chino staff. At a minimum, a study area should include intersections where the Project is anticipated to contribute 50 or more peak hour trips per the City's traffic study guidelines. (1) The "50 peak hour trip" criterion represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and widely used within the City of Chino and San Bernardino County for estimating a potential area of influence (i.e., study area). The Project is anticipated to contribute fewer than 50 peak hour trips at all study area intersections. The study area has been defined based on coordination with City staff.

EXHIBIT 1-3: STUDY AREA

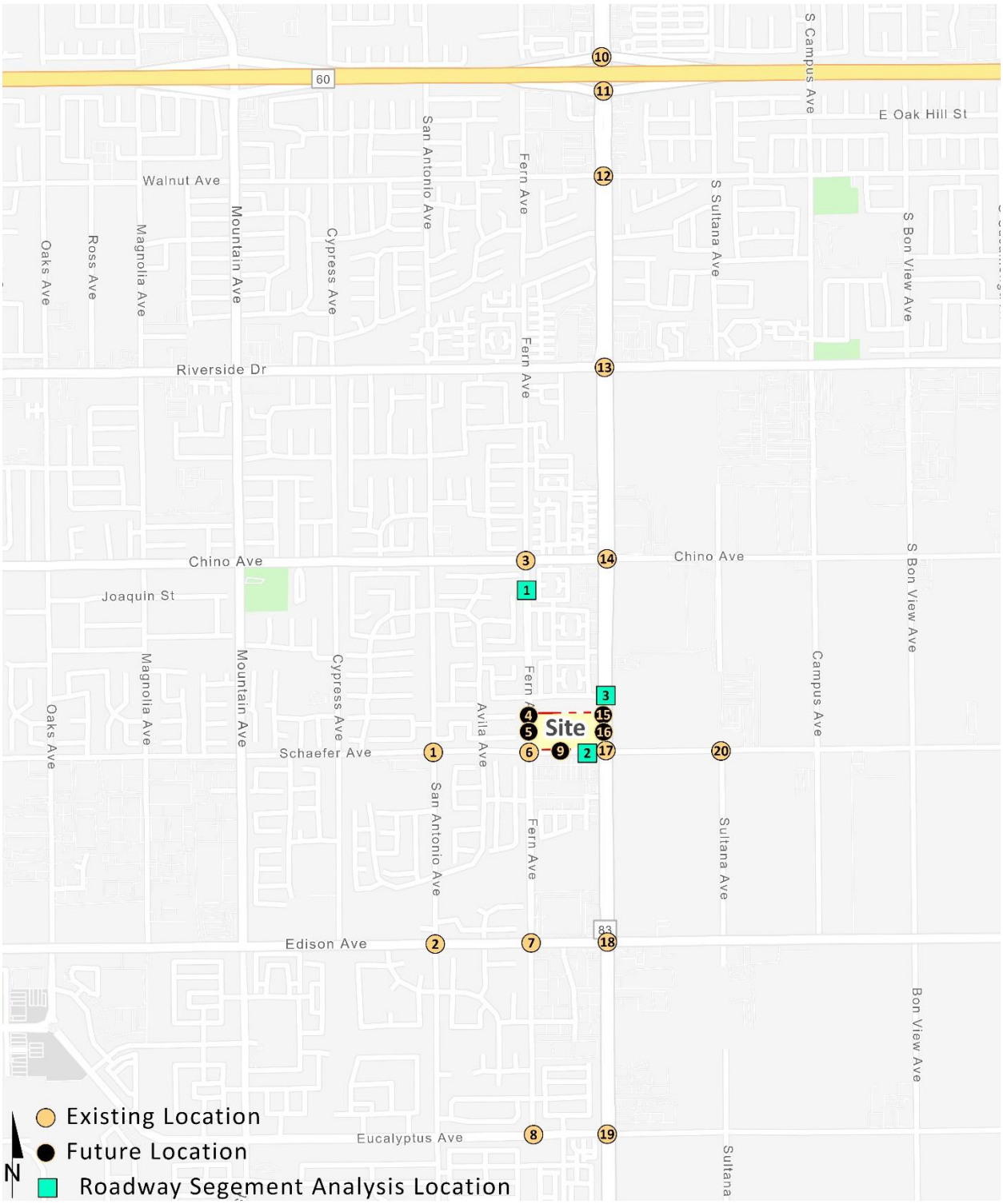


TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersection	Jurisdiction
1	San Antonio Av. & Schaefer Av.	City of Chino
2	San Antonio Av. & Edison Av.	City of Chino
3	Fern Av. & Chino Av.	City of Chino
4	Fern Av. & Street A	City of Chino
5	Fern Av. & Driveway 1	City of Chino
6	Fern Av. & Schaefer Av.	City of Chino
7	Fern Av. & Edison Av.	City of Chino
8	Fern Av. & Eucalyptus Av.	City of Chino
9	Driveway 2 & Schaefer Av.	City of Chino
10	Euclid Av. (SR-83) & SR-60 WB Ramps	Caltrans, City of Ontario
11	Euclid Av. (SR-83) & SR-60 EB Ramps	Caltrans, City of Ontario
12	Euclid Av. (SR-83) & Walnut Av.	Caltrans, City of Ontario
13	Euclid Av. (SR-83) & Riverside Dr.	Caltrans, City of Ontario, City of Chino
14	Euclid Av. (SR-83) & Chino Av.	Caltrans, City of Ontario, City of Chino
15	Euclid Av. (SR-83) & Street A	Caltrans, City of Ontario, City of Chino
16	Euclid Av. (SR-83) & Driveway 3	Caltrans, City of Ontario, City of Chino
17	Euclid Av. (SR-83) & Schaefer Av.	Caltrans, City of Ontario, City of Chino
18	Euclid Av. (SR-83) & Edison Av.	Caltrans, City of Ontario, City of Chino
19	Euclid Av. (SR-83) & Eucalyptus Av.	Caltrans, City of Ontario, City of Chino
20	Sultana Av. & Schaefer Av.	City of Ontario

The intent of a CMP is to 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 San Bernardino CMP became effective with the passage of Proposition 111 in 1990 with a 2021 Update to the Nexus Study. (2) There are no study area intersections identified as a San Bernardino County CMP intersection.

1.4.2 ROADWAY SEGMENTS

Pursuant to discussions with City staff during the scoping process, the 3 study area roadway segments selected for evaluation as part of this traffic study are provided in Table 1-2.

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATION

#	Roadway	Segment Limits
1	Fern Av.	South of Chino Av.
2	Schaefer Av.	West of Euclid Av. (SR-83)
3	Euclid Av. (SR-83)	North of Schaefer Av.

1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions,* Section 6 *Opening Year Cumulative (2024) Traffic Conditions,* and Section 7 *Horizon Year (2045) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented in Table 1-3.

1.5.1 EXISTING (2023) CONDITIONS

Intersections

All of the study area intersections are currently operating at an acceptable LOS during the weekday AM and PM peak hours.

Roadway Segments

All study area roadway segments are currently operating at an acceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria.

1.5.2 E+P CONDITIONS

Intersections

All of the study area intersections are anticipated to continue to operate at an acceptable LOS under E+P traffic conditions with the addition of Project traffic.

Roadway Segments

All study area roadway segments are anticipated to continue to operate at an acceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria.

1.5.3 OPENING YEAR CUMULATIVE (2024) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours under Opening Year Cumulative (2024) Without Project traffic conditions:

- Euclid Avenue (SR-83) & SR-60 WB Ramps (#10) – LOS F PM peak hour; LOS E Saturday peak hour
- Euclid Avenue (SR-83) & SR-60 EB Ramps (#11) – LOS F AM peak hour only
- Euclid Avenue (SR-83) & Riverside Drive (#13) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Chino Avenue (#14) – LOS F PM peak hour only
- Euclid Avenue (SR-83) & Schaefer Avenue (#17) – LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Edison Avenue (#18) – LOS F PM peak hour only

TABLE 1-3: SUMMARY OF LOS

#	Intersection	Existing			E+P			2024 Without Project			2024 With Project			2045 Without Project			2045 With Project		
		AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT
1	San Antonio Av. & Schaefer Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2	San Antonio Av. & Edison Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3	Fern Av. & Chino Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4	Fern Av. & Street A	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●
5	Fern Av. & Driveway 1	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●
6	Fern Av. & Schaefer Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
7	Fern Av. & Edison Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8	Fern Av. & Eucalyptus Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9	Driveway 2 & Schaefer Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10	Euclid Av. (SR-83) & SR-60 WB Ramps	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11	Euclid Av. (SR-83) & SR-60 EB Ramps	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
12	Euclid Av. (SR-83) & Walnut Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13	Euclid Av. (SR-83) & Riverside Dr.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
14	Euclid Av. (SR-83) & Chino Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
15	Euclid Av. (SR-83) & Street A	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●
16	Euclid Av. (SR-83) & Driveway 3	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●	N/A	N/A	N/A	●	●	●
17	Euclid Av. (SR-83) & Schaefer Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
18	Euclid Av. (SR-83) & Edison Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
19	Euclid Av. (SR-83) & Eucalyptus Av.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20	Sultana Av. & Schaefer Av.	N/A	N/A	N/A	N/A	N/A	N/A	●	●	●	●	●	●	●	●	●	●	●	●

● = A - D ● = E ● = F

Roadway Segments

The following study area roadway segment is anticipated to operate at an unacceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria:

- Euclid Avenue (SR-83), North of Schaefer Avenue (#3) – LOS F

1.5.4 HORIZON YEAR (2045) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2045) Without Project traffic conditions. The intersection operations analysis worksheets for Horizon Year (2045) Without Project traffic conditions are included in Appendix 7.1 of this TA.

- Euclid Avenue (SR-83) & SR-60 WB Ramps (#10) – LOS F PM peak hour; LOS E Saturday peak hour
- Euclid Avenue (SR-83) & SR-60 EB Ramps (#11) – LOS F AM peak hour only
- Euclid Avenue (SR-83) & Riverside Drive (#13) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Chino Avenue (#14) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Schaefer Avenue (#17) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Edison Avenue (#18) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Eucalyptus Avenue (#19) – LOS E AM and PM peak hours

Roadway Segments

The following study area roadway segment is anticipated to continue to operate at an acceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria:

- Euclid Avenue (SR-83), North of Schaefer Avenue (#3) – LOS F

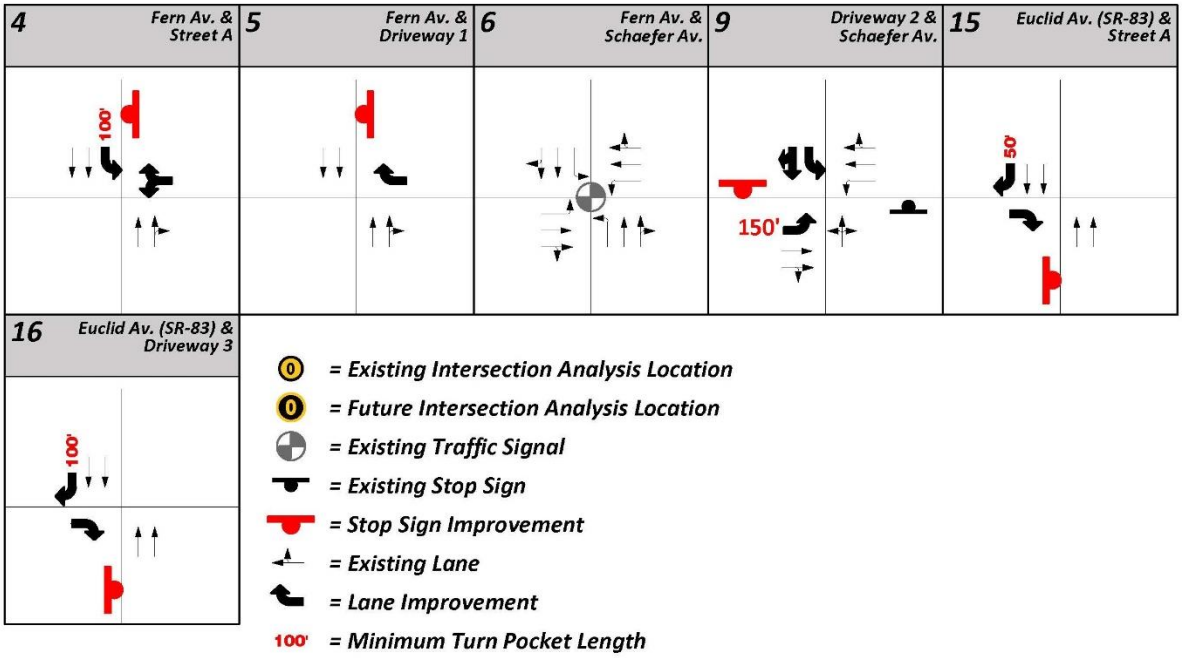
1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

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

The existing traffic control and lane geometrics at the intersections of Fern Avenue & Schaefer Avenue (#6) should remain.

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS



Recommendation 1 – Fern Avenue & Street A (#4) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the westbound approach (Project driveway) and a westbound shared left-right turn lane (Project driveway).
- Project to modify the existing median and construct a southbound left turn lane with a minimum turn pocket length of 100 feet.

Recommendation 2 – Fern Avenue & Driveway 1 (#5) – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the westbound approach (Project driveway) and a westbound right turn lane (Project driveway). Driveway 1 will be restricted to right-in/right-out only by the existing raised median along Fern Avenue.

Recommendation 3 – Driveway 2 & Schaefer Avenue (#9) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the southbound approach (Project driveway), a left turn lane and shared through-right turn lane (Project driveway).
- Project to stripe an eastbound left turn lane with a minimum of 150-feet of storage.

Recommendation 4 – Euclid Avenue (SR-83) & Street A (#15) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the eastbound approach (Project driveway) and a right turn lane. Street A will be restricted to right-in/right-out only along Euclid Avenue (SR-83) by the existing median along Euclid Avenue (SR-83).
- Project to stripe a southbound right turn lane with a minimum of 50-feet of storage.

Recommendation 5 – Euclid Avenue (SR-83) & Driveway 3 (#16) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the eastbound approach (Project driveway) and a right turn lane. Street A will be restricted to right-in/right-out only along Euclid Avenue (SR-83) by the existing median along Euclid Avenue (SR-83).
- Project to stripe a southbound right turn lane with a minimum of 100-feet of storage.

Recommendation 6 – Schaefer Avenue is an east-west oriented roadway located on the Project's southern boundary. Project to construct Schaefer Avenue at its ultimate half-section width as a Primary roadway (98-foot right-of-way) from Fern Avenue to Euclid Avenue (SR-83), consistent with the City's Standards.

Recommendation 7 – Fern Avenue is a north-south oriented roadway located on the Project's western boundary. According to the City of Chino General Plan, Fern Avenue is currently built out to its ultimate half-section as a Primary roadway (98-foot right-of-way). As such, there are no roadway improvement recommendations. However, curb, gutter, and sidewalk improvements are recommended along Fern Avenue, as needed to accommodate the proposed Project driveways.

Recommendation 8 – Euclid Avenue (SR-83) is a north-south oriented roadway located on the Project's eastern boundary. According to the City of Chino General Plan, Fern Avenue is currently built out to its ultimate half-section as an Expressway (206-foot right-of-way). As such, there are no roadway improvement recommendations. However, curb, gutter, and sidewalk improvements are recommended along Euclid Avenue (SR-83), as needed to accommodate the proposed Project driveways.

The development of the Project is to include the reconstruction of the northeast corner of Fern Avenue & Schaefer Avenue to include two directional curb ramps with associated facilities (pedestrian push button, clear space).

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

Based on the peak hour intersection operations and the anticipated traffic volumes, no right turn pockets appear necessary nor have been recommended at the Project driveways along Fern Avenue and Schaefer Avenue. Right turn lanes have been identified at the two Project driveways along Euclid Avenue (SR-83).

1.6.2 OFF-SITE RECOMMENDATIONS

A summary of the off-site intersection improvements is provided in Table 1-4. As shown in Table 1-4, the Project will construct or contribute payment towards the improvements identified, as discussed in Section 1.6.1 *Site Adjacent and Site Access Recommendations*. For those improvements listed in Table 1-4 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share or payment of fees (if applicable) that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay fair share fees and participate in pre-existing fee programs consistent with the City's requirements (see Section 8 *Local and Regional Funding Mechanisms*).

TABLE 1-4: SUMMARY OF IMPROVEMENTS

#	Intersection Location	Jurisdiction	Existing (2023)	E+P	2024 Without Project	2024 With Project	2045 Without Project	2045 With Project	Project Responsibility	Improvements in DIF[1,2]	Estimated Cost[3,4]	Project Fair Share	Fair Share Cost[5]
9	Driveway 2 & Schaefer Av.	City of Chino	None	Add SB left turn lane	Not Applicable	Same as E+P	Not Applicable	Same as E+P	Construct	No	$0	69.1%	$0
				Add SB shared through-right turn lane	Not Applicable	Same as E+P	Not Applicable	Same as E+P	Construct	No	$0		$0
				Add EB left turn lane	Not Applicable	Same as E+P	Not Applicable	Same as E+P	Construct	No	$0		$0
								Install a Traffic Signal	Fair Share	No	$454,729		$314,374
										Total:	**$454,729**		**$314,374**
10	Euclid Av. (SR-83) & SR-60 WB Ramps	Caltrans, City of Ontario	None	None	Add 2nd NB left turn lane	Same	Same	Same	Fees	Yes (ST-107)	$0	--	$0
							Add 3rd NB through lane	Same	Fees	Yes (ST-107)	$0		$0
										Total:	**$0**		**$0**
11	Euclid Av. (SR-83) & SR-60 EB Ramps	Caltrans, City of Ontario	None	None	Add 2nd SB left turn lane	Same	Same	Same	Fees	Yes (ST-107)	$0	--	$0
					Add EB right turn lane	Same	Same	Same	Fees	Yes (ST-107)	$0		$0
										Total:	**$0**		**$0**
13	Euclid Av. (SR-83) & Riverside Dr.	Caltrans, City of Ontario, City of Chino	None	None	Restripe to provide a 3rd NB through lane	Same	Same	Same	Fees	Yes (TR-125)	$0	--	$0
									Fees	Yes (TR-125)	$0		$0
					Add 3rd SB through lane	Same	Same	Same	Fees	Yes (TR-125)	$0		$0
					Add 2nd EB through lane	Same	Same	Same	Fees	Yes (TR-125)	$0		$0
					Add EB right turn lane	Same	Same	Same	Fees	Yes (TR-125)	$0		$0
							Add 2nd NB left turn lane	Same	Fees	Yes (TR-125)	$0		$0
							Add NB right turn lane	Same	Fees	Yes (TR-125)	$0		$0
							Add 2nd SB left turn lane	Same	Fees	Yes (TR-125)	$0		$0
										Total:	**$0**		**$0**
14	Euclid Av. (SR-83) & Chino Av.	Caltrans, City of Ontario, City of Chino	None	None	Add 3rd NB through lane	Same	Same	Same	Fair Share	No	$327,405	5.9%	$19,416
					Add 3rd SB through lane	Same	Same	Same	Fair Share	No	$327,405		$19,416
							Add WB left turn lane	Same	Fair Share	No	$90,946		$5,393
										Total:	**$745,756**		**$44,226**
17	Euclid Av. (SR-83) & Schaefer Av.	Caltrans, City of Ontario, City of Chino	None	None	Add 2nd NB left turn lane	Same	Same	Same	Fair Share	No	$90,946	15.1%	$13,745
					Add 3rd NB through lane	Same	Same	Same	Fair Share	No	$327,405		$49,483
					Add 2nd SB left turn lane	Same	Same	Same	Fair Share	No	$90,946		$13,745
					Add 3rd SB through lane	Same	Same	Same	Fair Share	No	$327,405		$49,483
							Add 2nd EB left turn lane	Same	Fair Share	No	$90,946		$13,745
										Total:	**$927,647**		**$140,201**
18	Euclid Av. (SR-83) & Edison Av.	Caltrans, City of Ontario, City of Chino	None	None	Add 3rd NB through lane	Same	Same	Same	Fees	Yes (TR-126)	$0	--	$0
					Add 3rd SB through lane	Same	Same	Same	Fees	Yes (TR-126)	$0		$0
							Add 2nd SB left turn lane	Same	Fees	Yes (TR-126)	$0		$0
							Add 2nd EB left turn lane	Same	Fees	Yes (TR-126)	$0		$0
							Add 3rd EB through lane	Same	Fees	Yes (TR-126)	$0		$0
							Add 2nd WB left turn lane	Same	Fees	Yes (TR-126)	$0		$0
							Add 2nd WB through lane	Same	Fees	Yes (TR-126)	$0		$0
							Modify the traffic signal to implement overlap phasing for the SB and WB right turn lanes	Same	Fees	Yes (TR-126)	$0		$0
										Total:	**$0**		**$0**
19	Euclid Av. (SR-83) & Eucalyptus Av.	Caltrans, City of Ontario, City of Chino	None	None	Add 3rd NB through lane	Same	Same	Same	Fees	Yes (TR-166)	$0	4.3%	$0
					Add 3rd SB through lane	Same	Same	Same	Fees	Yes (TR-028)	$0		$0
							Add 2nd WB left turn lane	Same	Fair Share	No	$90,946		$3,908
							Add WB right turn lane	Same	Fair Share	No	$90,946		$3,908
										Total:	**$181,892**		**$7,816**
										Total Cost for Improvements	$2,310,023		$506,617
										Total Project Fair Share Contribution to the City of Chino (non-DIF/other) [6]		$410,764	
										Total Project Fair Share Contribution to the City of Ontario [7]		$95,854	

[1] Improvements included in regional/City DIF programs have been identified as such.

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

[3] Costs have been estimated using the data provided in Appendix "G" of the CMP (2003 Update) for preliminary construction costs with an application of 1.82 factor to adjust costs to 2023.

[4] Total project fair share contribution consists of the improvements which are not already included in a pre-existing fee program.

[5] Rough order of magnitude cost estimate.

[6] 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 Chino.

[7] Total project fair share contribution consists of the improvements for those intersections wholly or partially within the City of Ontario.

1.6.3 QUEUING ANALYSIS

A queuing analysis was conducted at the study area intersections for Horizon Year (2045) With Project traffic conditions to determine the turn pocket lengths necessary to accommodate 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours. The results have been provided in Appendix 1.2. Based on the results of the queuing analysis, no queuing issues are anticipated at the Project driveway intersections. 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 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 (or Average Queue plus 1.65 standard deviations). Many agencies utilize the 95th percentile queues for design purposes. A vehicle is considered queued whenever it is traveling at less than 10 feet/second. The random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each turn movement. A SimTraffic simulation has been recorded five (5) times, during the weekday AM and weekday PM peak hours, and has been seeded for 30-minute periods with 60-minute recording intervals.

1.7 TURNING TEMPLATES

In order to ensure vehicles can adequately access the site, truck turning templates have been evaluated at each of the Project driveways and site adjacent intersections. In an effort to conduct a conservative analysis, a SU-40 (39.5-feet) truck template has been utilized, which represents a standard delivery truck. The vehicle turning template is provided on Exhibit 1-5, which shows that the Project driveways are anticipated to accommodate the turning radius of standard delivery trucks as currently designed, with the exception of the following driveways:

- The northwest and southwest curbs at Street A along Euclid Avenue (SR-83) should be modified to provide a 35-foot radius.
- The northwest curb at Driveway 3 along Euclid Avenue (SR-83) should be modified to provide a 50-foot radius.

1.8 BICYCLE & PEDESTRIAN CIRCULATION

Bicycle and pedestrian access have been evaluated for the proposed Project. The Project will construct sidewalk improvements on Schaefer Avenue along the Project's frontage, which will connect to the existing sidewalks adjacent to the Project site on Euclid Avenue (SR-83), Schaefer Avenue, and Fern Avenue. The pedestrian circulation is shown on Exhibit 1-6. The sidewalks will be constructed in compliance with the Americans with Disabilities Act (ADA) and Chino's Policy on Accessible Pedestrian Facilities.

The proposed roadway improvements along the Project's frontage will also include a Class II bicycle lane along Schaefer Avenue. Class II bicycle lanes are signed and striped, on-street bicycle lanes. The proposed bike lane width will be consistent with the existing bicycle lane widths. The proposed Class II bicycle lane will connect to the existing Class II bicycle lanes along Schaefer Avenue to the west, providing bicycle access to the surrounding area. The bicycle circulation is shown on Exhibit 1-7. The bike lanes will be constructed in compliance with the ADA and Chino's Policy on Accessible Pedestrian Facilities.

EXHIBIT 1-5: PROPOSED PROJECT PEDESTRIAN CIRCULATION (PAGE 1 OF 6)

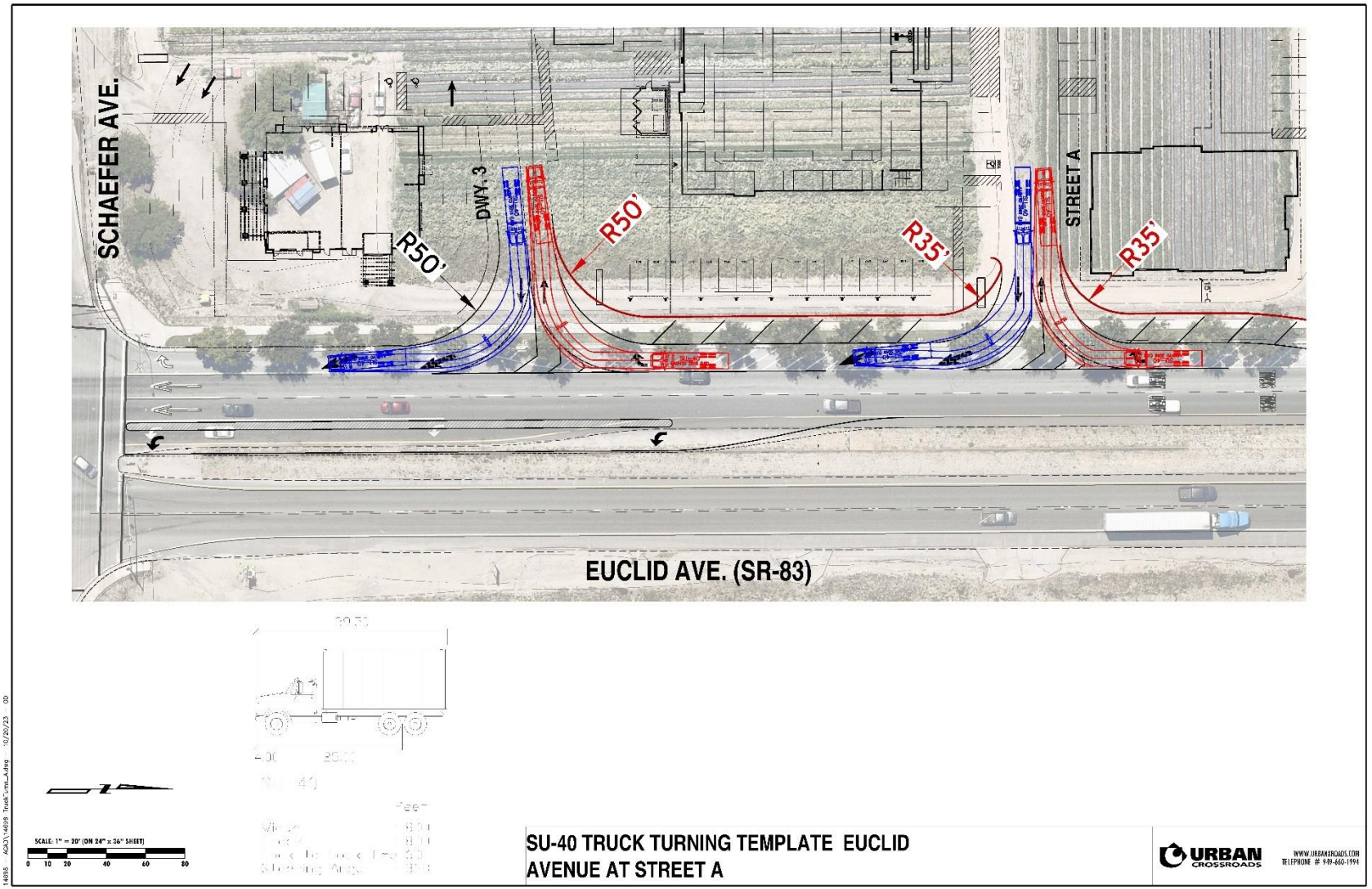
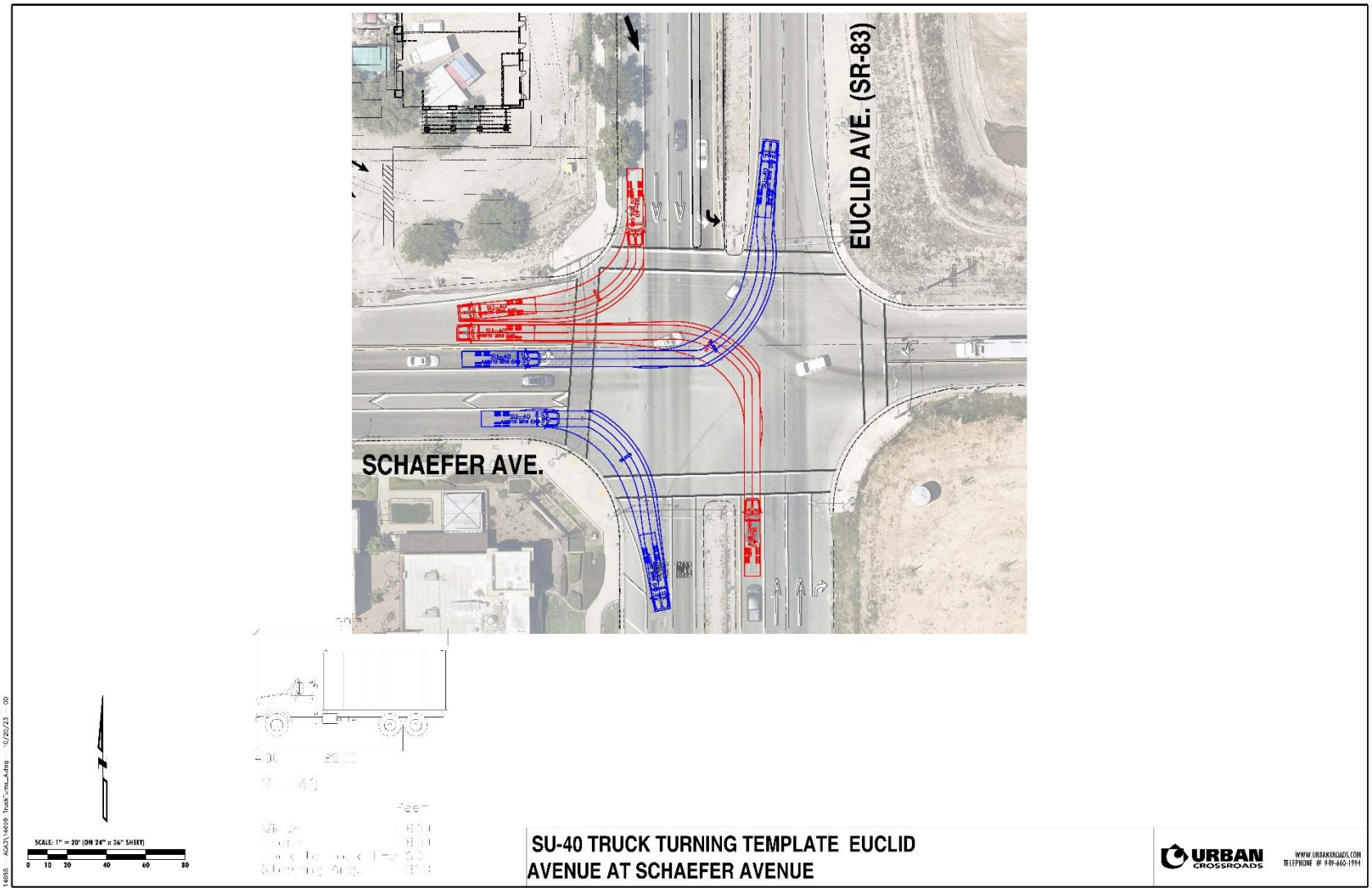


EXHIBIT 1-5: PROPOSED PROJECT PEDESTRIAN CIRCULATION (PAGE 2 OF 6)



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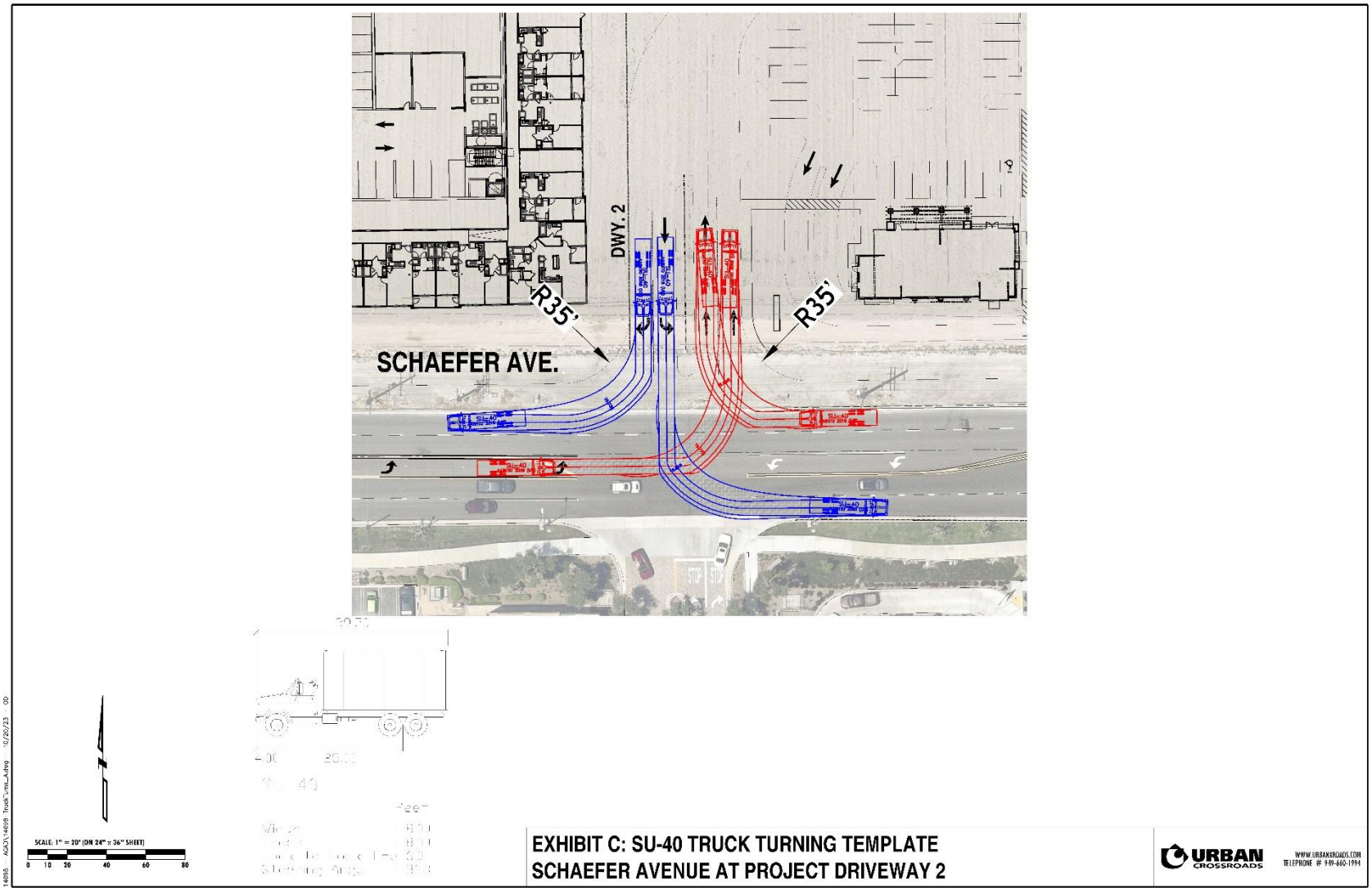


EXHIBIT 1-5: PROPOSED PROJECT PEDESTRIAN CIRCULATION (PAGE 4 OF 6)

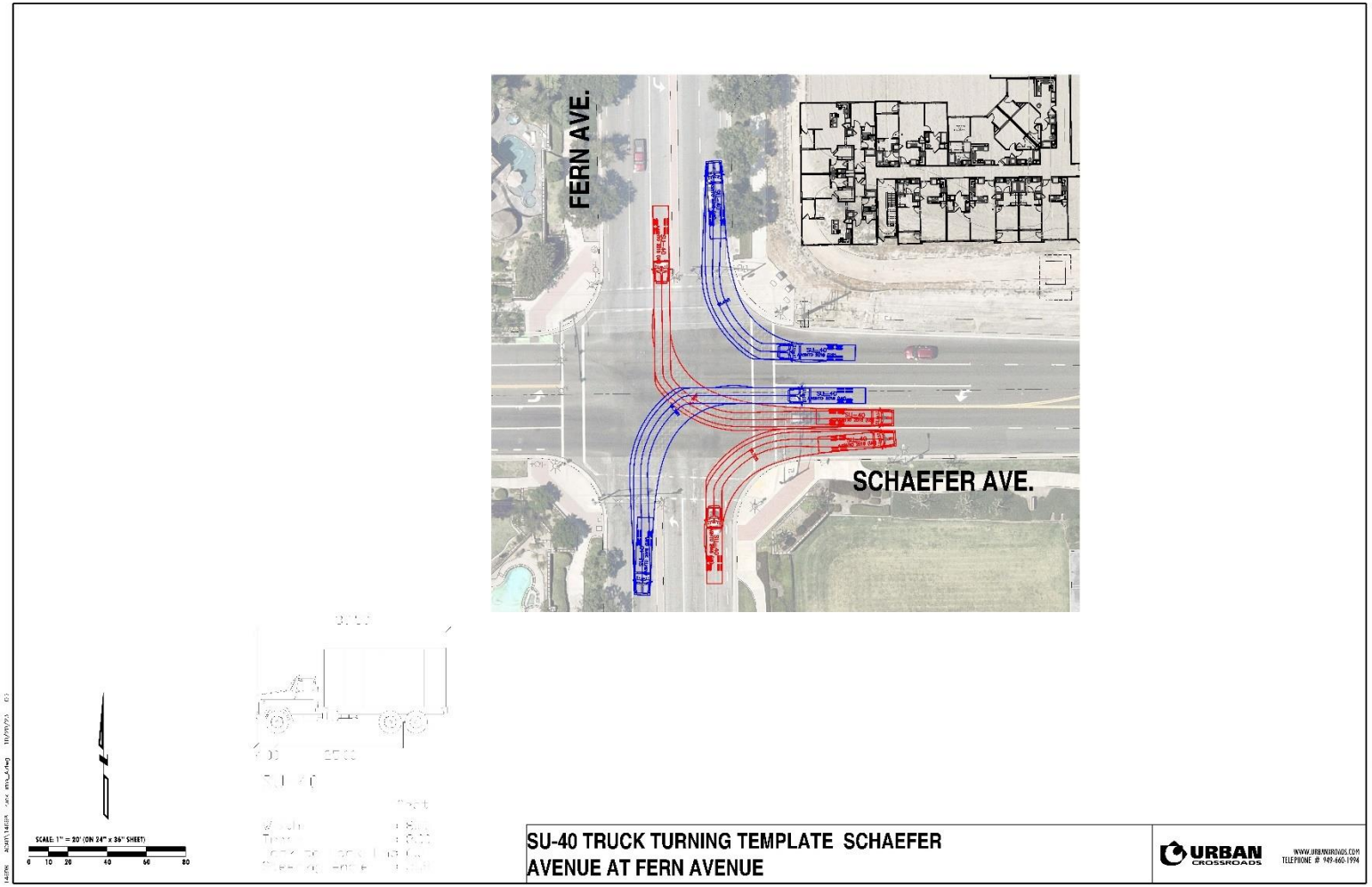


EXHIBIT 1-5: PROPOSED PROJECT PEDESTRIAN CIRCULATION (PAGE 5 OF 6)

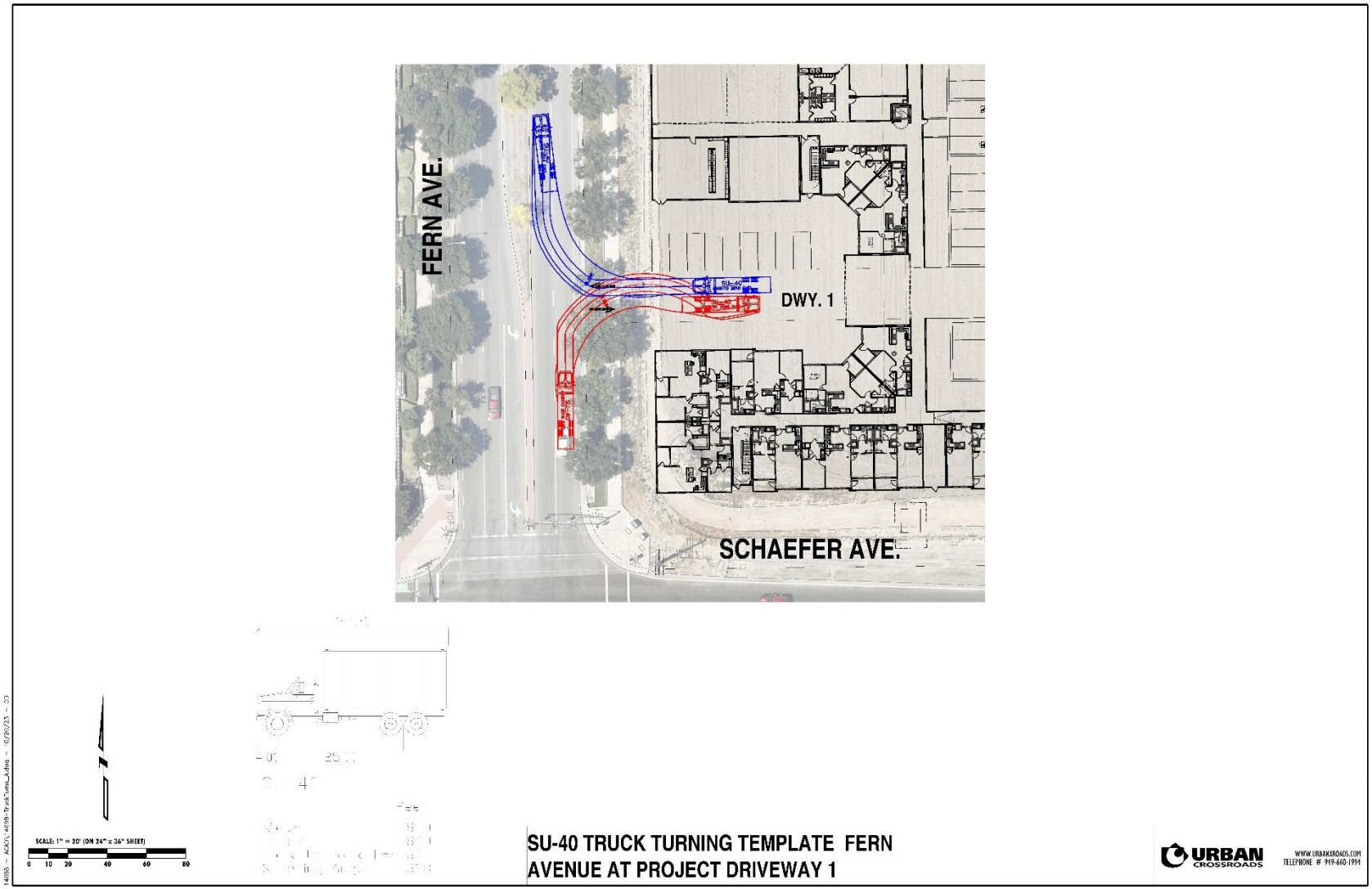


EXHIBIT 1-5: PROPOSED PROJECT PEDESTRIAN CIRCULATION (PAGE 6 OF 6)

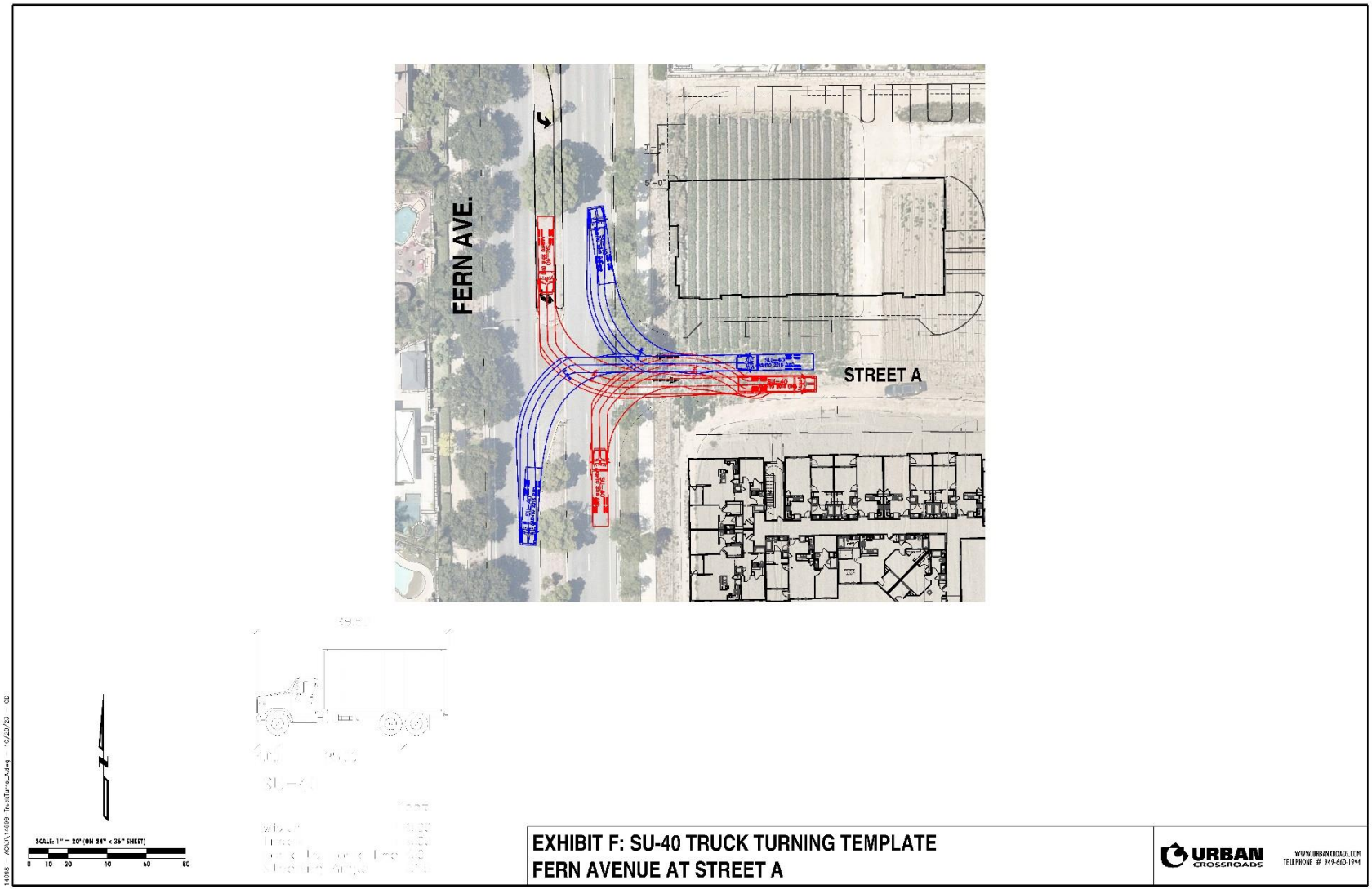


EXHIBIT 1-6: PROPOSED PROJECT PEDESTRIAN CIRCULATION

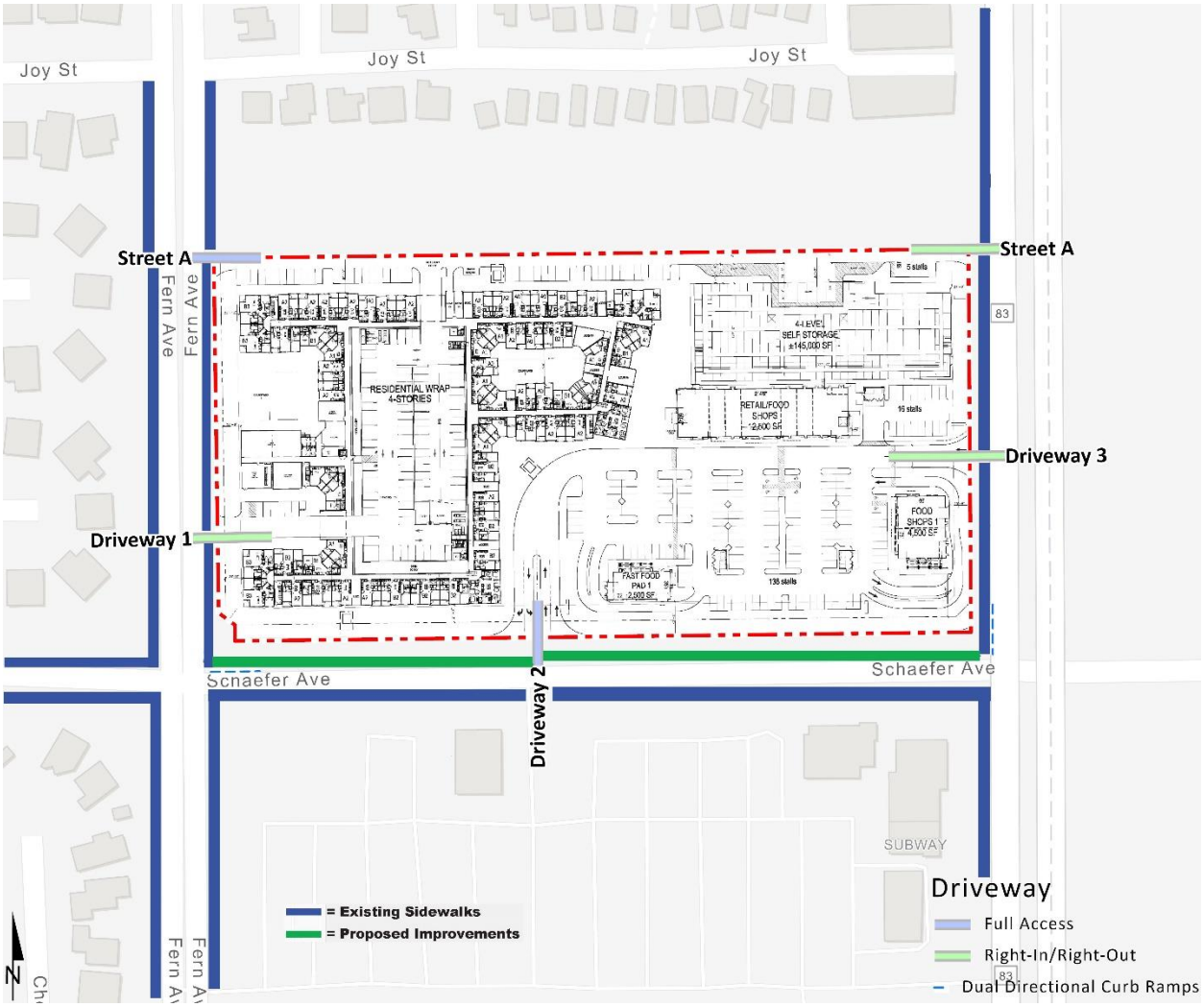
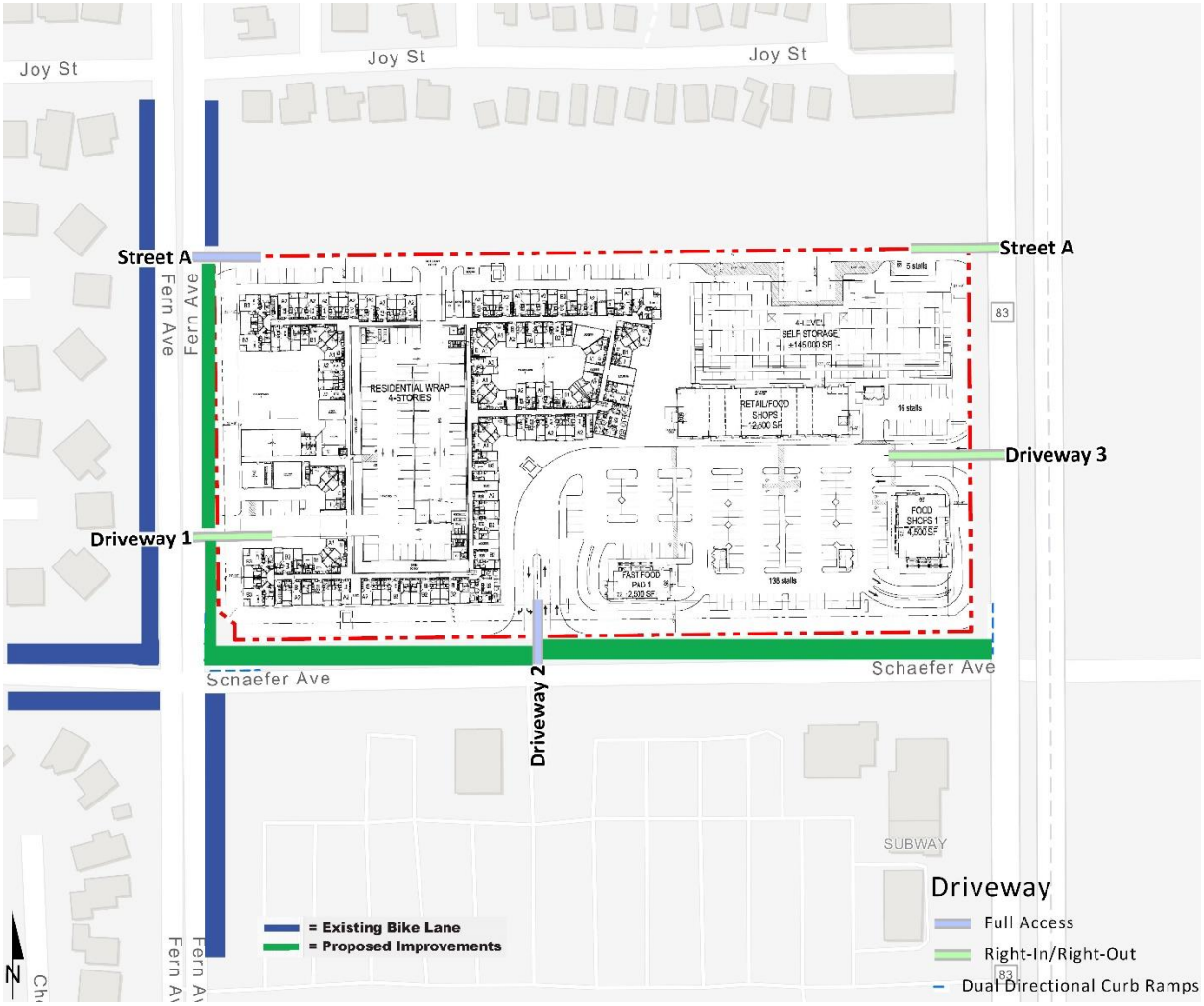


EXHIBIT 1-7: PROPOSED PROJECT BICYCLE CIRCULATION



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2 METHODOLOGIES

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

2.1 LEVEL OF SERVICE

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

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

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

Consistent with Appendix B of the San Bernardino County CMP, the following saturation flow rates, in vehicles per hour green per lane (vphgpl), will be utilized in the traffic analysis for signalized intersections:

Existing, E+P, and Opening Year Cumulative (2024) Traffic Conditions:

- Exclusive through: 1800 vphgpl
- Exclusive left: 1700 vphgpl
- Exclusive right: 1800 vphgpl
- Exclusive dual left: 1600 vphgpl
- Exclusive triple left: 1500 vphgpl

Horizon Year (2045) Traffic Conditions:

- Exclusive through: 1900 vphgpl
- Exclusive left: 1800 vphgpl
- Exclusive dual left: 1700 vphgpl
- Exclusive right: 1900 vphgpl
- Exclusive dual right: 1800 vphgpl
- Exclusive triple left: 1600 vphgpl or less

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.

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

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

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Chino requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

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

Source: HCM, 6th Edition

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

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the California Department of Transportation (Caltrans) and other public agencies to quantitatively justify or determine the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (5)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions and for all future analysis scenarios for existing unsignalized intersections. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics. For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection. Urban warrants have been used as posted speed limits on the major roadways with existing unsignalized intersections that are 40 miles per hour or below where rural warrants are used for unsignalized intersections along roadways with speed limits in excess of 40 miles per hour.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future ADT volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Similarly, the speed limit has been used as the basis for determining the use of Urban and Rural warrants. Traffic signal warrant analyses were performed for the following study area intersection shown in Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

#	Intersection	Jurisdiction
8	Fern Av. & Eucalyptus Av.	City of Chino
9	Driveway 2 & Schaefer Av.	City of Chino
20	Sultana Av. & Schaefer Av.	City of Ontario

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Conditions,* Section 6 *Opening Year Cumulative (2024) Traffic Conditions, and* Section 7 *Horizon Year (2045) Traffic Conditions* of this report. It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the City of Chino Roadway Capacity Thresholds provided in the City's General Plan and are show in Table 2-4. (6) 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. In other words, while using ADT for planning purposes is suitable with regards to evaluating potential volume to capacity with future forecasts, it is not suitable for operational analysis because it does not account for the factors listed previously. As such, where the 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.

TABLE 2-4: CITY OF CHINO GENERAL PLAN ROADWAY SEGMENT CAPACITIES

TABLE TRA–3 GENERALIZED MAXIMUM DAILY MOTOR VEHICLE VOLUMES AT A LEVEL OF SERVICE

No. Lanes	Freeway	Expressway		Major Arterial		
LOS	6	4	8	4	6	8
A	72,000	24,500	49,000	21,500	32,300	43,000
B	84,000	28,600	57,200	25,100	37,700	50,200
C	96,000	32,700	65,400	28,700	43,100	57,400
D	108,000	36,800	73,500	32,300	48,500	64,600
E	120,000	40,900	81,700	35,900	53,900	71,800

No. Lanes	Primary Arterial			Secondary Arterial		Collector
LOS	2	4	6	2	4	2
A	10,000	18,000	29,000	8,000	17,000	8,000
B	11,000	20,000	34,000	10,000	20,000	9,000
C	13,000	24,000	38,000	11,000	22,000	10,000
D	14,000	27,000	43,000	13,000	25,000	12,000
E	16,000	30,000	48,000	14,000	28,000	13,000

2.5 QUEUING ANALYSIS

Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections at the SR-60 Freeway at the Euclid Avenue (SR-83) interchange. Specifically, the off-ramp 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 deficiencies/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. The footnote from the Synchro output sheets 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 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.

2.5 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

Minimum Acceptable LOS and associated definitions of intersection deficiencies have been obtained from each of the applicable surrounding jurisdictions.

2.5.1 CITY OF CHINO

According to the City of Chino's General Plan Objective TRA-1.2/Policy P1, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, where feasible. (6)

2.5.2 CITY OF ONTARIO

Per the Ontario Plan's Policy M-1, the City of Ontario utilizes a minimum acceptable LOS of LOS E, where feasible. (7)

2.5.3 CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, in an effort to overstate as opposed to understate potential deficiencies, LOS D has been utilized for the CMP intersections for the purposes of this analysis, unless the intersection is located in the City of Ontario (which uses LOS E). (2)

2.5.4 CALTRANS

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway System 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. (8) 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 and intersections is LOS D. Consistent with the City of Chino 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.

2.6 DEFICIENCY CRITERIA

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

- When the Without Project condition is at or better than LOS D (or LOS E for CMP intersections) (i.e., acceptable LOS), and project-generated traffic causes deterioration below LOS D/LOS E (i.e., unacceptable LOS), a deficiency is deemed to occur.

When the Without Project condition is already below LOS D/LOS E (i.e., unacceptable LOS), the Project will be responsible for improving its deficiency to acceptable levels of service. Thus, for intersections operating at unacceptable LOS during either the AM and/or PM peak hour, improvements have been identified to improve the deficiencies of the Project to an intersection LOS that is equal to or better than Without Project conditions. The Project's contribution to a deficiency can be reduced if the Project is required to implement or fund its fair share of improvements designed to alleviate its contribution to the deficient condition.

In the event that an intersection is operating at or is forecast to operate at a deficient LOS, the 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 improvements 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 improvements, and
- Calculate the Project's fair-share contribution to improve the Project's traffic deficiencies

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Chino General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, roadway segment capacity, and off-ramp queuing analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Chino staff (Appendix 1.1), the study area includes a total of 20 existing and future intersections as shown previously on Exhibit 1-3. 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 CHINO GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Chino. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Chino General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Chino General Plan Circulation Element and Exhibit 3-3 illustrates the City of Chino General Plan roadway cross-sections. Table 3-1 provides the City of Chino's ultimate buildout descriptions for General Plan roadways.

An Expressway is identified as having a 206-foot right-of-way and 168-foot curb-to-curb measurement. Expressways include four lanes of travel in each direction and a 64-foot median. The following study area roadway within the City of Chino is classified as an Expressway:

- Euclid Avenue (SR-83)

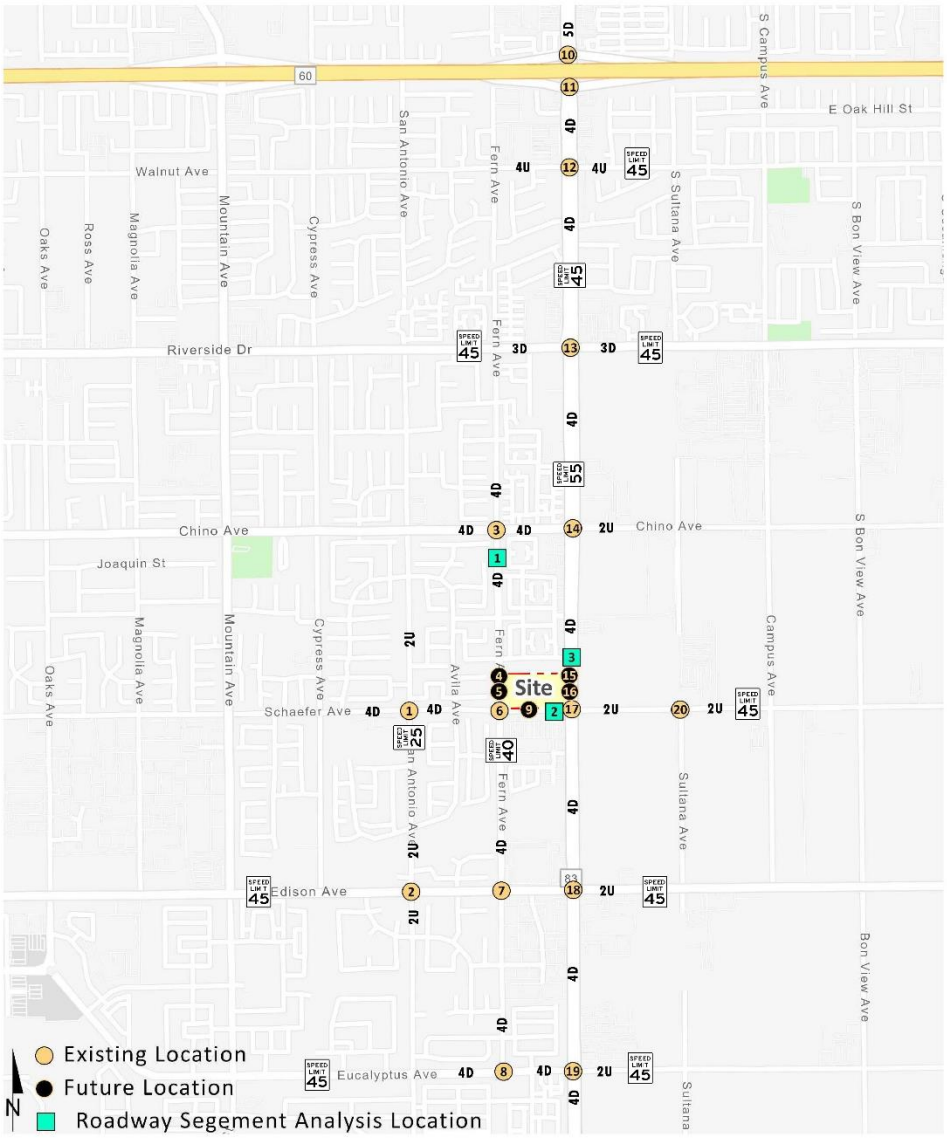
A Major Arterial is identified as having 120-foot right-of-way and 100-foot curb-to-curb measurement. Major Arterials include three lanes of travel in each direction and a 14-foot curbed and/or landscaped median. The following study area roadway within the City of Chino is classified as a Major Arterial:

- Edison Avenue

A Primary Arterial is identified as having a 98-foot right-of-way and 74-foot curb-to-curb measurement. Primary Arterials include four lanes of travel in each direction and a 14-foot curbed and/or landscaped median. The following study area roadways within the City of Chino are classified as a Primary Arterial:

- Schaefer Avenue
- Riverside Drive, Fern Avenue to Euclid Avenue (SR-83)
- Fern Avenue, between Chino Avenue and Edison Avenue
- Eucalyptus Avenue

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS (PAGE 1 OF 2)



1 San Antonio Av. & Schaefer Av.	2 San Antonio Av. & Edison Av.	3 Fern Av. & Chino Av.	4 Fern Av. & Street A	5 Fern Av. & Driveway 1
DEF	DEF	DEF	Future Intersection	Future Intersection

4 = Number of Lanes
D = Divided
U = Undivided
55 = Speed Limit (MPH)
= Traffic Signal
= Traffic Lane
DEF = Defacto Right Turn

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS (PAGE 2 OF 2)

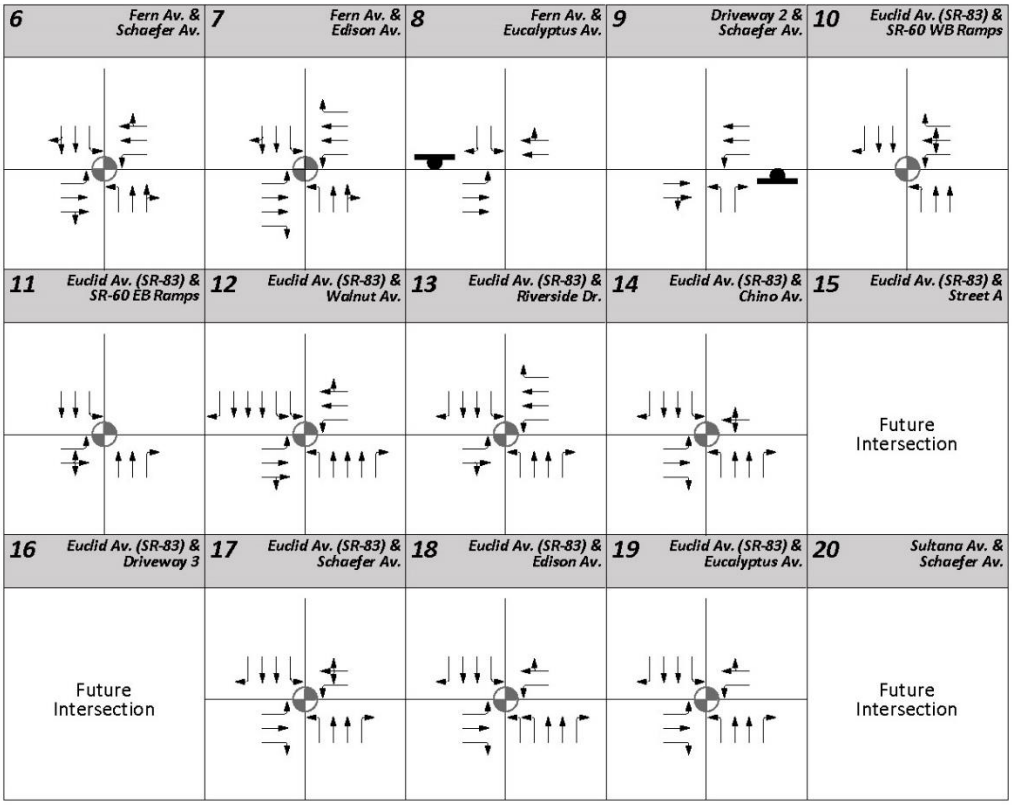


EXHIBIT 3-2: CITY OF CHINO GENERAL PLAN CIRCULATION ELEMENT

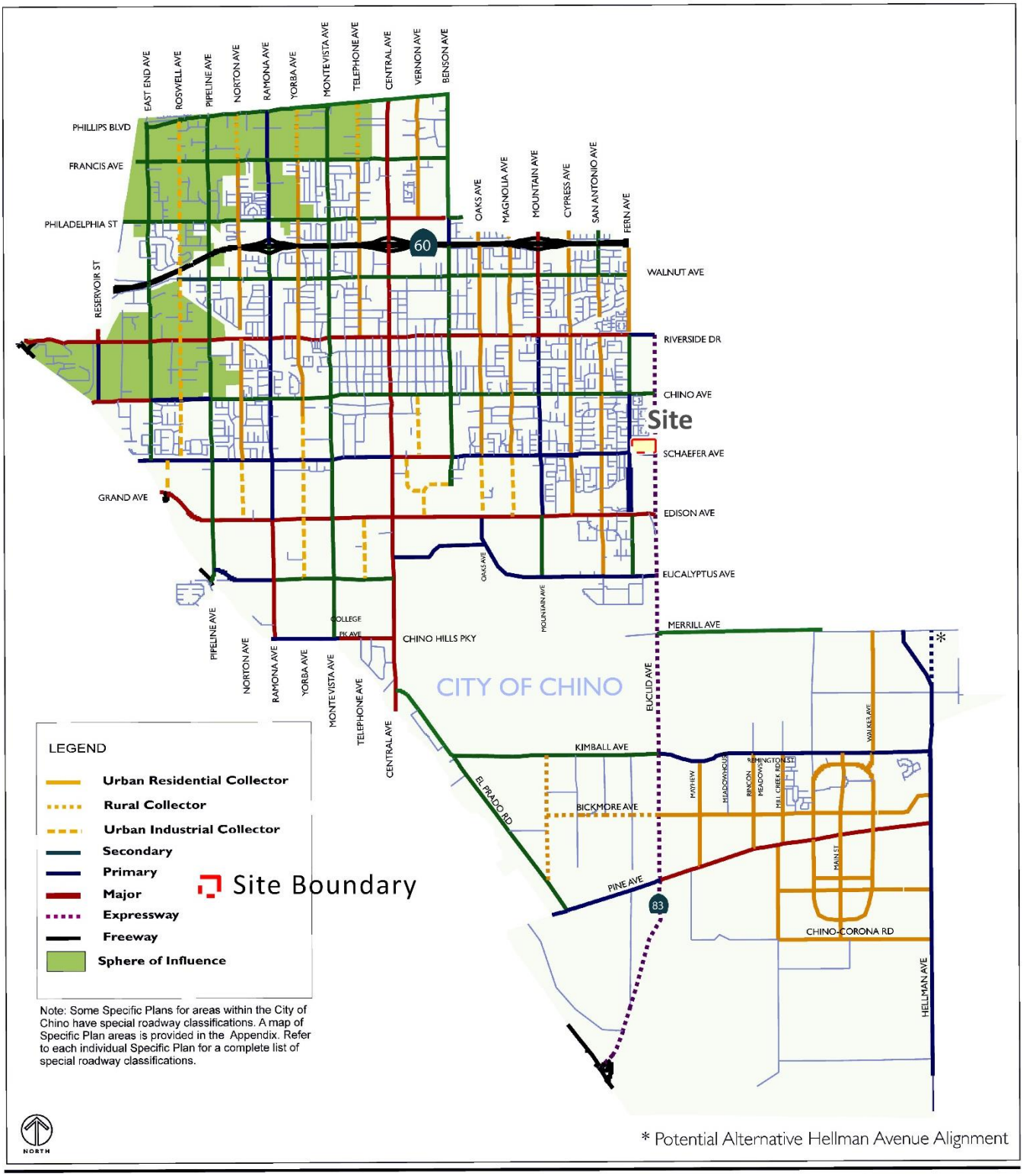
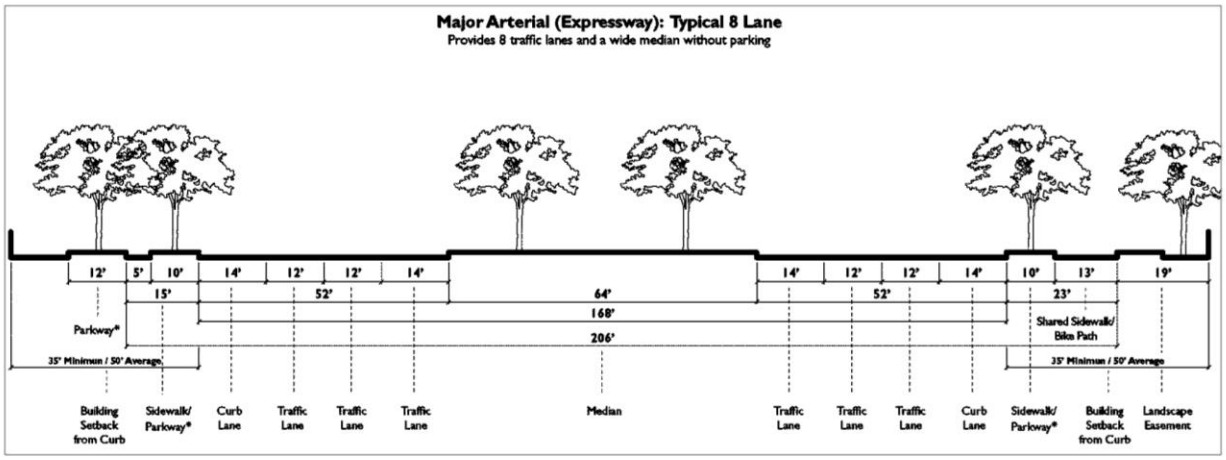
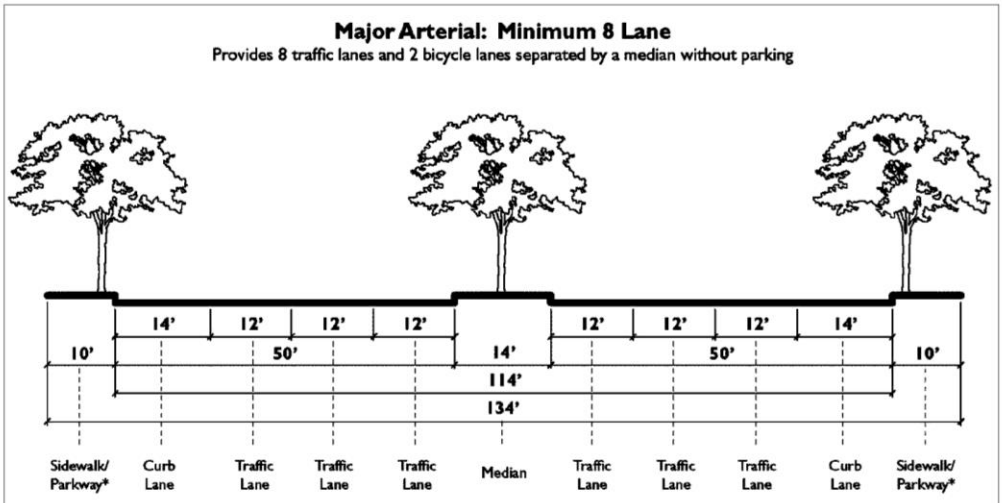


EXHIBIT 3-3: CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS (1 OF 3)





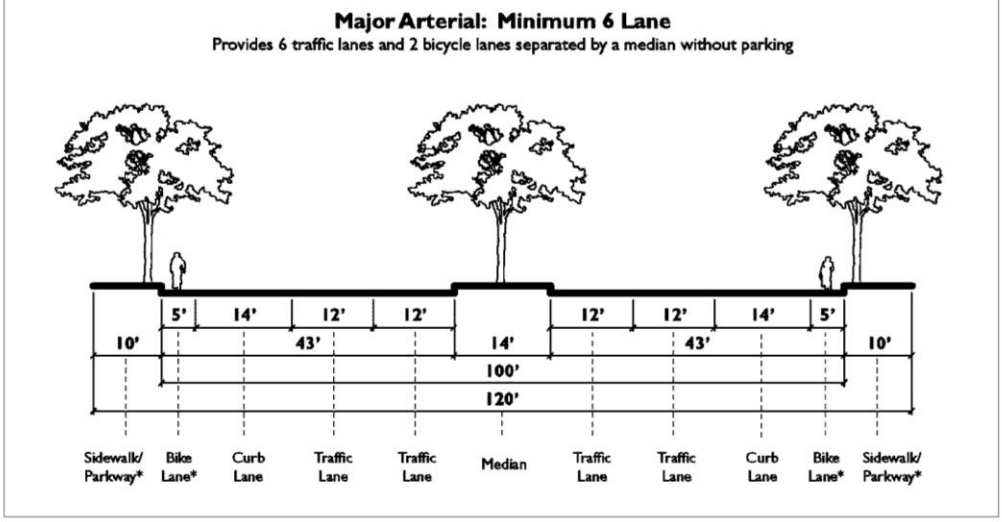


EXHIBIT 3-3: CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS (2 OF 3)

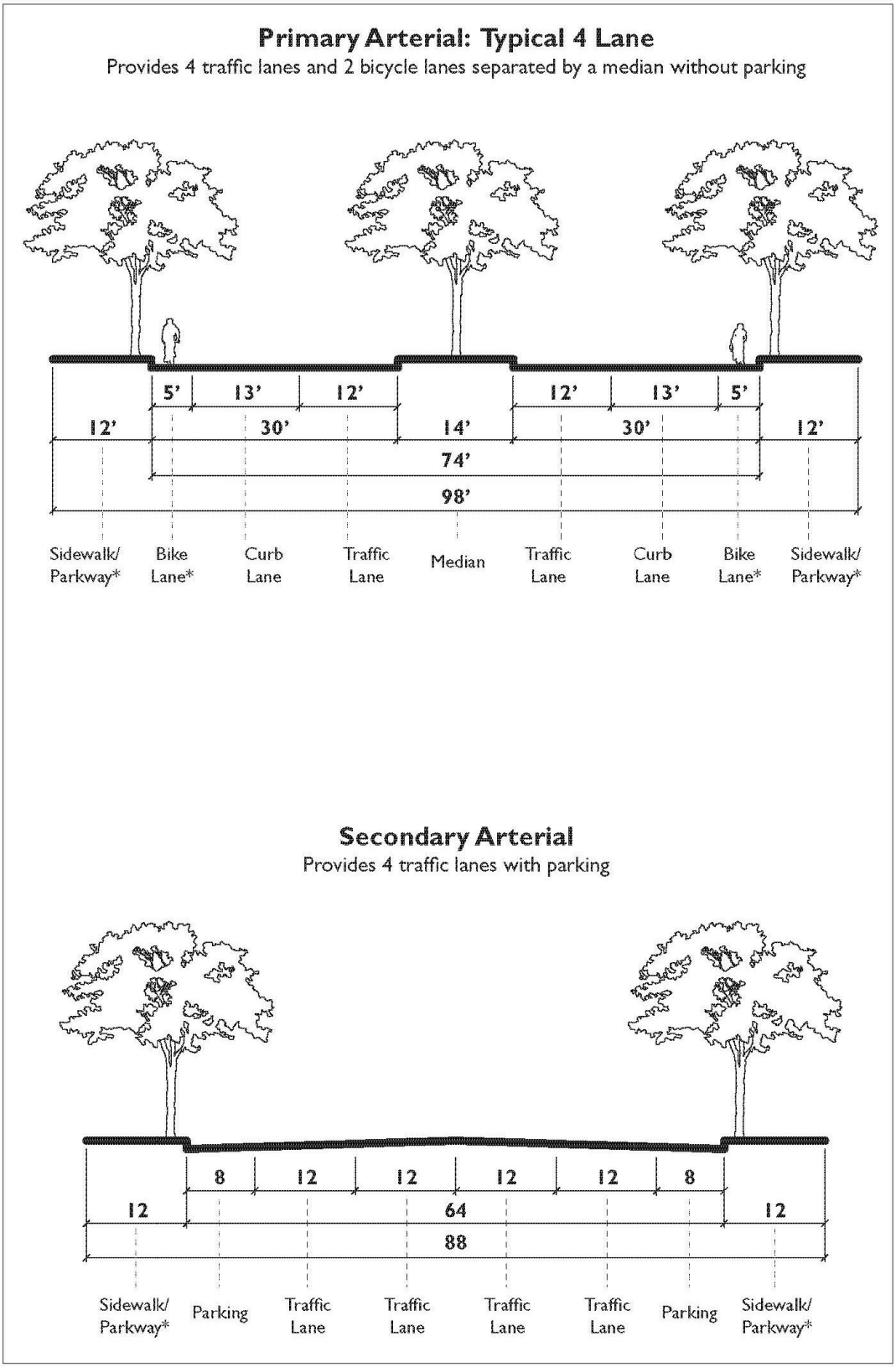


EXHIBIT 3-3: CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS (3 OF 3)

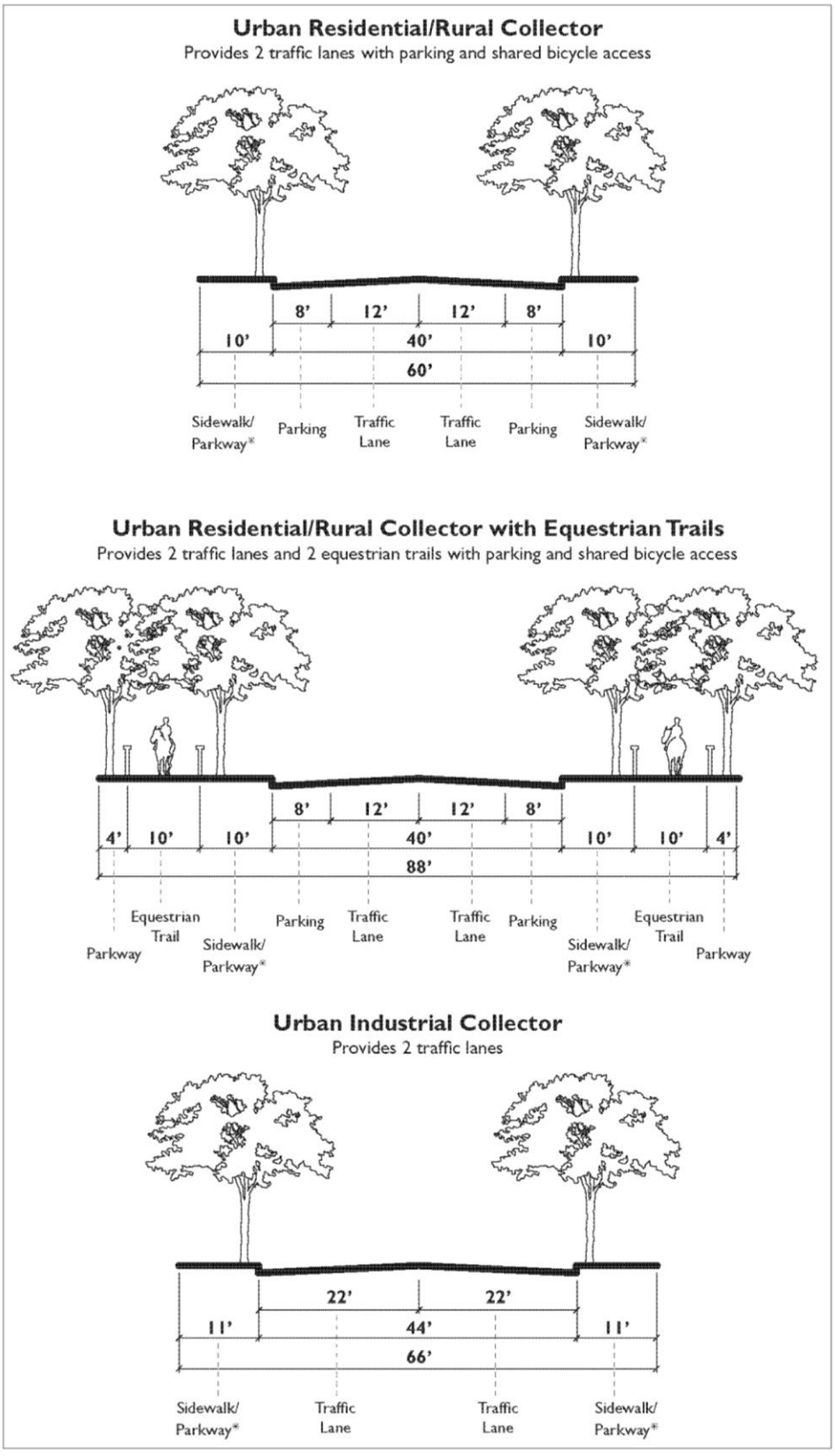


TABLE 3-1: CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTION DESCRIPTIONS

TABLE TRA-5A ULTIMATE BUILDOUT OF NORTH-SOUTH ARTERIAL ROADWAYS (CONTINUED)

Roadway Segment	No. of Lanes	Total R-O-W*	Curb-to-Curb*	Street Classification	Notes (see Legend)
Fern Avenue					
Riverside Dr to Chino Ave	4	88	64	SA	B
Chino Ave to Edison Ave	4	92	68	PA	LM, B
Edison Ave to Eucalyptus Ave	4	88	64	SA	LM, B
El Prado Road					
Central Ave to South City Limits	4	88	64	SA	
Euclid Avenue (State Route 83)					
Philadelphia St to State Route 60	8	200		EX	LM, B
State Route 60 to Riverside Dr	8	200		EX	LM, B
Riverside Dr to Edison Ave	8	200		EX	LM, B, ECSP
Edison Ave to Eucalyptus Ave	8	200		EX	LM, B, ECSP
Eucalyptus Ave to Kimball Ave	8	200[a]		EX	LM, B, ECSP
Kimball Ave to State Route 71	8	200		EX	LM, B

Legend: *ROW and curb widths are in feet.
B-Bicycle Trail Lane
E- Equestrian Trail
EBPSP-Eucalyptus Business Park Specific Plan
ECSP-East Chino Specific Plan
MSSP-Majestic Spectrum Specific Plan
PM-Painted Median
EX-Expressway
MA-Major Arterial
PA-Primary Arterial
SA-Secondary Arterial
LM-Landscape Median
[a] R-O-W widths do not include equestrian trail requirements.
[b] Painted medians at selected mid-block locations per Majestic Spectrum Specific Plan

Schaefer Avenue					
Mountain Ave to San Antonio Ave	4	100	64	PA	B
San Antonio Ave to Fern Ave	4	100	64	PA	B
Fern Ave to Euclid Ave	4	106	72	PA	B, LM

A Secondary Arterial is identified as having an 88-foot right-of-way and 64-foot curb-to-curb measurement. Secondary Arterials include four lanes of travel. The following study area roadways within the City of Chino are classified as a Secondary Arterial:

- Chino Avenue
- Fern Avenue, south of Edison Avenue
- Fern Avenue, between Chino Avenue and Riverside Drive

3.3 CITY OF ONTARIO GENERAL PLAN CIRCULATION ELEMENT

The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Ontario General Plan Circulation Element, are provided on Exhibit 3-4.

3.4 BICYCLE & PEDESTRIAN FACILITIES

Exhibit 3-5 illustrates the City of Chino future planned bicycle facilities per the City's Bicycle and Pedestrian Master Plan (2016), which shows a planned Class II or Class III bike path along the Schaefer Avenue, with the only unfinished portion located along the Project's frontage (on either side of Schaefer Avenue). (9) The City of Ontario Bike Plan is provided on Exhibit 3-6 while the existing pedestrian facilities within the study area are shown on Exhibit 3-7.

As shown on Exhibit 3-7, pedestrian facilities are built out along portions of Fern Avenue, Schaefer Avenue, and Euclid Avenue (SR-83). Field observations and traffic counts conducted in 2023 indicate moderate pedestrian and bicycle activity within the study area. It should be noted, the Project is proposed to complete the Class II bike lanes along Scheafer Avenue to connect the existing Class II bike lanes. The bike lanes will be constructed in compliance with ADA and Chino's Policy on Accessible Pedestrian Facilities. Additionally, all pedestrian facilities impacted by the proposed Project will be constructed in compliance with ADA and Chino's Policy on Accessible Pedestrian Facilities.

3.5 TRANSIT SERVICE

The study area within the City of Chino 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, Routes 83 and 84 currently run along Euclid Avenue (SR-83), with the nearest bus stop located at the intersection of Euclid Avenue (SR-83) & Schaefer Avenue, which can provide transit access to the Project site. Transit service is reviewed and updated by Omnitrans 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. Existing transit routes in the vicinity of the study area are illustrated on Exhibit 3-8.

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

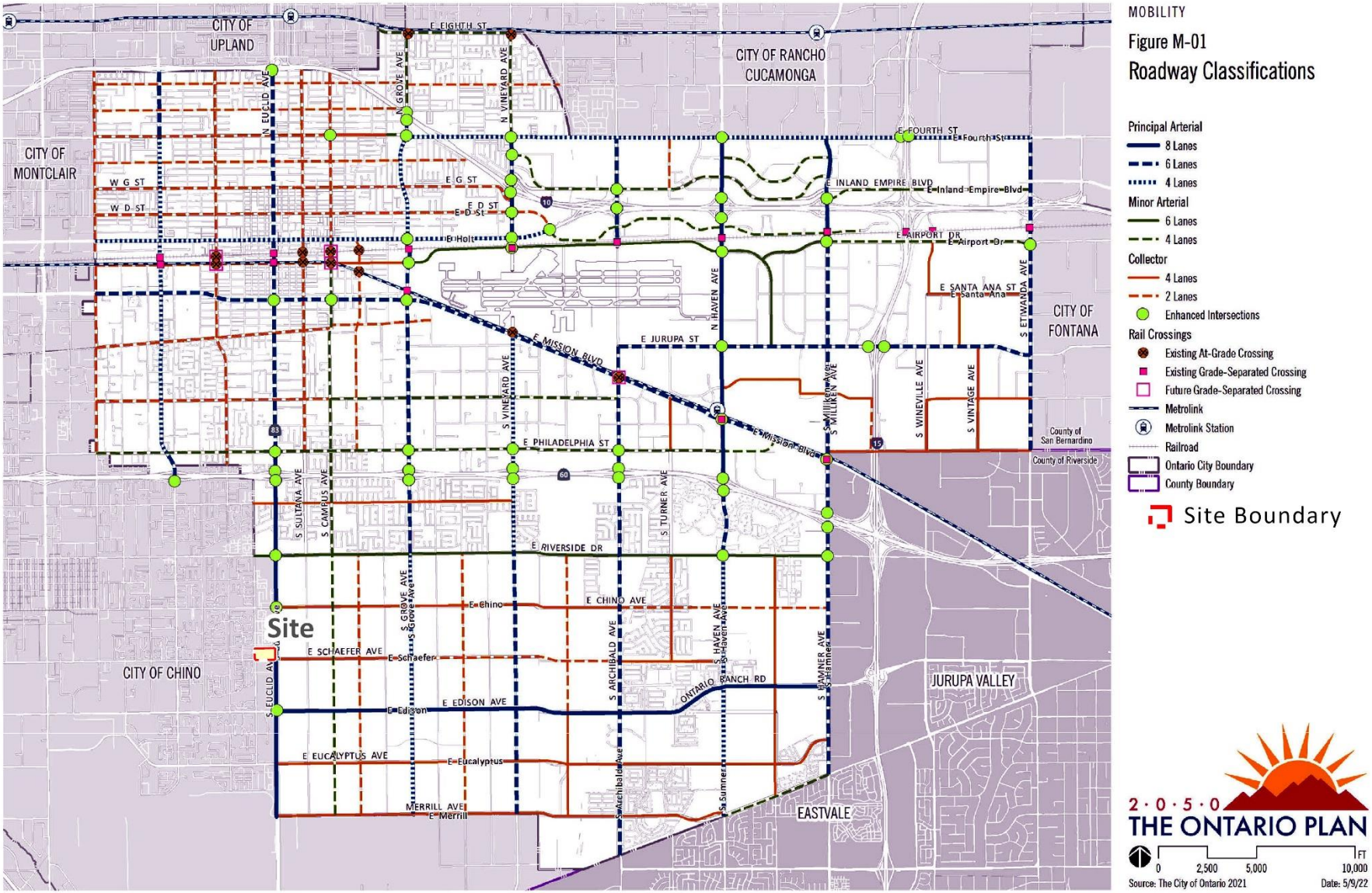


EXHIBIT 3-5: CITY OF CHINO FUTURE BICYCLE FACILITIES

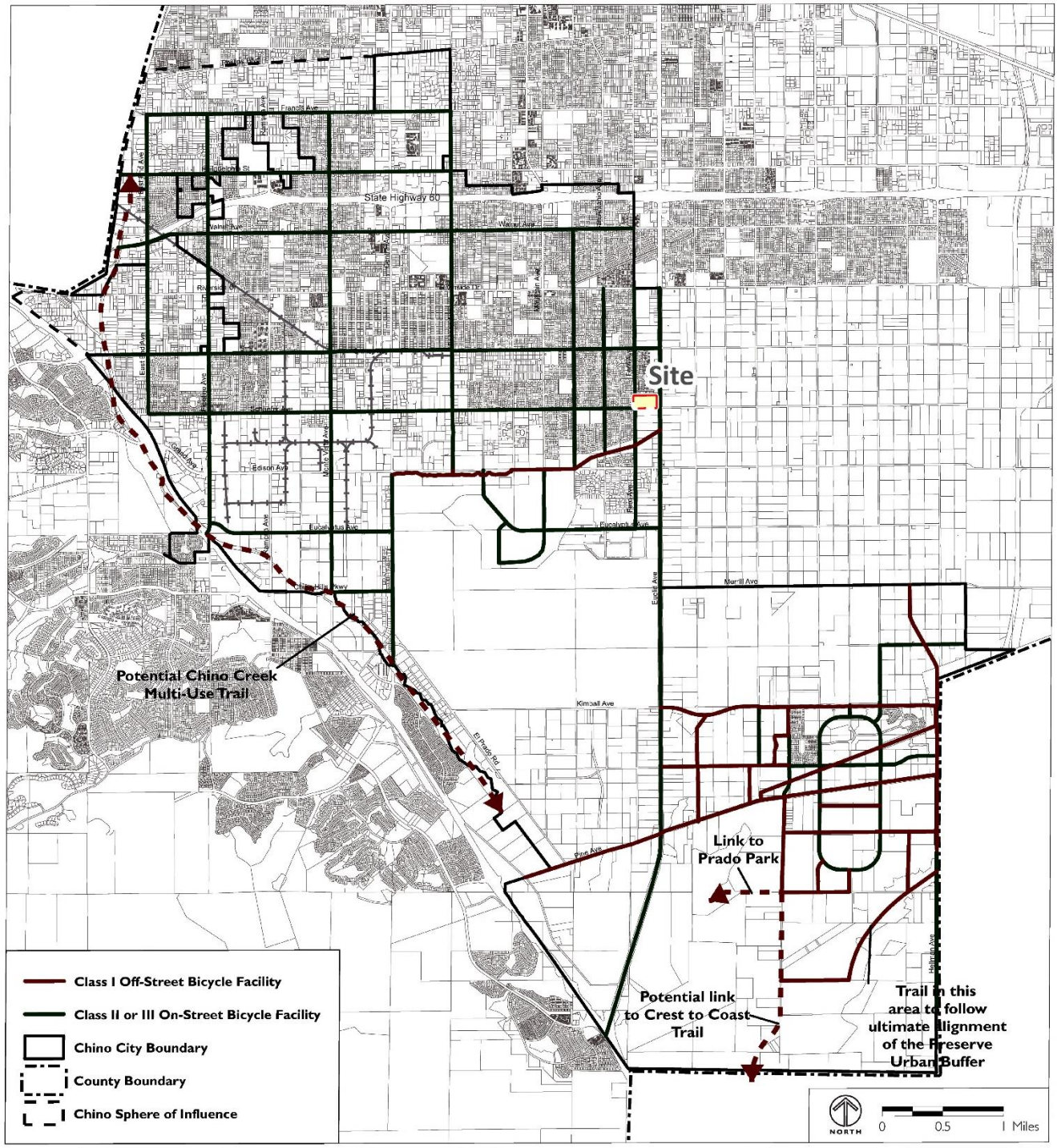


EXHIBIT 3-6: CITY OF ONTARIO BICYCLE FACILITIES

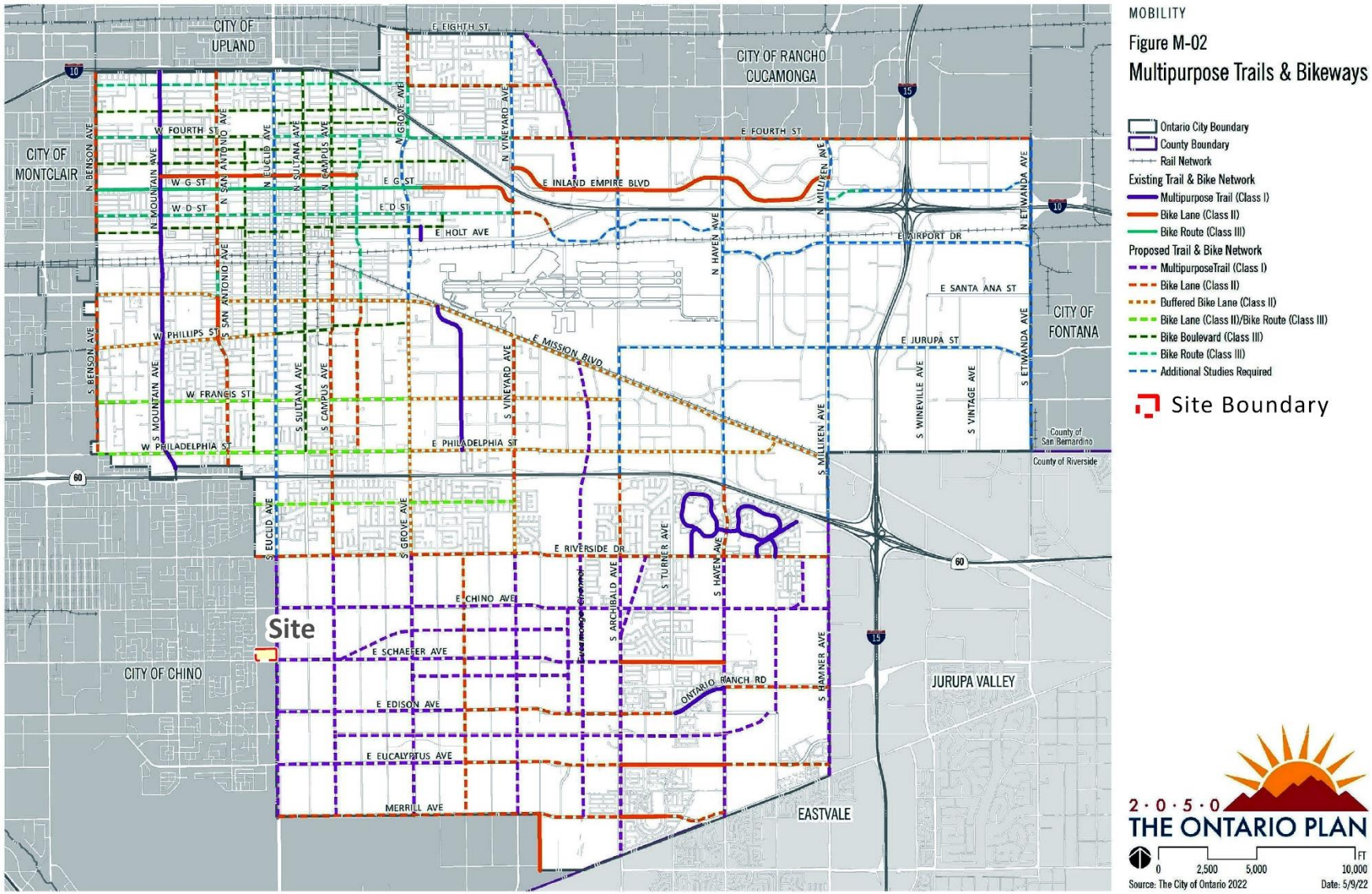


EXHIBIT 3-7: EXISTING PEDESTRIAN FACILITIES

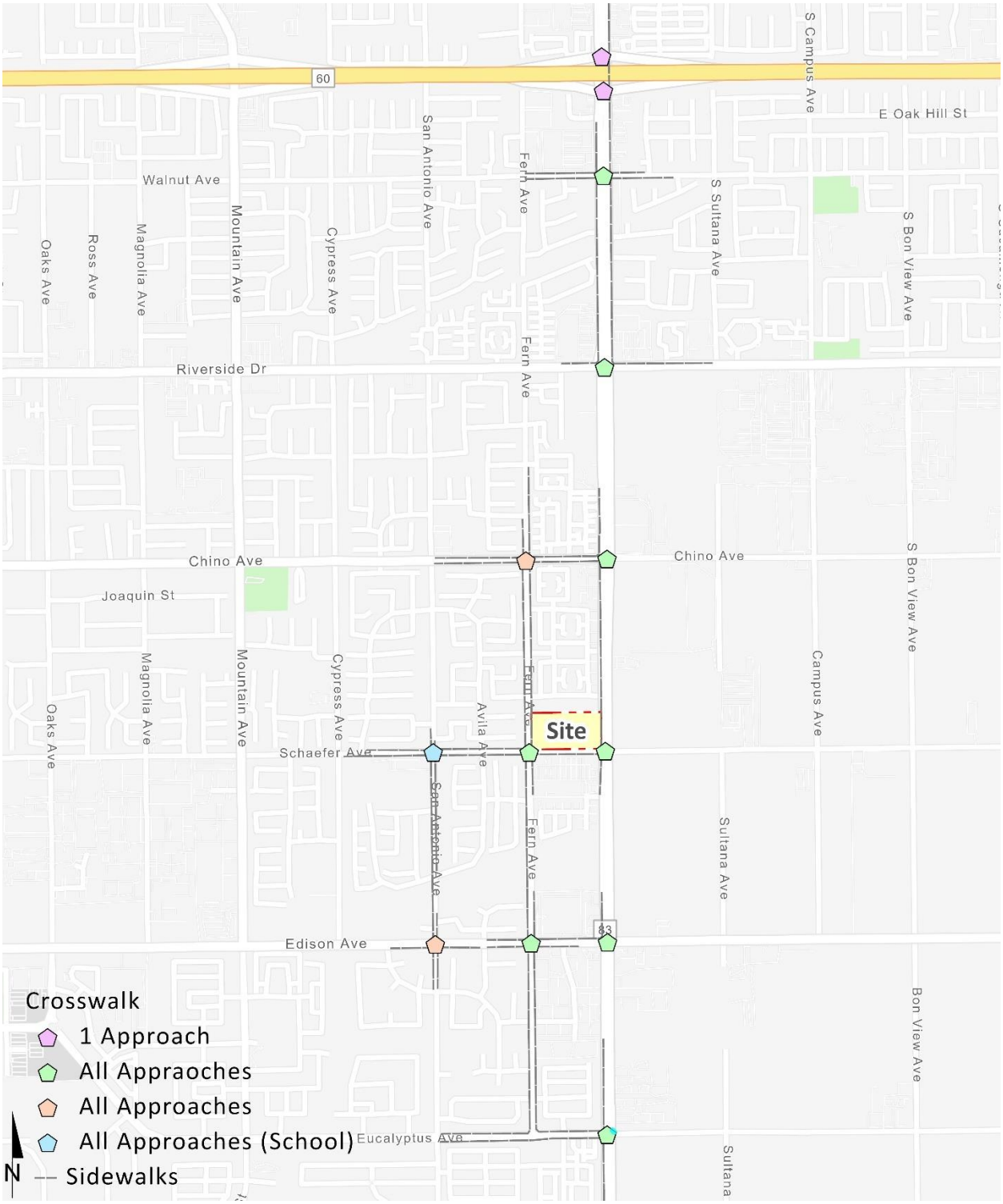
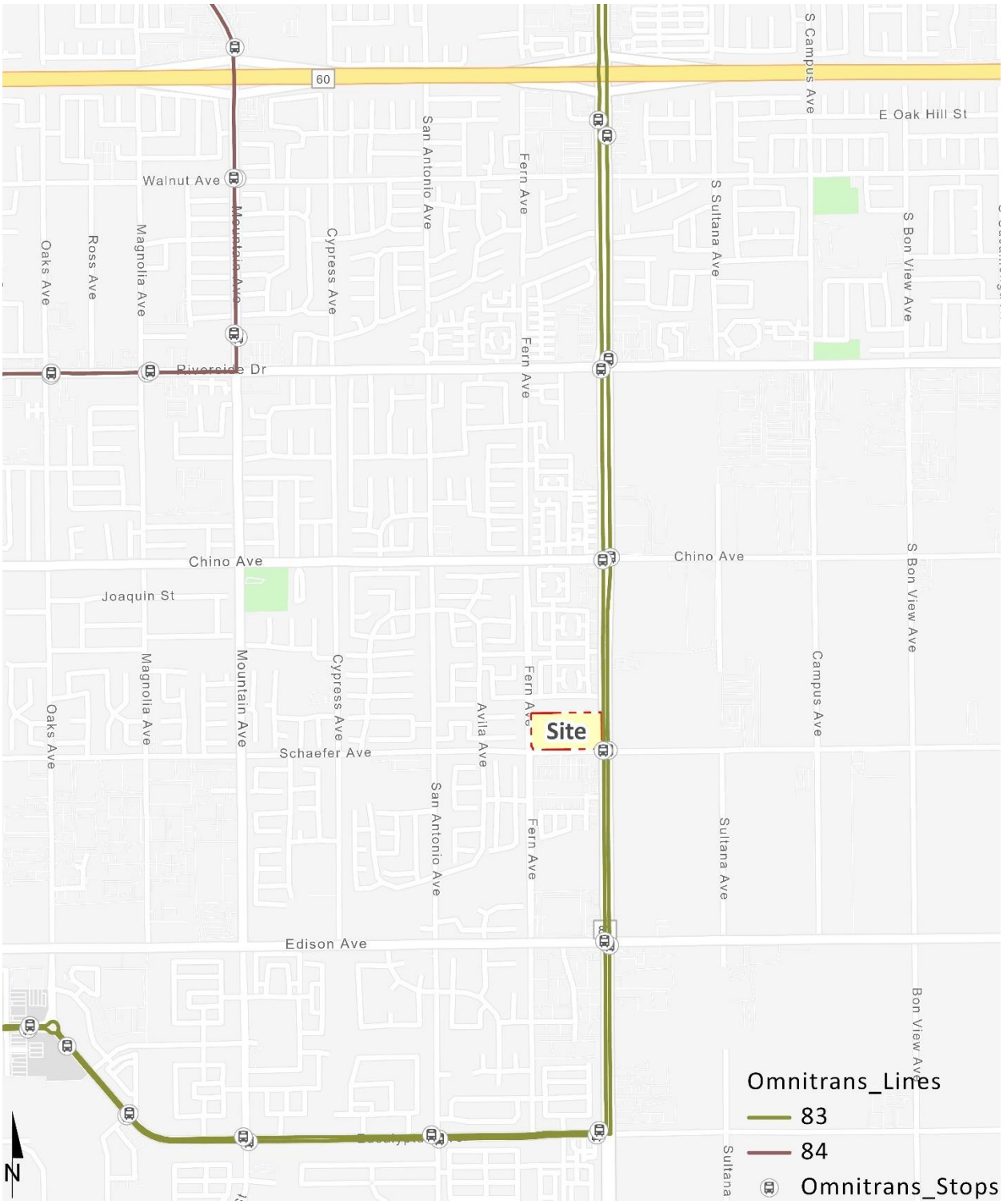


EXHIBIT 3-8: EXISTING TRANSIT ROUTES



3.6 EXISTING (2023) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in September 2023. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 6:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 7:00 PM)
- Saturday Mid-Day Peak Hour (peak hour between 11:00 AM and 1:00 PM)

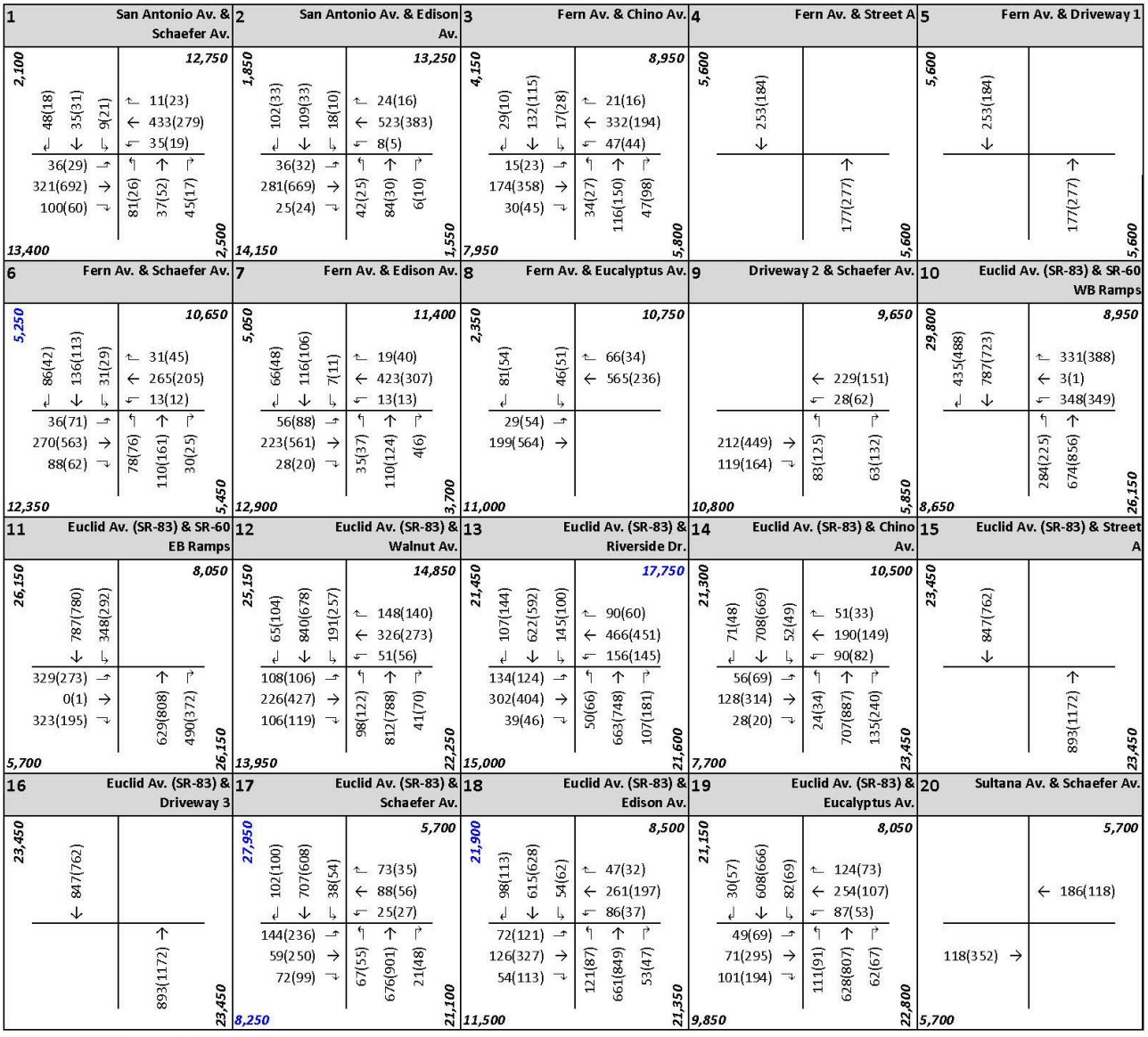
Local schools are back in session with in-person instruction, as such, no additional adjustments were made to the traffic counts for the purpose of establishing the existing baseline. The 2023 peak hour count data is representative of typical weekday and Saturday peak hour traffic conditions in the study 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.

Existing weekday ADT volumes, in actual vehicles, are shown on Exhibit 3-9. 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 12.14 = 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 8.24 percent. As such, the above equation utilizing a factor of 12.14 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.24 percent (i.e., 1/0.0824 = 12.14) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes, in actual vehicles, are also shown on Exhibit 3-9.

EXHIBIT 3-9: EXISTING (2023) TRAFFIC VOLUMES (PAGE 1 OF 2)

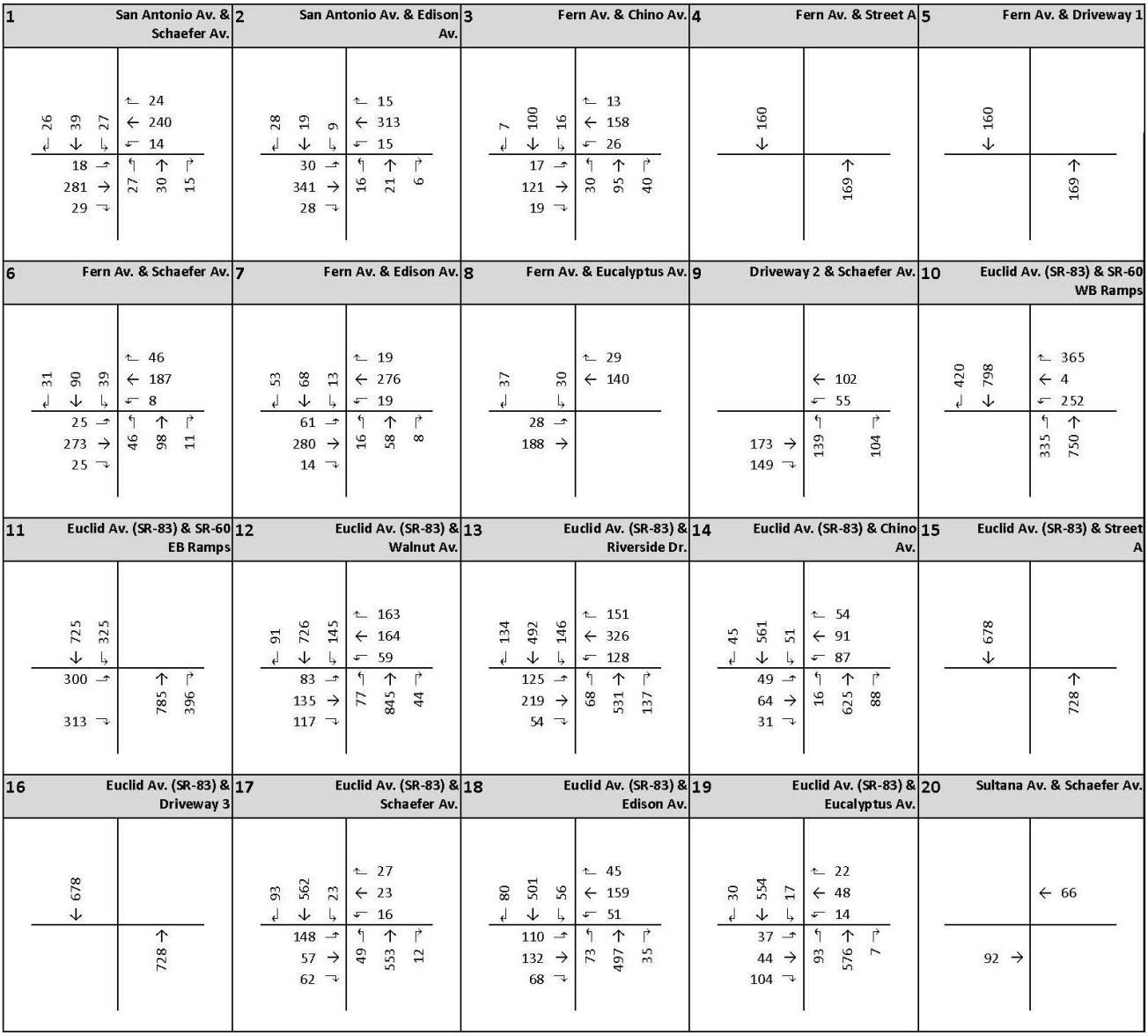


##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

ADT Count Collected in Field

EXHIBIT 3-9: EXISTING (2023) TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

3.7 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-2, which indicates that all existing study area intersections are currently operating at acceptable LOS during the peak hours. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-2: INTERSECTION ANALYSIS FOR EXISTING (2023) CONDITIONS

#	Intersection	Traffic Control[2]	Delay[1] (secs.) AM	PM	SAT	Level of Service AM	PM	SAT
1	San Antonio Av. & Schaefer Av.	TS	13.2	10.6	9.7	B	B	A
2	San Antonio Av. & Edison Av.	TS	11.9	9.9	7.7	B	A	A
3	Fern Av. & Chino Av.	TS	15.1	15.6	14.2	B	B	B
4	Fern Av. & Street A		Future Intersection					
5	Fern Av. & Driveway 1		Future Intersection					
6	Fern Av. & Schaefer Av.	TS	29.8	26.3	26.3	C	C	C
7	Fern Av. & Edison Av.	TS	16.0	16.3	14.8	B	B	B
8	Fern Av. & Eucalyptus Av.	CSS	17.0	13.4	10.7	C	B	B
9	Driveway 2 & Schaefer Av.	CSS	11.1	14.5	13.0	B	B	B
10	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	22.4	20.8	21.6	C	C	C
11	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	26.6	21.8	27.4	C	C	C
12	Euclid Av. (SR-83) & Walnut Av.	TS	26.3	27.2	22.0	C	C	C
13	Euclid Av. (SR-83) & Riverside Dr.	TS	31.5	33.2	23.1	C	C	C
14	Euclid Av. (SR-83) & Chino Av.	TS	19.9	25.1	16.2	B	C	B
15	Euclid Av. (SR-83) & Street A		Future Intersection					
16	Euclid Av. (SR-83) & Driveway 3		Future Intersection					
17	Euclid Av. (SR-83) & Schaefer Av.	TS	18.6	21.0	15.4	B	C	B
18	Euclid Av. (SR-83) & Edison Av.	TS	16.1	17.6	14.2	B	B	B
19	Euclid Av. (SR-83) & Eucalyptus Av.	TS	15.9	15.1	9.4	B	B	A
20	Sultana Av. & Schaefer Av.		Future Intersection					

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

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

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

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

3.9 ROADWAY SEGMENT ANALYSIS

The roadway capacities utilized for the study area roadway segment analysis are obtained from the City's General Plan. These roadway segment capacities 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 3-3 provides a summary of the Existing (2023) traffic conditions roadway segment capacity analysis. As shown in Table 3-3, all study area roadway segments are currently operating at an acceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria.

TABLE 3-3: ROADWAY SEGMENT CAPACITY ANALYSIS FOR EXISTING (2023) CONDITIONS

			Roadway	LOS	Existing (2023)		
#	Roadway	Segment Limits	Section	Capacity[1]	Vol	V/C[2]	LOS[3]
1	Fern Av.	South of Chino Av.	4D	30,000	5,814	0.194	A
2	Schaefer Av.	West of Euclid Av. (SR-83)	4D	30,000	8,243	0.275	A
3	Euclid Av. (SR-83)	North of Schaefer Av.	4D	40,900	27,945	0.683	B

[1] These maximum roadway capacities are obtained from Table TRA-3 of the City of Chino General Plan.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

3.10 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the SR-60 Freeway at the Euclid Avenue (SR-83) 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 3-4. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 3-4, 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 (2023) traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.

TABLE 3-4: PEAK HOUR OFF-RAMP QUEUING SUMMARY FOR EXISTING (2023) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)[3]			Acceptable? [1]		
			AM Peak Hour	PM Peak Hour	SAT Peak Hour	AM	PM	SAT
Euclid Av. & SR-60 WB Ramps (#10)	WBL	350	271	285	256	Yes	Yes	Yes
	WBL/T/R	1,415	246	239	126	Yes	Yes	Yes
	WBR	350	65	130	66	Yes	Yes	Yes
Euclid Av. & SR-60 EB Ramps (#11)	EBL	900	327	287	310	Yes	Yes	Yes
	EBL/R	1,290	229	91	209	Yes	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] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-60 Freeway mainline.

3.11 NEAR-TERM DEFICIENCIES AND IMPROVEMENTS

3.11.1 INTERSECTIONS

All study area intersections currently operate at an acceptable LOS during the peak hours under Existing (2023) traffic conditions. As such, no improvements have been identified for Existing (2023) traffic conditions.

3.11.2 ROADWAY SEGMENTS

All study area roadway segments currently operate at an acceptable LOS under Existing (2023) traffic conditions. As such, no improvements have been identified for Existing (2023) traffic conditions.

3.11.3 OFF-RAMP QUEUES

All study area off-ramps currently do not experience queuing issues during the peak hours under Existing (2023) traffic conditions. As such, no improvements have been identified for Existing (2023) traffic conditions.

4 PROJECTED FUTURE TRAFFIC

The proposed Project is to consist of the development of the following uses:

- Four-story residential component with 282 multifamily (mid-rise) residential dwelling units
- Four-story self-storge component with 145,000 square feet of self-storage use
- A retail component that consists of 2 fast-food restaurant with drive-through window pads totaling 7,000 square feet and a 12,500 square foot retail pad (assuming 9,400 square feet of fast-food restaurant without drive-through window use and 3,100 square feet of retail use)

It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024. As indicated on Exhibit 1-2, access to the Project site will be provided to the site fronting roadways of Fern Avenue, Schaefer Avenue, and Euclid Avenue (SR-83). Access to the site will be accommodated as follows:

- Fern Avenue at Street A – full access (no turn restrictions, would require existing median modifications)
- Fern Avenue at Driveway 1 – right-in/right-out access only
- Driveway 2 at Schaefer Avenue – full access (to align with existing driveway to the south)
- Euclid Avenue (SR-83) at Street A – right-in/right-out access only
- Euclid Avenue (SR-83) at Driveway 3 – right-in/right-out access only

Regional access to the Project site is accommodated from the SR-71 Freeway via Euclid Avenue (SR-83) Avenue, and the SR-60 Freeway via Euclid Avenue (SR-83).

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. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the ITE Trip Generation Manual (11th Edition, 2021) have been utilized. (3)

Trip generation rates for the proposed uses are summarized in Table 4-1. A summary of the proposed Project trip generation is also shown in Table 4-1. Since the Project is proposed to include shopping center, restaurant, and residential uses, pass-by percentages have been obtained from the ITE Trip Generation Manual (11th Edition, 2021). (2) Pass-by trips account for trips that are currently on the existing roadway network that would stop by uses within the proposed Project on their way to their ultimate destination. Pass-by trip reductions will be accounted for off-site intersections but will be added back to applicable commercial serving driveways to ensure access analysis accounts for all trips. Patrons of the uses may also visit other uses on-site, including the restaurants, and retail uses, without leaving the site. The ITE Trip Generation Handbook has been utilized to determine the internal capture for the applicable mix of uses.

TABLE 4-1: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	ITE Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Weekday Daily	Saturday Peak Hour In	Saturday Peak Hour Out	Saturday Peak Hour Total
Mini-Warehouse (Self-Storage)	151	TSF	0.05	0.04	0.09	0.07	0.08	0.15	1.45	0.11	0.06	0.17
Multifamily (Mid-Rise) Residential (4-10 Floors)	221	DU	0.09	0.28	0.37	0.24	0.15	0.39	4.54	0.20	0.19	0.39
Strip Retail (<40,000 SF)	822	TSF	1.42	0.94	2.36	3.30	3.29	6.59	54.45	3.35	3.22	6.57
Fast-Food Restaurant without Drive-Thru	933	TSF	25.04	18.14	43.18	16.61	16.60	33.21	450.49	26.75	27.85	54.60
Fast-Food Restaurant with Drive-Thru	934	TSF	22.75	21.86	44.61	17.18	15.85	33.03	467.48	28.18	27.07	55.25

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

[2] TSF = thousand square feet; DU = Dwelling Units

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Weekday Daily	Saturday Peak Hour[2] In	Saturday Peak Hour[2] Out	Saturday Peak Hour[2] Total
Self-Storage Facility	145.000	TSF	8	5	13	10	12	22	210	15	9	24
Multifamily (Mid-Rise) Residential	282	DU	24	80	104	67	43	110	1,280	56	54	110
Internal Capture (Retail):			0	-1	-1	-3	-1	-4	-48	-3	-1	-4
Internal Capture (Restaurant):			-1	-16	-17	-11	-9	-20	-234	-9	-11	-20
Residential Total			23	63	86	53	33	86	998	44	42	86
Retail Shops	3.100	TSF	4	3	7	10	10	20	169	10	10	20
Internal Capture (Restaurant):			0	0	0	0	0	0	0	0	0	0
Internal Capture (Residential):			-1	0	-1	-1	-3	-4	-34	-1	-3	-4
Pass-by Reduction (40% PM/Daily):			0	0	0	-4	-4	-8	-54	-4	-4	-8
Commercial Retail Subtotal			3	3	6	5	3	8	82	5	3	8
Fast-Food Restaurant without Drive-Thru	9.400	TSF	235	170	405	156	156	312	4,236	251	262	513
Internal Capture (Retail):			0	0	0	0	0	0	0	0	0	0
Internal Capture (Residential):			-7	0	-7	-4	-5	-8	-116	-5	-4	-8
Pass-by Reduction (50% AM; 55% PM/Daily):			-114	-114	-228	-83	-83	-166	-2,266	-142	-142	-284
Fast-Food Restaurant with Drive-Thru	7.000	TSF	159	153	312	120	111	231	3,272	197	190	387
Internal Capture (Retail):			0	0	0	0	0	0	0	0	0	0
Internal Capture (Residential):			-9	-1	-10	-5	-6	-12	-166	-6	-5	-12
Pass-by Reduction (50% AM; 55% PM/Daily):			-75	-75	-150	-58	-58	-116	-1,710	-102	-102	-204
Restaurant Subtotal			189	133	322	126	115	241	3,250	193	199	392
Project Total:			**223**	**204**	**427**	**194**	**163**	**357**	**4,540**	**257**	**253**	**510**

[1] TSF = thousand square feet; DU = Dwelling Units

[2] The pass-by rate information for Saturday Peak Hour is not readily availble within the ITE TG Manual. Therefore, pass-by rates for the PM peak hour have been used

Internal capture is a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. In other words, trips may be made between individual retail uses on-site and can be made either by walking or using internal roadways without using external streets. As the trip generation for the site was conservatively estimated based on individual land uses (commercial and restaurant uses) as opposed to the average ITE Shopping Center rate, an internal capture reduction was applied to recognize the interactions that would occur between the various complementary land uses. In addition, the Project include residential uses that would likely interact with the restaurant and shopping center uses. The internal capture is based on the National Cooperative Highway Research Program's (NCHRP Report 684) internal capture trip capture estimation tool. The NCHRP internal capture estimation tool is based on the methodology outlined in the ITE Trip Generation Handbook. These internal capture worksheets are attached to this scoping agreement.

As shown in Table 4-1, the proposed Project is anticipated to generate 4,540 actual two-way trips per day with 427 AM peak hour trips, 357 PM peak hour trips, and 510 Saturday peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute. Since the Project proposes various land uses, separate distributions have been developed for the land uses. The trip distribution patterns are based on existing and planned land uses in the area along with the planned circulation system. The Project trip distribution patterns are illustrated on the following exhibits:

- Exhibit 4-1: Residential Trip Distribution
- Exhibit 4-2: Retail Trip Distribution
- Exhibit 4-3: Storage Trip Distribution

Each of these distribution patterns is part of the TA scoping process (see Appendix 1.1).

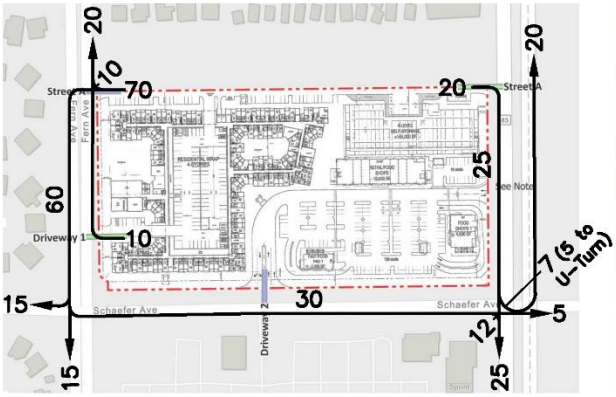
4.3 MODAL SPLIT

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

4.4 PROJECT TRIP ASSIGNMENT

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

EXHIBIT 4-1: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION



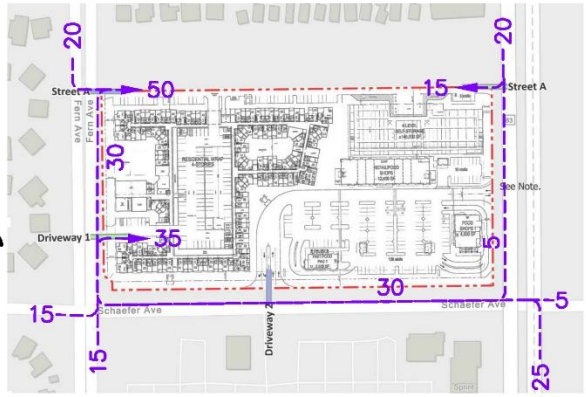


EXHIBIT 4-2: PROJECT (RETAIL) TRIP DISTRIBUTION

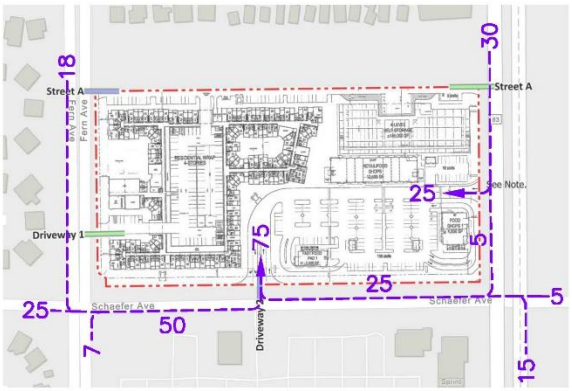
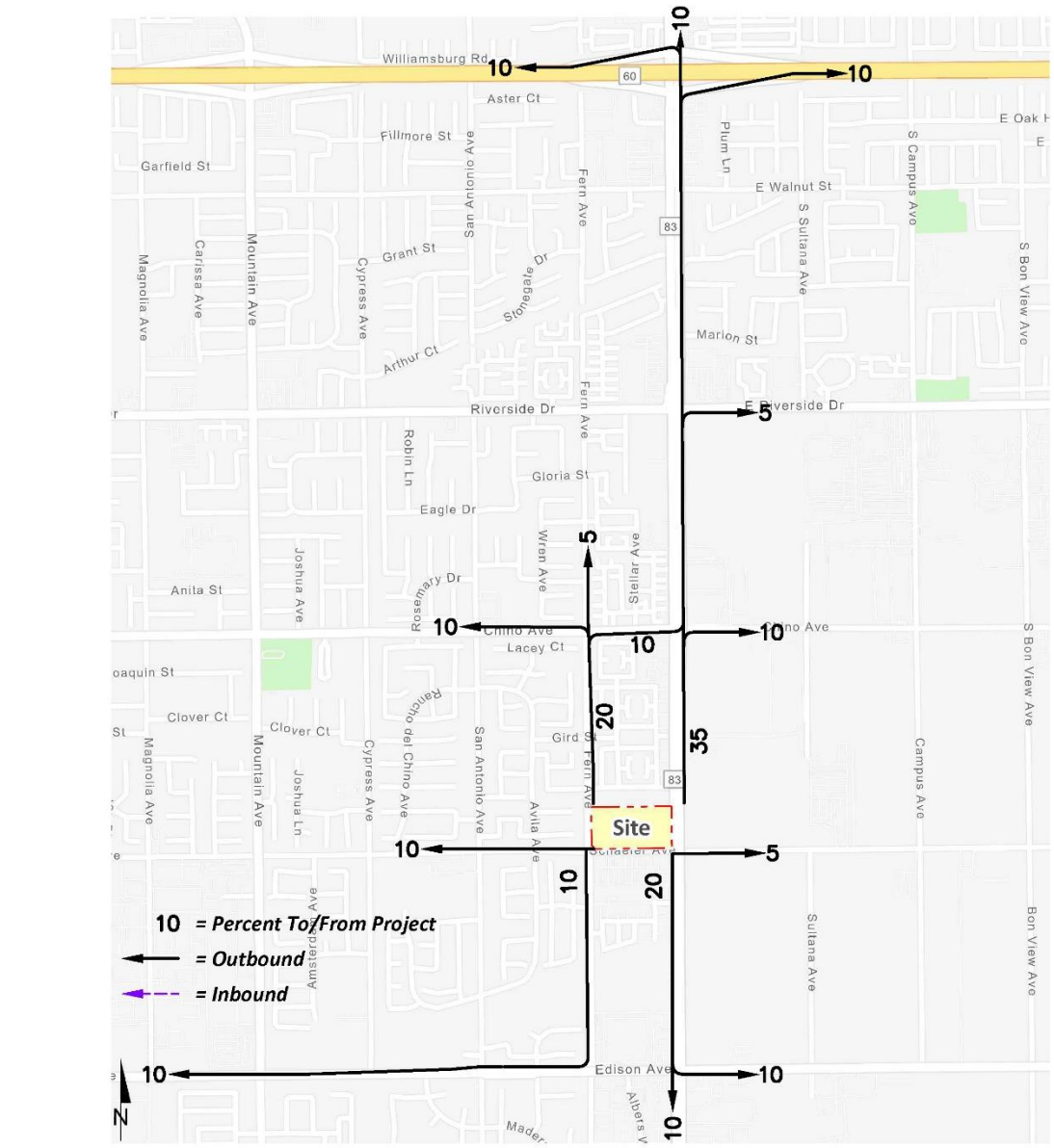
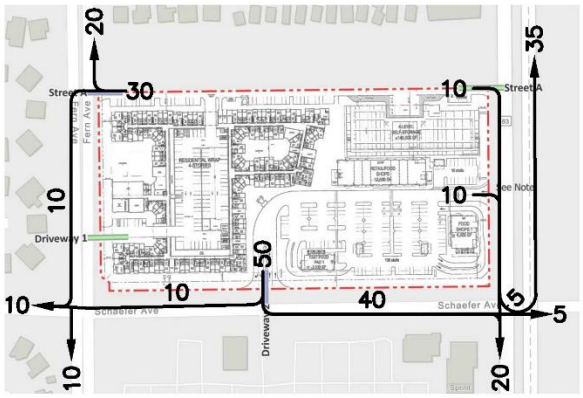


EXHIBIT 4-3: PROJECT (STORAGE) TRIP DISTRIBUTION





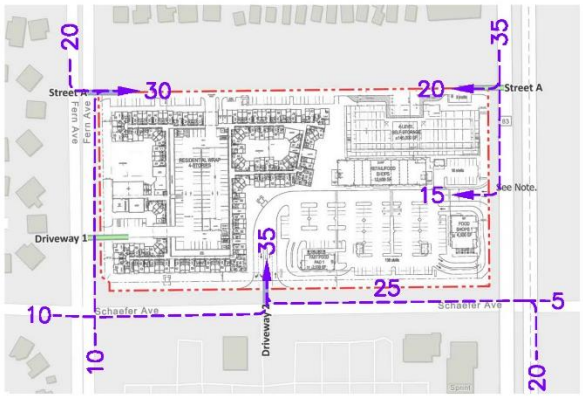
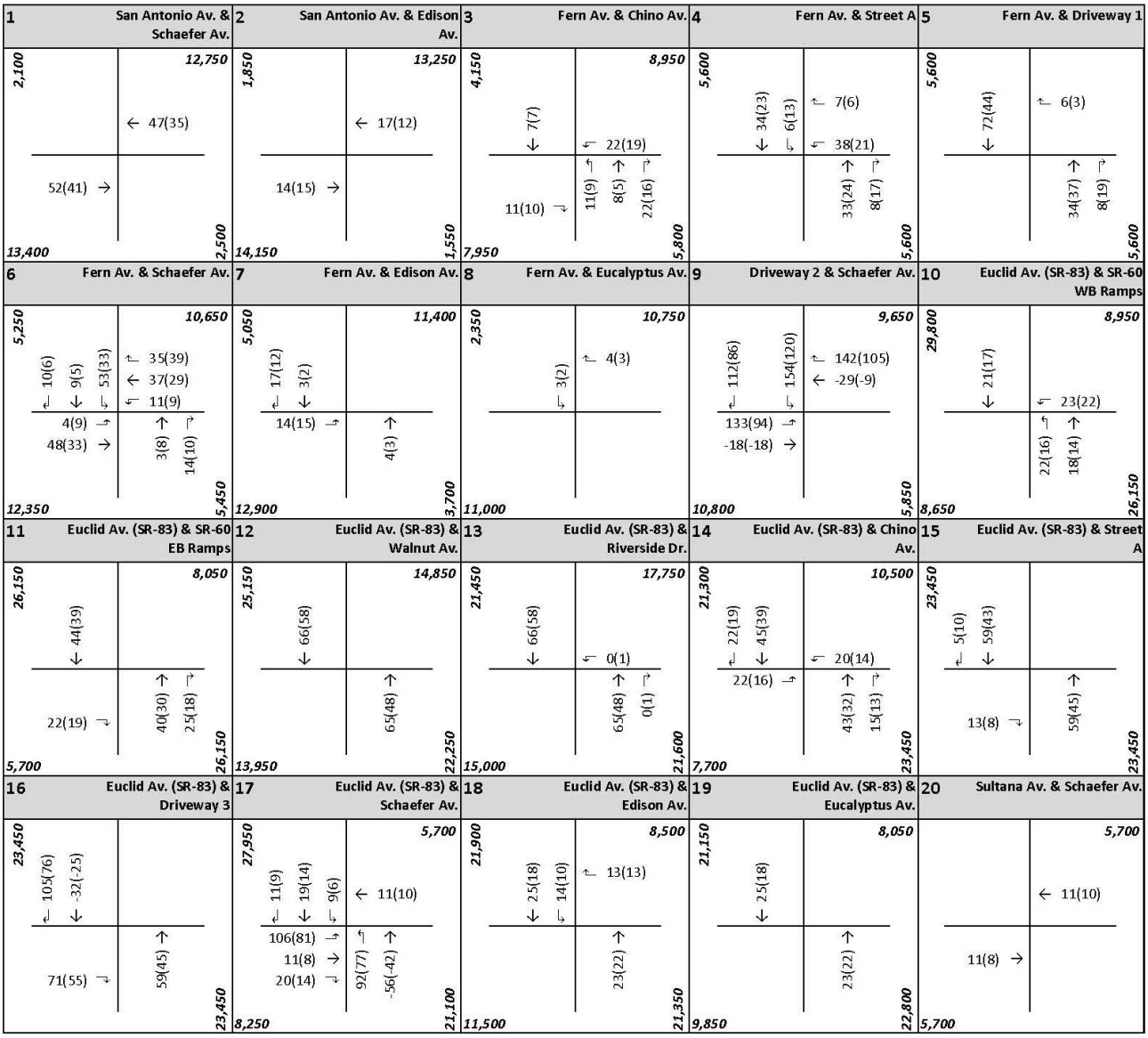


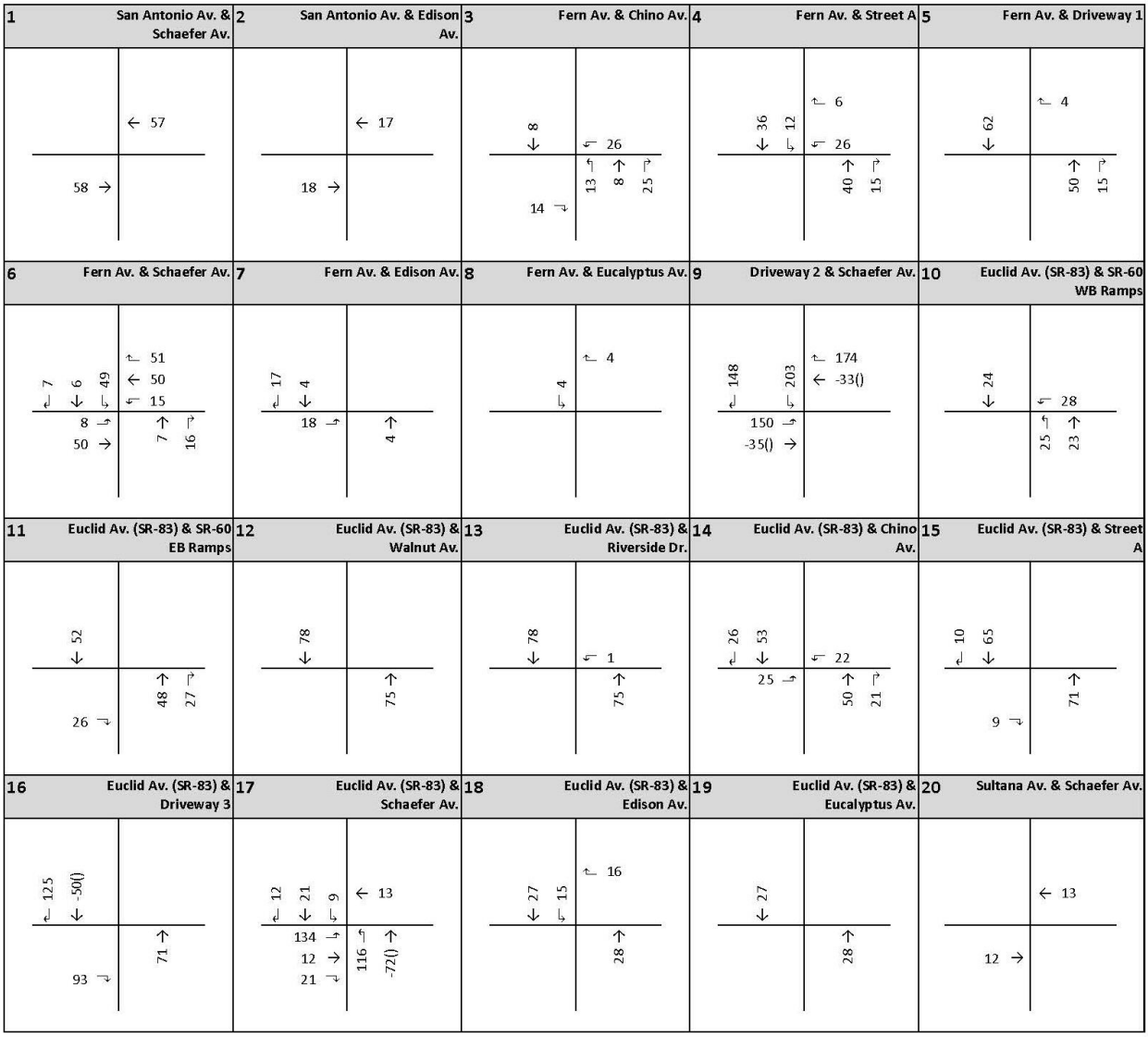
EXHIBIT 4-4: PROJECT ONLY TRAFFIC VOLUMES (PAGE 1 OF 2)



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

Average Daily Trips

EXHIBIT 4-4: PROJECT ONLY TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year, compounded annually, for 2024 traffic conditions. The total ambient growth is 2% for 2024 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in conjunction with 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. 2024 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 With Project forecasts.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Chino. The adjacent agencies of the City of Ontario, City of Eastvale, and City of Chino Hills have also been contacted for cumulative development projects.

The cumulative projects listed are those that would generate traffic and would contribute traffic to study area intersections. Exhibit 4-5 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown in Table 4-2. 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. In an effort to conduct a conservative analysis, the cumulative projects are added in conjunction with the ambient growth identified in Section 4.5 *Background Traffic*. Cumulative ADT and peak hour intersection turning movement volumes, in actual vehicles, are shown on Exhibit 4-6.

TABLE 4-2: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

#	Project/Location	Land Use	Quantity	Units[1]
City of Ontario				
O1	Ontario Ranch Business Park	Business Park	227.951	TSF
		High-Cube Fulfillment Center Warehouse	913.053	TSF
		High-Cube Cold Storage Warehouse	179.135	TSF
		Warehouse	320.551	TSF
O2	Subarea 29 & Amendment (75% complete)	Single Family Detached	716	DU
		Shopping Center	87.000	TSF
O3	Ontario Ranch Commerce Center	High-Cube Fulfillment Warehouse	1,447.123	TSF
		Business Park	457.904	TSF
O4	South Ontario Logistics Center	Business Park	1,075.235	TSF
		High-Cube Fulfillment Warehouse	2,819.282	TSF
		High-Cube Cold Storage Warehouse	563.857	TSF
		Warehousing	954.218	TSF
O5	Parkside Specific Plan	Single Family Detached	804	DU
		Multifamily Housing (Low-Rise)	2,046	DU
		Park	58.860	AC
O6	Merrill Commerce Center	High-Cube Fulfillment Warehouse	7014.000	TSF
		Business Park	1441.000	TSF
O7	Parente Home Ranch SP	Single Family Detached	270	DU
		Condo/Townhouse	1,872	DU
		General Office	462.281	TSF
		Shopping Center	194.278	TSF
O8	Countryside	Single Family Detached	819	DU
	Armstrong Ranch	Single Family Detached	994	DU
O9	The Avenue (50% Complete)	Single Family Detached	2,020	DU
		Multi-Family Attached (Apartments)	586	DU
		Shopping Center	250.000	TSF
O10	Grand Park (80% Complete)	Single Family Detached	484	DU
		Multi-Family Attached (Apartments)	843	DU
O11	West Haven	Single Family Detached	149	DU
		Multifamily Housing	654	DU
		Elementary School	650	STU
		Shopping Center	87.000	TSF
O12	Haven Gateway	General Light Industrial	42.160	TSF
		High-Cube Warehouse	168.640	TSF
O13	PDEV10-008 - Dry Food Storage	Mini-Warehouse	17.000	TSF
O14	Esperanza (50% Complete)	Single Family Detached	914	DU
		Multi-Family Attached (Apartments)	496	DU
O15	Edenglen (50% Complete)	Single Family Detached	310	DU
		Multi-Family Attached (Condo)	274	DU
		Shopping Center	217.520	TSF
		Business Park	550.000	TSF
O17	Tuscana Village	Single Family Detached	176	DU
		Shopping Center	26.000	TSF
O18	Euclid Mixed-Use Specific Plan	Truck/Trailer Parking Lot	12.2	AC
		Warehousing	972.817	TSF
		Business Park	191.378	TSF
		Multifamily Housing	466	DU
		Fast-food w/ Drive-Thru	10.000	TSF
		Fast-food w/o Drive-Thru	10.000	TSF
		Shopping Center	10.225	TSF

#	Project/Location	Land Use	Quantity	Units[1]
C13	Fairfield Inn & Suites (PL 17-0060 & PL 17-0061)	Hotel	111	RM
C14	Watson Industrial Park (40% complete)	High-Cube Warehouse	3,889.900	TSF
C15	Chino Business Park	General Light Industrial	165.500	TSF
		Business Park	21.500	TSF
C16	Flores Site	Shopping Center	4.000	TSF
		Gas Station w/ convenience store	16	VFP
		Express Car Wash	5.000	TSF
C17	The Campus at College Park	Church	27.000	TSF
		General Office	16.969	TSF
		Commercial Retail/Restaurants	33.661	TSF
C18	Archibald's (PL 17-0037)	Fast-Food with Drive-Thru	3.147	TSF
C19	TM 18972 (80% complete)	Single Family Detached	147	DU
C20	Rancho Miramonte	Single Family Detached	691	DU
		Condo/Townhouse	132	DU
		Neighborhood Retail	21.780	TSF
		Church	400	SEAT
C21	Majestic Chino Heritage	High-Cube Fulfillment Warehouse	1982.700	TSF
		High-Cube Cold Storage Warehouse	100.000	TSF
C22	Church	Church	47.979	TSF
		Daycare	190	STU
C23	Appesetche Residential	Single Family Detached	60	DU
		Condo/Townhouse	160	DU
C24	Tract 19951, 19952, 19953, 19935 & 18479	Single Family Detached	151	DU
		Condo/Townhouse	150	DU
C25	Ag. Buffer, Bungalow, Lic. Product, Liberty Deluxe, Lyon 2 & 3	Single Family Detached	474	DU
C26	The Preserve Town Center (Blocks 6 and 7)	Multifamily Housing	549	DU
		Office	16.300	TSF
		Shopping Center	36.800	TSF
		Pharmacy with Drive-Thru	12.900	TSF
		Supermarket	45.000	TSF
		Fast-Food Restaurant with Drive-Thru	6.500	TSF
		Fast Casual Restaurant	13.750	TSF
		Quality Restaurant	13.750	TSF
C27	The Preserve Civic Center	Elementary School	1,200	STU
		Library	10.00	AC
		Community Center	10.00	AC
		Park	8.00	AC

#	Project/Location	Land Use	Quantity	Units[1]
City of Eastvale				
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	Single Family Detached	122	DU
E3	13-0632 - Sumner Residential (Stratham Homes)	Single Family Detached	129	DU
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 & car was	16	VFP
E7	Van Leeuwen	Single Family Detached	224	DU
E8	SP00358 - The Ranch at Eastvale	Shopping Center	267.200	TSF
		General Light Industrial	801.500	TSF
		Business Park	1,121.100	TSF
E9	SC Limonite, LLC	Single Family Detached	330	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 Commerce Center	Shopping Center	650.000	TSF
E12	S. Milliken Warehouse	High-Cube Warehouse	280.000	TSF
E13	15-1508 - Industrial Warehouse	Warehousing	155.000	TSF
City of Chino Hills				
CH1	Vila Borba Specific Plan (TR 16414)	Single Family Detached	172	DU
CH2	Country Club Villas	Condo/Townhouse	46	DU
CH3	The Goddard School	Daycare	10.587	TSF
CH4	Heritage Professional Center	Hospital	55.000	TSF
		Medical Office Building	86.952	TSF
		Hotel	120	RM
		Shopping Center	38.848	TSF
		Restaurant	7.200	TSF

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

EXHIBIT 4-5: CUMULATIVE DEVELOPMENT LOCATION MAP

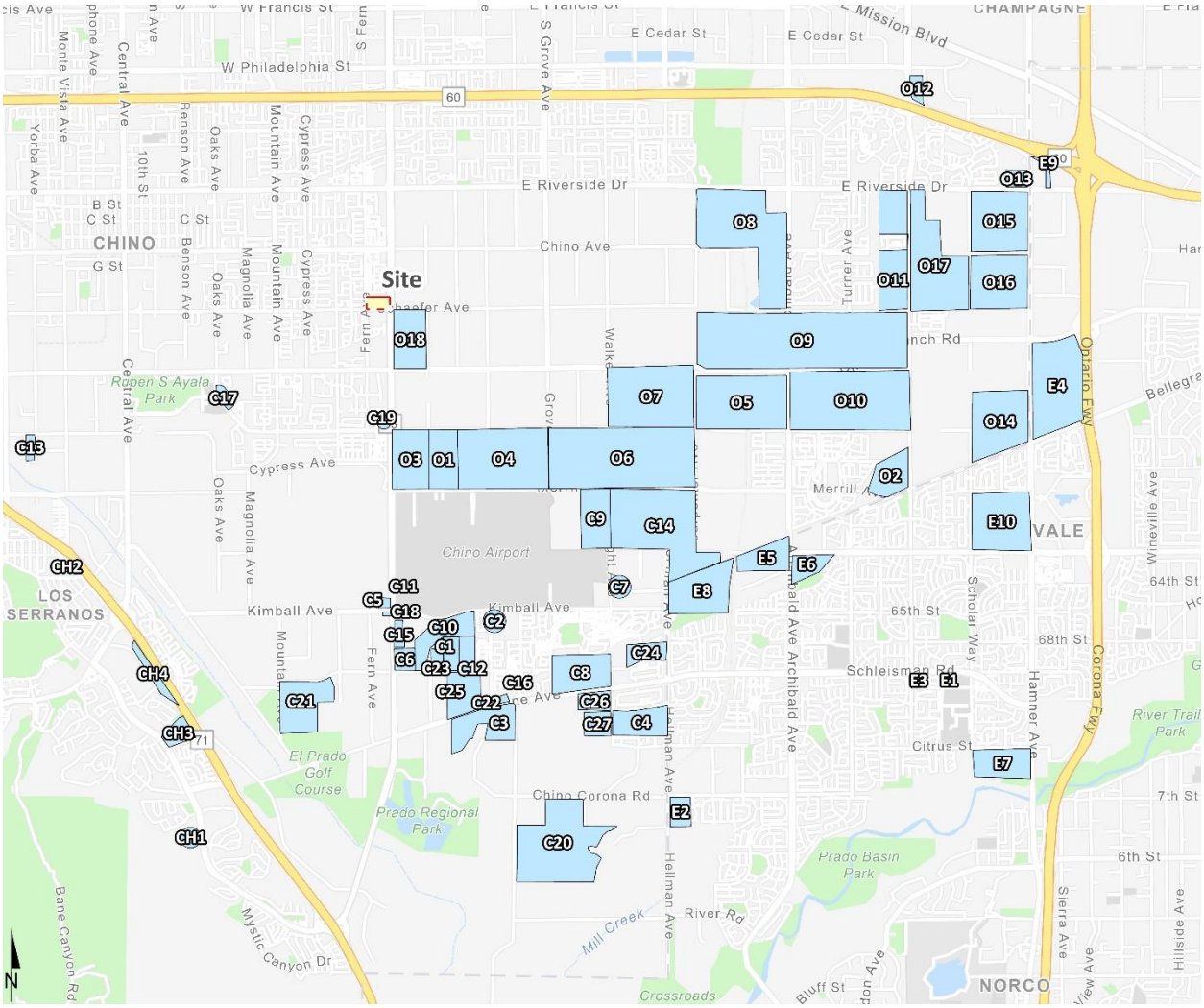
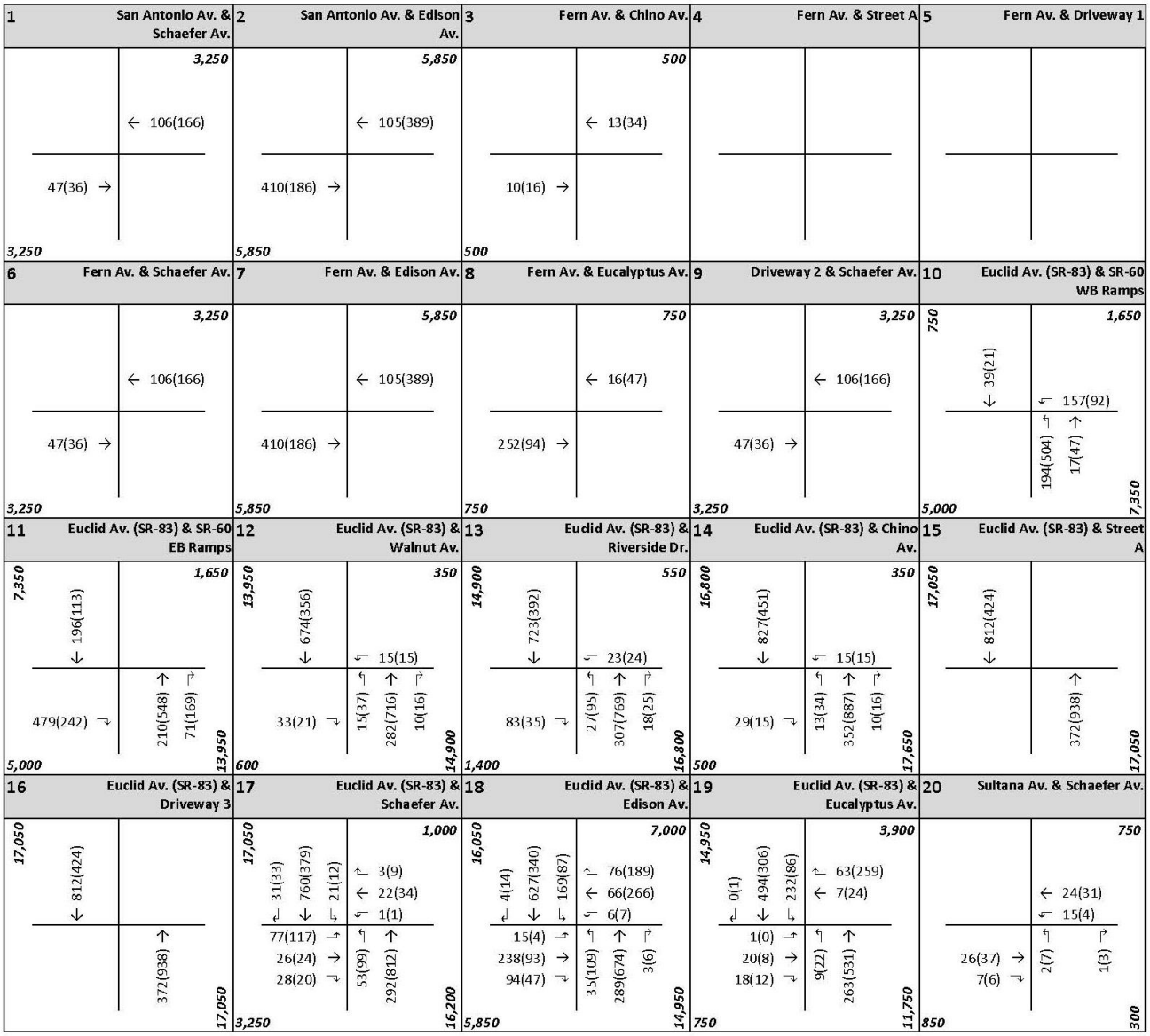


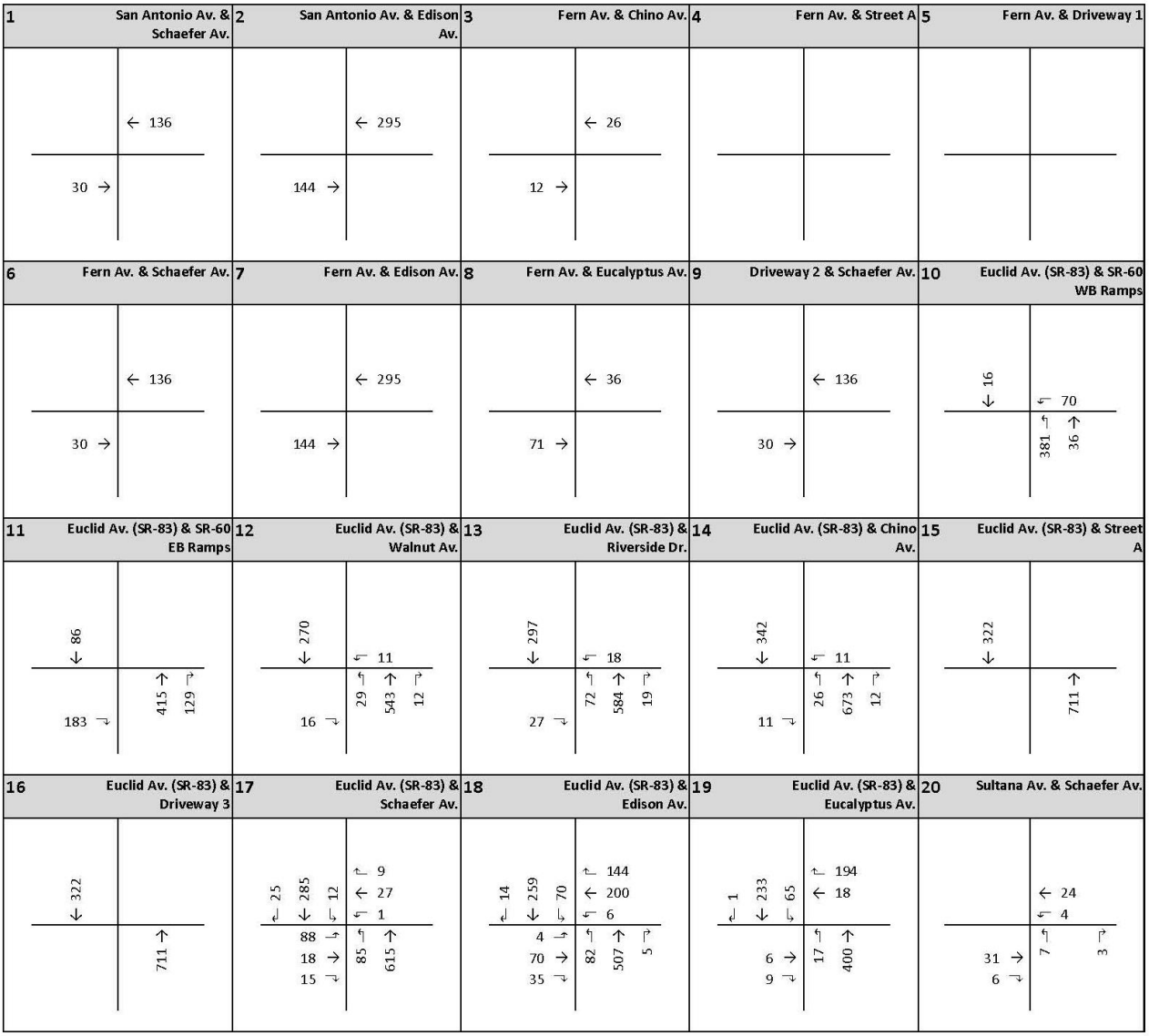
EXHIBIT 4-6: CUMULATIVE ONLY TRAFFIC VOLUMES (PAGE 1 OF 2)



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

Average Daily Trips

EXHIBIT 4-6: CUMULATIVE ONLY TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

4.7 HORIZON YEAR (2045) VOLUME DEVELOPMENT

Traffic projections for Horizon Year (2045) without Project conditions were derived from the SBTAM using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of San Bernardino. The traffic forecasts reflect the area-wide growth anticipated between Existing (2023) conditions and Horizon Year (2045) traffic conditions. An additional 2% per year growth rate has been utilized to reflect 2045 conditions from the 2040 SBTAM output. 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 (2045) 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 2023. The SBTAM has a base (validation) year of 2016 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2016) defines the growth in traffic over the 24-year period.

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 765), 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 0.27. 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).

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 (2045) forecasts. Horizon Year (2045) turning volumes were compared to Opening Year Cumulative (2024) 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 (2024) and Horizon Year (2045) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2023) and Opening Year Cumulative (2024) 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 (2045) peak hour forecasts.

The future Horizon Year (2045) 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. Post processing has been performed for the weekday AM and PM peak hours only as these are the only time periods where traffic model data was readily available. Project traffic was then added for all With Project traffic conditions. Post processing worksheets are included in Appendix 4.1.

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5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for E+P conditions and the resulting intersection operations, traffic signal warrant, roadway segment capacity, and off-ramp queuing 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 weekday ADT and 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 for E+P traffic conditions, which indicate that all of the study area intersections are anticipated to continue to operate at an acceptable LOS under E+P traffic conditions, consistent with Existing (2023) traffic conditions. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TA.

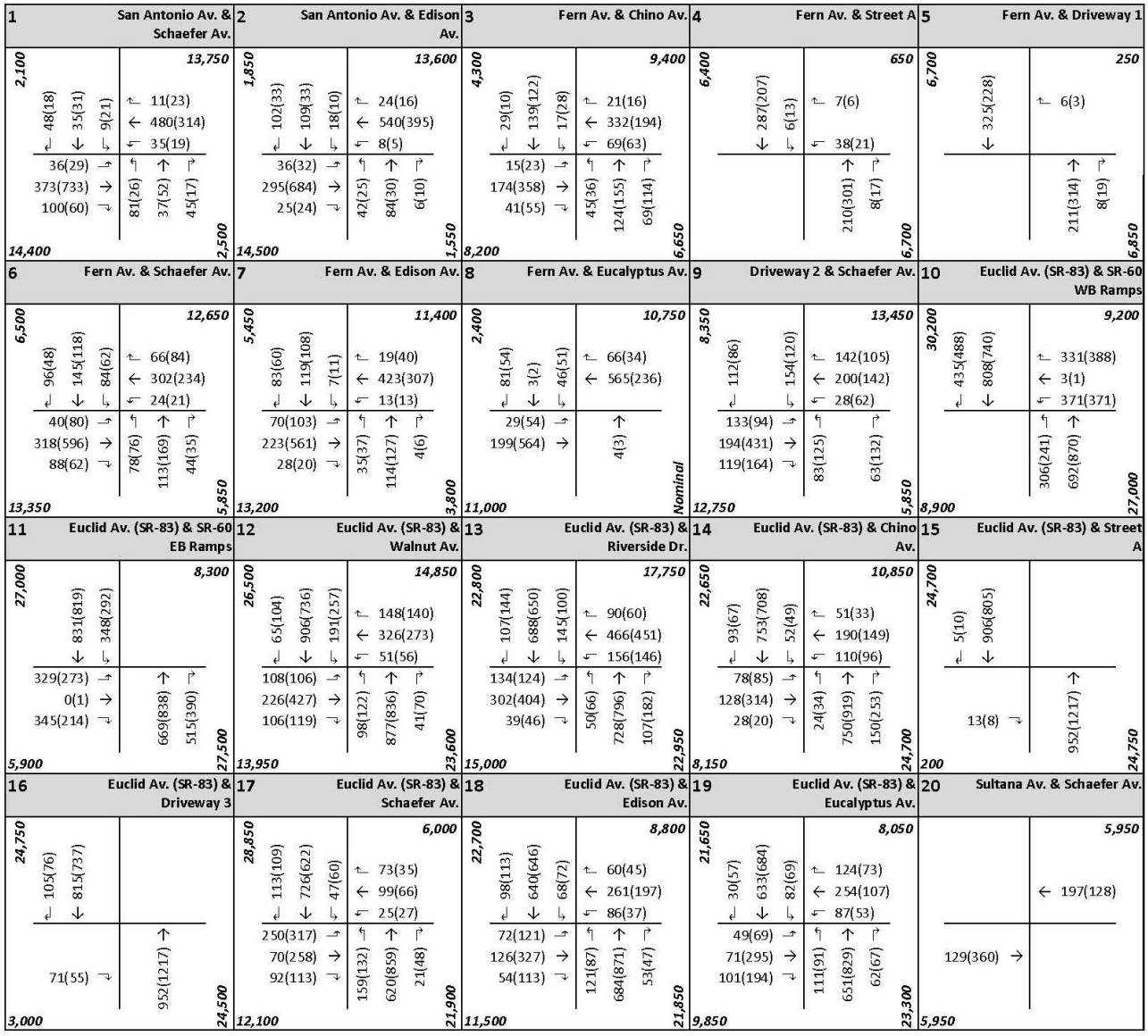
5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for E+P traffic conditions is based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. The intersection of Driveway 2 & Schaefer Avenue (#9) is anticipated to meet a traffic signal warrant under E+P traffic conditions (see Appendix 5.2).

5.5 ROADWAY SEGMENT ANALYSIS

Table 5-2 provides a summary of the E+P traffic conditions roadway segment capacity analysis. As shown in Table 5-2, all study area roadway segments are anticipated to continue to operate at an acceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria.

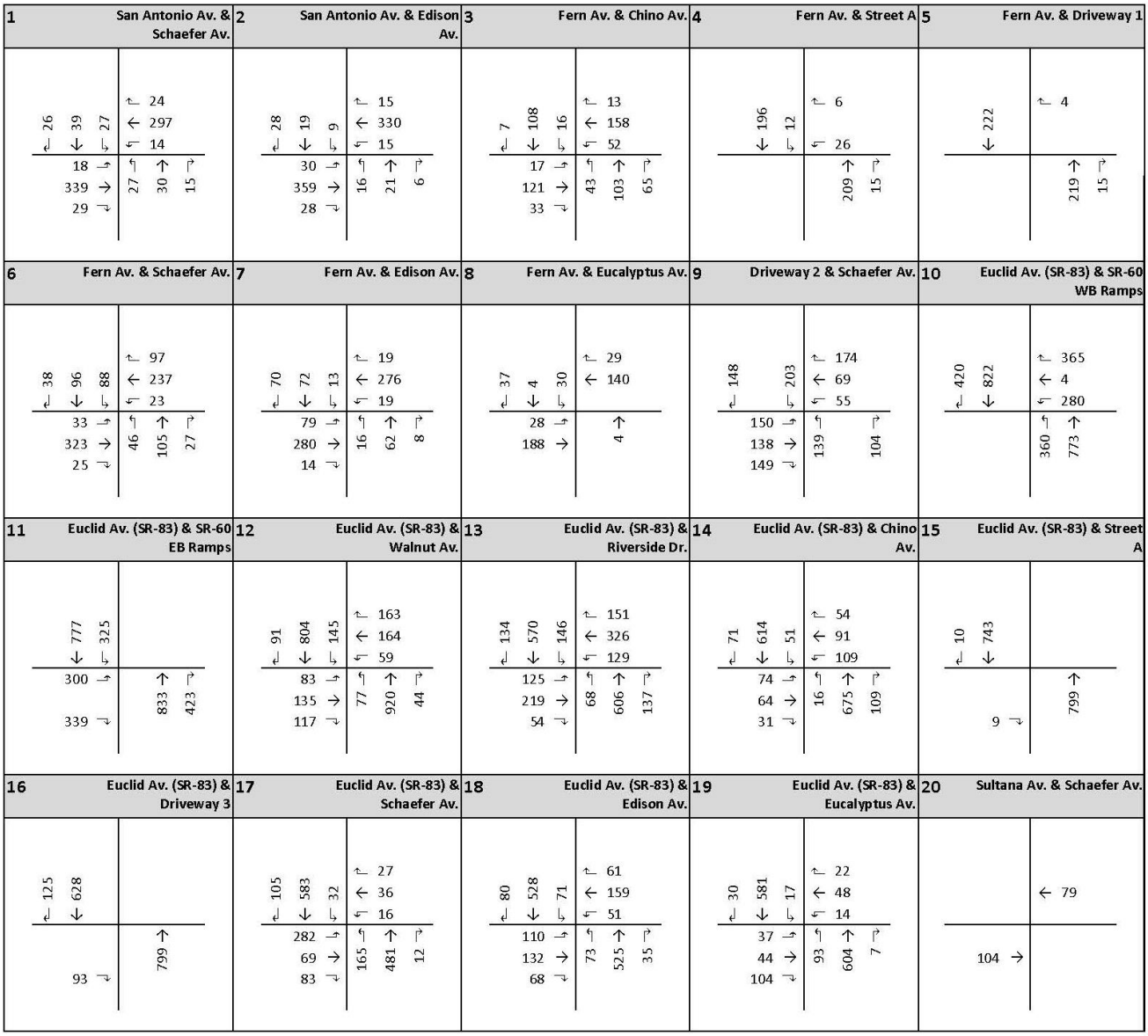
EXHIBIT 5-1: E+P TRAFFIC VOLUMES (PAGE 1 OF 2)



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

Average Daily Trips

EXHIBIT 5-1: E+P TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

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

#	Intersection	Traffic Control[2]	Existing (2023) Delay[1] (secs.) AM	PM	SAT	Existing (2023) Level of Service AM	PM	SAT	E+P Delay[1] (secs.) AM	PM	SAT	E+P Level of Service AM	PM	SAT
1	San Antonio Av. & Schaefer Av.	TS	13.2	10.6	9.7	B	B	A	13.3	10.6	9.8	B	B	A
2	San Antonio Av. & Edison Av.	TS	11.9	9.9	7.7	B	A	A	11.9	9.9	7.7	B	A	A
3	Fern Av. & Chino Av.	TS	15.1	15.6	14.2	B	B	B	15.5	16.0	14.7	B	B	B
4	Fern Av. & Street A	**CSS**	Future Intersection						10.9	11.1	10.6	B	B	B
5	Fern Av. & Driveway 1	**CSS**	Future Intersection						9.0	9.3	9.0	A	A	A
6	Fern Av. & Schaefer Av.	TS	29.8	26.3	26.3	C	C	C	31.9	27.7	27.7	C	C	C
7	Fern Av. & Edison Av.	TS	16.0	16.3	14.8	B	B	B	16.2	16.5	15.2	B	B	B
8	Fern Av. & Eucalyptus Av.	CSS	17.0	13.4	10.7	C	B	B	17.0	13.4	10.7	C	B	B
9	Driveway 2 & Schaefer Av.	CSS	11.1	14.5	13.0	B	B	B	21.6	21.7	31.3	C	C	D
10	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	22.4	20.8	21.6	C	C	C	23,3	21.5	22.7	C	C	C
11	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	26.6	21.8	27.4	C	C	C	26.7	21.9	26.5	C	C	C
12	Euclid Av. (SR-83) & Walnut Av.	TS	26.3	27.2	22.0	C	C	C	26.1	27.0	21.8	C	C	C
13	Euclid Av. (SR-83) & Riverside Dr.	TS	31.5	33.2	23.1	C	C	C	33.4	34.9	23.9	C	C	C
14	Euclid Av. (SR-83) & Chino Av.	TS	19.9	25.1	16.2	B	C	B	21.2	26.7	17.2	C	C	B
15	Euclid Av. (SR-83) & Street A	**CSS**	Future Intersection						12.1	11.4	11.1	B	B	B
16	Euclid Av. (SR-83) & Driveway 3	**CSS**	Future Intersection						12.4	11.7	11.5	B	B	B
17	Euclid Av. (SR-83) & Schaefer Av.	TS	18.6	21.0	15.4	B	C	B	28.6	26.9	23.1	C	C	C
18	Euclid Av. (SR-83) & Edison Av.	TS	16.1	17.6	14.2	B	B	B	16.7	18.3	14.8	B	B	B
19	Euclid Av. (SR-83) & Eucalyptus Av.	TS	15.9	15.1	9.4	B	B	A	16.2	15.3	9.4	B	B	A
20	Sultana Av. & Schaefer Av.		Future Intersection						Future Intersection					

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

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

TABLE 5-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR E+P CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing (2023) Vol	V/C[2]	LOS[3]	E+P Vol	V/C[2]	LOS[3]
1	Fern Av.	South of Chino Av.	4D	30,000	5,814	0.194	A	6,642	0.221	A
2	Schaefer Av.	West of Euclid Av. (SR-83)	4D	30,000	8,243	0.275	A	12,075	0.403	A
3	Euclid Av. (SR-83)	North of Schaefer Av.	4D	40,900	27,945	0.683	B	28,871	0.706	C

[1] These maximum roadway capacities are obtained from Table TRA-3 of the City of Chino General Plan.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

5.6 OFF-RAMP QUEUING ANALYSIS

Off-ramp queuing analysis findings are presented in Table 5-3. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in 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. Worksheets for E+P traffic conditions off-ramp queuing analysis are provided in Appendix 5.3.

TABLE 5-3: PEAK HOUR OFF-RAMP QUEUING SUMMARY FOR EXISTING (2023) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)[3]			Acceptable? [1]		
			AM Peak Hour	PM Peak Hour	SAT Peak Hour	AM	PM	SAT
Euclid Av. & SR-60 WB Ramps (#10)	WBL	350	271	285	256	Yes	Yes	Yes
	WBL/T/R	1,415	246	239	126	Yes	Yes	Yes
	WBR	350	65	130	66	Yes	Yes	Yes
Euclid Av. & SR-60 EB Ramps (#11)	EBL	900	327	287	310	Yes	Yes	Yes
	EBL/R	1,290	229	91	209	Yes	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] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-60 Freeway mainline.

5.7 NEAR-TERM DEFICIENCIES AND IMPROVEMENTS

5.7.1 INTERSECTIONS

All study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours under E+P traffic conditions. As such, no improvements have been identified for E+P traffic conditions.

5.7.2 ROADWAY SEGMENTS

All study area roadway segments are anticipated to continue to operate at an acceptable LOS under E+P traffic conditions. As such, no improvements have been identified for E+P traffic conditions.

5.7.3 OFF-RAMP QUEUES

All study area off-ramps are not anticipated to experience queuing issues during the peak hours under E+P traffic conditions. As such, no improvements have been identified for E+P traffic conditions.

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6 OPENING YEAR CUMULATIVE (2024) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2024) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, roadway segment capacity, and off-ramp queuing analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2024) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

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

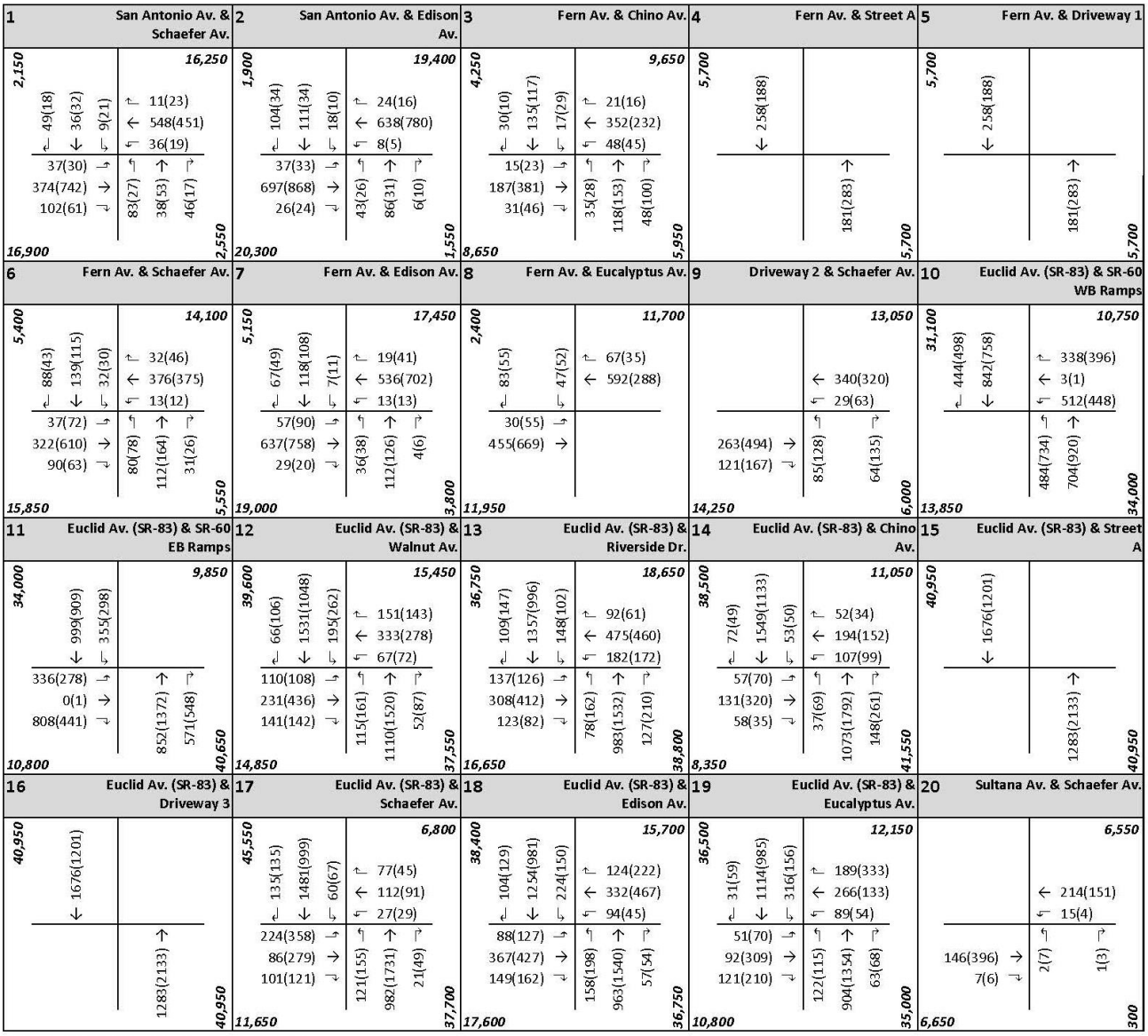
6.2 WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes, plus an ambient growth rate of 2.0%, 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 (2024) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Opening Year Cumulative (2024) 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 (2024) With Project traffic conditions are shown on Exhibit 6-2.

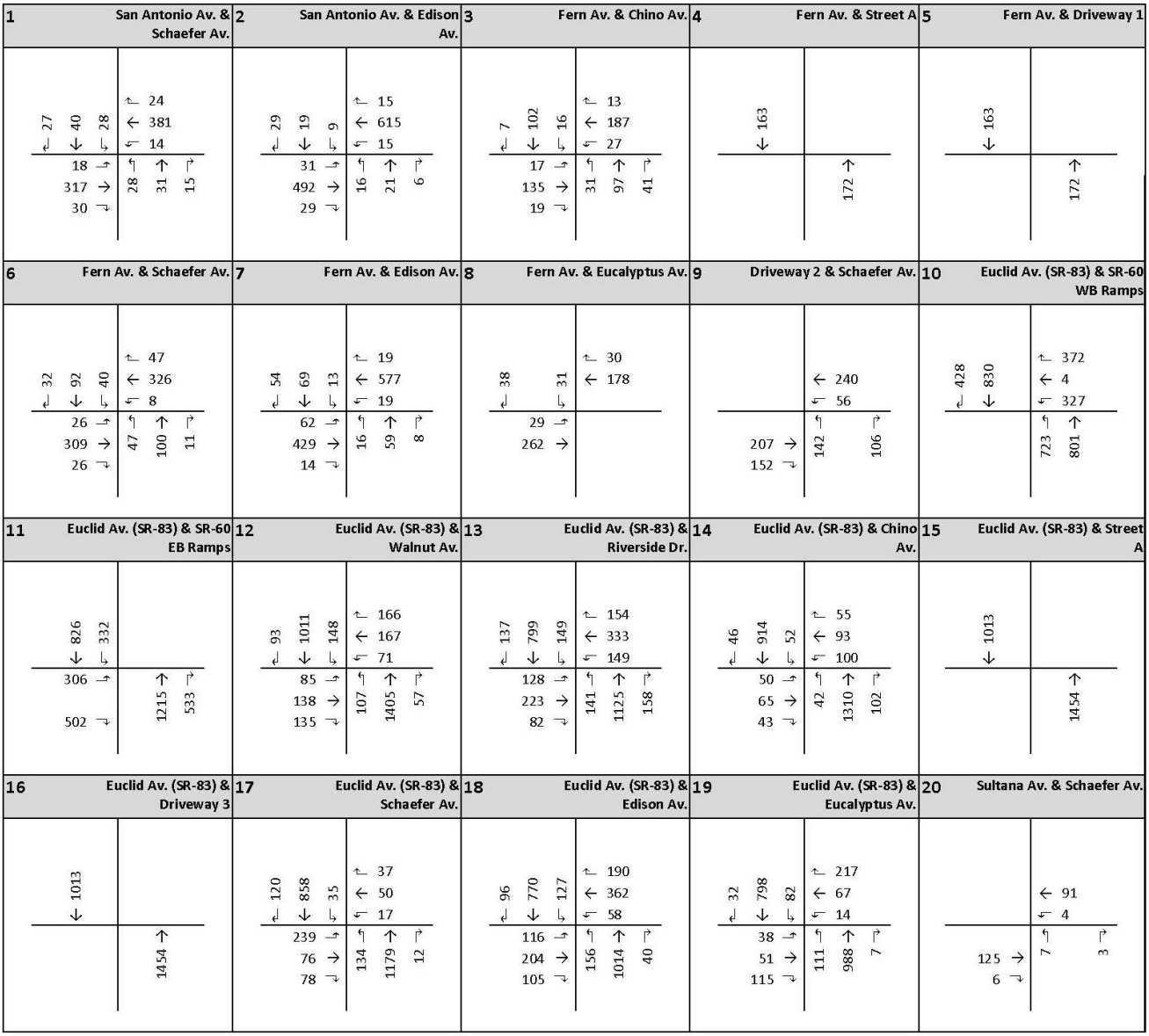
EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT TRAFFIC VOLUMES (PAGE 1 OF 2)



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

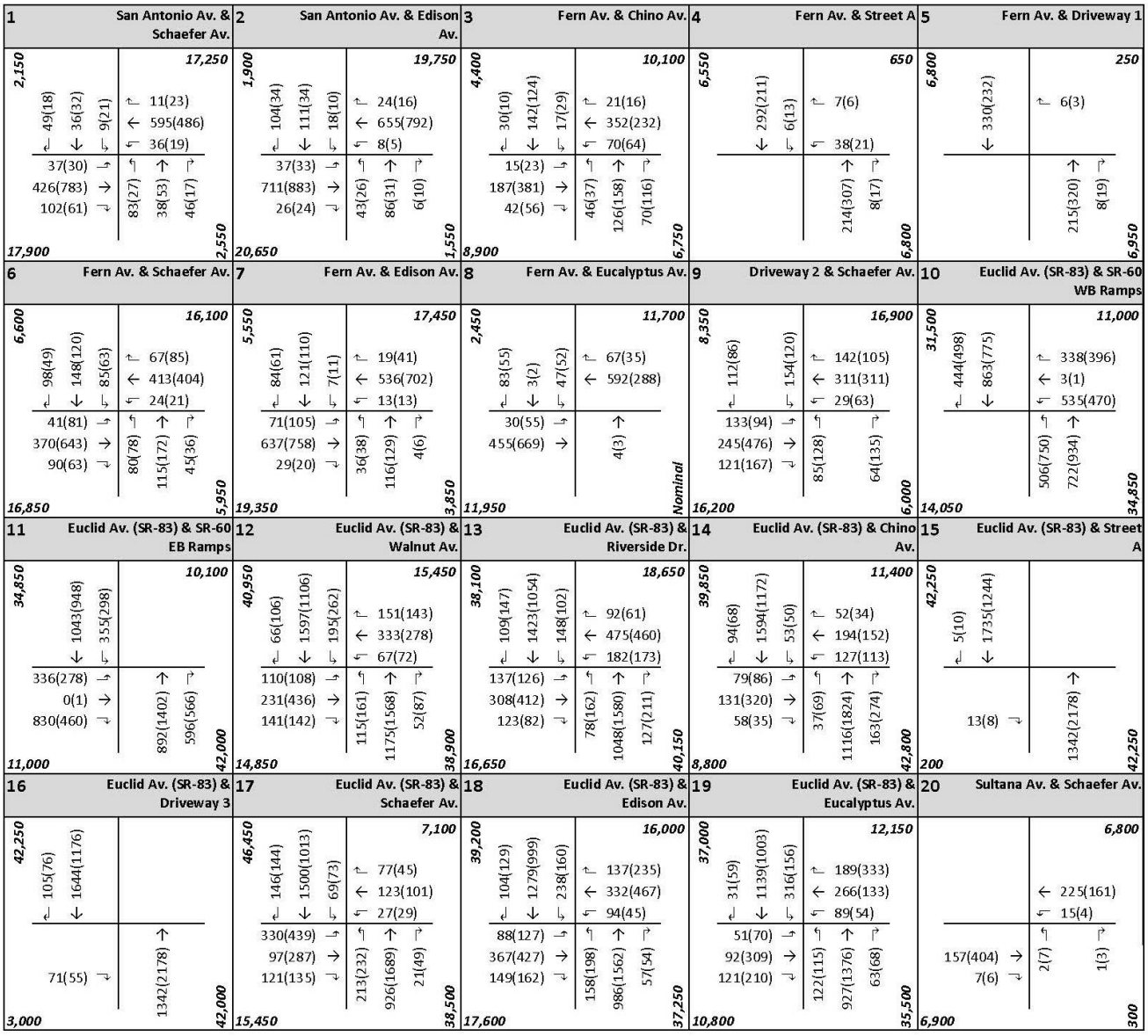
Average Daily Trips

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

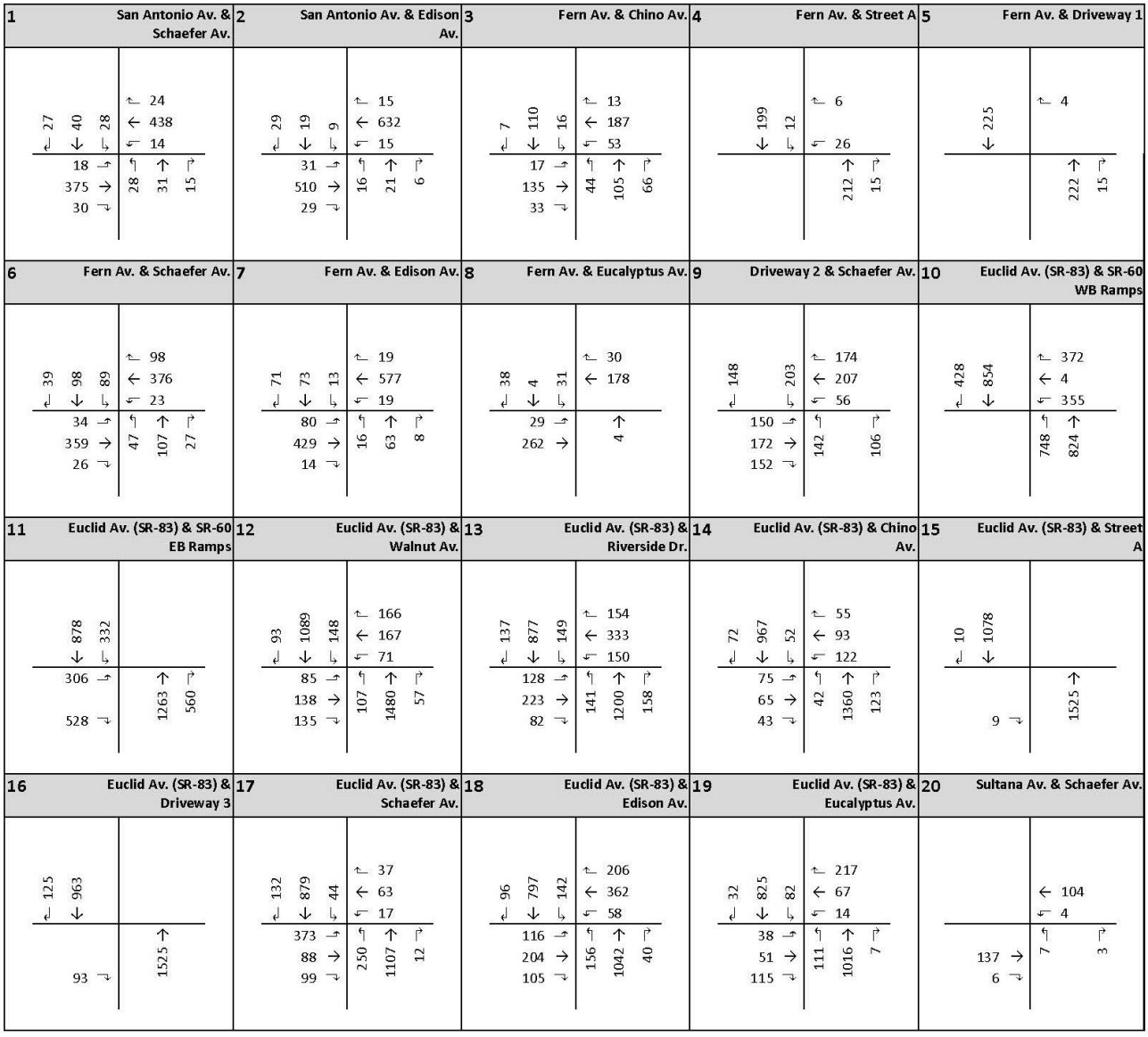
EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2024) WITH PROJECT TRAFFIC VOLUMES (PAGE 1 OF 2)



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

Average Daily Trips

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2024) WITH PROJECT TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

6.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2024) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. The intersection analysis results are summarized in Table 6-1 for Opening Year Cumulative (2024) Without Project traffic conditions, which indicates that the following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours under Opening Year Cumulative (2024) Without Project traffic conditions:

- Euclid Avenue (SR-83) & SR-60 WB Ramps (#10) – LOS F PM peak hour; LOS E Saturday peak hour
- Euclid Avenue (SR-83) & SR-60 EB Ramps (#11) – LOS F AM peak hour only
- Euclid Avenue (SR-83) & Riverside Drive (#13) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Chino Avenue (#14) – LOS F PM peak hour only
- Euclid Avenue (SR-83) & Schaefer Avenue (#17) – LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Edison Avenue (#18) – LOS F PM peak hour only

With the addition of Project traffic, there are no additional study area intersections anticipated to operate at an unacceptable LOS during the peak hours under Opening Year Cumulative (2024) With Project traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2024) Without Project and With Project traffic conditions are included in Appendices 6.1 and 6.2, respectively.

TABLE 6-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS

#	Intersection	Traffic Control[2]	2024 Without Proejct Delay[1] (secs.) AM	PM	SAT	Level of Service AM	PM	SAT	2024 With Project Delay[1] (secs.) AM	PM	SAT	Level of Service AM	PM	SAT
1	San Antonio Av. & Schaefer Av.	TS	13.5	10.6	10.0	B	B	A	13.7	10.7	10.1	B	B	B
2	San Antonio Av. & Edison Av.	TS	12.2	10.4	8.1	B	B	A	12.2	10.4	8.1	B	B	A
3	Fern Av. & Chino Av.	TS	15.2	15.8	14.2	B	B	B	15.6	16.2	14.8	B	B	B
4	Fern Av. & Street A	**CSS**	Future Intersection						10.9	11.2	10.6	B	B	B
5	Fern Av. & Driveway 1	**CSS**	Future Intersection						9.0	9.4	9.0	A	A	A
6	Fern Av. & Schaefer Av.	TS	27.9	24.6	23.4	C	C	C	30.2	26.2	25.6	C	C	C
7	Fern Av. & Edison Av.	TS	16.4	17.1	15.3	B	B	B	16.6	17.3	15.7	B	B	B
8	Fern Av. & Eucalyptus Av.	CSS	19.0	14.4	11.1	C	B	B	19.0	14.4	11.1	C	B	B
9	Driveway 2 & Schaefer Av.	CSS	11.9	16.7	14.5	B	C	B	26.3	26.5	34.5	D	D	D
10	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	32.8	**99.3**	**60.1**	C	**F**	**E**	35.4	**103.1**	**65.3**	D	**F**	**E**
11	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	**88.9**	31.4	36.9	**F**	C	D	**93.2**	33.2	40.4	**F**	C	D
12	Euclid Av. (SR-83) & Walnut Av.	TS	27.8	29.6	22.8	C	C	C	28.1	29.9	22.7	C	C	C
13	Euclid Av. (SR-83) & Riverside Dr.	TS	**112.6**	**149.4**	44.5	**F**	**F**	D	**131.0**	**163.8**	53.2	**F**	**F**	D
14	Euclid Av. (SR-83) & Chino Av.	TS	31.2	**89.8**	18.8	C	**F**	B	39.6	**102.4**	20.7	D	**F**	C
15	Euclid Av. (SR-83) & Street A	**CSS**	Future Intersection						19.4	14.3	13.1	C	B	B
16	Euclid Av. (SR-83) & Driveway 3	**CSS**	Future Intersection						22.3	15.0	14.1	C	C	B
17	Euclid Av. (SR-83) & Schaefer Av.	TS	**76.8**	**117.0**	24.6	**E**	**F**	C	**113.4**	**130.0**	52.0	**F**	**F**	D
18	Euclid Av. (SR-83) & Edison Av.	TS	48.6	**102.4**	40.2	D	**F**	D	54.5	**106.9**	43.9	D	**F**	D
19	Euclid Av. (SR-83) & Eucalyptus Av.	TS	47.4	54.8	16.3	D	D	B	48.9	**57.3**	16.5	D	**E**	B
20	Sultana Av. & Schaefer Av.	**CSS**	10.9	13.1	9.8	B	B	A	11.1	13.3	10.0	A	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) are shown. HCM delay reported in seconds.

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

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Opening Year Cumulative (2024) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. There are no additional unsignalized study area intersections anticipated to meet either peak hour volume or ADT volume-based warrants for Opening Year Cumulative (2024) Without and With Project traffic conditions (see Appendix 6.3 and Appendix 6.4).

6.6 ROADWAY SEGMENT ANALYSIS

Table 6-2 provides a summary of the Opening Year Cumulative (2024) traffic conditions roadway segment capacity analysis. As shown in Table 6-2, the following study area roadway segment is anticipated to operate at an unacceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria:

- Euclid Avenue (SR-83), North of Schaefer Avenue (#3) – LOS F

There are no additional roadway segments anticipated to operate at an unacceptable LOS with the addition of Project traffic.

TABLE 6-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS

			Roadway	LOS	2024 Without Project			2024 With Project		
#	Roadway	Segment Limits	Section	Capacity[1]	Vol	V/C[2]	LOS[3]	Vol	V/C[2]	LOS[3]
1	Fern Av.	South of Chino Av.	4D	30,000	5,930	0.198	A	6,758	0.225	A
2	Schaefer Av.	West of Euclid Av. (SR-83)	4D	30,000	11,643	0.388	A	15,475	0.516	A
3	Euclid Av. (SR-83)	North of Schaefer Av.	4D	40,900	**45,535**	**1.113**	**F**	**46,461**	**1.136**	**F**

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

[1] These maximum roadway capacities are obtained from Table TRA-3 of the City of Chino General Plan.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

6.7 OFF-RAMP QUEUING ANALYSIS

Off-ramp queuing analysis findings are presented in Table 6-3. As shown in 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. Worksheets for Opening Year Cumulative (2024) Without Project and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 6.5 and 6.6, respectively.

TABLE 6-3: PEAK HOUR OFF-RAMP QUEUING SUMMARY FOR EXISTING (2023) CONDITIONS

			2024 Without Project						2024 With Proejct					
		Available Stacking	95th Percentile Queue (Feet)			Acceptable? [1]			95th Percentile Queue (Feet)			Acceptable? [1]		
Intersection	Movement	Distance (Feet)	AM Peak	PM Peak	SAT Peak	AM	PM	SAT	AM Peak	PM Peak	SAT Peak	AM	PM	SAT
Euclid Av. & SR-60 WB Ramps (#10)	WBL	350	364 [2,3]	330	294	Yes	Yes	Yes	382 [2]	341	322 [2]	No	Yes	Yes
	WBL/T/R	1,415	370 [2]	315	240	Yes	Yes	Yes	387 [2]	328	267	Yes	Yes	Yes
	WBR	350	80	186	74	Yes	Yes	Yes	96	195	91	Yes	Yes	Yes
Euclid Av. & SR-60 EB Ramps (#11)	EBL	900	334	293	316	Yes	Yes	Yes	334	293	316	Yes	Yes	Yes
	EBL/R	1,290	1,231 [2]	546 [2]	626 [2]	Yes	Yes	Yes	1,288 [2]	601 [2]	704 [2]	Yes	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] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-60 Freeway mainline.

6.8 NEAR-TERM DEFICIENCIES AND IMPROVEMENTS

6.8.1 INTERSECTIONS

Improvement strategies have been identified at intersections that have been identified as deficient under Opening Year Cumulative (2024) traffic conditions in an effort to achieve an acceptable LOS. The effectiveness of the recommended improvement strategies to address Opening Year Cumulative (2024) traffic deficiencies are presented in Table 6-4. Worksheets for Opening Year Cumulative (2024) Without Project and With Project traffic conditions, with improvements, HCM calculation worksheets are provided in Appendices 6.7 and 6.8, respectively.

TABLE 6-4: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS WITH IMPROVEMENTS

	Traffic	Intersection Approach Lanes[1]												Delay[1] (secs.)			Level of Service		
		Northbound			Southbound			Eastbound			Westbound								
	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	SAT	AM	PM	SAT
10 Euclid Av. (SR-83) & SR-60 WB Ramps																			
Without Project:	TS	**2**	2	0	0	2	1	0	0	0	1	1	1	25.8	26.3	24.6	C	C	C
With Project:	TS	**2**	2	0	0	2	1	0	0	0	1	1	1	26.5	26.7	25.2	C	C	C
11 Euclid Av. (SR-83) & SR-60 EB Ramps																			
Without Project:	TS	0	2	1	**2**	2	0	1	1	**1**	0	0	0	27.2	21.5	24.1	C	C	C
With Project:	TS	0	2	1	**2**	2	0	1	1	**1**	0	0	0	27.4	21.7	24.4	C	C	C
13 Euclid Av. (SR-83) & Riverside Dr.																			
Without Project:	TS	1	**3**	**0**	1	**3**	1>	1	**2**	**1**	1	2	d	32.4	38.8	26.8	C	D	C
With Project:	TS	1	**3**	**0**	1	**3**	1>	1	**2**	**1**	1	2	d	33.5	40.8	27.7	C	D	C
14 Euclid Av. (SR-83) & Chino Av.																			
Without Project:	TS	1	**3**	1	1	**3**	1	1	1	1	**1**	1	0	18.6	26.8	14.5	B	C	B
With Project:	TS	1	**3**	1	1	**3**	1	1	1	1	**1**	1	0	19.8	28.3	15.6	B	C	B
17 Euclid Av. (SR-83) & Schaefer Av.																			
Without Project:	TS	**2**	**3**	1	**2**	**3**	1	1	1	1	1	1	0	26.2	37.6	19.1	C	D	B
With Project:	TS	**2**	**3**	1	**2**	**3**	1	1	1	1	1	1	0	40.4	48.4	26.3	D	D	C
18 Euclid Av. (SR-83) & Edison Av.																			
Without Project:	TS	2	**3**	1	1	**3**	1	1	1	1	1	1	1	28.4	51.1	29.3	C	D	C
With Project:	TS	2	**3**	1	1	**3**	1	1	1	1	1	1	1	30.0	54.1	32.2	C	D	C
19 Euclid Av. (SR-83) & Eucalyptus Av.																			
Without Project:	TS	1	**3**	1	1	**3**	1	1	1	1	1	1	0	28.9	31.5	14.2	C	C	B
With Project:	TS	1	**3**	1	1	**3**	1	1	1	1	1	1	0	29.4	31.9	14.3	C	C	B

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

L = Left; T = Through; R = Right; **1** = Improvement; > = Right-turn Overlap Phasing

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

[3] TS = Traffic Signal

6.8.2 ROADWAY SEGMENTS

Improvement strategies have been identified at study area roadway segments that have been identified as deficient under Opening Year Cumulative (2024) traffic conditions. The improvements are consistent with the intersection improvements identified in Table 6-4.

TABLE 6-5: ROADWAY SEGMENT CAPACITY ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS WITH IMPROVEMENTS

			Roadway	LOS	2024 Without Project			2024 With Project		
#	Roadway	Segment Limits	Section[4]	Capacity[1]	Vol	V/C[2]	LOS[3]	Vol	V/C[2]	LOS[3]
3	Euclid Av. (SR-83)	North of Schaefer Av.	**6D**	61,300	45,535	0.743	C	46,461	0.758	C

[1] These maximum roadway capacities are obtained from Table TRA-3 of the City of Chino General Plan. Where necessary, LOS capacities have been interpolated.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

[4] **6D** = Improvement

6.8.3 OFF-RAMP QUEUES

All study area off-ramps are not anticipated to experience queuing issues during the peak hours under Opening Year Cumulative (2024) traffic conditions. As such, no improvements have been identified for Opening Year Cumulative (2024) traffic conditions.

7 HORIZON YEAR (2045) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2045) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, roadway segment capacity, and off-ramp queuing analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2045) 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).
- If applicable, 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.

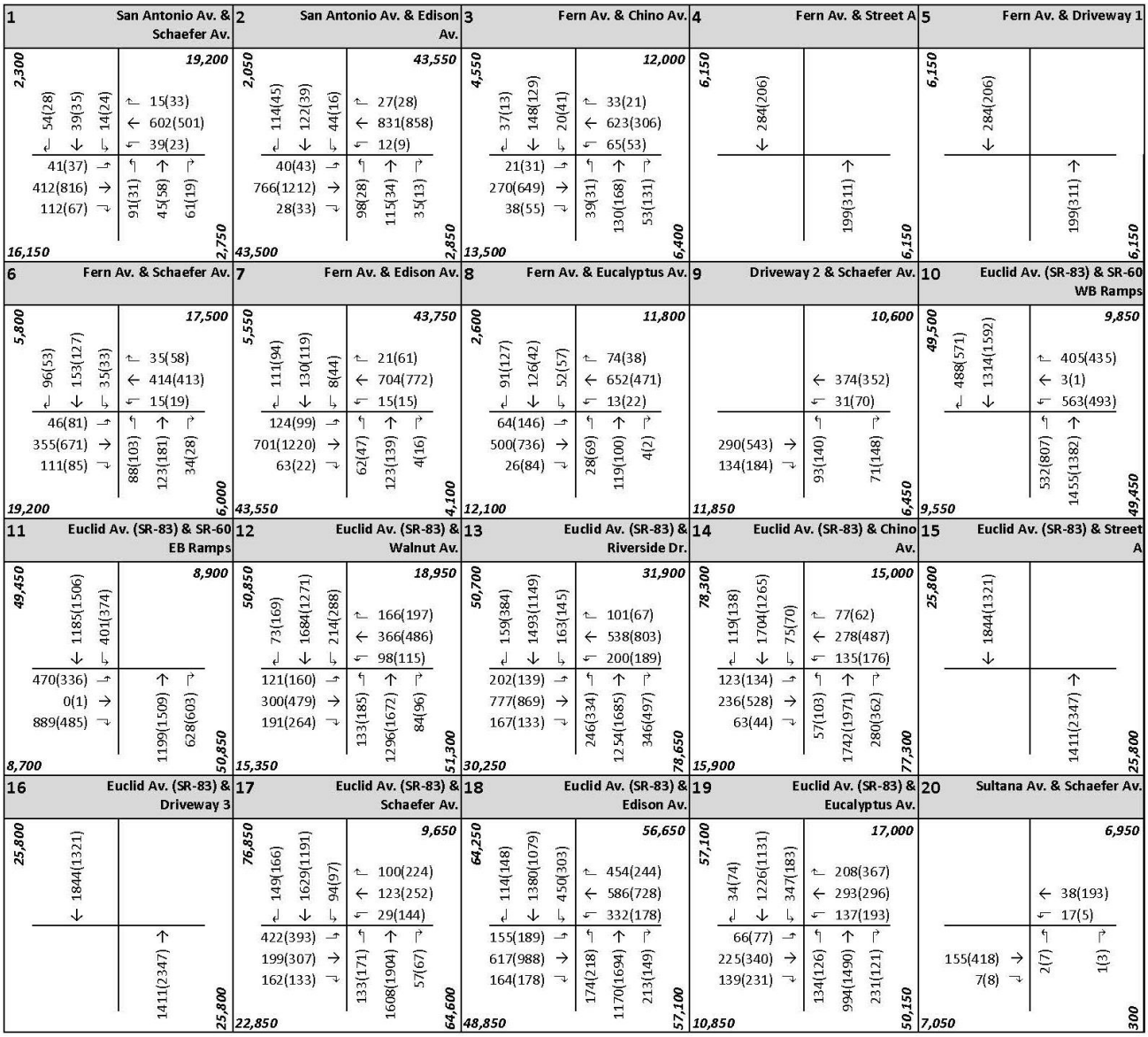
7.2 WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the SBTAM (see Section 4.7 *Horizon Year (2045) Volume Development* of this TA 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 (2045) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the SBTAM, plus the traffic generated by the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2045) With Project traffic conditions are shown on Exhibit 7-2.

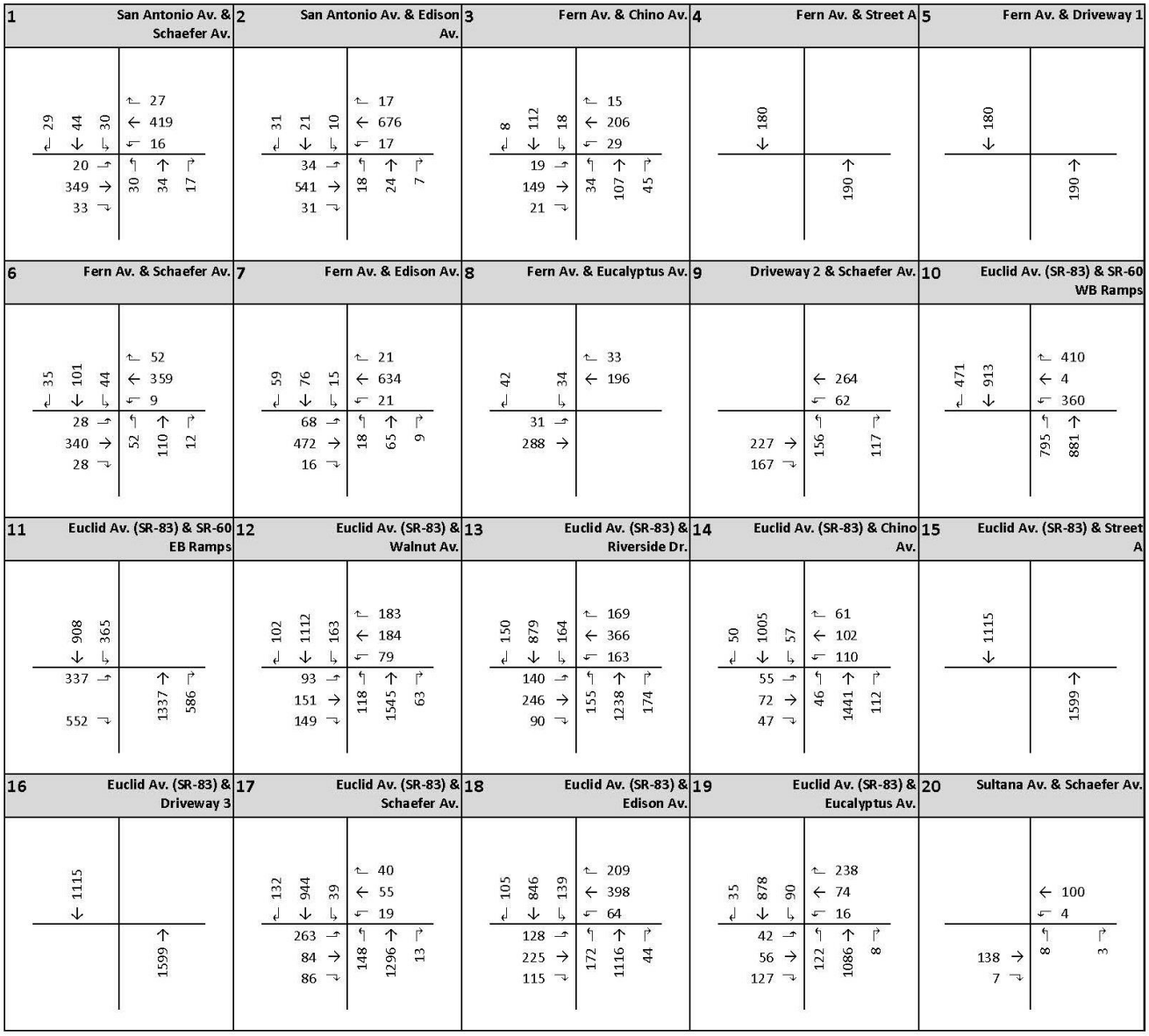
EXHIBIT 7-1: HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC VOLUMES (PAGE 1 OF 2)



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

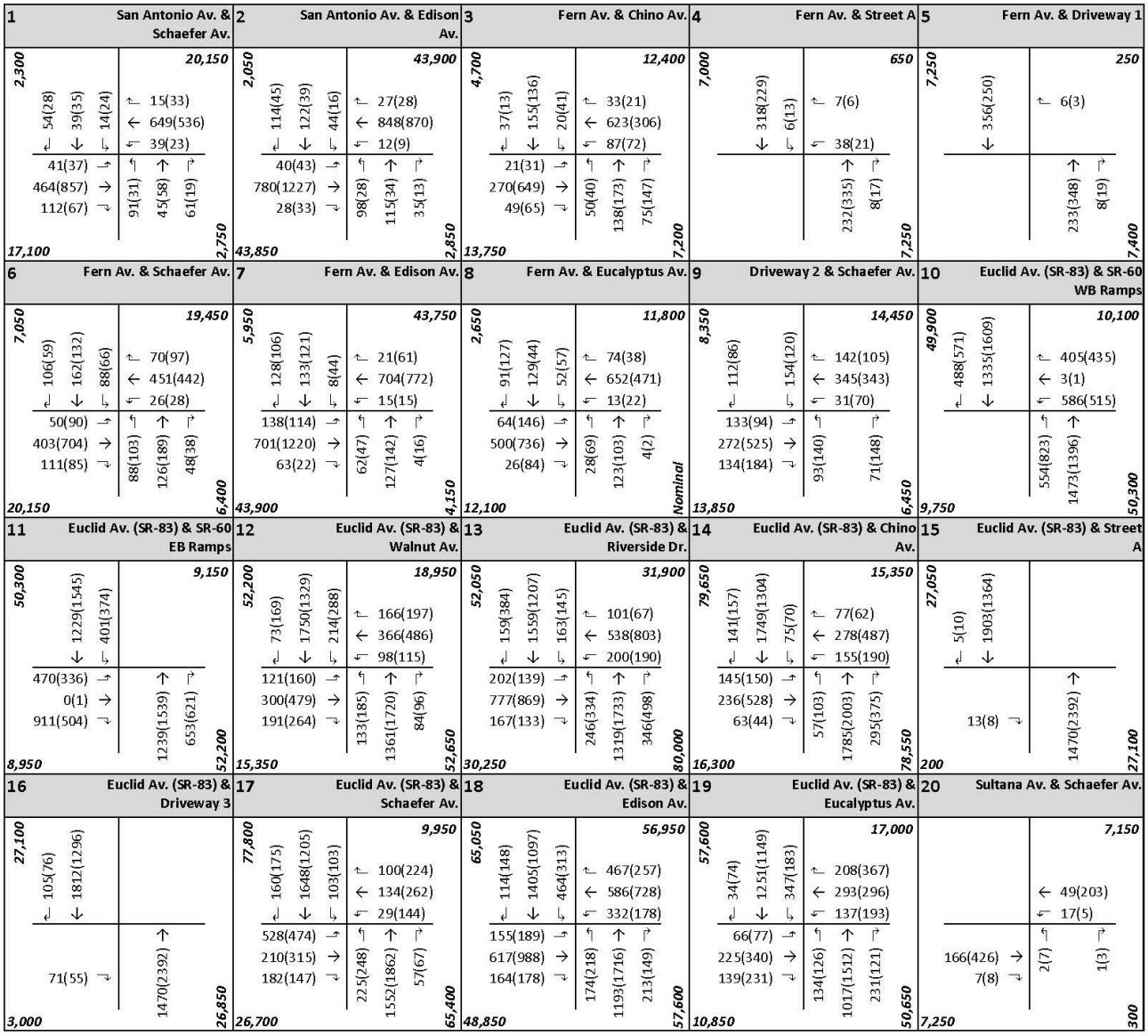
Average Daily Trips

EXHIBIT 7-1: HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

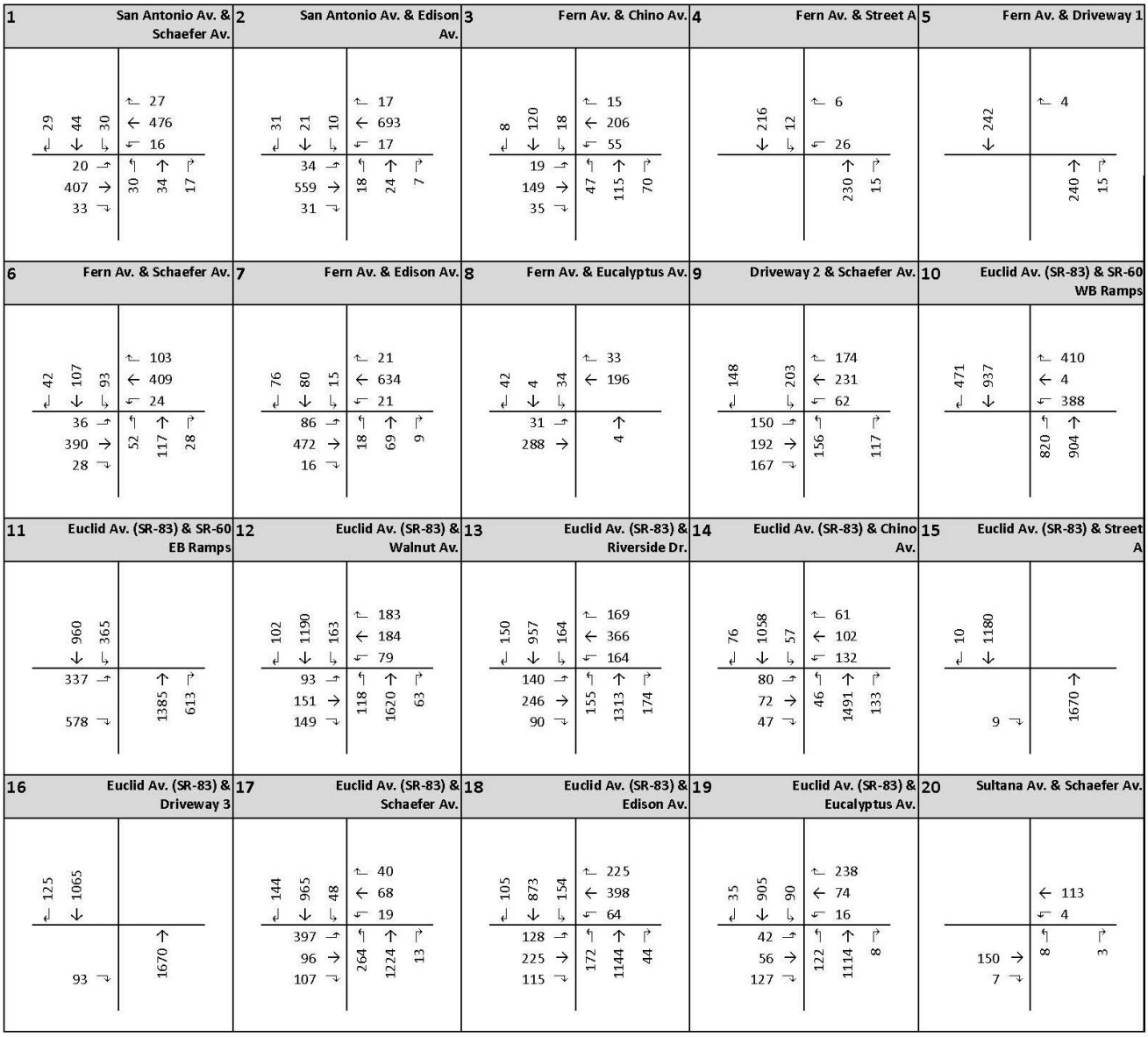
EXHIBIT 7-2: HORIZON YEAR (2045) WITH PROJECT TRAFFIC VOLUMES (PAGE 1 OF 2)



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

Average Daily Trips

EXHIBIT 7-2: HORIZON YEAR (2045) WITH PROJECT TRAFFIC VOLUMES (PAGE 2 OF 2)



SAT Peak Hour Intersection Volumes

7.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2045) Without Project conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. The intersection analysis results are summarized in Table 7-1 for Horizon Year (2045) Without Project traffic conditions, which indicate that the following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2045) Without Project traffic conditions. The intersection operations analysis worksheets for Horizon Year (2045) Without Project traffic conditions are included in Appendix 7.1 of this TA.

- Euclid Avenue (SR-83) & SR-60 WB Ramps (#10) – LOS F PM peak hour; LOS E Saturday peak hour
- Euclid Avenue (SR-83) & SR-60 EB Ramps (#11) – LOS F AM peak hour only
- Euclid Avenue (SR-83) & Riverside Drive (#13) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Chino Avenue (#14) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Schaefer Avenue (#17) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Edison Avenue (#18) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Eucalyptus Avenue (#19) – LOS E AM and PM peak hours

With the addition of Project traffic, the following study area intersection is anticipated to operate at an unacceptable LOS during the peak hours:

- Driveway 9 & Schaefer Avenue (#9) – LOS E PM peak hour; LOS F Saturday peak hour

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Horizon Year (2045) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. There are no additional study area intersections anticipated to meet either peak hour volume or ADT volume-based warrants for Horizon Year (2045) Without and With Project traffic conditions (see Appendix 7.3 and Appendix 7.4, respectively).

TABLE 7-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS

#	Intersection	Traffic Control[2]	2045 Without Proejct Delay[1] (secs.) AM	PM	SAT	2045 Without Proejct Level of Service AM	PM	SAT	2045 With Project Delay[1] (secs.) AM	PM	SAT	2045 With Project Level of Service AM	PM	SAT
1	San Antonio Av. & Schaefer Av.	TS	12.7	11.0	10.2	B	B	B	12.8	11.0	10.4	B	B	B
2	San Antonio Av. & Edison Av.	TS	12.5	10.5	8.0	B	B	A	12.6	10.5	8.5	B	B	A
3	Fern Av. & Chino Av.	TS	16.1	17.1	14.3	B	B	B	16.5	17.4	14.8	B	B	B
4	Fern Av. & Street A	**CSS**	Future Intersection						11.1	11.4	10.7	B	B	B
5	Fern Av. & Driveway 1	**CSS**	Future Intersection						9.1	9.5	9.1	A	A	A
6	Fern Av. & Schaefer Av.	TS	27.5	25.6	23.3	C	C	C	29.3	26.9	25.4	C	C	C
7	Fern Av. & Edison Av.	TS	18.1	18.1	15.5	B	B	B	18.4	18.5	15.9	B	B	B
8	Fern Av. & Eucalyptus Av.	CSS	20.2	20.7	11.4	C	C	B	20.2	20.7	11.4	C	C	B
9	Driveway 2 & Schaefer Av.	CSS	12.4	19.5	15.2	B	C	C	30.4	**40.4**	**57.8**	D	**E**	**F**
10	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	37.5	**112.1**	**74.1**	D	**F**	**E**	42.6	**119.2**	**79.6**	D	**F**	**E**
11	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	**107.0**	52.4	52.9	**F**	D	D	**113.0**	**56.9**	**60.8**	**F**	**E**	**E**
12	Euclid Av. (SR-83) & Walnut Av.	TS	29.7	39.8	23.5	C	D	C	30.1	40.9	23.6	C	D	C
13	Euclid Av. (SR-83) & Riverside Dr.	TS	**>200.0**	**>200.0**	54.2	**F**	**F**	D	**>200.0**	**>200.0**	**62.8**	**F**	**F**	**E**
14	Euclid Av. (SR-83) & Chino Av.	TS	**123.4**	**>200.0**	20.1	**F**	**F**	C	**135.9**	**>200.0**	22.3	**F**	**F**	C
15	Euclid Av. (SR-83) & Street A	**CSS**	Future Intersection						21.8	15.3	13.8	C	C	B
16	Euclid Av. (SR-83) & Driveway 3	**CSS**	Future Intersection						26.1	16.3	15.1	D	C	C
17	Euclid Av. (SR-83) & Schaefer Av.	TS	**148.0**	**>200.0**	26.9	**F**	**F**	C	**175.9**	**>200.0**	53.9	**F**	**F**	D
18	Euclid Av. (SR-83) & Edison Av.	TS	**>200.0**	**>200.0**	44.3	**F**	**F**	D	**>200.0**	**>200.0**	49.8	**F**	**F**	D
19	Euclid Av. (SR-83) & Eucalyptus Av.	TS	**58.7**	**74.2**	17.4	**E**	**E**	B	**60.4**	**76.7**	17.7	**E**	**E**	B
20	Sultana Av. & Schaefer Av.	**CSS**	9.8	13.9	10.0	A	B	B	10.0	14.2	10.2	B	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) are shown. HCM delay reported in seconds.

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

7.6 ROADWAY SEGMENT ANALYSIS

Table 7-2 provides a summary of the Horizon Year (2045) traffic conditions roadway segment capacity analysis. As shown in Table 7-2, the following study area roadway segment is anticipated to continue to operate at an acceptable LOS based on the daily roadway capacity thresholds and minimum LOS criteria:

- Euclid Avenue (SR-83), North of Schaefer Avenue (#3) – LOS F

TABLE 7-2: ROADWAY SEGMENT CAPACITY ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2045 Without Project Vol	2045 Without Project V/C[2]	2045 Without Project LOS[3]	2045 With Project Vol	2045 With Project V/C[2]	2045 With Project LOS[3]
1	Fern Av.	South of Chino Av.	4D	30,000	6,395	0.213	A	7,223	0.241	A
2	Schaefer Av.	West of Euclid Av. (SR-83)	4D	30,000	22,844	0.761	C	26,676	0.889	D
3	Euclid Av. (SR-83)	North of Schaefer Av.	4D	40,900	**76,866**	**1.879**	**F**	**77,792**	**1.902**	**F**

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

[1] These maximum roadway capacities are obtained from Table TRA-3 of the City of Chino General Plan.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

7.7 OFF-RAMP QUEUING ANALYSIS

Off-ramp queuing analysis findings are presented in Table 7-3. As shown in Table 7-3, the following movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows:

- Euclid Avenue & SR-60 EB Ramps (#11), eastbound shared left-right turn lane – AM peak hour only

Worksheets for Horizon Year (2045) Without Project and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 7.5 and 7.6, respectively.

TABLE 7-3: PEAK HOUR OFF-RAMP QUEUING SUMMARY FOR HORIZON YEAR (2045) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	2045 Without Project 95th Percentile Queue (Feet) AM Peak	PM Peak	SAT Peak	2045 Without Project Acceptable?[1] AM	PM	SAT	2045 With Proejct 95th Percentile Queue (Feet) AM Peak	PM Peak	SAT Peak	2045 With Proejct Acceptable?[1] AM	PM	SAT
Euclid Av. & SR-60 WB Ramps (#10)	WBL	350	442 [2,3]	366 [3]	351 [2,3]	Yes	Yes	Yes	457 [2,3]	381 [2,3]	371 [2,3]	Yes	Yes	Yes
	WBL/T/R	1,415	448 [2]	356	271	Yes	Yes	Yes	468 [2]	389 [2]	318 [2]	Yes	Yes	Yes
	WBR	350	329 [2]	291	129	Yes	Yes	Yes	348 [2]	297	148	Yes	Yes	Yes
Euclid Av. & SR-60 EB Ramps (#11)	EBL	900	561 [2]	380 [2]	353	Yes	Yes	Yes	561 [2]	380 [2]	353	Yes	Yes	Yes
	EBL/R	1,290	**1,461** [2]	801 [2]	767 [2]	**No**	Yes	Yes	**1,510** [2]	841 [2]	840 [2]	**No**	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] Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-60 Freeway mainline.

7.8 NEAR-TERM DEFICIENCIES AND IMPROVEMENTS

7.8.1 INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient under Horizon Year (2045) traffic conditions in an effort to achieve an acceptable LOS. The effectiveness of the recommended improvement strategies to address Horizon Year (2045) traffic deficiencies are presented in Table 7-4. Worksheets for Horizon Year (2045) Without Project and With Project traffic conditions, with improvements, HCM calculation worksheets are provided in Appendices 7.7 and 7.8, respectively.

TABLE 7-4: INTERSECTION ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS WITH IMPROVEMENTS

	Traffic	Intersection Approach Lanes[1]												Delay[1] (secs.)			Level of Service		
		Northbound			Southbound			Eastbound			Westbound								
	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	SAT	AM	PM	SAT
9 Driveway 2 & Schaefer Av.																			
Without Project:		Not Applicable																	
With Project:	**TS**	1	1	0	**1**	**1**	0	**1**	2	0	1	2	0	14.2	14.8	15.7	B	B	B
10 Euclid Av. (SR-83) & SR-60 WB Ramps																			
Without Project:	TS	**2**	2	0	0	**3**	0	0	0	0	1	1	1	22.4	27.7	24.4	C	C	C
With Project:	TS	**2**	2	0	0	**3**	0	0	0	0	1	1	1	23.0	28.4	24.8	C	C	C
11 Euclid Av. (SR-83) & SR-60 EB Ramps																			
Without Project:	TS	0	2	1	**2**	2	0	1	1	**1**	0	0	0	32.8	21.7	26.6	C	C	C
With Project:	TS	0	2	1	**2**	2	0	1	1	**1**	0	0	0	33.6	21.9	27.1	C	C	C
13 Euclid Av. (SR-83) & Riverside Dr.																			
Without Project:	TS	**2**	**3**	**1**	**2**	**3**	1>	1	**2**	**1**	1	2	d	49.3	49.3	23.9	D	D	C
With Project:	TS	**2**	**3**	**1**	**2**	**3**	1>	1	**2**	**1**	1	2	d	51.1	50.4	24.3	D	D	C
14 Euclid Av. (SR-83) & Chino Av.																			
Without Project:	TS	1	**3**	1	1	**3**	1	1	1	1	**1**	1	0	27.1	47.9	14.7	C	D	B
With Project:	TS	1	**3**	1	1	**3**	1	1	1	1	**1**	1	0	29.0	50.8	15.7	C	D	B
17 Euclid Av. (SR-83) & Schaefer Av.																			
Without Project:	TS	**2**	**3**	1	**2**	**3**	1	**2**	1	1	1	1	0	27.2	46.7	16.6	C	D	B
With Project:	TS	**2**	**3**	1	**2**	**3**	1	**2**	1	1	1	1	0	34.5	52.6	19.6	C	D	B
18 Euclid Av. (SR-83) & Edison Av.																			
Without Project:	TS	2	**3**	1	**2**	**3**	**1>**	**2**	**3**	1	**2**	**2**	**1>**	37.3	40.7	21.1	D	D	C
With Project:	TS	2	**3**	1	**2**	**3**	**1>**	**2**	**3**	1	**2**	**2**	**1>**	38.8	41.7	21.7	D	D	C
19 Euclid Av. (SR-83) & Eucalyptus Av.																			
Without Project:	TS	1	**3**	1	1	**3**	1	1	1	1	**2**	1	**1**	23.0	27.4	12.8	C	C	B
With Project:	TS	1	**3**	1	1	**3**	1	1	1	1	**2**	1	**1**	23.2	27.7	12.9	C	C	B

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

L = Left; T = Through; R = Right; **1** = Improvement; > = Right-turn Overlap Phasing

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

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

7.8.2 ROADWAY SEGMENTS

Improvement strategies have been recommended at study area roadway segments that have been identified as deficient under Horizon Year (2045) traffic conditions. The improvements are consistent with the intersection improvements identified in Table 7-4.

TABLE 7-5: ROADWAY SEGMENT CAPACITY ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) CONDITIONS WITH IMPROVEMENTS

			Roadway	LOS	2045 Without Project			2045 With Project		
#	Roadway	Segment Limits	Section[4]	Capacity[1]	Vol	V/C[2]	LOS[3]	Vol	V/C[2]	LOS[3]
3	Euclid Av. (SR-83)	North of Schaefer Av.	**6D**	61,300	**76,866**	**1.254**	**F**	**77,792**	**1.269**	**F**

[1] These maximum roadway capacities are obtained from Table TRA-3 of the City of Chino General Plan. Where necessary, LOS capacities have been interpolated.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

[4] **6D** = Improvement

7.8.3 OFF-RAMP QUEUES

Improvement strategies have been recommended at study area off-ramps that have been identified as deficient under Horizon Year (2045) traffic conditions and are shown in Table 7-6. The improvements are consistent with the intersection improvements identified in Table 7-4. Worksheets for Horizon Year (2045) conditions, with improvements, off-ramp queuing analysis worksheets are provided in Appendix 7.9.

TABLE 7-6: PEAK HOUR OFF-RAMP QUEUING SUMMARY FOR HORIZON YEAR (2045) CONDITIONS WITH IMPROVEMENTS

			2045 With Project					
		Available Stacking	95th Percentile Queue (Feet)			Acceptable? [1]		
Intersection	Movement	Distance (Feet)[3]	AM Peak	PM Peak	SAT Peak	AM	PM	SAT
Euclid Av. & SR-60 EB Ramps (#11)	EBL	900	450	396 [2]	385 [2]	Yes	Yes	Yes
	EBL/R	1,290	608 [2]	360 [2]	261	Yes	Yes	Yes
	EBR	**600**	547 [2]	309 [2]	249	Yes	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] **600** = Improvement

8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Chino are funded through a combination of project mitigation, development impact fee programs or fair share contributions, such as the City of Chino 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 CITY OF CHINO DEVELOPMENT IMPACT FEE PROGRAM

The City of Chino has created its own local DIF program to impose and collect fees from new residential, commercial, and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. The City's DIF includes regional improvements to comply with Measure "I". The fee schedule was adopted in February 2022. Under the City's DIF program, the City may grant developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

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 in effect at the time the vesting map is deemed complete. The Project Applicant's payment of the requisite DIF at the rates, pursuant to the City DIF Program, would satisfy the Project's proportional mitigation requirements at potentially affected DIF-funded facilities.

8.2 MEASURE "I" FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2045, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by San Bernardino County Transportation Authority (SBCTA) and concluded that each jurisdiction should include a regional fee component in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in March 2021. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study. While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County.

8.3 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 in 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 (2023)	Project Only	2045 With Project	Total New Traffic	Project % of New Traffic[1]
9	Driveway 2 & Schaefer Av.						
		AM:	734	494	1,486	752	65.7%
		PM:	1,083	378	1,815	732	51.6%
		SAT:	722	607	1,600	878	**69.1%**
14	Euclid Av. (SR-83) & Chino Av.						
		AM:	2,240	167	5,056	2,816	**5.9%**
		PM:	2,594	133	5,473	2,879	4.6%
		SAT:	1,762	197	33,356	31,594	0.6%
17	Euclid Av. (SR-83) & Schaefer Av.						
		AM:	2,072	223	4,928	2,856	7.8%
		PM:	2,469	177	5,226	2,757	6.4%
		SAT:	1,625	266	3,385	1,760	**15.1%**
19	Euclid Av. (SR-83) & Eucalyptus Av.						
		AM:	2,207	48	4,082	1,875	2.6%
		PM:	2,548	40	4,669	2,121	1.9%
		SAT:	1,546	55	2,826	1,280	**4.3%**

[1] **BOLD =** Highest fair share percentage is highlighted.

9 REFERENCES

1. **City of Chino.** *City of Chino Trafic Impact Analysis Guidelines.* Chino : s.n., December 2020.
2. **San Bernardino Associated Governments.** *County of San Bernardino Congestion Management Program.* County of San Bernardino : s.n., June 2016, 2021 Update.
3. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.
4. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
5. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CA MUTCD).* 2014, Updated March 30, 2021 (Revision 6).
6. **City of Chino.** *Envision Chino: General Plan 2025.* City of Chino : Design, Community & Environment, July 2010.
7. **The Planning Center for The City of Ontario.** *The Ontario Plan Environmental Impact Report.* Ontario : s.n., July 2009.
8. **California Department of Transportation.** *Guide for the Preparation of Traffic Impact Studies.* December 2002.
9. **City of Chino.** *City of Chino Bicycle and Pedestrian Master Plan.* Chino : s.n., Fina Report 2016 (Adopted January 2016).

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