

MAJESTIC CHINO FLIGHT
PL22-0029 (PARCEL NO.
1055-051-01 & 02, AND
1055-061-01 & 02, AND
1055-071-01 & 02

TRAFFIC ANALYSIS

PREPARED BY: Charlene So | cso@urbanxroads.com
Connor Paquin | cpaquin@urbanxroads.com
Aric Evatt | aevatt@urbanxroads.com

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
MPH	Miles per Hour
NCHRP	National Cooperative Highway Research Program
OPR	Office of Planning and Research
PCE	Passenger Car Equivalent
PHF	Peak Hour Factor
Project	Majestic Chino Flight
SB	Senate Bill
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
TA	Traffic Analysis
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
vphgpl	Vehicles per Hour Green per Lane

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1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for Majestic Chino Flight (“Project”), which is located on the southeast corner of Flight Avenue and Remington 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. Driveway 1, Driveway 3, and Driveway 4 will be limited to Passenger Car access only. Driveway 2 and Driveway 5 will be limited to Truck access only. Driveway 6 will serve both passenger cars and trucks.
- Project to construct Remington Avenue at its ultimate half-section-width as a Commercial Collector (74-foot right-of-way) from Flight Avenue to the Project’s eastern boundary consistent with the Preserve Specific Plan standards.
- The site adjacent roadway of Flight Avenue appears to be built to its ultimate Preserve Specific Plan curb-to-curb width as a Commercial Collector (74-foot right-of-way). However, the Project should improve the sidewalks and landscaping consistent with the Specific Plan standards along the frontages (from Remington Avenue to the northern boundary of Parcel 2) in addition to accommodating improvements to facilitate site access at the 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. However, the Project Applicant’s responsibility for the Project’s contributions towards deficient off-site intersections is fulfilled through fair share contribution or payment into pre-existing fee programs (if applicable) that would be assigned to the future construction of any future local/regional improvement needs. The Project Applicant would be required to pay requisite fees consistent with the City’s requirements (see Section 8 *Local and Regional Funding Mechanisms*).

1.2 PROJECT OVERVIEW

A preliminary site plan for the proposed Project is shown on Exhibit 1-2. The Project is proposed to consist of the development of a 925,362 square foot single warehouse building. For the purposes of this analysis, the Project has been evaluated assuming 138,804 square feet of high-cube cold storage warehouse use and 786,558 square feet of high-cube fulfilment center use (15% and 85% of the overall building square footage, respectively). As indicated on Exhibit 1-2, vehicular access will be provided via three driveways on Flight Avenue and three driveways on Remington Avenue. The southern two driveways on Flight Avenue will be private driveways.

EXHIBIT 1-1: LOCATION MAP

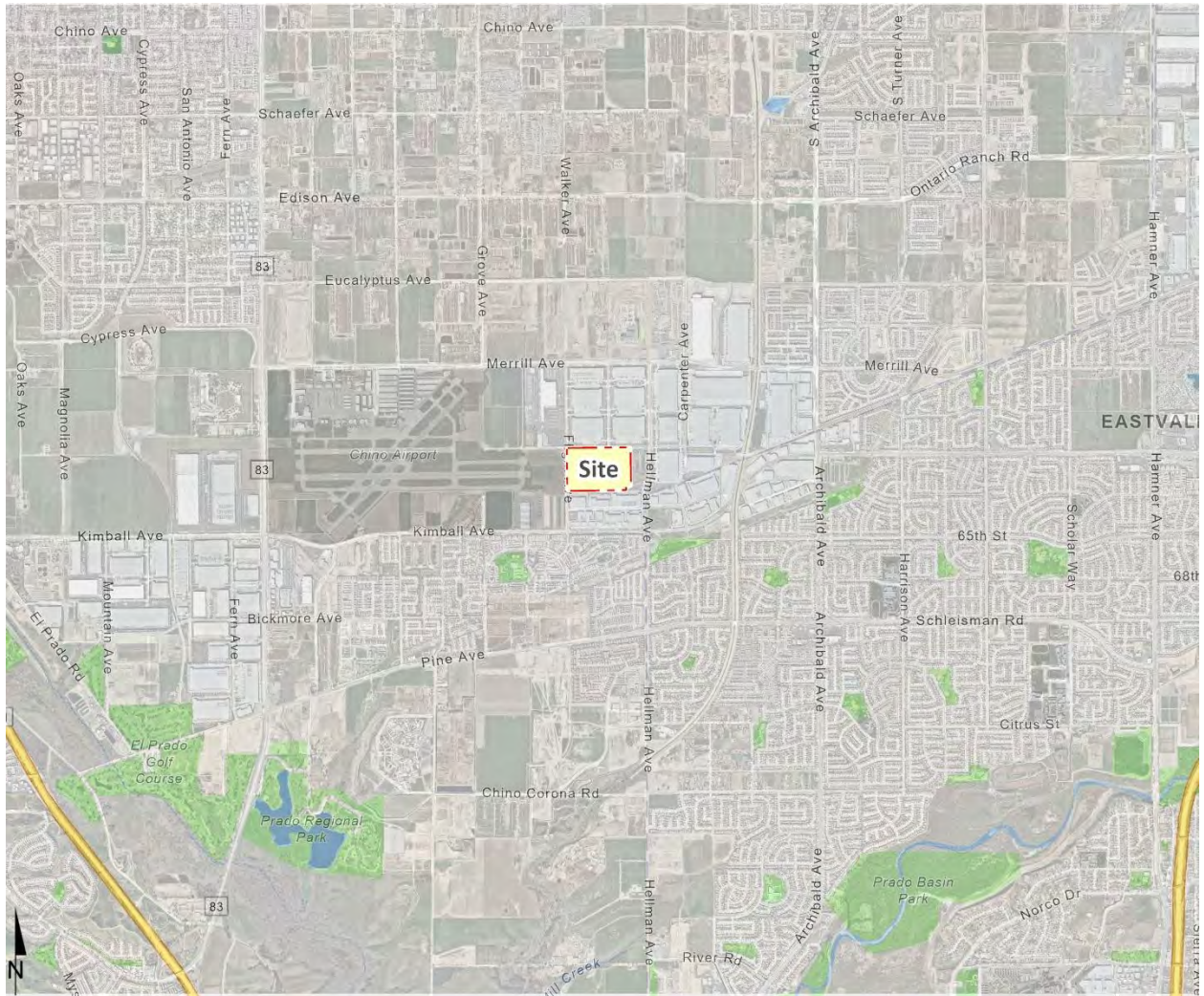
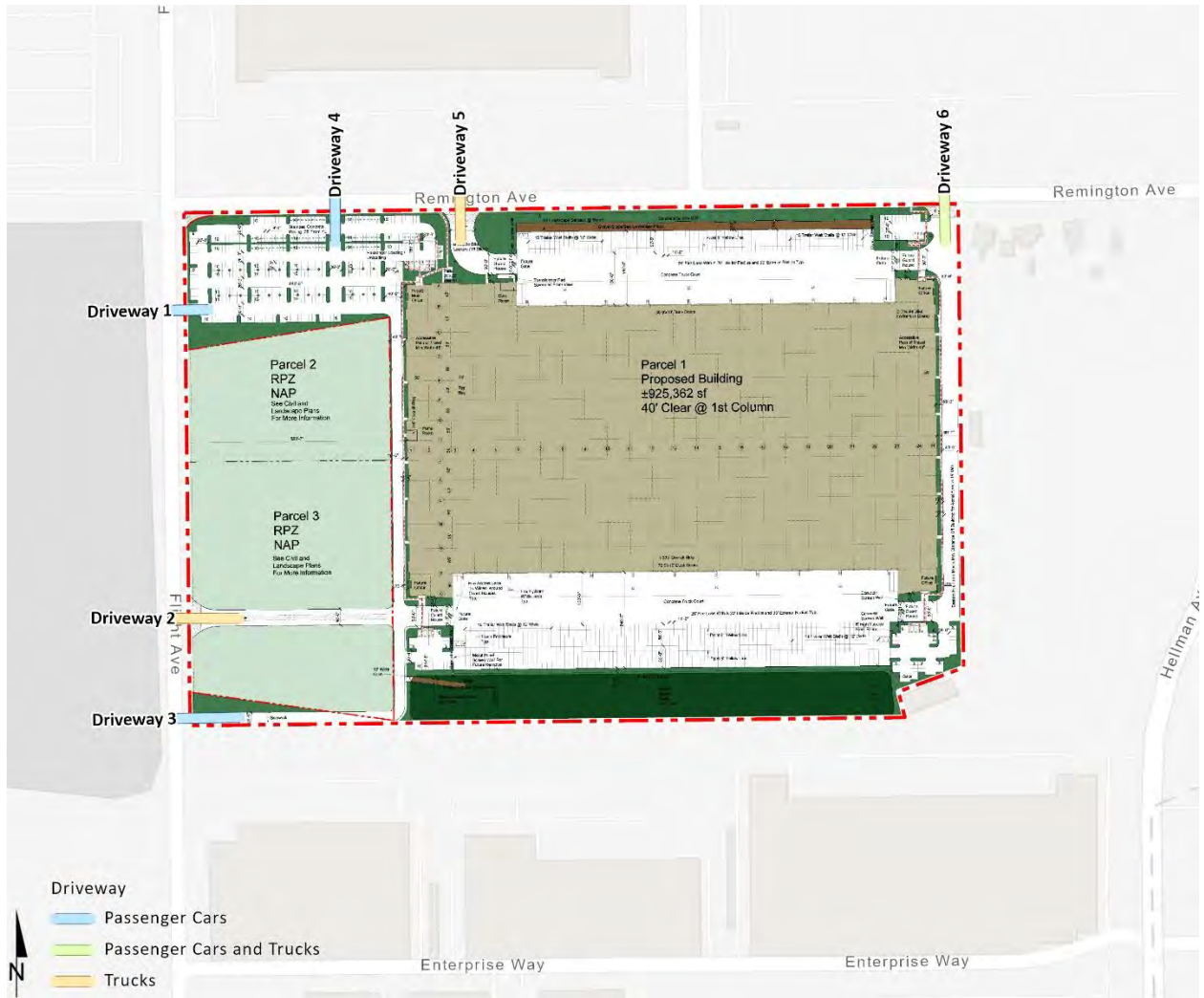


EXHIBIT 1-2: PRELIMINARY SITE PLAN



Regional access to the Project site is accommodated from Euclid Avenue (SR-83) via Merrill Avenue and Kimball Avenue to the SR-60 Freeway, SR-71 Freeway, or I-15 Freeway (via Archibald Avenue and future Kimball Avenue/Limonite Avenue extension).

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 1,972 actual two-way trips per day with 111 AM peak hour trips and 148 PM peak hour trips. The Project is anticipated to generate a total of 1,566 passenger car trip-ends per day and 406 truck trip-ends per day, in actual vehicles. The Project is anticipated to generate 93 AM peak hour passenger car trips and 18 AM peak hour truck trips, and 127 PM peak hour passenger car trips and 21 PM peak hour truck trips per day in actual vehicles.

The Project is anticipated to generate 146 passenger car equivalent (PCE) AM peak hour trips and 181 PCE PM peak hour trips, which have been used for the peak hour operations analysis. 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 (2022) Conditions
- Existing plus Project (E+P) Conditions
- Opening Year Cumulative (2025) Without Project Conditions
- Opening Year Cumulative (2025) With Project Conditions
- Horizon Year (2045) Without Project
- Horizon Year (2045) With Project

1.3.1 EXISTING (2022) CONDITIONS

Information for Existing (2022) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Local schools were in session with in-person instruction at the time of the traffic counts. Traffic counts were conducted in May 2022 based on vehicle classification and were converted to PCE. Use of PCE in the operations analysis accounts for the effects of large trucks present within the existing study area. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles. The volumes shown within the TA are in actual vehicles, however, consistent with the City's Guidelines the operations analysis has been conducted using PCE volumes.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (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 (2025) CONDITIONS

The Opening Year Cumulative (2025) 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 (2022) conditions of 6.12% (2% per year, compounded annually, over 3 years) is included for Opening Year Cumulative (2025) 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 2025 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 2025 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

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 17 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, the study area includes 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 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 San Bernardino County CMP intersections are identified in Table 1, which are intersections of two CMP roadways that cross one another.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersection	Jurisdiction	CMP Facility?
1	Euclid Av. (SR-83) & Merrill Av.	Chino, Ontario, Caltrans	No
2	Euclid Av. (SR-83) & Kimball Av.	Chino, Caltrans	No
3	Grove Av. & Merrill Av.	Chino, Ontario	No
4	Flight Av. & Merrill Av.	Chino, Ontario	No
5	Flight Av. & Remington Av.	Chino	No
6	Flight Av. & Driveway 1	Chino	No
7	Flight Av. & Driveway 2	Chino	No
8	Flight Av. & Driveway 3	Chino	No
9	Flight Av. & Kimball Av.	Chino	No
10	Driveway 4 & Remington Av.	Chino	No
11	Driveway 5 & Remington Av.	Chino	No
12	Van Vliet Av. & Merrill Av.	Chino, Ontario	No
13	Van Vliet Av. & Remington Av.	Chino	No
14	Driveway 6 & Remington Av.	Chino	No
15	Hellman Av. & Merrill Av.	Chino, Ontario	No
16	Hellman Av. & Remington Av.	Chino	No
17	Archibald Av. & Merrill Av.	Ontario	No

EXHIBIT 1-3: STUDY AREA



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 (2025) 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 on Table 1-2.

TABLE 1-2: SUMMARY OF LOS

# Intersection	Existing		E+P		2025 Without Project		2025 With Project		2045 Without Project		2045 With Project	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1 Euclid Av. (SR-83) & Merrill Av.	●	●	●	●	●	●	●	●	●	●	●	●
2 Euclid Av. (SR-83) & Kimball Av.	●	●	●	●	●	●	●	●	●	●	●	●
3 Grove Av. & Merrill Av.	●	●	●	●	●	●	●	●	●	●	●	●
4 Flight Av. & Merrill Av.	●	●	●	●	●	●	●	●	●	●	●	●
5 Flight Av. & Remington Av.	●	●	●	●	●	●	●	●	●	●	●	●
6 Flight Av. & Driveway 1	N/A	N/A	●	●	N/A	N/A	●	●	N/A	N/A	●	●
7 Flight Av. & Driveway 2	N/A	N/A	●	●	N/A	N/A	●	●	N/A	N/A	●	●
8 Flight Av. & Driveway 3	N/A	N/A	●	●	N/A	N/A	●	●	N/A	N/A	●	●
9 Flight Av. & Kimball Av.	●	●	●	●	●	●	●	●	●	●	●	●
10 Driveway 4 & Remington Av.	N/A	N/A	●	●	N/A	N/A	●	●	N/A	N/A	●	●
11 Driveway 5 & Remington Av.	N/A	N/A	●	●	N/A	N/A	●	●	N/A	N/A	●	●
12 Van Vliet Av. & Merrill Av.	●	●	●	●	●	●	●	●	●	●	●	●
13 Van Vliet Av. & Remington Av.	●	●	●	●	●	●	●	●	●	●	●	●
14 Driveway 6 & Remington Av.	N/A	N/A	●	●	N/A	N/A	●	●	N/A	N/A	●	●
15 Hellman Av. & Merrill Av.	●	●	●	●	●	●	●	●	●	●	●	●
16 Hellman Av. & Remington Av.	●	●	●	●	●	●	●	●	●	●	●	●
17 Archibald Av. & Merrill Av.	●	●	●	●	●	●	●	●	●	●	●	●

● = A - D ● = E ● = F

1.5.1 EXISTING (2022) CONDITIONS

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

1.5.2 E+P CONDITIONS

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.

1.5.3 OPENING YEAR CUMULATIVE (2025) CONDITIONS

The following study area intersection is anticipated to operate at an unacceptable LOS under Opening Year Cumulative (2025) Without Project traffic conditions:

- Euclid Avenue (SR-83) & Merrill Avenue (#1) – LOS F AM peak hour only

- Grove Avenue & Merrill Avenue (#3) – LOS F AM peak hour only
- Hellman Avenue & Merrill Avenue (#15) – LOS E AM peak hour only
- Archibald Avenue & Merrill Avenue (#17) – LOS F AM peak hour only

There are no additional intersection deficiencies anticipated with the addition of Project traffic under Opening Year Cumulative (2025) With Project traffic conditions; however, the addition of Project traffic results in the LOS changing from acceptable to unacceptable at the intersection of Grove Avenue at Merrill Avenue under PM peak hour conditions only (already anticipated to both be LOS F in the AM peak hour).

1.5.4 HORIZON YEAR (2045) CONDITIONS

The following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2045) Without Project traffic conditions:

- Euclid Avenue (SR-83) & Merrill Avenue (#1) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Kimball Avenue (#2) – LOS F AM and PM peak hours
- Grove Avenue & Merrill Avenue (#3) – LOS F AM and PM peak hours
- Flight Avenue & Merrill Avenue (#4) – LOS F PM peak hour only
- Hellman Avenue & Merrill Avenue (#15) – LOS F AM peak hour only
- Archibald Avenue & Merrill Avenue (#17) – LOS F AM and PM peak hours

The addition of Project traffic is not anticipated to result in any additional deficiencies.

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 Exhibits 1-4.

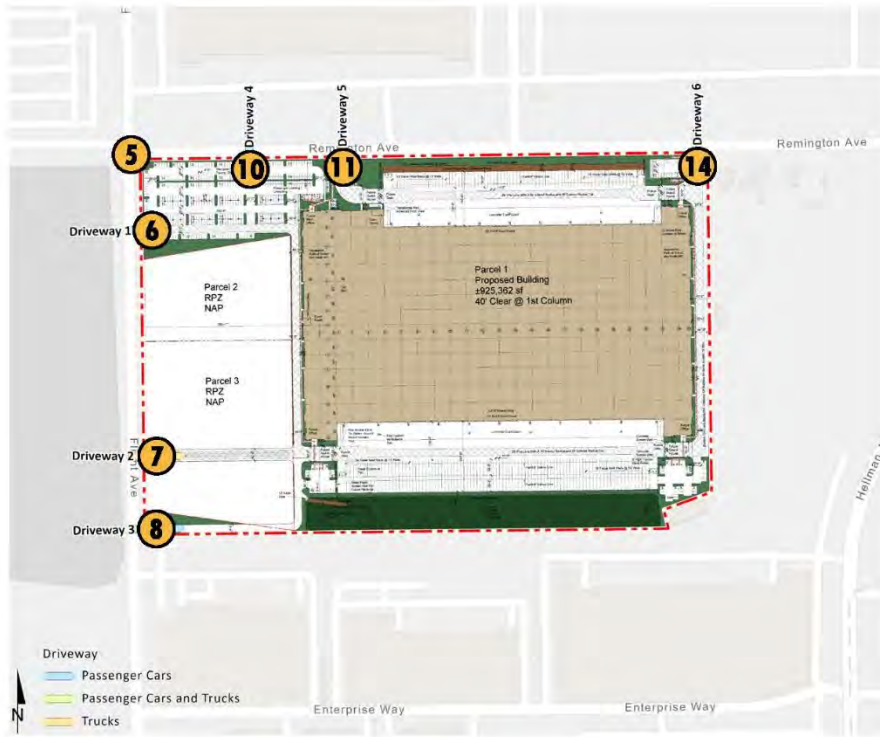
Recommendation 1 – Flight Avenue & Driveway 1 (#6) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the westbound approach (Project driveway).
- Project to construct a westbound shared left-right turn lane (Project driveway).
- Project to construct a southbound left turn lane with a minimum turn pocket length of 50 feet.

Recommendation 2 – Flight Avenue & Driveway 2 (#7) – The following improvements are necessary to accommodate site access:

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

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS



5 <i>Flight Av. & Remington Av.</i>	6 <i>Flight Av. & Dwy. 1</i>	7 <i>Flight Av. & Dwy. 2</i>	8 <i>Flight Av. & Dwy. 3</i>
10 <i>Dwy. 4 & Remington Av.</i>	11 <i>Dwy. 5 & Remington Av.</i>	14 <i>Dwy. 6 & Remington Av.</i>	

- = Stop Sign Improvement
- = Existing Lane
- = Lane Improvement
- 100'** = Recommended Turn Pocket Length

Recommendation 2 – Flight Avenue & Driveway 2 (#7) – The following improvements are necessary to accommodate site access:

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

Recommendation 3 – Flight Avenue & Driveway 3 (#8) – The following improvements are necessary to accommodate site access:

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

Recommendation 4 – Driveway 4 & Remington Avenue (#10) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach (Project driveway).
- Project to construct a northbound shared left-right turn lane (Project driveway).

Recommendation 5 – Driveway 5 & Remington Avenue (#11) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach (Project driveway).
- Project to construct a northbound shared left-right turn lane (Project driveway).

Recommendation 6 – Driveway 6 & Remington Avenue (#14) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach (Project driveway).
- Project to construct a northbound shared left-right turn lane (Project driveway).
- Project to construct pedestrian ramps at each corner and stripe crosswalks across all legs.

Recommendation 7 – Flight Avenue & Remington Avenue (#14) – The following improvements are necessary to accommodate site access:

- Project to modify the traffic signal to implement split phasing for the eastbound/westbound approaches.
- Project to modify the northbound left turn pocket to provide 75-feet of storage.

Recommendation 8 – Flight Avenue is a north-south oriented roadway located on the Project’s western boundary. Flight Avenue appears to be built to its ultimate Specific Plan cross-section adjacent to the Project. However, the Project should improve the sidewalks and landscaping along the frontage from Remington Avenue to the Project’s southern boundary (north of Parcel 2) consistent with the Preserve Specific Plan standards, in addition to accommodating improvements to facilitate site access at the driveways.

Recommendation 9 – Remington Avenue is an east-west oriented roadway located on the Project's northern boundary. Project to construct Remington Avenue at its ultimate half-section-width as a Commercial Collector (74-foot right-of-way) from Flight Avenue to the Project's eastern boundary consistent with the Preserve Specific Plan standards, in addition to accommodating improvements to facilitate site access at the driveways.

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

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

1.6.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the cumulative deficiencies identified under Existing (2022), E+P, Opening Year Cumulative (2025), and Horizon Year (2045) traffic conditions are summarized in Table 1-3. For those improvements listed in Table 1-3 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share and/or fees. Table 1-3 also summarizes the applicable cost associated with each of the recommended improvements.

1.6.3 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

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. No queuing issues are anticipated at the Project access points.

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 TRUCK ACCESS AND CIRCULATION

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at the Project driveways anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5). As shown on Exhibit 1-5, the proposed driveways are anticipated to accommodate the wide turning radius of heavy trucks as currently designed.

1.8 SIGHT DISTANCE ANALYSIS

Horizontal sight distance has been evaluated for the proposed driveways as they would be cross-street stop-controlled intersections. Project driveways have been evaluated based on the City of Chino Standard Drawing No. 865A. As defined by the California Department of Transportation (Caltrans) Highway Design Manual, sight distance is the continuous length of highway ahead visible to the driver.

At unsignalized intersections, stopping sight distance must provide a substantially clear line of sight between the driver of the vehicle waiting on the minor road (driveway) and the driver of an approaching vehicle. For the purposes of this analysis, a 7 ½ second criterion has been applied to the outside travel lanes in either direction to provide the most conservative sight distance. The 7 ½ second criterion allows waiting vehicles to either cross all lanes of through traffic by turning left or cross the near lanes by turning right without requiring through traffic to radically alter their speed. The sight distance is based on the posted speed limit. Adequate visibility for vehicular and pedestrian traffic can be provided at each Project driveway by limiting sight obstructions within the limited use area. Any landscaping/hardscape within the limited use area should not exceed 30-inches (2.5-feet) in height. The limited use area should be kept clear of any landscaping or any other obstructions that may impede the visibility of the driver. The sight distance lines, limited use area, and clear sight triangles per City of Chino Standard Drawing No. 865A are illustrated on Exhibit 1-6. However, sight distance should be re-evaluated in the field once the driveway has been constructed.

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

#	Intersection Location	Jurisdiction	Existing	E+P	Analysis Scenario			Project Responsibility	Improvements in DIF ^{1,2}	Cost ^{3,4}	Project Fair Share	Fair Share Cost ⁵			
					2025 Without Project	2025 With Project	2045 Without Project						2045 With Project		
1	Euclid Av. (SR-83) & Merrill Av.	Caltrans, Chino, Ontario	None	None	Add WB left turn lane	Same	Same	Same	Fair Share	No	\$78,400	4.9%	\$3,852		
					Add WB right turn lane	Same	Same	Same	Fees	Yes (TR-028)	\$0		\$0		
					Modify the traffic signal to implement overlap phasing for the WB right turn lane	Same	Same	Same	Fees	Yes (TR-028)	\$0		\$0		
					Add 3rd NB through lane	Same	Same	Same	Fees	Yes (TR-166)	\$0		\$0		
					Add 3rd SB through lane	Same	Same	Same	Fees	Yes (TR-028)	\$0		\$0		
					Add EB left turn lane	Same	Same	Same	Fair Share	No	\$78,400		\$3,852		
					Add 2nd WB left turn lane	Same	Same	Same	Fees	Yes (TR-028)	\$0		\$0		
										Total:	\$156,800		\$7,703		
2	Euclid Av. (SR-83) & Kimball Av.	Caltrans, Chino	None	None	None	None	Add 3rd NB through lane	Same	Same	Fees	Yes (TR-166)	\$0	--	\$0	
							Add 3rd SB through lane	Same	Same	Same	Fees	Yes (TR-166)	\$0		\$0
							Add 2nd WB left turn lane	Same	Same	Same	Fees	Yes (TR-166)	\$0		\$0
3	Grove Av. & Merrill Av.	Ontario, Chino	None	None	Add 2nd WB through lane	Same	Same	Same	Fair Share	No	\$282,240	7.7%	\$21,764		
					Add SB left turn lane	Same	Same	Same	Fair Share	No	\$78,400		\$6,046		
										Total:	\$360,640		\$27,809		
4	Flight Av. & Merrill Av.	Ontario, Chino	None	None	None	None	Add 2nd WB through lane	Same	Fair Share	No	\$282,240	6.0%	\$17,067		
										Total:	\$282,240		\$17,067		
15	Hellman Av. & Merrill Av.	Ontario, Chino	None	None	Add NB through lane	Same	Same	Same	Fair Share	No	\$282,240	9.6%	\$27,004		
					Add SB left turn lane	Same	Same	Same	Fair Share	No	\$78,400		\$7,501		
					Add SB through lane	Same	Same	Same	Fair Share	No	\$282,240		\$27,004		
					Add SB right turn lane	Same	Same	Same	Fair Share	No	\$78,400		\$7,501		
					Add EB left turn lane	Same	Same	Same	Fair Share	No	\$78,400		\$7,501		
					Add 2nd WB through lane	Same	Same	Same	Fair Share	No	\$282,240		\$27,004		
					Install a Traffic Signal	Same	Same	Same	Fair Share	No	\$392,000		\$37,506		
															Total:
17	Archibald Av. & Merrill Av.	Ontario	None	None	Add 3rd SB through lane	Same	Same	Same	Fair Share	No	\$282,240	3.3%	\$9,264		
					Modify the traffic signal to implement overlap phasing for the SB right turn lane	Same	Same	Same	Fair Share	No	\$117,600		\$3,860		
															Total:
										Total Cost for Improvements	\$2,673,440		\$206,726		
										Total Project Fair Share Contribution to the City of Chino (non-DIF/other)⁶		\$38,357			
										Total Project Fair Share Contribution to the City of Ontario (non-DIF/other)⁷		\$168,369			

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 1.77 factor to adjust costs to 2022.
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 which are not already included in a fee program for those intersections wholly or partially within the City of Ontario.

EXHIBIT 1-5: TRUCK ACCESS (1 OF 2)

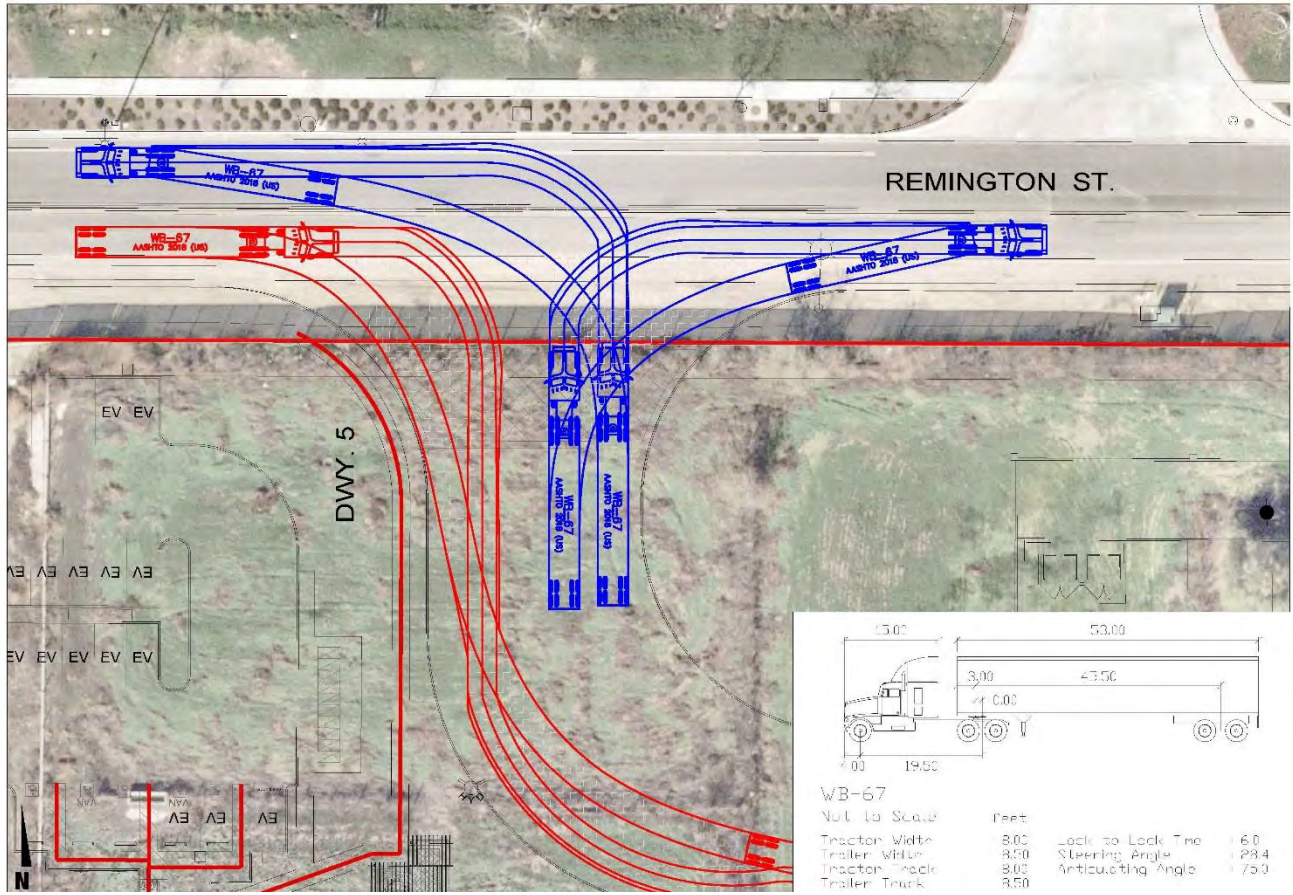
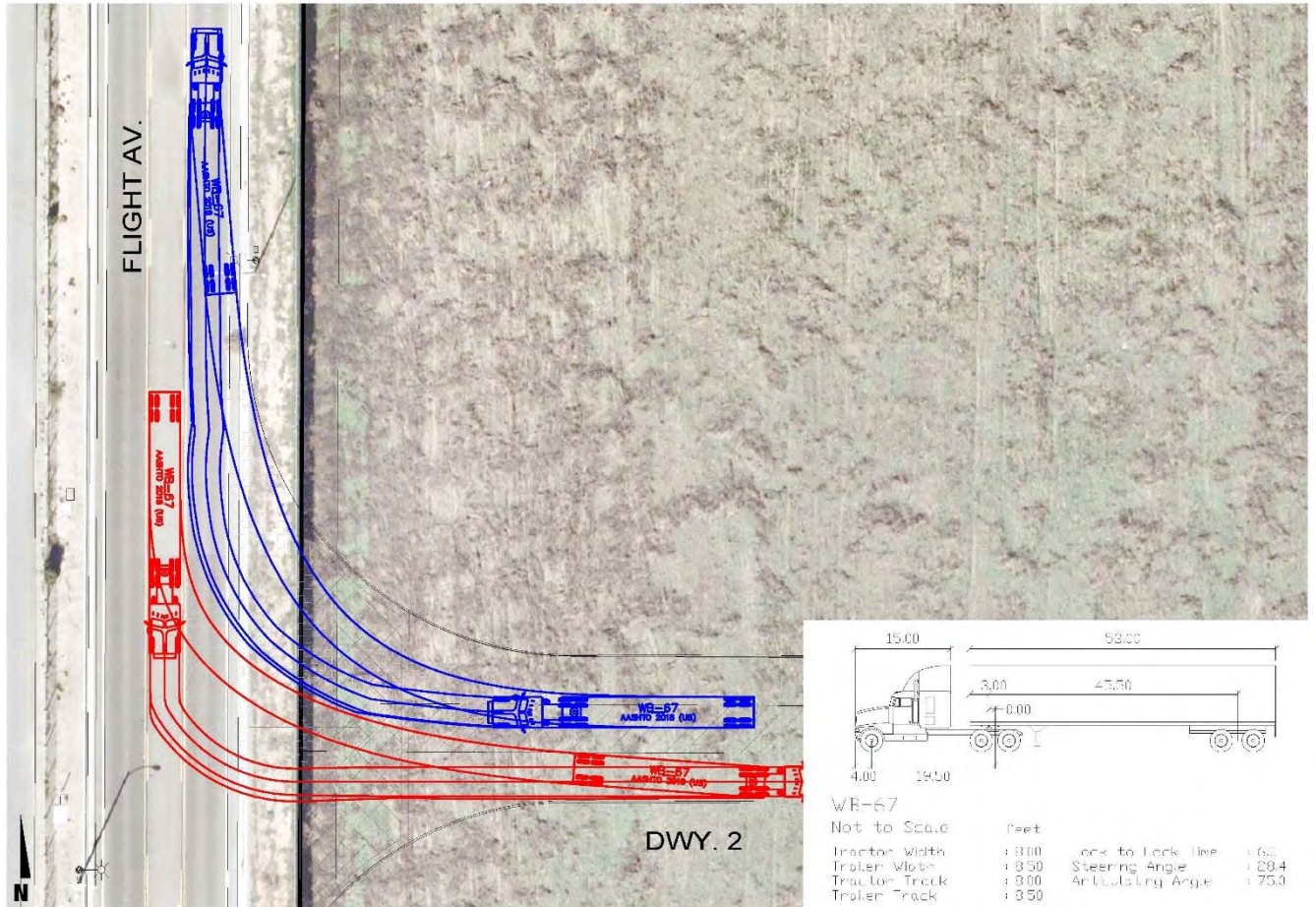


EXHIBIT 1-5: TRUCK ACCESS (2 OF 2)



1.9 BICYCLE & PEDESTRIAN CIRCULATION

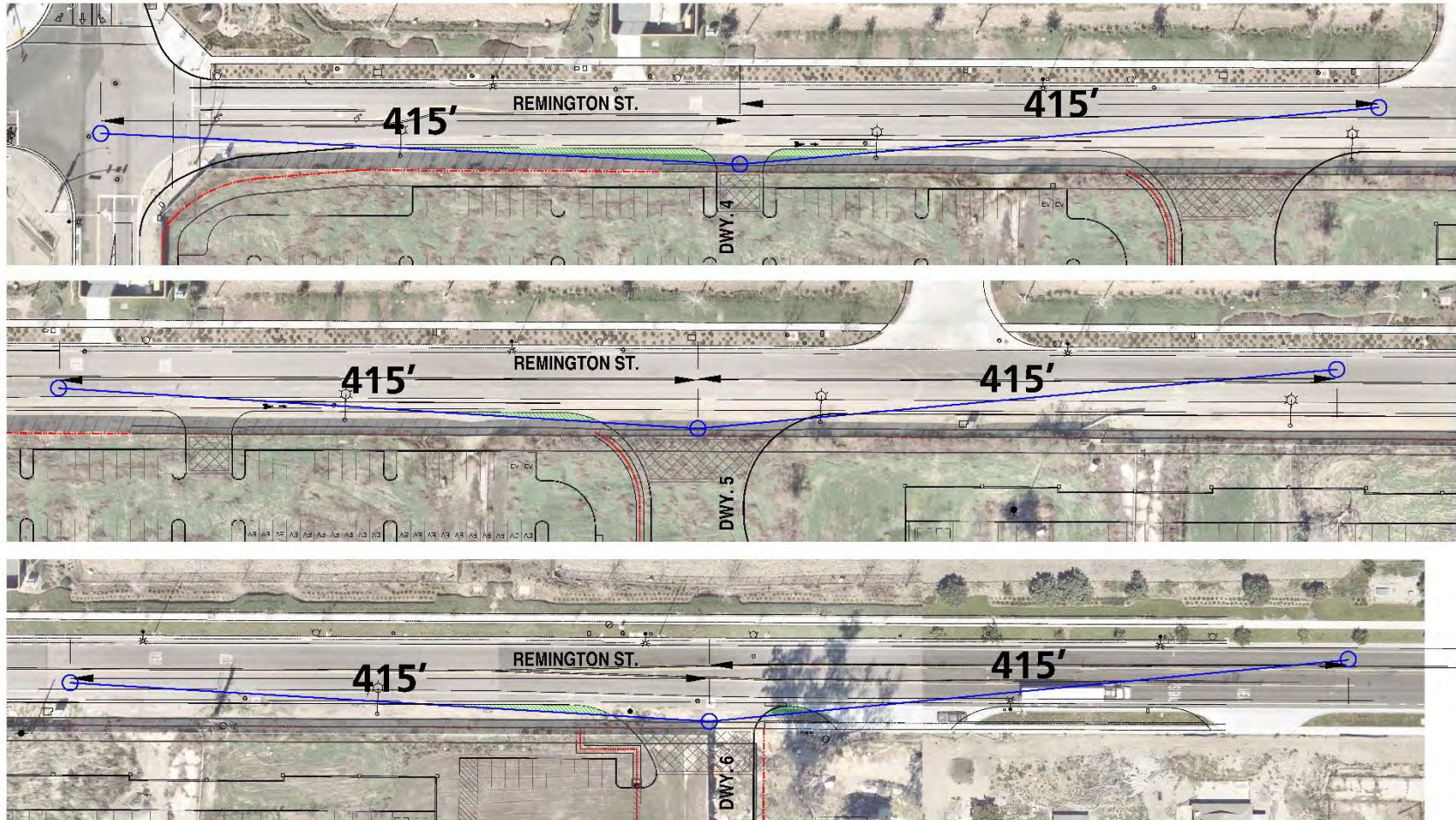
Per the request of the City of Chino, bicycle and pedestrian access has been evaluated for the proposed Project. As discussed previously in Section 1.6 *Recommendations*, the Project will construct sidewalk improvements to Flight Avenue and Remington Avenue along the Project's frontage. The sidewalks will connect to the existing sidewalks located east on Remington Avenue, providing pedestrian access to the surrounding area. Pedestrian access to the north on Flight Avenue is also provided via existing sidewalks. Proposed sidewalks on Flight Avenue will be constructed along the Project's frontage, which will connect to the existing sidewalks south of the Project's southern boundary. The pedestrian circulation is shown on Exhibit 1-7.

The proposed roadway improvements along the Project's frontage will include Class II bicycle lanes along Flight Avenue and Remington Avenue. The proposed bike lane widths will be consistent with the existing bike lane widths. These proposed Class II bicycle lanes will connect to the existing Class II bicycle lanes along Flight Avenue and Remington Avenue, provided bicycle access to the surrounding area. The bicycle circulation is shown on Exhibit 1-8.

1.10 TRUCK ROUTING MANAGEMENT PLAN

In order to encourage trucks to adhere to the proposed Project truck routes, as shown on the Project (Truck) trip distribution exhibit, it is recommended the Project Applicant prepare a truck route management plan. This includes installing signage at all site access driveways to show the designated truck routes as illustrated on Exhibit 1-9. The sign shall be 24" x 24" and shall be mounted at a height that is readily visible to truck drivers. The proposed sign letter sizes shall conform to the requirements of the 2014 CA MUTCD. Exhibit 1-10 provides signage locations for inbound truck traffic restrictions along Flight Avenue. Implementation of the truck management plan would require coordination between the tenant and its drivers via signage or handouts with information about the interim truck routes. In conjunction with the signage/handouts showing the interim truck route plan, it is recommended that the Project tenant implement an ongoing driver education program where the dispatchers inform the truck drivers about the approved truck route and reinforce that use of Kimball Avenue by truck traffic entering the Project is prohibited. The interim truck routes are provided for near-term conditions in Section 4.2 *Project Trip Distribution*.

EXHIBIT 1-6: SIGHT DISTANCE RECOMMENDATIONS (1 OF 2)



LEGEND:

- = Sight Line
- = Limited Use Area, per City of Chino Intersection Sight Distance Standard No. 865A

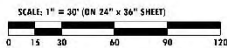
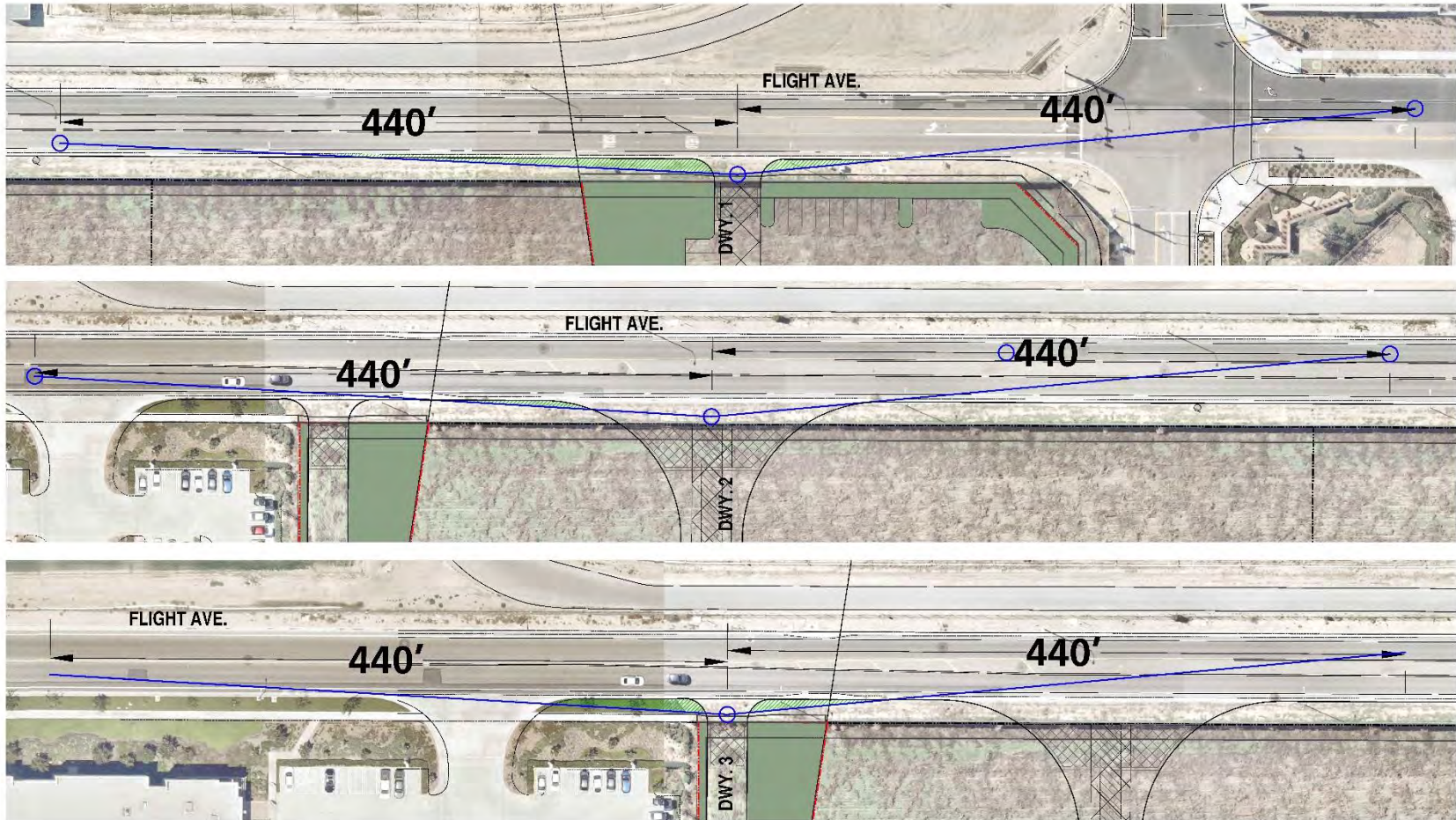


EXHIBIT 1-6: SIGHT DISTANCE RECOMMENDATIONS (2 OF 2)



LEGEND:

- = Sight Line
- = Limited Use Area, per City of Chino Intersection Sight Distance Standard No. 865A

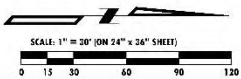


EXHIBIT 1-7: PROPOSED PROJECT PEDESTRIAN CIRCULATION

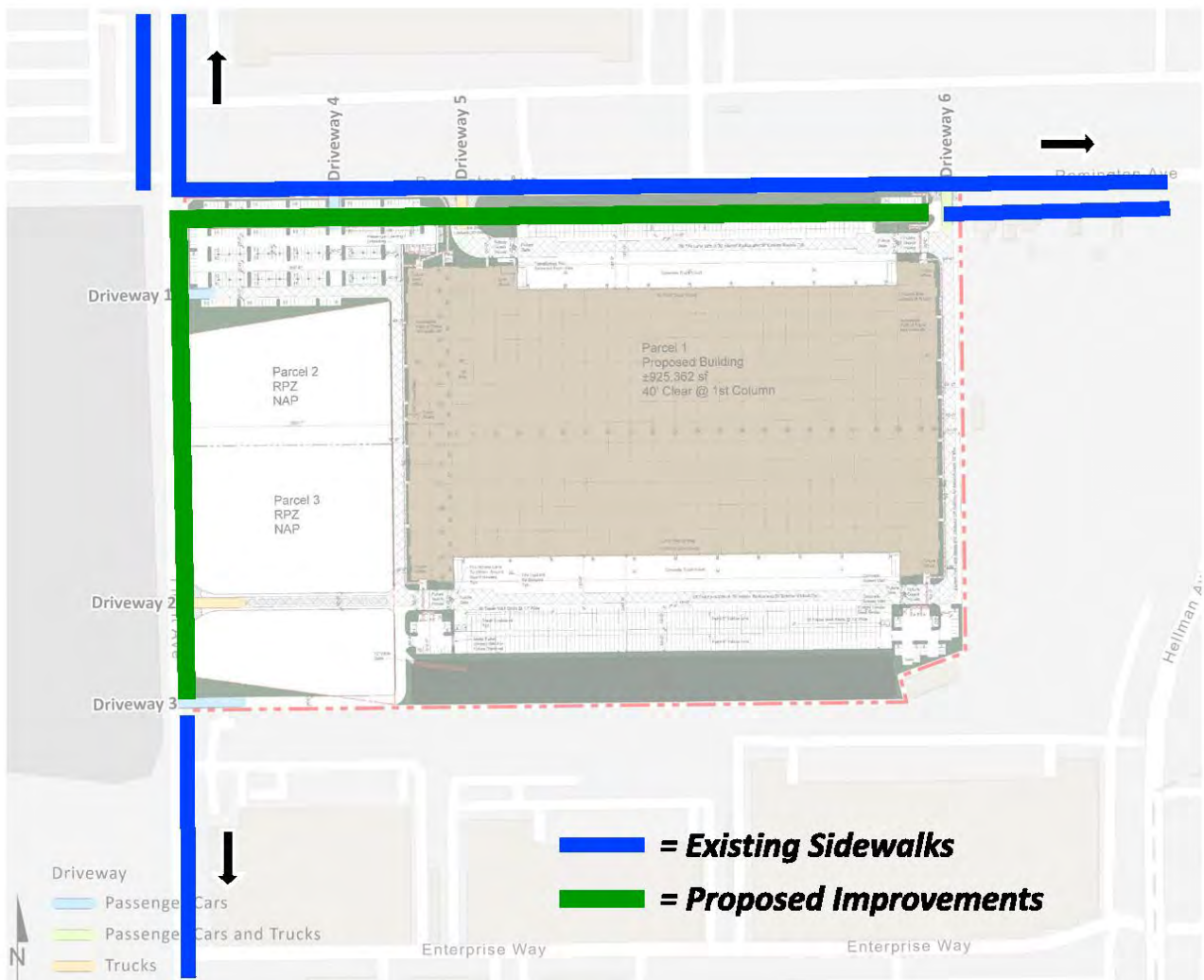


EXHIBIT 1-8: PROPOSED PROJECT BICYCLE CIRCULATION

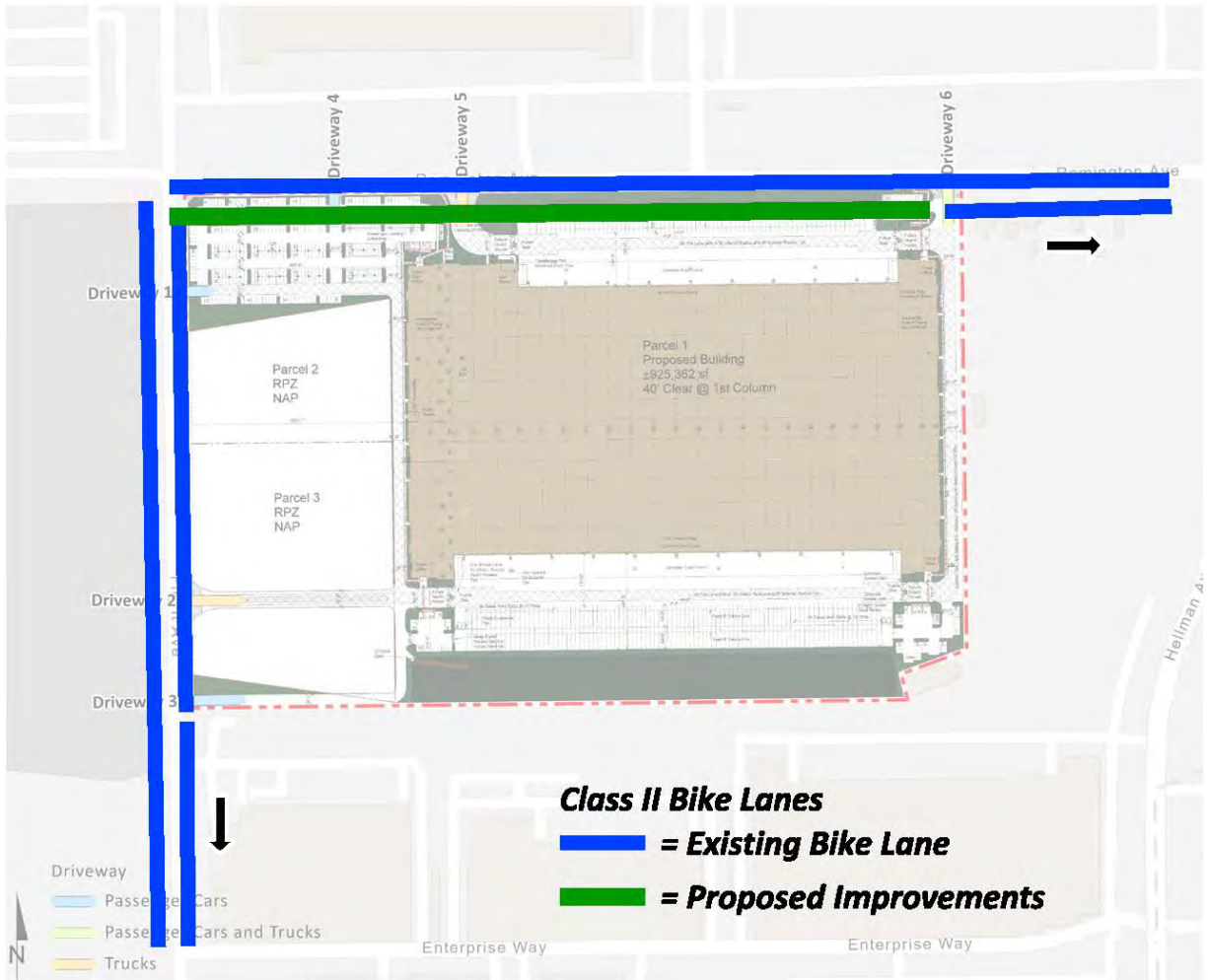


EXHIBIT 1-9: TRUCK ROUTE SIGN

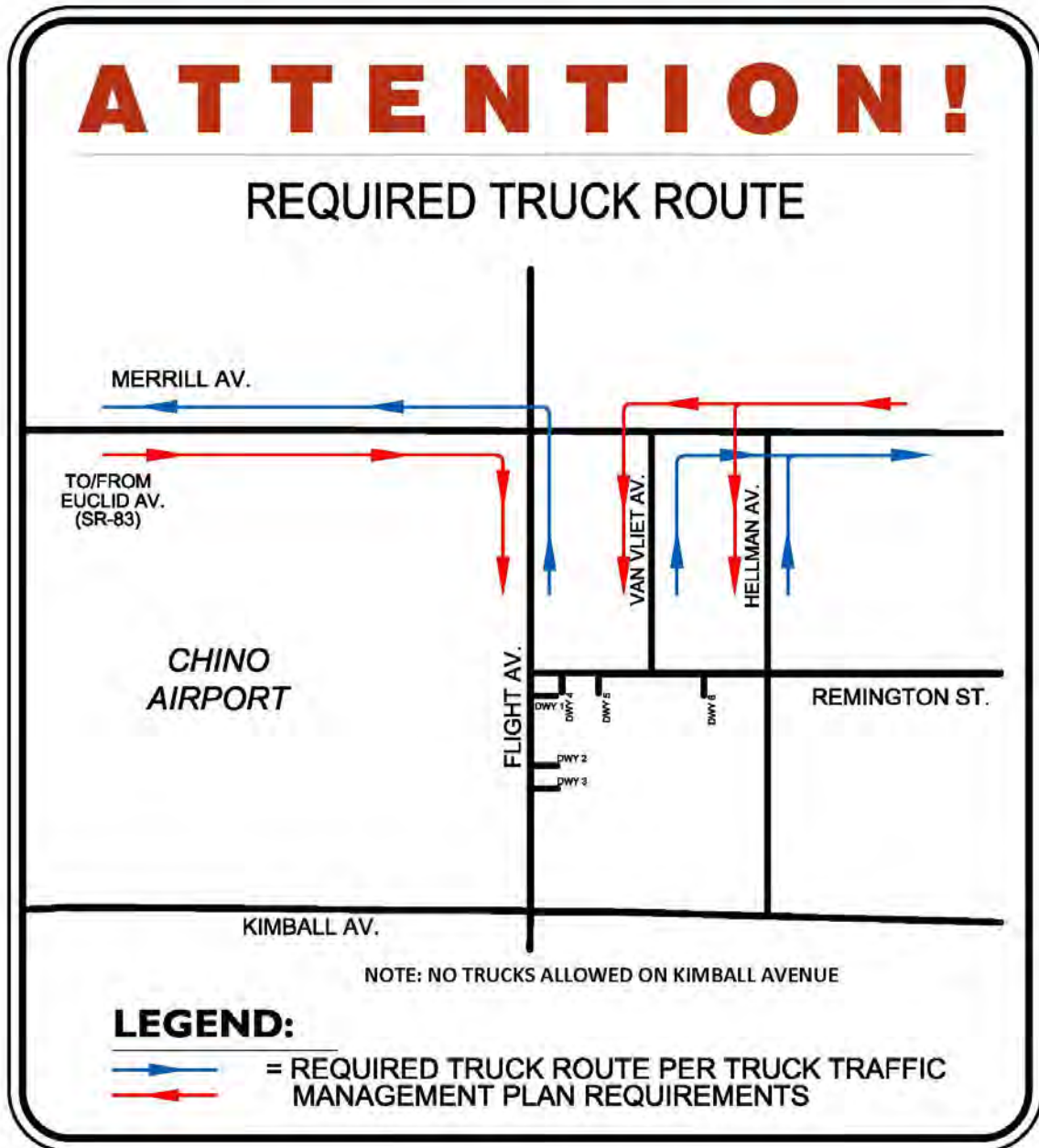
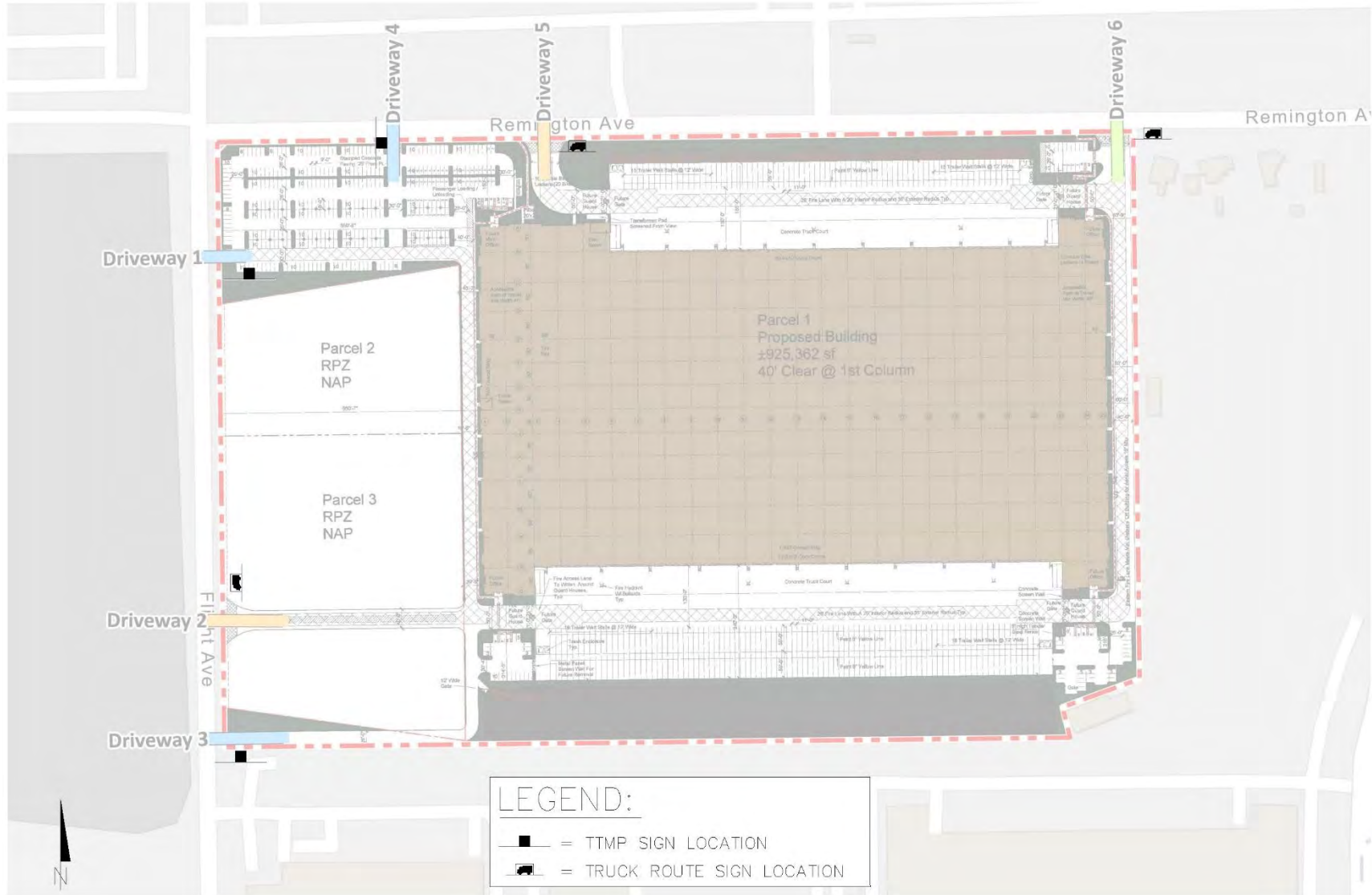


EXHIBIT 1-10: INBOUND TRAFFIC SIGN LOCATIONS



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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 delay includes 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 on 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 and Opening Year Cumulative 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), $V/C \leq 1.0$	Level of Service, $V/C \leq 1.0^1$
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., $PHF = \frac{[Hourly Volume]}{[4 \times Peak\ 15\text{-minute\ Flow\ Rate}]}$). 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), $V/C \leq 1.0$	Level of Service, $V/C \leq 1.0^1$
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F

Source: HCM, 6th Edition

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

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or 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. Rural warrants have been used as posted speed limits on the major roadways with unsignalized intersections are 40 miles per hour or below.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. 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 on Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

#	Intersection
6	Flight Av. & Driveway 1
7	Flight Av. & Driveway 2
8	Flight Av. & Driveway 3
10	Driveway 4 & Remington Av.
11	Driveway 5 & Remington Av.
12	Van Vliet Av. & Merrill Av.
13	Van Vliet Av. & Remington Av.
14	Driveway 6 & Remington Av.
15	Hellman Av. & Merrill Av.

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 (2025) 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 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

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

2.4.1 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)

2.4.2 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 Chino (which uses LOS E). (2)

2.4.3 CALTRANS

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for automobile delay-based LOS. Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT as the metric for determining impacts on the State Highway System. However, LOS D has been utilized as the target LOS for Caltrans facilities, consistent with the City of Chino.

2.4.4 CITY OF ONTARIO

Per the Ontario Plan's Policy M-1, the City of Ontario utilizes a minimum acceptable LOS of LOS E or better at all intersections, and LOS D or better on arterial streets in the City. (7)

2.5 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 and intersections located in the City of Ontario) (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

2.6 PROJECT FAIR SHARE CALCULATION METHODOLOGY

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

$$\text{Project Fair Share \%} = \frac{\text{Project (2045) AM/PM Traffic}}{\text{(2045 With Project AM/PM Total Traffic - Existing AM/PM Traffic)}}$$

The project fair share percentage has been calculated for both the AM peak hour and PM peak hour and the highest of the two has been selected. The Project fair share contribution calculations are presented in Section 8 *Local and Regional Funding Mechanisms* of this TA.

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 and traffic signal warrant 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 17 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.

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 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:

- Hellman Avenue
- Kimball Avenue, east of Euclid Avenue (SR-83)

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 roadway within the City of Chino is classified as a Secondary Arterial:

- Merrill Avenue

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



1	Euclid Av. (SR-83) & E. Facility Dr./ Merrill Av.	2	Euclid Av. (SR-83) & Kimball Av.	3	Grove Av. & Merrill Av.	4	Flight Av. & Merrill Av.	5	Flight Av. & Remington Av.	6	Flight Av. & Dwy. 1
					Future Intersection						
7	Flight Av. & Dwy. 2	8	Flight Av. & Dwy. 3	9	Flight Av. & Kimball Av.	10	Dwy. 4 & Remington Av.	11	Dwy. 5 & Remington Av.	12	Van Vleet Av. & Merrill Av.
Future Intersection		Future Intersection			Future Intersection			Future Intersection			
13	Van Vleet Av. & Remington Av.	14	Dwy. 6 & Remington Av.	15	Hellman Av. & Merrill Av.	16	Hellman Av. & Remington Av.	17	Archibald Av. & Merrill Av.		
	Future Intersection										

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

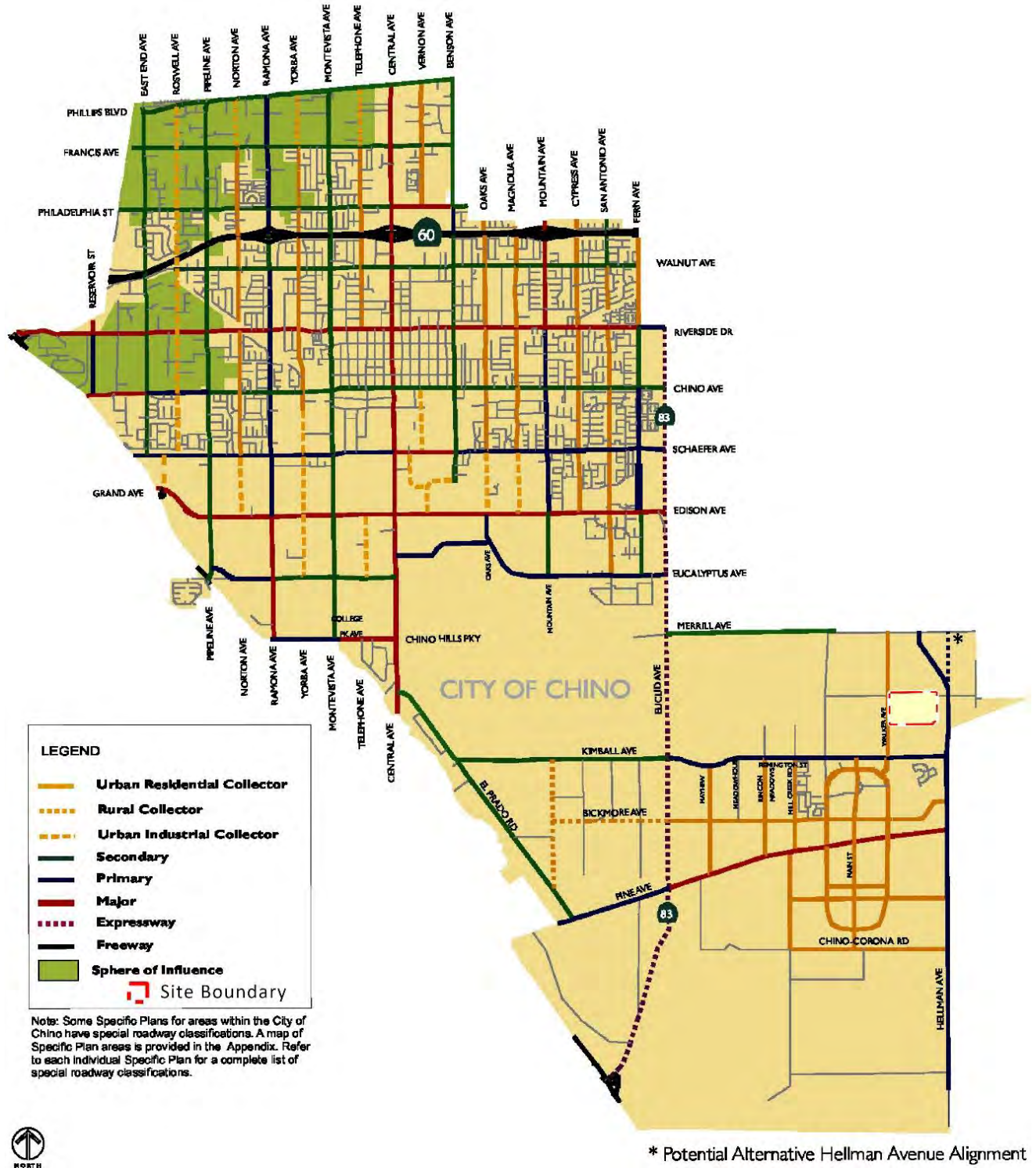


EXHIBIT 3-3: CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS (1 OF 3)

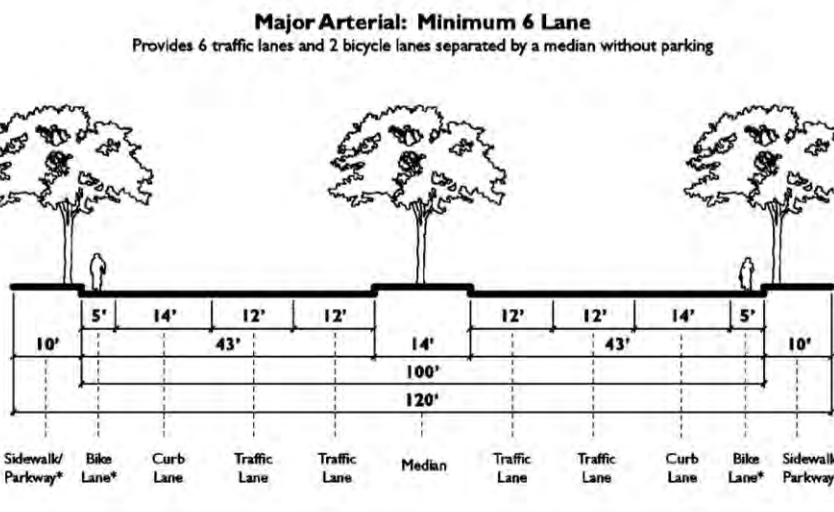
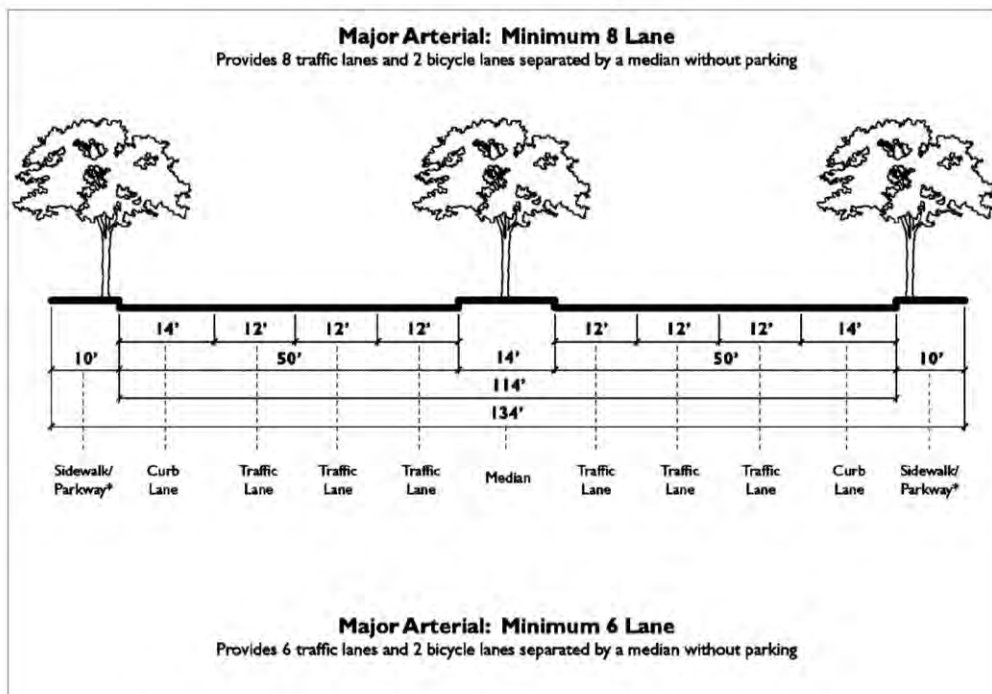
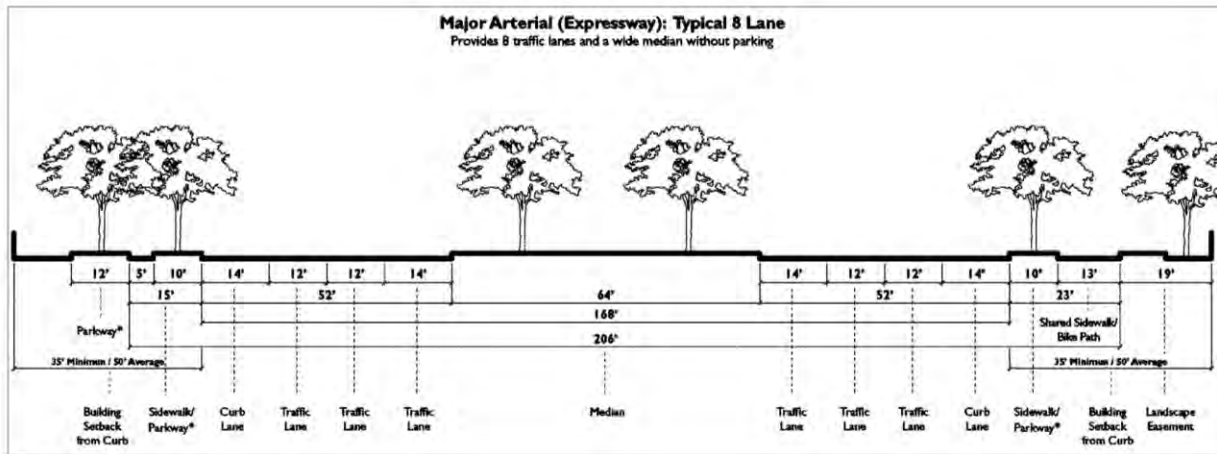


EXHIBIT 3-3: CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS (2 OF 3)

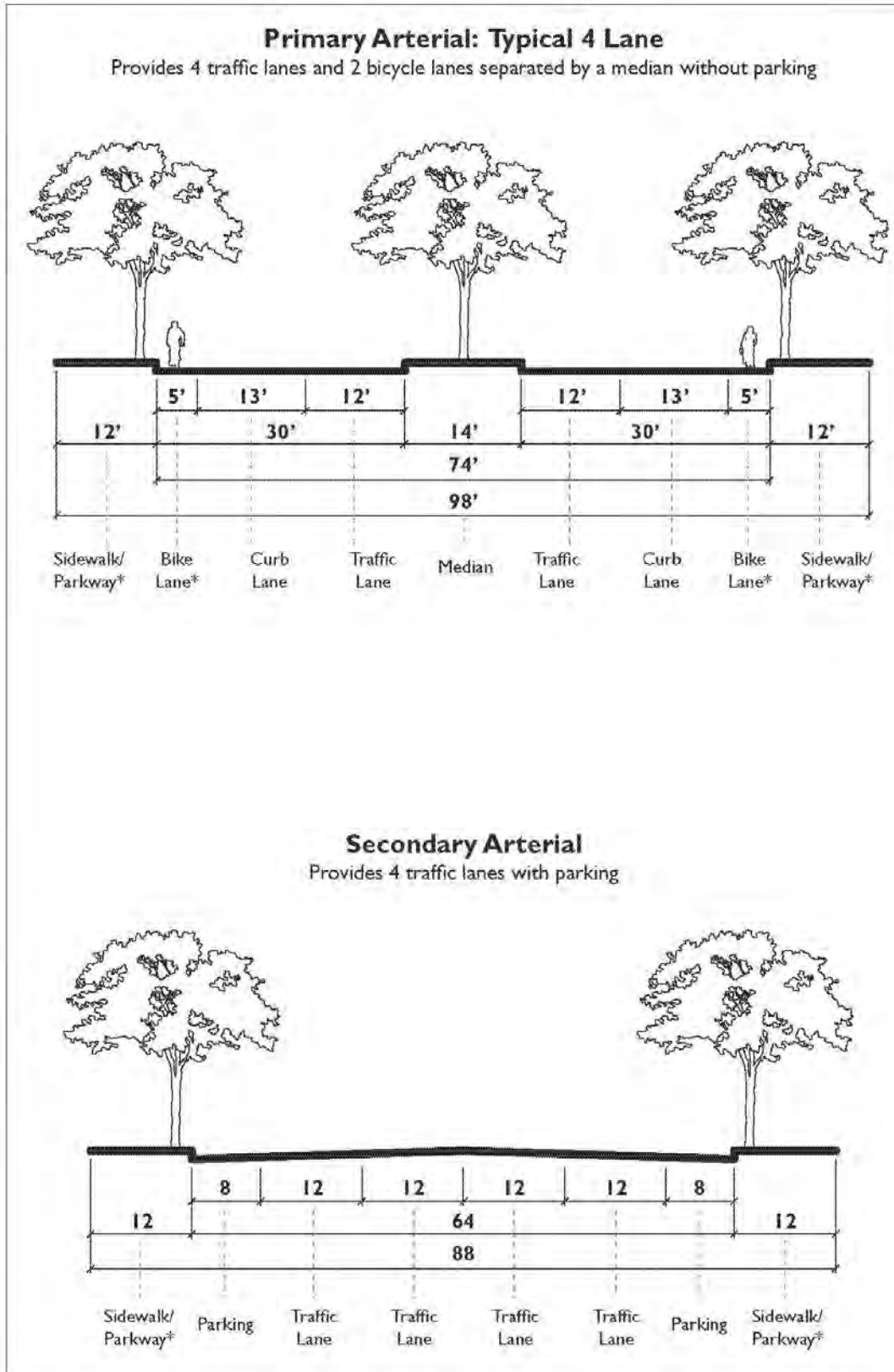
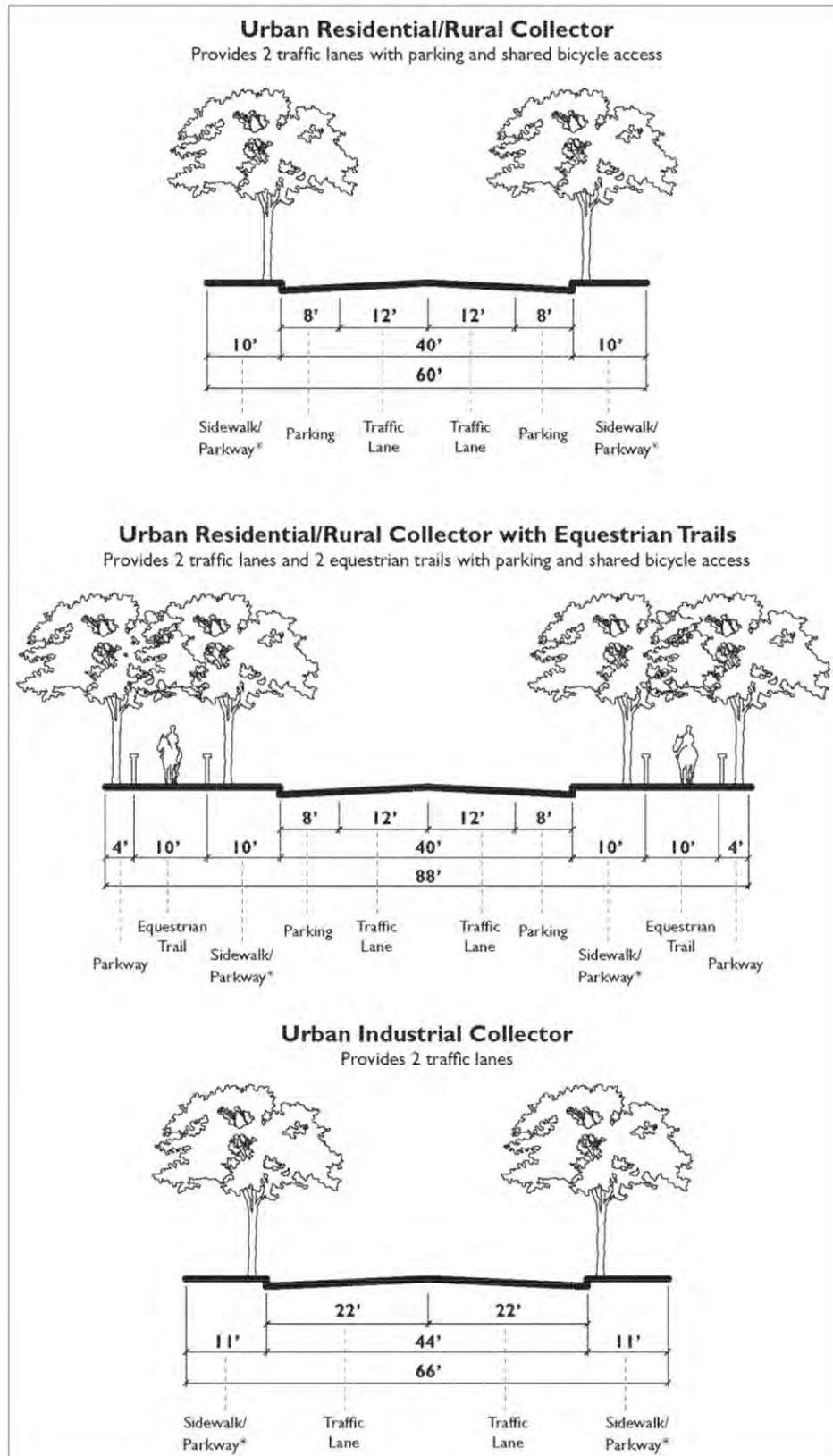


EXHIBIT 3-3: CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS (3 OF 3)



3.3 PRESERVE SPECIFIC PLAN CIRCULATION ELEMENT

The Preserve Specific Plan circulation element is shown on Exhibit 3-4 and the Preserve Specific Plan roadway cross-sections are shown on Exhibit 3-5 and are described subsequently.

A Commercial Collector is identified as having a 74-foot right-of-way with two lanes of travel. The following study area roadways within the Preserve Specific Plan are classified as a Commercial Collector:

- Flight Avenue
- Remington Avenue
- Carpenter Street

A Major Arterial, with Paseo is identified as having a varying right-of-way with four lanes of travel. The following study area roadway within the Preserve Specific Plan is classified as a Major Arterial, with Paseo:

- Hellman Avenue

3.2 CITY OF ONTARIO GENERAL PLAN CIRCULATION ELEMENT

Exhibit 3-6 shows the City of Ontario General Plan Circulation Element and Exhibit 3-7 illustrates the City of Ontario General Plan roadway cross-sections.

3.4 BICYCLE, EQUESTRIAN, & PEDESTRIAN FACILITIES

Exhibit 3-8 illustrates the City of Chino future planned bicycle facilities per the City's Bicycle and Pedestrian Master Plan (2016), which shows a planned Class I (off-street) shared use path along Kimball Avenue and Hellman Avenue in addition to an on-street Class II (striped) bike path along the Flight Avenue, south of Remington Avenue, and Remington Avenue. (8). The City of Ontario General Plan bicycle facilities are shown on Exhibit 3-9. Existing pedestrian facilities within the study area are shown on Exhibit 3-10 and existing equestrian trails are shown on Exhibit 3-11. As shown on Exhibit 3-10, pedestrian facilities are built out along portions of Flight Avenue, Remington Avenue, Van Vliet Avenue, Merrill Avenue, and Hellman Avenue. As shown on Exhibit 3-11, the City Master Plan Equestrian Trail exists along Euclid Avenue, Merrill Avenue, and portions of Remington Avenue. Field observations and traffic counts conducted in May 2022 indicate nominal pedestrian and bicycle activity within the study area.

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, there are no routes that currently serve the Project study area. 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.

EXHIBIT 3-4: PRESERVE SPECIFIC PLAN CIRCULATION ELEMENT



Roads

R	92' ROW	Commercial Collector, with Paseo (2 Lanes)
Q	92' ROW	Commercial Collector, with Paseo (2 Lanes)
P	74' ROW	Commercial Collector, Typical (2 Lanes)
HL, HZ	ROW Varies	Local Collector (2 Lanes)
ML, MZ	84' ROW	Local Collector, with Paseo (2 Lanes)
N	83' ROW	Loop Local Collector, with Paseo (2 Lanes)
OL, OZ	94' ROW	Loop Local Collector, with Paseo (2 Lanes)
IL, IZ, JL, JZ	ROW Varies	Local Collector, Typical (2 Lanes)
K	76' ROW	Local Collector (2 Lanes)
T	ROW Varies	Main Street Collector (2 Lanes) see page 128 for location
CL, CZ	136' ROW	Major Arterial, with Paseo (6 Lanes)
D	123' ROW	Major Arterial, with Paseo (4 Lanes)
EL, EZ, FL, FZ	ROW Varies	Major Arterial, with Paseo (4 Lanes)
H	78' ROW	Major Arterial, without Paseo (4 Lanes)
A	206' ROW	Major Arterial (Expressway) North of Pine (8 Lanes)
B	200' ROW	Major Arterial (Expressway) South of Pine (8 Lanes)
V	74' ROW	Local Collector, with Paseo, inside core (2 Lanes)
W	75' ROW	Local Collector, with Paseo, inside loop (2 Lanes)
X	62' ROW	Icon Street, inside core (2 Lanes)
Y	62' ROW	Icon Street (2 Lanes)
RA	60' ROW	Local Street, inside core, at park (2 Lanes)
RB	68' ROW	Local Street, outside core (2 Lanes)
RC	75' ROW	Local Collector, with Paseo (2 Lanes)
RD	75' ROW	Local Collector, with Paseo (2 Lanes)
EE	60' ROW	Local Residential, with Paseo (2 Lanes)
FF	79' ROW	Local Collector, with Paseo (2 Lanes)
GG	66' ROW	Chino Corona Road (Rancho Miramonte Section)
HH	59' ROW	Mill Creek Residential Connector with Paseo and Equestrian Trail (2 Lanes)
II	92' ROW	Residential Connector with Paseo and Equestrian Trail (2 Lanes)
DD	75' ROW	Local Collector
DD	66' ROW	Local Collector

Note: Cross Sections A-Z, AA-FF are from the existing Preserve Specific Plan.

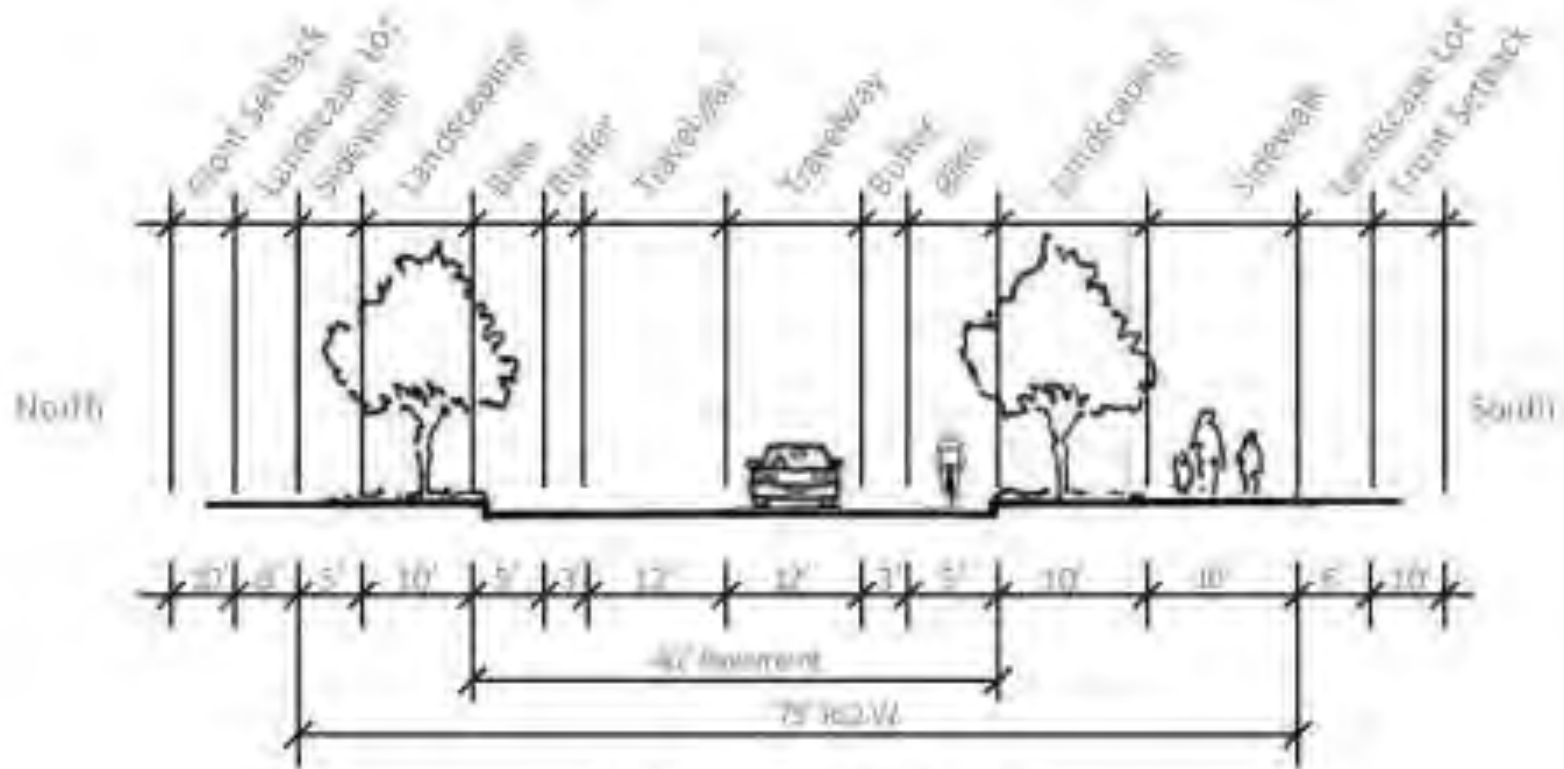
Note: Alignments on the boundaries of the planning area are either outside or partially outside the Subarea 2 boundary and are not included in acreage calculations.

● Cross Section (See Figures 10A-10X)

** For section locations for Main Street, please refer to Figure 11M



EXHIBIT 3-5: PRESERVE SPECIFIC PLAN ROADWAY CROSS-SECTIONS (1 OF 2)



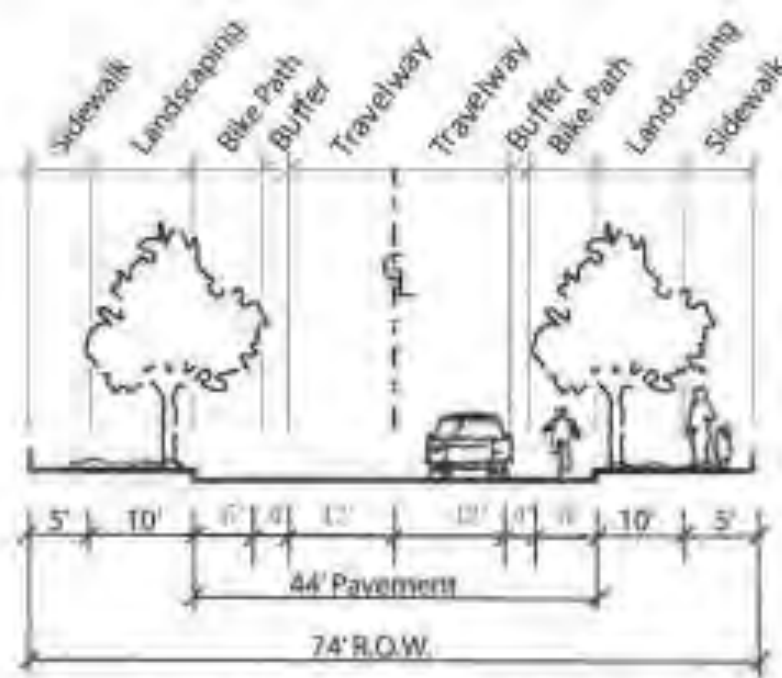
Mid-block street section

W Major Arterial with Paseo

Legacy Park within the Loop

Class II Buffered Bike Lane

EXHIBIT 3-5: PRESERVE SPECIFIC PLAN ROADWAY CROSS-SECTIONS (2 OF 2)



Mid-block cross section



Commercial Collector, Typical

(no on-street parking)

Flight/Walker Avenue North of Kimball

Class II On-Street Buffered Bike Lane

EXHIBIT 3-6: CITY OF ONTARIO GENERAL PLAN CIRCULATION ELEMENT

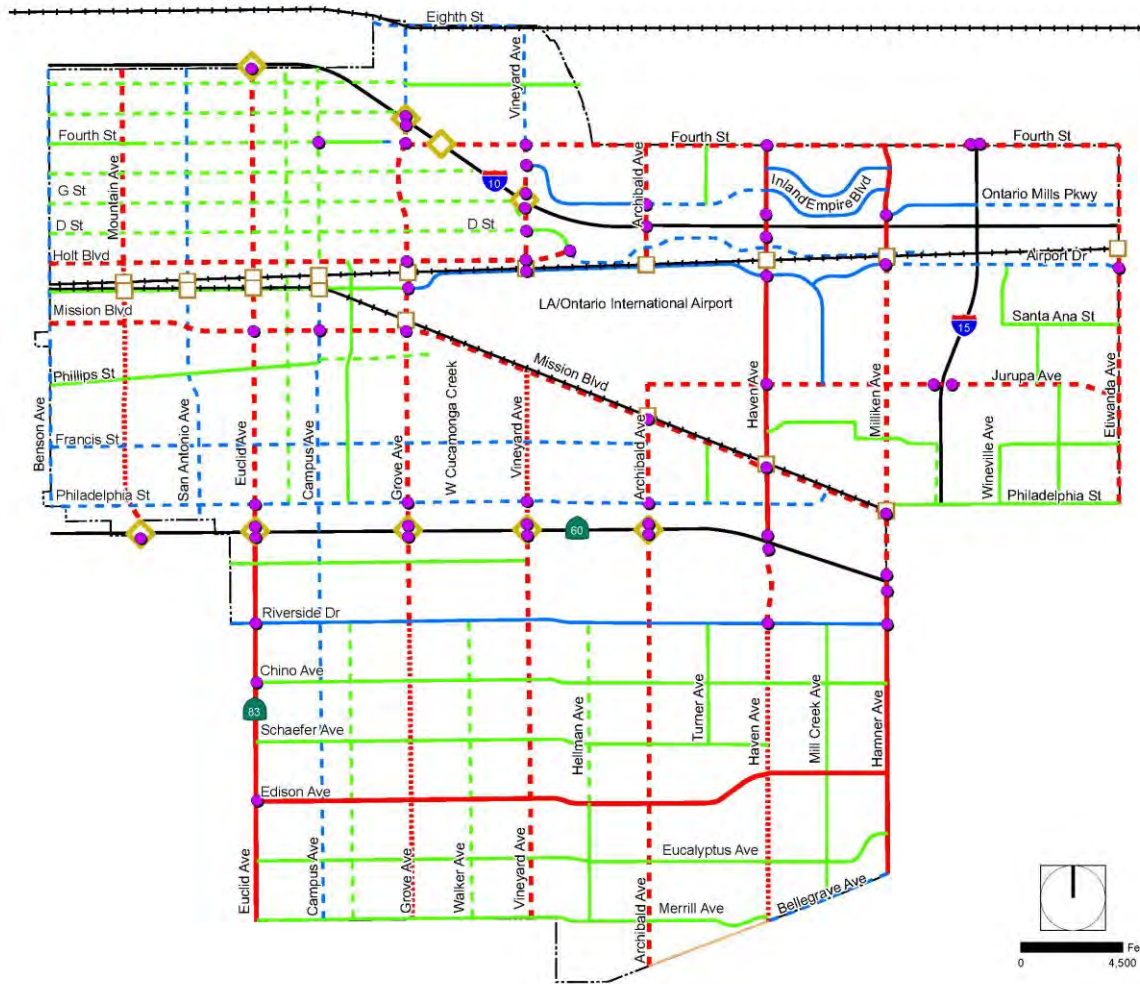


Figure M-2
Functional Roadway
Classification Plan

- Freeways
- - - Railroads
- Other Principal Arterial
 - 8 Lanes
 - - - 6 Lanes
 - · · · · 4 Lanes
- Minor Arterial
 - 6 Lanes
 - - - 4 Lanes
- Collector Street
 - 4 Lanes
 - - - 2 Lanes
- ◆ Freeway Interchange
- Grade-Separated Rail Crossings
- Enhanced Intersections

- 1) All streets not shown on the map and legend are classified as local streets.
- 2) Enhanced Intersections allow flexibility from the standard intersection configuration to increase capacity, improve operation, and respond to local conditions. Enhancements may include additional lanes, reduced median width, increased right-of-way width, removal of on-street bike lanes, or reduction of parkway width. Detailed engineering studies are necessary to identify the most effective types of improvements.
- 3) The Functional Roadway Classification Plan depicts the maximum number of lanes and does not preclude the use of fewer lanes. The goal is to use the minimum number of lanes necessary to achieve the LOS standard while minimizing pavement and right-of-way width. Detailed traffic studies are necessary to identify the necessary number of lanes.
- 4) The Functional Roadway Classification Plan is a generalized representation of the roadway system. See the Master Plan of Streets and Highways to determine the exact right-of-way, number of lanes, and roadway configuration.
- 5) State Street and Holt Boulevard, which are parallel roadways, are related and improvements to one roadway enhance conditions on the other. Due to this fact and physical constraints, the actual classification of each roadway may vary depending upon the results of further, more-detailed analysis.

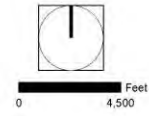
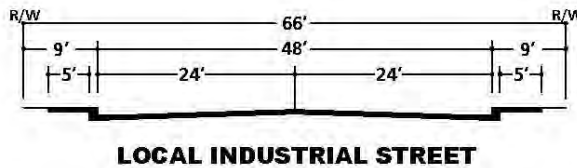
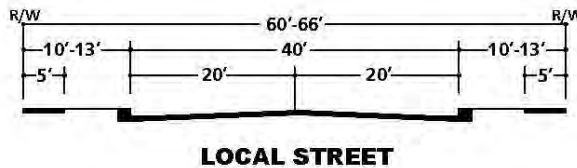
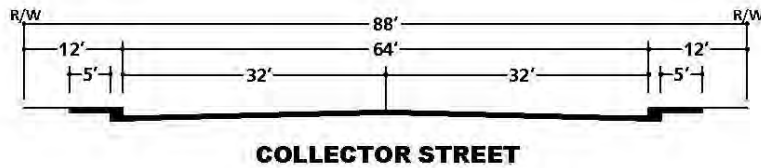
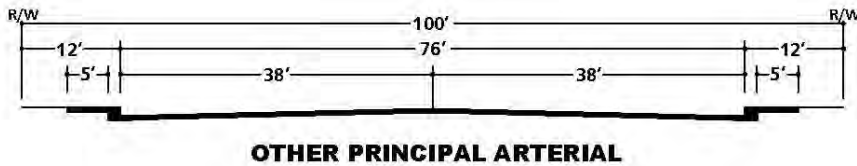
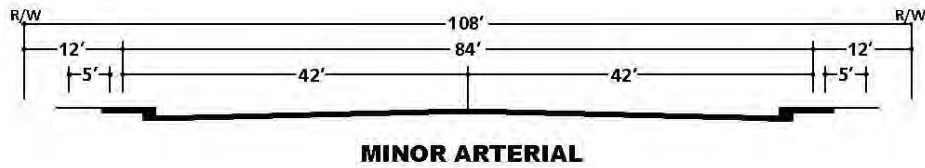
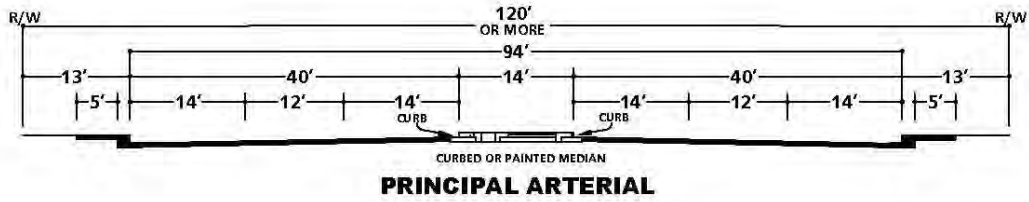
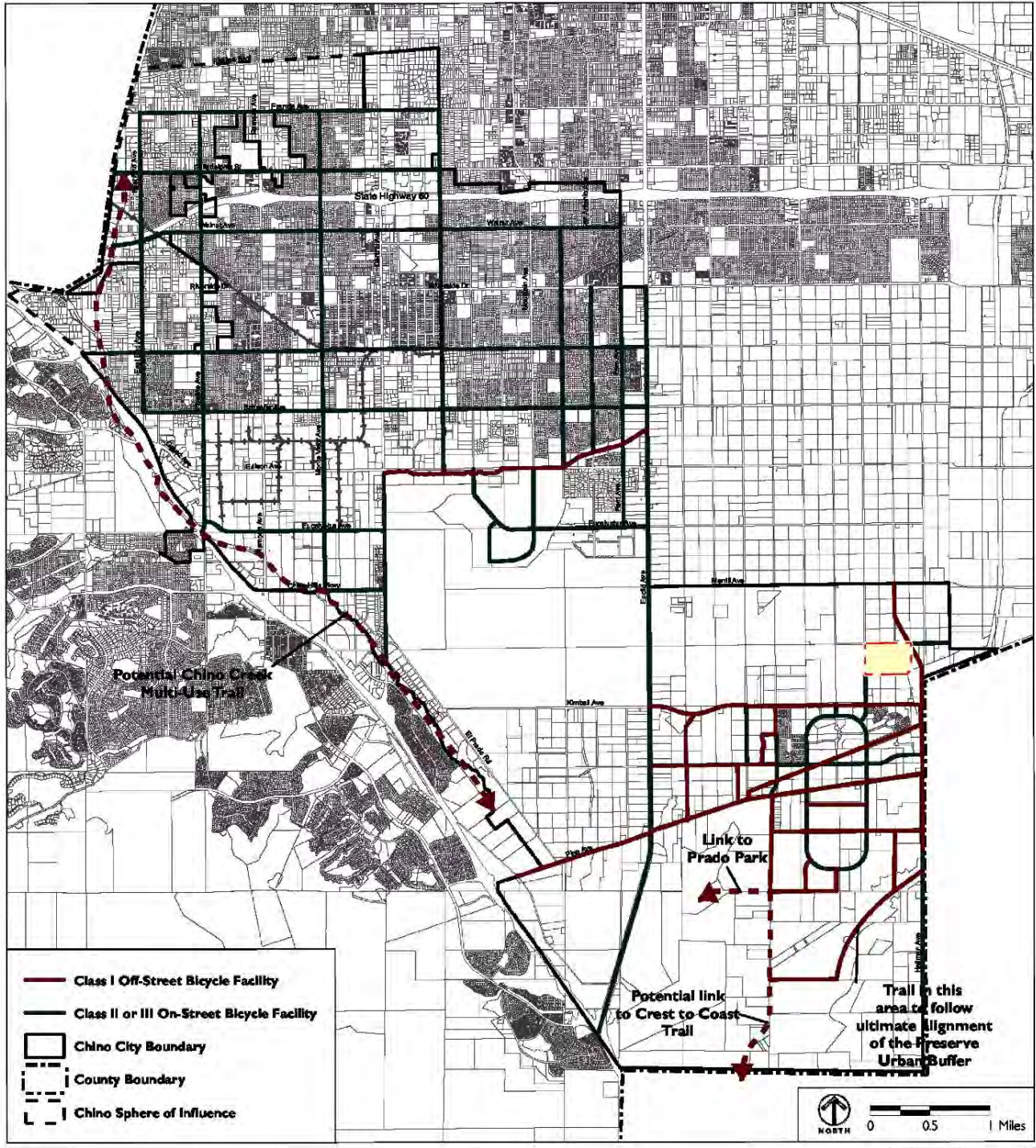


EXHIBIT 3-7: CITY OF ONTARIO ROADWAY CROSS-SECTIONS



SOURCE: CITY OF ONTARIO

EXHIBIT 3-8: CITY OF CHINO FUTURE BICYCLE FACILITIES




 Site Boundary

EXHIBIT 3-9: CITY OF ONTARIO BICYCLE FACILITIES

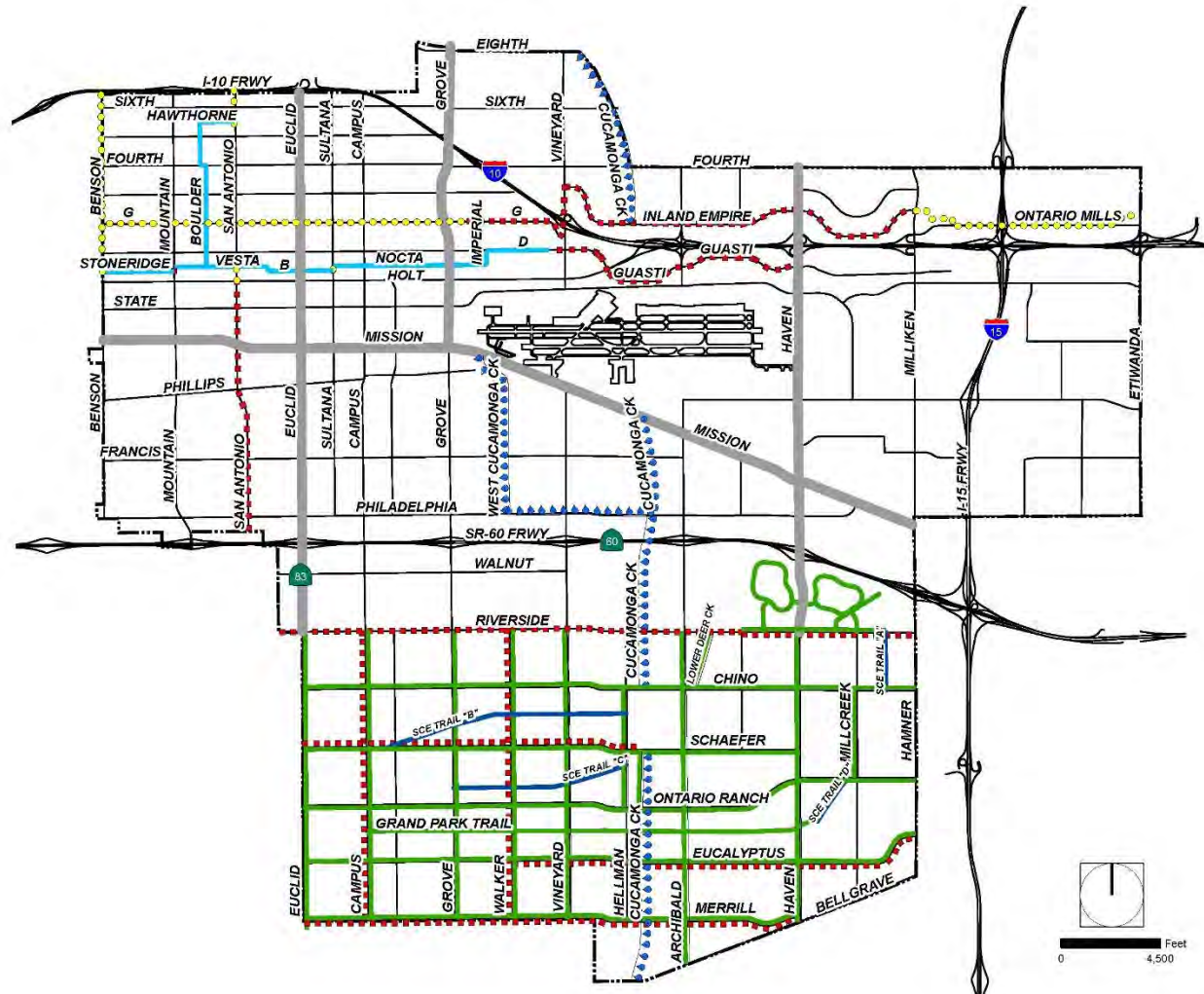
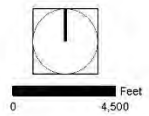


Figure M-3
Multipurpose Trails and
Bikeway Corridor Plan

- Freeway
- Streets
- Multipurpose Trail
- Class I
- Class II
- Class III
- Sharrow/Bike Boulevard
- SCE Trail
- Bicycle Corridor

REVISED NOTES:

- 1) The City's goal is to provide a combination of off-street pedestrian and bicycle multipurpose trails, Class II (on-street, striped bike lanes and Class III (on-street signed) bike routes to create a comprehensive, non-motorized transportation system.
- 2) "Bicycle Corridor" denotes preferred bike routes wherein the exact facility type and alignment are not known at this time. Bicycle Corridors require further study to determine the exact alignment and may include combinations of off-street Multipurpose Trails, Class II, and Class III bikeways. In some cases, the bikeway may need to be rerouted to an adjacent, parallel street to complete the connection.
- 3) This Multipurpose Trails and Bikeway Corridor Plan does not preclude the addition of extra bike routes as deemed appropriate.
- 4) SCE trails are located within SCE rights of way and easements and are subject to SCE approval prior to development and construction. SCE trails are considered to be potential trail sites since policies on allowing trails within easements can change without notice.
- 5) The map delineates which side of the street or channel that Class I and Multipurpose Trails are located.



THE **ONTARIO PLAN**
A FRAMEWORK FOR THE FUTURE
Revised September 20, 2016

EXHIBIT 3-10: EXISTING PEDESTRIAN FACILITIES

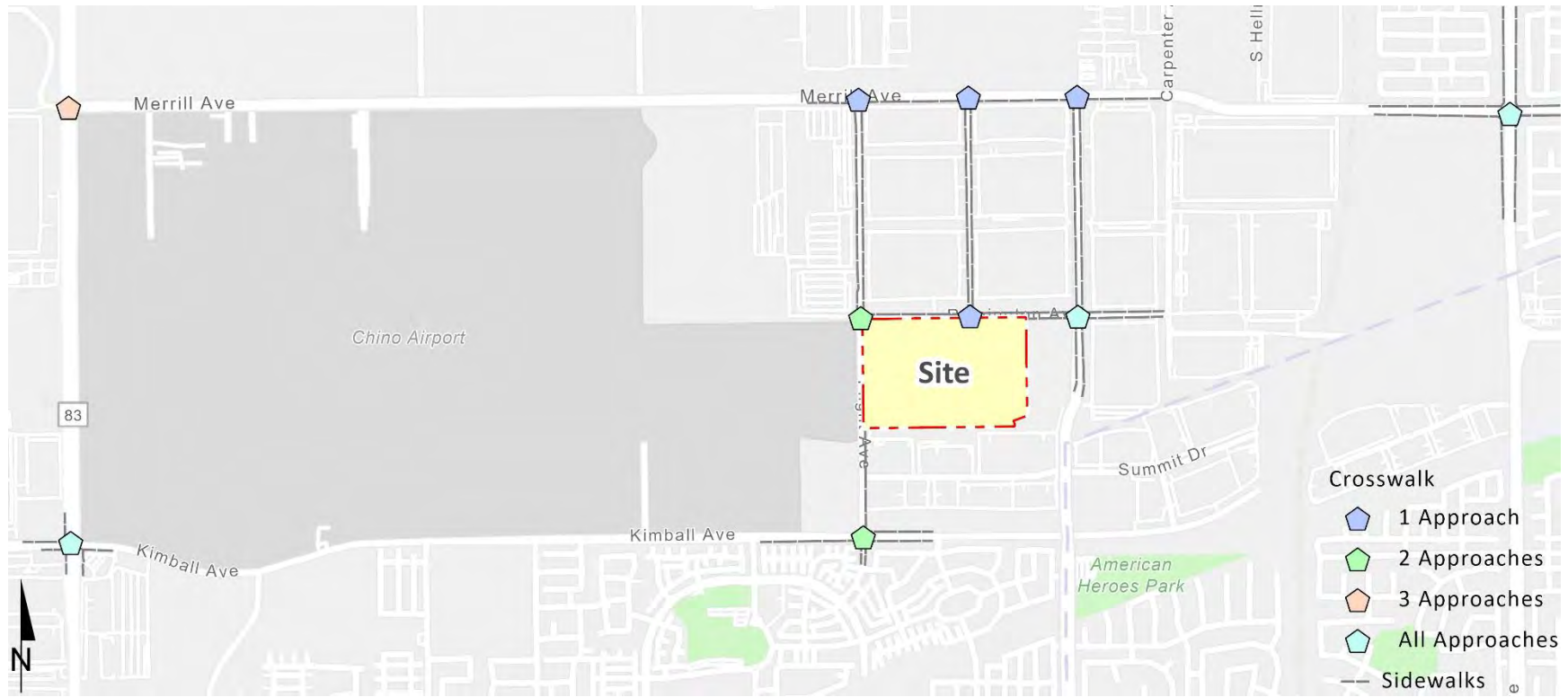
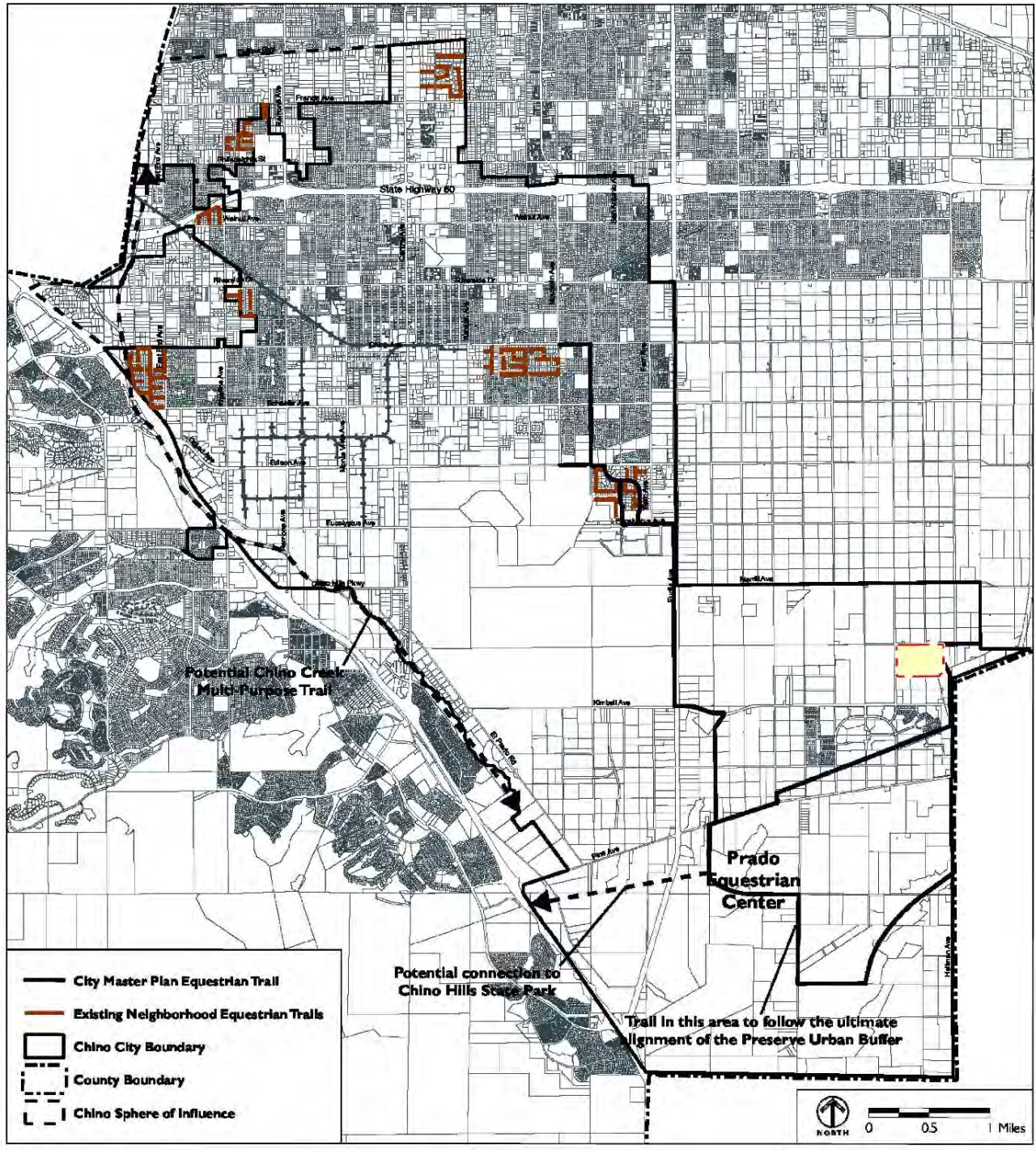


EXHIBIT 3-11: EXISTING EQUESTRIAN TRAILS



Site Boundary

3.6 TRUCK ROUTES

The City of Chino's truck routes are shown on Exhibit 3-12. Trucks from the Project would be prohibited from entering or exiting via Flight Avenue to Kimball Avenue. Trucks are prohibited on certain City roadways through the Municipal Code through weight restrictions. The City of Ontario truck routes are shown on Exhibit 3-13. Truck routes for the proposed Project have been determined based on discussions with City staff and takes into consideration the approved truck routes within the adjacent City of Ontario. These truck routes serve both the proposed Project and future cumulative development projects throughout the study area. Sensitive land uses have also been taken into consideration as part of determining the best routes for future trucks.

3.7 FREIGHT RAIL FACILITIES

The City of Chino's existing and future planned freight rail facilities are shown on Exhibit 3-14. There are currently no existing or planned routes that will serve the Project site.

3.8 EXISTING (2022) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in May 2022. 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)

Local schools are back in session with in-person instruction, as such, no additional adjustments were made to the traffic counts for the purposes of establishing the existing baseline. The 2022 weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

The traffic counts collected in May 2022 include the following vehicle classifications: Passenger Cars, 2-Axle Trucks, 3-Axle Trucks, and 4 or More Axle Trucks. To represent the effects large trucks, buses and recreational vehicles have on traffic flow; all trucks were converted into PCE. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the CMP.

EXHIBIT 3-12: CITY OF CHINO TRUCK ROUTES

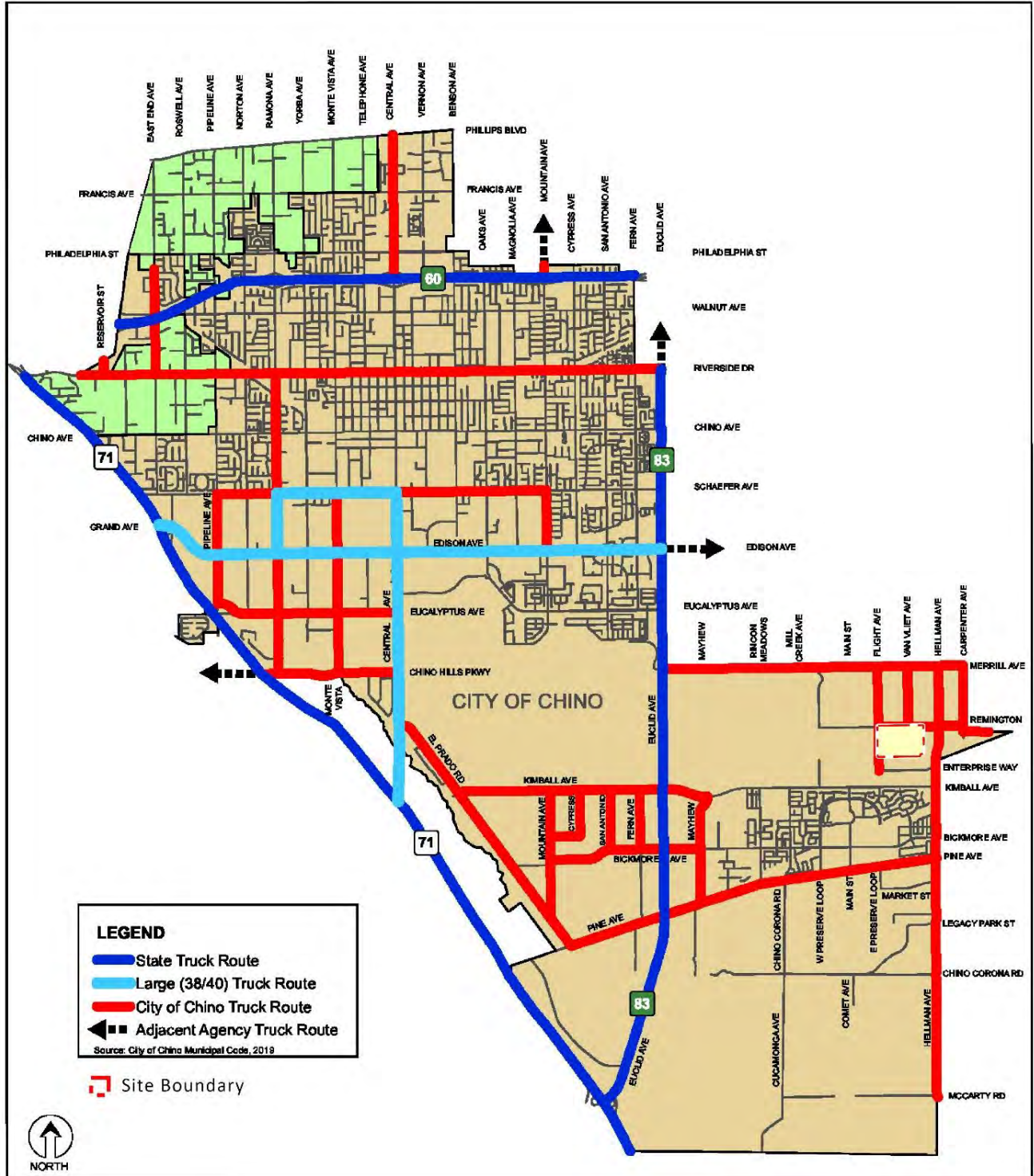


EXHIBIT 3-13: CITY OF ONTARIO TRUCK ROUTES

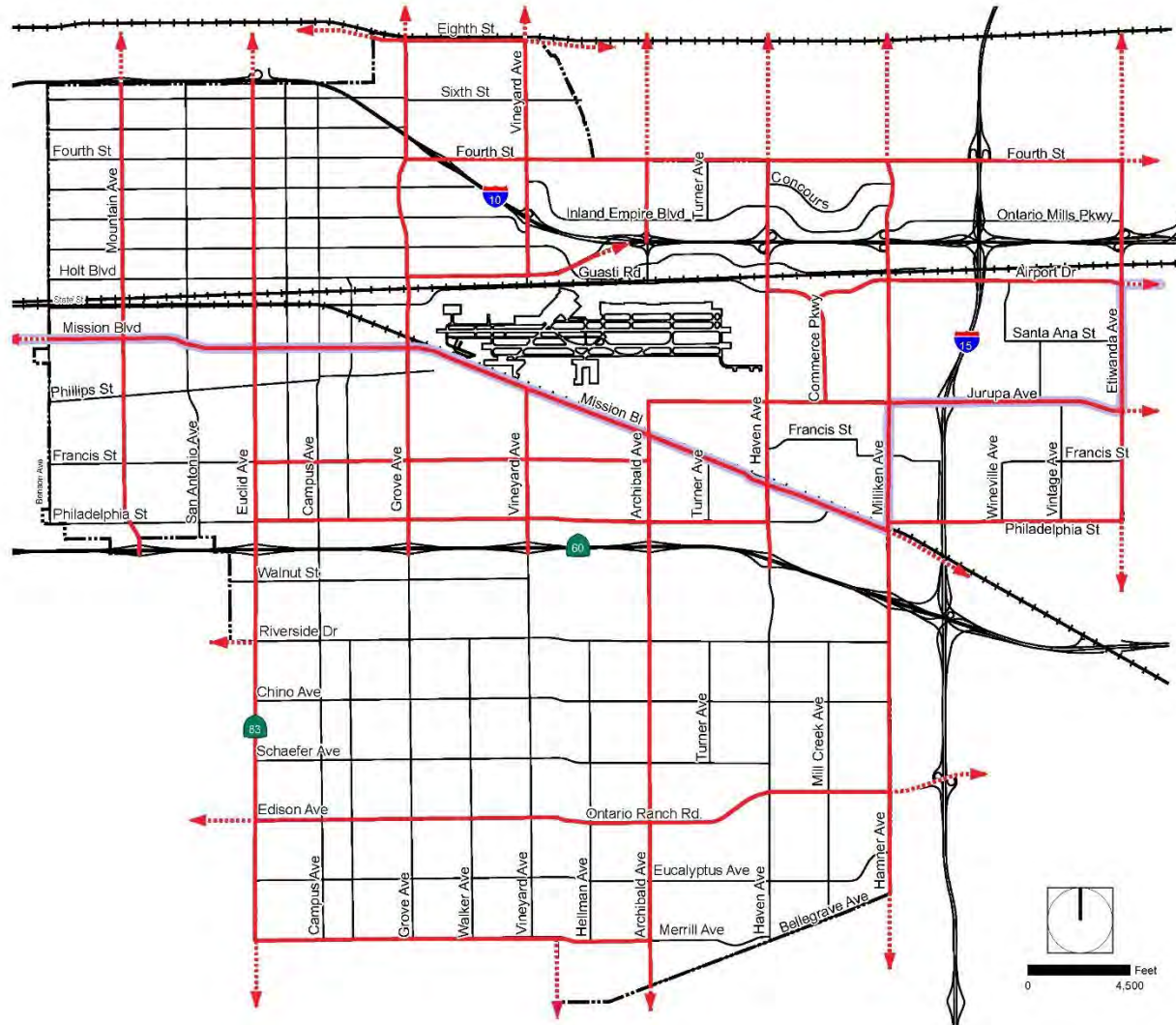
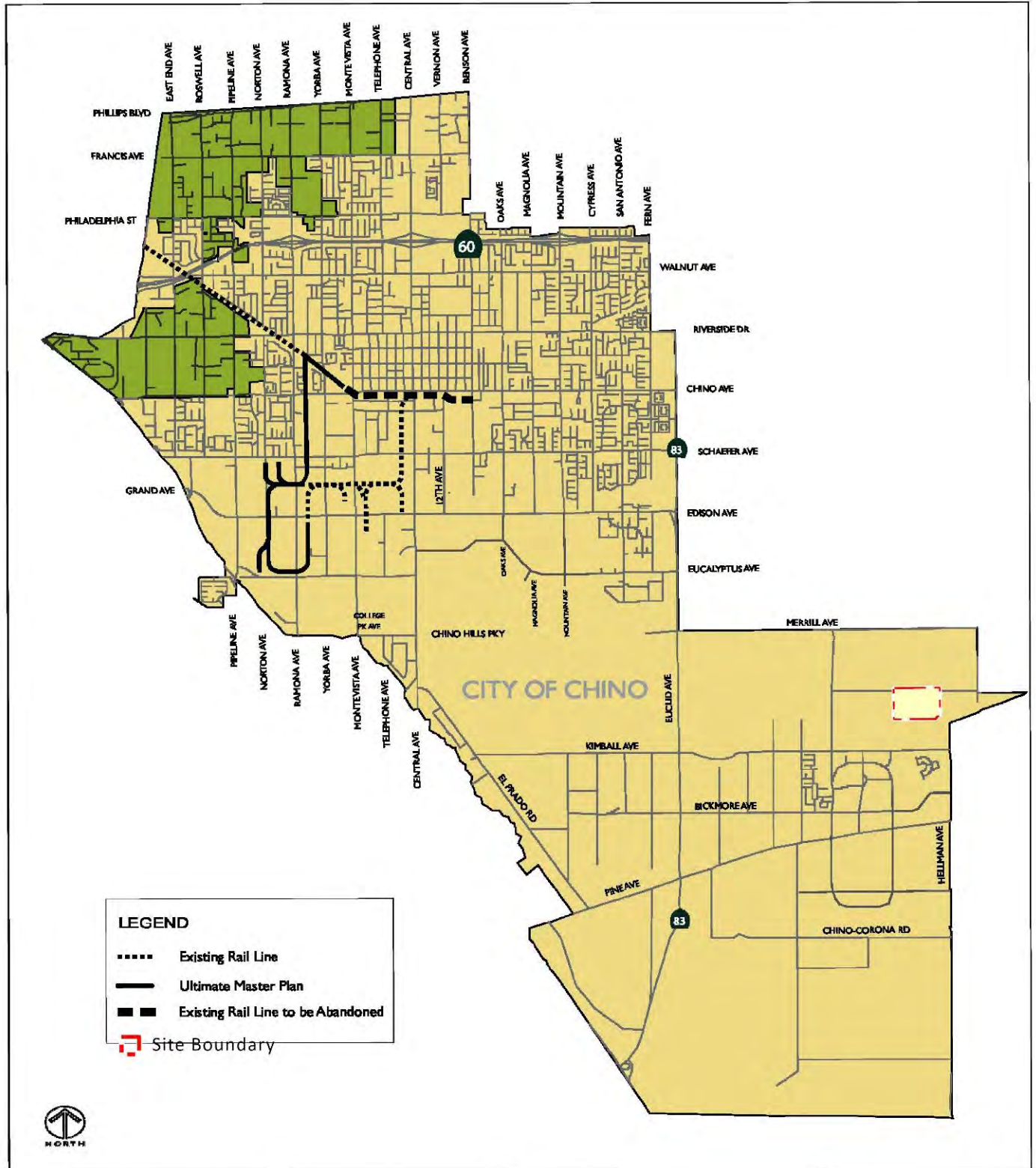


Figure M-5
Truck Routes

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



EXHIBIT 3-14: CITY OF CHINO EXISTING AND FUTURE FREIGHT RAIL FACILITIES



Existing weekday ADT volumes are shown on Exhibit 3-14. 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:

$$\text{Weekday PM Peak Hour (Approach Volume + Exit Volume)} \times 11.68 = \text{Leg Volume}$$

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 8.56 percent. As such, the above equation utilizing a factor of 11.68 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.56 percent (i.e., $1/0.0856 = 11.68$) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-14.

3.9 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 on Table 3-1, 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.

EXHIBIT 3-11: EXISTING (2022) TRAFFIC VOLUMES (ACTUAL)



1	2	3	4	5
Euclid Av. (SR-83) & Merrill Av. 19,750 50(12) ← 968(767) 143(176) ↓ ↑ 99(144) 25(0) 154(107) ↓ 6(18) ↓ 13(2) ↑ 406(573) 79(65) ↓ 4(24) ↓ 13(2) ↑ 406(573) 79(65) ↓ 6(12) ↓ 800	Euclid Av. (SR-83) & Kimball Av. 17,950 236(180) ↓ 429(485) 72(231) ↓ ↑ 79(61) 706(264) 1(9) ↓ 74(189) ↓ 168(651) 38(128) ↓ 128(110) ↓ 345(390) 13(32) ↓ 17,450	Grove Av. & Merrill Av. 6,450 40(19) ↓ 217(213) ↓ ↑ 237(278) 300(244) 12(41) ↓ 160(269) ↓ 6,700	Flight Av. & Merrill Av. 9,800 ↑ 295(336) 66(71) ↓ 246(349) ↓ 131(133) ↓ 242(186) ↓ 64(83) ↓ 5,550	Flight Av. & Remington Av. 6,550 33(45) ↓ 100(244) 9(25) ↓ ↑ 34(39) 4(13) 22(39) ↓ 20(22) ↓ 6(16) ↓ 0(2) ↓ 2(6) ↓ 278(203) 17(23) ↓ 1,200
Flight Av. & Driveway 1 6,050 ← 122(285) ↓ 297(232) ↓ 6,050	Flight Av. & Driveway 2 6,050 ← 122(285) ↓ 297(232) ↓ 6,050	Flight Av. & Driveway 3 6,050 ← 122(285) ↓ 297(232) ↓ 6,050	Flight Av. & Kimball Av. 6,000 85(146) ↓ 11(49) ↓ 26(106) ↓ ↑ 132(57) 426(144) 13(10) ↓ 113(111) ↓ 163(563) ↓ 14(34) ↓ 47(19) ↓ 62(43) ↓ 18(13) ↓ 11,900	Driveway 4 & Remington Av. 1,800 ← 60(91) ↓ 32(64) ↓ 1,800
Driveway 5 & Remington Av. 1,800 ← 60(91) ↓ 32(64) ↓ 1,800	Van Vliet Av. & Merrill Av. 9,450 ↑ 325(366) 36(41) ↓ ↑ 6(7) 16(12) ↓ 279(389) ↓ 31(43) ↓ 9,400	Van Vliet Av. & Remington Av. 1,200 15(23) ↓ 34(42) ↓ ↑ 19(23) 45(68) 8(16) ↓ 24(48) ↓ 1,800	Driveway 6 & Remington Av. 2,100 ← 64(91) ↓ 58(90) ↓ 2,100	Hellman Av. & Merrill Av. 9,400 ↑ 3(0) 329(242) 96(90) ↓ ↓ 221(362) 80(70) ↓ 88(50) ↓ 104(111) ↓ 8,450
Hellman Av. & Remington Av. 4,200 10(35) ↓ 136(175) 32(10) ↓ ↑ 13(18) 5(21) 31(44) ↓ 14(21) ↓ 18(17) ↓ 25(52) ↓ 49(35) ↓ 267(99) ↓ 76(7) ↓ 2,100	Archibald Av. & Merrill Av. 22,000 238(250) ↓ 416(699) 43(70) ↓ ↑ 95(51) 232(124) 76(55) ↓ 191(310) ↓ 102(301) ↓ 68(181) ↓ 158(81) ↓ 783(505) ↓ 55(83) ↓ 14,550	Archibald Av. & Merrill Av. 8,000 ↑ 95(51) 232(124) 76(55) ↓ 191(310) ↓ 102(301) ↓ 68(181) ↓ 158(81) ↓ 783(505) ↓ 55(83) ↓ 18,750		

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

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2022) CONDITIONS

# Intersection	Traffic Control ²	Delay ¹ (secs.)		Level of Service	
		AM	PM	AM	PM
1 Euclid Av. (SR-83) & Merrill Av.	TS	28.9	23.9	C	C
2 Euclid Av. (SR-83) & Kimball Av.	TS	32.0	29.4	C	C
3 Grove Av. & Merrill Av.	TS	17.5	39.6	B	D
4 Flight Av. & Merrill Av.	TS	11.8	12.0	B	B
5 Flight Av. & Remington Av.	TS	9.9	12.0	A	B
6 Flight Av. & Driveway 1		Future Intersection			
7 Flight Av. & Driveway 2		Future Intersection			
8 Flight Av. & Driveway 3		Future Intersection			
9 Flight Av. & Kimball Av.	TS	23.9	22.5	C	C
10 Driveway 4 & Remington Av.		Future Intersection			
11 Driveway 5 & Remington Av.		Future Intersection			
12 Van Vliet Av. & Merrill Av.	CSS	10.6	12.1	B	B
13 Van Vliet Av. & Remington Av.	AWS	7.5	7.9	A	A
14 Driveway 6 & Remington Av.		Future Intersection			
15 Hellman Av. & Merrill Av.	CSS	14.2	12.6	B	B
16 Hellman Av. & Remington Av.	TS	14.4	15.3	B	B
17 Archibald Av. & Merrill Av.	TS	24.8	18.1	C	B

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

² TS = Traffic Signal; AWS = All-way Stop; CSS = Cross-street Stop

3.10 TRAFFIC SIGNAL WARRANTS ANALYSIS

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

3.11 NEAR-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

All study area intersections currently operate at an acceptable LOS during the AM and PM peak hours under Existing (2022) traffic conditions. As such, no improvements have been identified for Existing (2022) traffic conditions.

4 PROJECTED FUTURE TRAFFIC

The Project is proposed to consist of the development of A 925,362 square foot single warehouse building. For the purposes of this analysis, the Project has been evaluated assuming 138,804 square feet of high-cube cold storage warehouse use and 786,558 square feet of high-cube fulfillment center use (15% and 85% of the overall building square footage, respectively). Vehicular access will be provided via three driveways on Flight Avenue and three driveways on Remington Avenue. The southern two driveways on Flight Avenue will be private driveways. Regional access to the Project site is accommodated from Euclid Avenue (SR-83) via Merrill Avenue and Kimball Avenue.

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). (3)

PCE factors were applied to the trip generation rates to convert trips made by heavy trucks (large 4+ axles trucks) to PCE values. PCEs allow the typical “real-world” mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County Congestion Management Program (2016 Update). (2)

Trip generation rates for the proposed uses are summarized on Table 4-1. A summary of the proposed Project trip generation is also shown on Table 4-2 for actual vehicles. As shown in Table 4-2, the proposed Project is anticipated to generate 1,972 actual two-way trips per day with 111 AM peak hour trips and 148 PM peak hour trips. As shown in Table 4-3, the Project is anticipated to generate 146 PCE AM peak hour trips and 181 PCE PM peak hour trips, which have been used for the peak hour operations analysis.

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. Truck distribution patterns are based on truck routes, the site's proximity to the regional freeway system and likely distribution of traffic if a future tenant is known. Passenger car distribution patterns are based on existing and planned land uses in the area along with the planned circulation system. Exhibit 4-1 illustrates the truck trip distribution patterns for the Project and Exhibit 4-2 illustrates the passenger car trip distribution patterns. Each of these distribution patterns is part of the TA scoping process (see Appendix 1.1).

TABLE 4-1: PROJECT TRIP GENERATION RATES

Land Use ¹	Units ²	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Actual Vehicle Trip Generation Rates									
High-Cube Cold Storage Warehouse ³	TSF	157	0.085	0.025	0.110	0.034	0.086	0.120	2.120
Passenger Cars			0.076	0.004	0.080	0.019	0.071	0.090	1.370
2-Axle Trucks			0.003	0.007	0.010	0.005	0.005	0.010	0.260
3-Axle Trucks			0.001	0.002	0.003	0.002	0.001	0.003	0.083
4+-Axle Trucks			0.005	0.011	0.016	0.008	0.008	0.016	0.407
High-Cube Fulfillment Center Warehouse ⁴	TSF	--	0.089	0.033	0.122	0.050	0.115	0.165	2.129
Passenger Cars			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks			0.004	0.004	0.008	0.005	0.006	0.011	0.162
5+-Axle Trucks			0.005	0.006	0.011	0.005	0.005	0.010	0.217
Passenger Car Equivalent (PCE) Trip Generation Rates⁵									
High-Cube Cold Storage Warehouse ³	TSF	157	0.085	0.025	0.110	0.034	0.086	0.120	2.120
Passenger Cars			0.076	0.004	0.080	0.019	0.071	0.090	1.370
2-Axle Trucks (PCE = 1.5)			0.005	0.011	0.016	0.008	0.008	0.016	0.390
3-Axle Trucks (PCE = 2.0)			0.002	0.005	0.007	0.004	0.003	0.007	0.165
4+-Axle Trucks (PCE = 3.0)			0.015	0.034	0.049	0.024	0.025	0.049	1.222
High-Cube Fulfillment Center Warehouse ⁴	TSF	--	0.089	0.033	0.122	0.050	0.115	0.165	2.129
Passenger Cars			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks (PCE = 2.5)			0.010	0.010	0.020	0.013	0.015	0.028	0.405
5+-Axle Trucks (PCE = 3.0)			0.016	0.017	0.033	0.014	0.016	0.030	0.651

¹ Trip Generation & Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

² TSF = thousand square feet

³ Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.

 Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.

 Normalized % - With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks.

⁴ Vehicle Mix Source: High Cube Warehouse Trip Generation Study, WSP, January 29, 2019.

 Inbound and outbound split source: ITE Trip Generation Manual, Eleventh Edition (2021) for ITE Land Use Code 154.

⁵ PCE factors: 2-axle = 1.5; 3-axle = 2.0; 4+-axle = 3.0.

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY (ACTUAL VEHICLES)

Land Use	Quantity Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Actual Vehicles:								
High-Cube Cold Storage	138.804 TSF							
Passenger Cars:		11	1	12	3	10	13	190
2-axle Trucks:		0	1	1	1	1	2	36
3-axle Trucks:		0	0	0	0	0	0	12
4+-axle Trucks:		1	2	3	1	1	2	58
Total Truck Trips (Actual Vehicles):		1	3	4	2	2	4	106
Total Trips (Actual Vehicles) ²		12	4	16	5	12	17	296
High-Cube Fulfillment	786.558 TSF							
Passenger Cars:		62	19	81	32	82	114	1,376
2-4axle Trucks:		3	3	6	4	5	9	128
5+-axle Trucks:		4	4	8	4	4	8	172
Total Truck Trips (Actual Vehicles):		7	7	14	8	9	17	300
Total Trips (Actual Vehicles) ²		69	26	95	40	91	131	1,676
Passenger Cars		73	20	93	35	92	127	1,566
Trucks		8	10	18	10	11	21	406
Total Trips (Actual Vehicles) ²		81	30	111	45	103	148	1,972

¹ TSF = thousand square feet

² Total Trips = Passenger Cars + Truck Trips.

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY (PCE)

Land Use	Quantity Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Passenger Car Equivalent (PCE):								
High-Cube Cold Storage	138.804 TSF							
Passenger Cars:		11	1	12	3	10	13	190
2-axle Trucks:		1	2	3	1	1	2	54
3-axle Trucks:		0	1	1	1	0	1	24
4+-axle Trucks:		2	5	7	3	3	6	170
Total Truck Trips (PCE):		3	8	11	5	4	9	248
Total Trips (PCE) ²		14	9	23	8	14	22	438
High-Cube Fulfillment (WSP)	786.558 TSF							
Passenger Cars:		62	19	81	32	82	114	1,376
2-4axle Trucks:		8	8	16	10	11	21	320
5+-axle Trucks:		13	13	26	11	13	24	512
Total Truck Trips (PCE):		21	21	42	21	24	45	832
Total Trips (PCE) ²		83	40	123	53	106	159	2,208
Passenger Cars		73	20	93	35	92	127	1,566
Trucks		24	29	53	26	28	54	1,080
Total Trips (PCE) ²		97	49	146	61	120	181	2,646

¹ TSF = thousand square feet

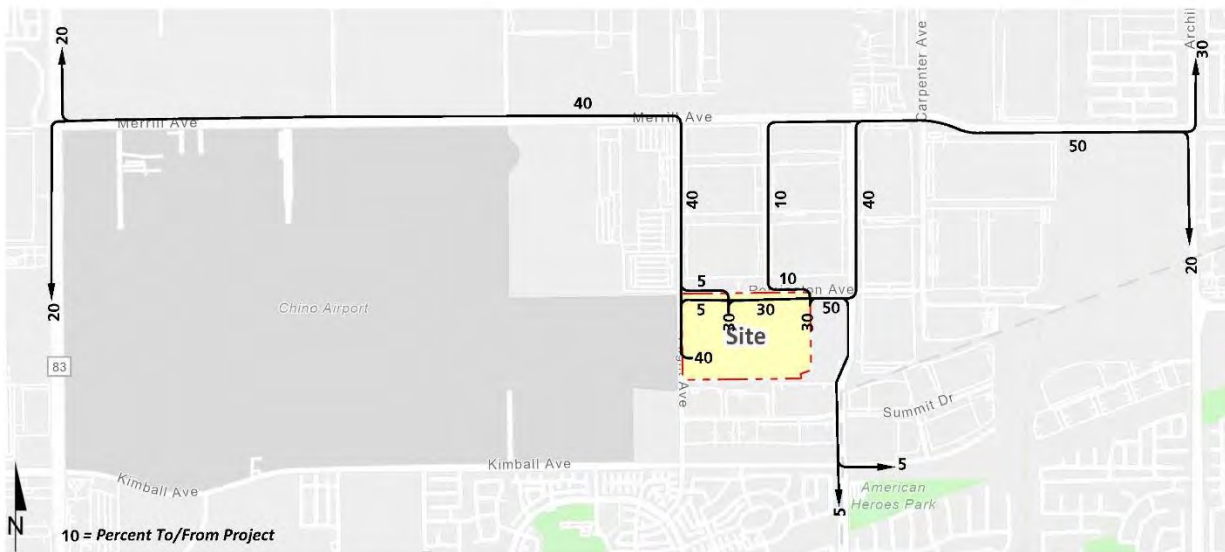
² Total Trips = Passenger Cars + Truck Trips.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION

Near-Term:



Long Range:



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 (near-term and long range) weekday ADT and weekday peak hour intersection turning movement volumes, in actual vehicles, are shown on Exhibit 4-3 and Exhibit 4-4, respectively. The Project (near-term and long range) weekday ADT and weekday peak hour intersection turning movement volumes, in PCE, are shown on Exhibit 4-5 and Exhibit 4-6, respectively.

4.5 BACKGROUND TRAFFIC

4.5.1 OPENING YEAR CUMULATIVE CONDITIONS

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 have been added to daily and peak hour traffic volumes on surrounding roadways. Opening Year Cumulative (2025) traffic volumes are provided in Section 6 of this TA. The traffic generated by the proposed Project was then manually added to the base volume to determine Opening Year Cumulative "With Project" forecasts.

4.5.2 HORIZON YEAR (2045) CONDITIONS

The adopted Southern California Association of Governments (SCAG) Connect SoCal: Demographics and Growth Forecast (adopted September 3, 2020) growth forecasts for the City of Chino identifies projected growth in population of 86,900 in 2016 to 121,300 in 2045, or a 39.59% increase over the 29-year period (9). The change in population equates to roughly a 1.16% growth rate, compounded annually. Similarly, growth over the same 29-year period in households is projected to increase by 42.67%, or a 1.23% annual growth rate. Finally, growth in employment over the same 29-year period is projected to increase by 13.89%, or a 0.45% annual growth rate.

Based on a comparison of Existing (2022) traffic volumes to the Horizon Year (2045) forecasts, the average growth rate is estimated at approximately 0.95%, compounded annually between Existing (2022) and 2045 traffic conditions. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Chino for Opening Year Cumulative and Horizon Year (2045) traffic conditions, especially when considered along with the addition of project-related traffic, which would tend to overstate as opposed to understate the potential impacts to traffic and circulation.

EXHIBIT 4-3: NEAR-TERM PROJECT ONLY TRAFFIC VOLUMES (ACTUAL)



1	2	3	4	5
Euclid Av. (SR-83) & Merrill Av. 550 (Westbound), 550 (Eastbound) Left: 4(2), 21(11) Right: 7(26) Through: 2(2) 1(5) (Left), 2(2) (Right)	Euclid Av. (SR-83) & Kimball Av. 150 (Westbound), 350 (Eastbound) Left: 2(2), 4(2) Right: 1(5), 1(5) Through: 2(11) 4(2) (Left), 2(2) (Right), 9(4) (Right)	Grove Av. & Merrill Av. 100 (Westbound), 650 (Eastbound) Left: 4(2) Right: 1(6), 9(28) Through: 22(13)	Flight Av. & Merrill Av. 200 (Westbound), 850 (Eastbound) Left: 9(5) Right: 27(15), 10(34), 3(12)	Flight Av. & Remington Av. 850 (Westbound), 500 (Eastbound) Left: 21(12), 15(8) Right: 5(19) Through: 2(10), 9(27), 8(4)
6	7	8	9	10
Flight Av. & Driveway 1 700 (Westbound), 650 (Eastbound) Left: 5(13), 18(9) Right: 5(23) Through: 3(14) 11(8) (Left), 11(5) (Right)	Flight Av. & Driveway 2 550 (Westbound), 150 (Eastbound) Left: 5(23), 3(4) Right: 4(4) Through: 18(9)	Flight Av. & Driveway 3 400 (Westbound), 150 (Eastbound) Left: 5(23) Right: 2(9) Through: 18(9), 7(3)	Flight Av. & Kimball Av. 550 (Westbound), 200 (Eastbound) Left: 4(20), 3(12) Right: 9(5) Through: 16(8)	Driveway 4 & Remington Av. 200 (Westbound), 200 (Eastbound) Left: 1(1), 7(4) Right: 1(1), 22(11), 6(28), 6(28), 2(9)
11	12	13	14	15
Driveway 5 & Remington Av. 300 (Westbound), 100 (Eastbound) Left: 8(4), 2(2) Right: 3(10), 0(1) Through: 1(1), 2(3)	Van Vliet Av. & Merrill Av. 300 (Westbound), 100 (Eastbound) Left: 9(5), 4(3) Right: 3(12), 2(6)	Van Vliet Av. & Remington Av. 100 (Westbound), 250 (Eastbound) Left: 4(2), 1(1) Right: 1(1), 6(5) Through: 1(5), 4(8)	Driveway 6 & Remington Av. 250 (Westbound), 300 (Eastbound) Left: 6(5), 9(5) Right: 4(8), 1(1), 4(11)	Hellman Av. & Merrill Av. 650 (Westbound), 300 (Eastbound) Left: 14(7), 10(7) Right: 5(18), 6(14)
16	17			
Hellman Av. & Remington Av. 300 (Westbound), 100 (Eastbound) Left: 10(7), 6(14) Right: 2(6), 4(3)	Archibald Av. & Merrill Av. 300 (Westbound), 350 (Eastbound) Left: 11(7), 5(14) Right: 5(17), 13(8)			

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

EXHIBIT 4-4: LONG RANGE PROJECT ONLY TRAFFIC VOLUMES (ACTUAL)



<p>1 Euclid Av. (SR-83) & Merrill Av.</p> <p>550 550</p> <p>← 4(2) ↑ 7(26) ↓ 21(11) ↑ 2(2) ↑ 1(5) ↓ 2(2)</p> <p>150 150</p>	<p>2 Euclid Av. (SR-83) & Kimball Av.</p> <p>150 350</p> <p>← 2(2) ↑ 1(5) ↓ 4(2) ↑ 1(5) ↑ 2(11) ↓ 4(2) →</p> <p>250 250</p>	<p>3 Grove Av. & Merrill Av.</p> <p>100 650</p> <p>← 4(2) ↑ 1(6) ↑ 9(28) ↓ 22(13) →</p> <p>550 550</p>	<p>4 Flight Av. & Merrill Av.</p> <p>200 850</p> <p>↑ 9(5) ↓ 27(15) ↓ 10(34) ↑ 3(12)</p> <p>850 850</p>	<p>5 Flight Av. & Remington Av.</p> <p>850 500</p> <p>← 21(12) ↑ 5(19) ↓ 15(8) ↑ 2(10) ↑ 8(27) ↓ 8(4)</p> <p>700 700</p>
<p>6 Flight Av. & Driveway 1</p> <p>700 650</p> <p>← 5(13) ↑ 5(23) ↓ 18(9) ↑ 3(14) ↑ 11(8) ↓ 11(5)</p> <p>550 550</p>	<p>7 Flight Av. & Driveway 2</p> <p>550 150</p> <p>← 5(23) ↑ 4(4) ↓ 3(4) ↑ 18(9) →</p> <p>400 400</p>	<p>8 Flight Av. & Driveway 3</p> <p>400 150</p> <p>← 5(23) ↑ 2(9) ↓ 18(9) ↑ 7(3)</p> <p>550 550</p>	<p>9 Flight Av. & Kimball Av.</p> <p>550 200</p> <p>↓ 4(20) ↑ 9(5) ↓ 3(12) ↓ 16(8)</p> <p>350 350</p>	<p>10 Driveway 4 & Remington Av.</p> <p>200 200</p> <p>↑ 1(1) ↓ 1(1) ↑ 7(4) ↓ 22(11) ↑ 6(28) ↓ 6(28) ↑ 2(9) ↓ 2(9)</p> <p>650 650</p>
<p>11 Driveway 5 & Remington Av.</p> <p>300 300</p> <p>↑ 8(4) ↓ 3(10) ↑ 2(2) ↓ 0(1) ↑ 1(1) ↓ 2(3)</p> <p>100 100</p>	<p>12 Van Vliet Av. & Merrill Av.</p> <p>300 300</p> <p>← 9(5) ↑ 2(6) ↓ 4(3) ↓ 3(12) →</p> <p>100 100</p>	<p>13 Van Vliet Av. & Remington Av.</p> <p>100 250</p> <p>← 4(2) ↑ 1(1) ↓ 1(1) ↓ 1(5) ↓ 4(8) ↑ 6(5)</p> <p>300 300</p>	<p>14 Driveway 6 & Remington Av.</p> <p>450 450</p> <p>← 6(5) ↑ 4(8) ↑ 9(5) ↓ 1(1) ↓ 1(1) ↓ 4(11)</p> <p>250 250</p>	<p>15 Hellman Av. & Merrill Av.</p> <p>650 650</p> <p>← 14(7) ↑ 5(18) ↓ 10(7) ↓ 6(14)</p> <p>300 300</p>
<p>16 Hellman Av. & Remington Av.</p> <p>300 450</p> <p>↑ 10(7) ↓ 6(14) ↓ 2(6) ↓ 4(3)</p> <p>100 100</p>	<p>17 Archibald Av. & Merrill Av.</p> <p>300 350</p> <p>↑ 11(7) ↓ 5(14) ↓ 5(17) ↓ 13(8)</p> <p>650 650</p>			

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

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



1	2	3	4	5
Euclid Av. (SR-83) & Merrill Av. 700 850 300 100 300 100 800 250 600 750	Euclid Av. (SR-83) & Kimball Av. 350 400 400 200 500 400 200 1,000 200	Grove Av. & Merrill Av. 100 950 400 150 550 350 500 500	Flight Av. & Merrill Av. 200 950 200 200 750 500 400	Flight Av. & Remington Av. 600 1,150 1,150 250 600 650 1,000 600
6 1,000 650 800 450 400 550 600 250	7 800 450 400 400 550 600 250	8 400 150 400 150 550 350 500 500	9 550 200 200 200 750 500 400	10 250 250 650 650 650 650 650
11 500 500 300 200 200 500 400	12 400 400 200 200 500 400	13 200 500 500 500 500 500 500	14 750 750 500 500 500 500 500	15 1,000 1,000 1,000 1,000 1,000 1,000 1,000
16 600 750 200 1,000 450	17 500 500 200 1,000 450			

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

EXHIBIT 4-6: LONG RANGE PROJECT ONLY TRAFFIC VOLUMES (PCE)



<p>1 Euclid Av. (SR-83) & Merrill Av.</p> <p>700 850</p> <p>← 4(2) 24(14) ↑ 11(30)</p> <p>↑ 6(6)</p> <p>1(5) → 5(5)</p> <p>300 100</p>	<p>2 Euclid Av. (SR-83) & Kimball Av.</p> <p>300 350</p> <p>← 6(6) ↑ 1(5)</p> <p>↑ 4(2) ↑ 1(5)</p> <p>↑ 2(11)</p> <p>4(2) → 5(5) ↑ 9(4)</p> <p>400 850</p>	<p>3 Grove Av. & Merrill Av.</p> <p>100 950</p> <p>↑ 1(6)</p> <p>← 17(35)</p> <p>4(2)</p> <p>29(20) →</p> <p>400 850</p>	<p>4 Flight Av. & Merrill Av.</p> <p>200</p> <p>↑ 9(5)</p> <p>33(22) ↓</p> <p>18(41) ↓ 3(12)</p> <p>1,150 1,150</p>	<p>5 Flight Av. & Remington Av.</p> <p>600</p> <p>← 27(18) ↑ 5(20)</p> <p>↑ 3(11)</p> <p>15(33) ↑ 9(5)</p> <p>1,000 1,000</p>
<p>6 Flight Av. & Driveway 1</p> <p>1,000 650</p> <p>← 12(20) ↑ 5(23)</p> <p>↑ 18(9) ↑ 3(14)</p> <p>19(15) → 11(5)</p> <p>800 800</p>	<p>7 Flight Av. & Driveway 2</p> <p>800 450</p> <p>← 5(23) ↑ 12(11)</p> <p>↑ 10(10)</p> <p>18(9) →</p> <p>400 400</p>	<p>8 Flight Av. & Driveway 3</p> <p>400 450</p> <p>← 5(23) ↑ 2(9)</p> <p>18(9) ↑ 7(3)</p> <p>550 350</p>	<p>9 Flight Av. & Kimball Av.</p> <p>500 200</p> <p>↑ 9(5)</p> <p>16(8) ↓ 3(12)</p> <p>600 650</p>	<p>10 Driveway 4 & Remington Av.</p> <p>250</p> <p>↑ 3(3)</p> <p>↑ 7(4)</p> <p>3(3) → 6(28) ↑ 2(9)</p> <p>22(11) ↓ 6(28)</p> <p>600 650</p>
<p>11 Driveway 5 & Remington Av.</p> <p>500</p> <p>← 9(5)</p> <p>↑ 6(6)</p> <p>3(11) → 1(1)</p> <p>1(1) ↑ 7(7)</p> <p>250 300</p>	<p>12 Van Vliet Av. & Merrill Av.</p> <p>400</p> <p>↑ 9(5)</p> <p>↑ 6(4)</p> <p>3(12) → 4(7)</p> <p>200 200</p>	<p>13 Van Vliet Av. & Remington Av.</p> <p>200 500</p> <p>↑ 3(3)</p> <p>← 11(10)</p> <p>4(2) ↑ 2(3)</p> <p>1(5) ↓ 10(13)</p> <p>500 500</p>	<p>14 Driveway 6 & Remington Av.</p> <p>750</p> <p>↑ 11(10)</p> <p>↑ 12(9)</p> <p>10(13) → 3(8)</p> <p>2(3) ↓ 8(15)</p> <p>500 500</p>	<p>15 Hellman Av. & Merrill Av.</p> <p>1,000</p> <p>← 16(9)</p> <p>↑ 17(14)</p> <p>7(19) → 14(20)</p> <p>400 600</p>
<p>16 Hellman Av. & Remington Av.</p> <p>600</p> <p>↑ 17(14)</p> <p>14(20) → 4(7)</p> <p>6(4) ↑</p> <p>750 200</p>	<p>17 Archibald Av. & Merrill Av.</p> <p>500</p> <p>↑ 16(12)</p> <p>11(19) → 16(11)</p> <p>9(20) →</p> <p>1,000 450</p>			

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

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 cumulative projects listed are those that would generate traffic and would contribute traffic to study area intersections. Exhibit 4-7 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-2. 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 on Table 4-2 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 are shown on Exhibit 4-8.

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 (2022) conditions and Horizon Year (2045) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (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 May 2022. The SBTAM has a base (validation) year of 2016 and a horizon (future forecast) year of 2045. The difference in model volumes (2045-2016) 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).

EXHIBIT 4-7: CUMULATIVE DEVELOPMENT LOCATION MAP

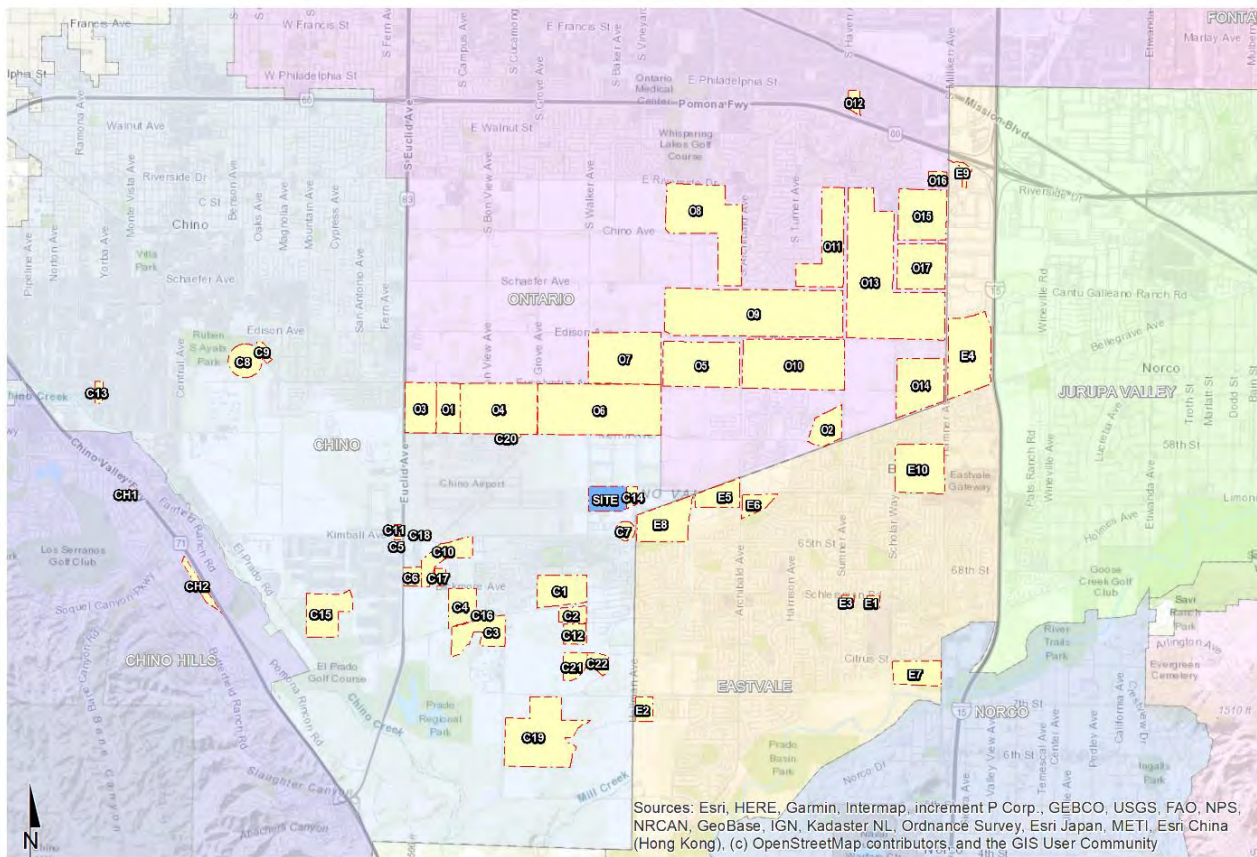


EXHIBIT 4-8: CUMULATIVE ONLY TRAFFIC VOLUMES (ACTUAL)



1	Euclid Av. (SR-83) & Merrill Av.	2	Euclid Av. (SR-83) & Kimball Av.	3	Grove Av. & Merrill Av.	4	Flight Av. & Merrill Av.	5	Flight Av. & Remington Av.
10,400	9,350	11,300	850	5,100	8,950		10,050		
0(11) ↓ 259(419) ↓ 207(27) ↓ 0(4) ↑ 57(75) ↑ 86(108) ↑ 210(347) ↑ 272(49)	3(2) ↓ 14(13) ↓ 4(12) ↑ 14(7) ↑ 6(14) ↑ 11(17) ↑ 4(11) ↑ 11(7) ↑ 474(379) ↑ 11(5)	56(107) ↓ 97(67) ↓ 323(276) ↑ 59(151) ↑ 119(65) ↑ 262(361)	324(320) →				284(360) ← 324(320) →		
11,300	600	11,400		8,950	10,050				
6	Flight Av. & Driveway 1	7	Flight Av. & Driveway 2	8	Flight Av. & Driveway 3	9	Flight Av. & Kimball Av.	10	Driveway 4 & Remington Av.
							2,150		
							93(64) ← ↑ 2(1) ↓ 56(103) ↓ 2(5) ↓ 4(3) ↓ 1(2)		
						2,200	100		
11	Driveway 5 & Remington Av.	12	Van Vliet Av. & Merrill Av.	13	Van Vliet Av. & Remington Av.	14	Driveway 6 & Remington Av.	15	Hellman Av. & Merrill Av.
		9,800						10,200	
		376(412) ← ↑ 365(419) ↓ 15(6) ↑ 3(12)						370(407) ← ↑ 18(15) ↓ 364(414) ↓ 2(5) ↓ 5(5) ↓ 13(20)	
		10,050	300					9,800	650
16	Hellman Av. & Remington Av.	17	Archibald Av. & Merrill Av.						
650		15,250	300						
↓ 20(20) ↑ 18(25)		330(120) ↓ 401(340) ↑ 92(312) ↓ 5(14) ↓ 128(339) ↑ 360(170) ↑ 195(512) ↑ 0(1)	16(4) ← ↑ 1(2) ↑ 0(1)						
650		13,950	15,300						

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

TABLE 4-4: CUMULATIVE DEVELOPMENT LAND USE SUMMARY (1 OF 3)

#	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 Armstrong Ranch	Single Family Detached	819 DU
		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	Rich Haven	Single Family Detached	2,732 DU
		Multi-Family Attached (Condo)	1,524 DU
		Shopping Center	317.400 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
O16	PDEV10-008 - Dry Food Storage	Mini-Warehouse	17.000 TSF

TABLE 4-4: CUMULATIVE DEVELOPMENT LAND USE SUMMARY (2 OF 3)

#	Project/Location	Land Use	Quantity Units ¹
O17	Tuscana Village	Single Family Detached	176 DU
		Shopping Center	26.000 TSF
City of Chino		Shopping Center	15 TSF
		Multifamily Housing (Low-Rise)	698 DU
		Multifamily Housing (Mid-Rise)	440 DU
C1	Falloncrest at the Preserve	Public Parks	21.60 AC
		General Office	77.597 TSF
		Shopping Center	77.597 TSF
C2	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
C3	Pines Community	Quality Restaurant	13.750 TSF
		Single Family Detached	552 DU
		Public Park	3.0 AC
C4	Ag. Buffer, Bungalow, Lic. Product, Liberty Deluxe, Lyon 2 & 3	Self Storage & RV Storage	120.000 TSF
		Sports Park	41.8 AC
		Single Family Detached	474 DU
C5	Farmer Boys	Fast-food w/ Drive-Thru	3.218 TSF
		Shopping Center	2.300 TSF
C6	Euclid & Bickmore Warehouse	Warehousing	205.820 TSF
		General Light Industrial	51.030 TSF
		Business Park	110.620 TSF
C7	Kimball Business Park	Gas Station w/ Market	16 VFP
		Fast-Food with Drive-Thru	2.500 TSF
C8	Chaffey College Expansion College Park Commercial	Junior/Community College	93.50 AC
		Shopping Center	7.50 AC
C9	The Campus at College Park	Church	27.000 TSF
		General Office	16.969 TSF
		Shopping Center	17.785 TSF
		High-Turnover (Sit Down) Restaurant	15.876 TSF
C10	Altitude Business Centre	Warehousing	715.000 TSF
		Light Industrial	255.000 TSF
		Business Park	233.000 TSF
		Self-Storage	110.000 TSF
C11	Majestic Gateway	Specialty Retail	25.000 TSF
		Pharmacy/Drugstore with Drive-Thru	13.000 TSF
		Fast-Food with Drive-Thru	8.600 TSF
C12	The Preserve Civic Center	Elementary School	1,200 STU
		Library	10.00 AC
		Community Center	10.00 AC
		Park	8.00 AC

TABLE 4-4: CUMULATIVE DEVELOPMENT LAND USE SUMMARY (3 OF 3)

#	Project/Location	Land Use	Quantity Units ¹
C13	Fairfield Inn & Suites (PL 17-0060 & PL 17-0061)	Hotel	111 RM
C14	Watson Industrial Park (90% complete)	High-Cube Warehouse	388.990 TSF
C15	Majestic Chino Heritage	High-Cube Fulfillment Warehouse	1982.700 TSF
		High-Cube Cold Storage Warehouse	100.000 TSF
C16	Church	Church	47.979 TSF
		Daycare	190 STU
C17	Appesetche Residential	Single Family Detached	60 DU
		Condo/Townhouse	160 DU
C18	Archibald's (PL 17-0037)	Fast-Food with Drive-Thru	3.147 TSF
		Single Family Detached	691 DU
		Condo/Townhouse	132 DU
C19	Rancho Miramonte	Neighborhood Retail	21.780 TSF
		Church	400 SEAT
C20	Eagle's Nest (storage for 33 aircraft)	Aviation Storage	8.3 AC
C21	Lewis Block 3	Single Family Detached	114 DU
C22	Lewis Block 11	Single Family Detached	220 DU
		Multifamily (Low-Rise) Residential	85 DU
		Recreational Community Center	16.000 TSF
City of Eastvale			
E1	Magnolia Ranch	Single Family Detached	39 DU
		Multifamily Housing	90 DU
E2	TR29997	Single Family Detached	122 DU
		Multifamily Housing	216 DU
E3	Sumner Place	Shopping Center	2.500 TSF
		Fast-Food Without Drive-Thru	2.500 TSF
E4	Eastvale Commerce Center (75% complete)	Shopping Center	162.500 TSF
E5	PP23219 (PM35865) (50% complete)	General Light Industrial	738.430 TSF
		Free-Standing Discount Superstore	192.000 TSF
		Specialty Retail	9.200 TSF
E6	Eastvale Shopping Center	Fast-Food Without Drive-Thru	7.200 TSF
		Coffee/Donut Shop w/ Drive Thru	2.000 TSF
		Fast-Food with Drive-Thru	3.500 TSF
		Gas Station w/ convenience store and car wash	16 VFP
E8	SP00358 - The Ranch at Eastvale (75% complete)	Shopping Center	267.200 TSF
		General Light Industrial	801.500 TSF
		Business Park	280.275 TSF
E9	15-1508 - Industrial Warehouse	Warehousing	155.000 TSF
		Lifestyle Center (Commercial)	1,300.000 TSF
		General Commercial	225.000 TSF
E10	Leal Master Plan	Office	920.000 TSF
		Hotel	450 RM
		High Density Residential	500-660 DU
City of Chino Hills			
CH1	Country Club Villas	Condo/Townhouse	46 DU
		Hospital	55.000 TSF
		Medical Office Building	86.952 TSF
CH2	Heritage Professional Center	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

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 (2025) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year Cumulative (2025) and Horizon Year (2045) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2022) and Opening Year Cumulative (2025) conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (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.

5 E+P TRAFFIC CONDITIONS

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

5.1 ROADWAY IMPROVEMENTS

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

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

5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The weekday ADT and weekday 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 on 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 (2022) 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 are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. No study area intersections are anticipated to meet either peak hour volume or ADT volume-based warrants with the addition of Project traffic (see Appendix 5.2).

5.5 NEAR-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

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

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



1	2	3	4	5
Euclid Av. (SR-83) & Merrill Av. 20,300 50(12) ↓ 972(769) ↓ 164(187) ↓ 106(170) ↑ 25(0) ↑ 156(109) ↑ 6(18) ↓ 4(24) ↓ 6(12) ↓ 13(2) ↑ 407(578) ↑ 81(67) ↑ 6,600 18,000	Euclid Av. (SR-83) & Kimball Av. 18,100 236(180) ↓ 431(487) ↓ 76(233) ↓ 80(66) ↑ 707(269) ↑ 3(20) ↑ 74(189) ↓ 172(653) ↓ 38(128) ↓ 128(110) ↓ 347(392) ↓ 22(36) ↓ 14,900 13,750	Grove Av. & Merrill Av. 6,550 40(19) ↓ 12(41) ↓ 182(282) ↓ 221(215) ↓ 238(284) ↑ 309(272) ↑ 12,400	Flight Av. & Merrill Av. 10,000 295(336) ↑ 75(76) ↑ 246(349) → 158(148) ↓ 252(220) ↓ 67(95) ↓ 7,400 6,400	Flight Av. & Remington Av. 2,300 33(45) ↓ 121(256) ↓ 24(33) ↓ 20(22) ↓ 6(16) ↓ 0(2) ↓ 39(58) ↑ 4(13) ↑ 24(49) ↑ 2(6) ↓ 287(230) ↓ 25(27) ↑ 2,300 6,750
6	7	8	9	10
Flight Av. & Driveway 1 6,750 127(298) ↓ 18(9) ↓ 5(23) ↑ 3(14) ↑ 308(240) ↑ 11(5) ↑ 650 6,600	Flight Av. & Driveway 2 6,600 127(308) ↓ 3(4) ↓ 4(4) ↑ 315(241) ↑ 150 6,450	Flight Av. & Driveway 3 6,450 127(308) ↓ 2(9) ↑ 315(241) ↑ 7(3) ↑ 150 6,600	Flight Av. & Kimball Av. 6,550 89(166) ↓ 11(49) ↓ 29(118) ↓ 141(62) ↑ 426(144) ↑ 13(10) ↑ 129(119) ↓ 163(563) ↓ 14(34) ↓ 47(19) ↓ 62(43) ↓ 18(13) ↓ 10,650 1,950	Driveway 4 & Remington Av. 2,000 61(92) ↑ 7(4) ↑ 6(28) ↓ 6(28) ↓ 2(9) ↓ 2,000 650
11	12	13	14	15
Driveway 5 & Remington Av. 2,100 68(95) ↓ 2(2) ↑ 35(74) ↓ 0(1) ↓ 1(1) ↓ 2(3) ↓ 2,100 100	Van Vliet Av. & Merrill Av. 9,750 334(371) ↑ 40(44) ↑ 282(401) ↓ 31(43) ↓ 6(7) ↓ 18(18) ↓ 9,750 1,300	Van Vliet Av. & Remington Av. 1,350 19(25) ↓ 35(43) ↓ 20(24) ↑ 51(73) ↑ 9(21) ↓ 28(56) ↓ 2,100	Driveway 6 & Remington Av. 2,350 70(96) ↓ 9(5) ↑ 62(98) ↓ 1(1) ↓ 1(1) ↓ 4(11) ↓ 2,350 300	Hellman Av. & Merrill Av. 10,050 3(0) ↑ 343(249) ↓ 106(97) ↑ 1(0) ↓ 226(380) ↓ 80(70) ↓ 88(50) ↓ 110(125) ↓ 10,050 4,050
16	17			
Hellman Av. & Remington Av. 4,500 20(42) ↓ 136(175) ↓ 32(10) ↓ 13(18) ↑ 5(21) ↑ 31(44) ↑ 20(35) ↓ 18(17) ↓ 27(58) ↓ 53(38) ↓ 267(99) ↓ 76(7) ↓ 1,350 4,950	Archibald Av. & Merrill Av. 22,350 249(257) ↓ 416(699) ↓ 43(70) ↓ 95(51) ↑ 232(124) ↑ 76(55) ↑ 196(324) ↓ 102(301) ↓ 73(198) ↓ 171(89) ↓ 783(505) ↓ 55(83) ↓ 8,000 19,050			

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

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

# Intersection	Traffic Control ²	Existing (2022)				E+P			
		Delay ¹ (secs.)		Level of Service		Delay ¹ (secs.)		Level of Service	
		AM	PM	AM	PM	AM	PM	AM	PM
1 Euclid Av. (SR-83) & Merrill Av.	TS	28.9	23.9	C	C	34.1	28.6	C	C
2 Euclid Av. (SR-83) & Kimball Av.	TS	32.0	29.4	C	C	32.2	31.7	C	C
3 Grove Av. & Merrill Av.	TS	17.5	39.6	B	D	17.9	53.0	B	D
4 Flight Av. & Merrill Av.	TS	11.8	12.0	B	B	12.3	13.1	B	B
5 Flight Av. & Remington Av.	TS	9.9	12.0	A	B	17.4	20.5	B	C
6 Flight Av. & Driveway 1	CSS	Future Intersection				10.5	10.7	B	B
7 Flight Av. & Driveway 2	CSS	Future Intersection				10.3	9.9	B	A
8 Flight Av. & Driveway 3	CSS	Future Intersection				10.6	11.0	B	B
9 Flight Av. & Kimball Av.	TS	23.9	22.5	C	C	24.3	22.6	C	C
10 Driveway 4 & Remington Av.	CSS	Future Intersection				9.1	9.5	A	A
11 Driveway 5 & Remington Av.	CSS	Future Intersection				8.7	9.0	A	A
12 Van Vliet Av. & Merrill Av.	CSS	10.6	12.1	B	B	10.7	12.0	B	B
13 Van Vliet Av. & Remington Av.	AWS	7.5	7.9	A	A	7.6	8.1	A	A
14 Driveway 6 & Remington Av.	CSS	Future Intersection				9.0	9.2	A	A
15 Hellman Av. & Merrill Av.	CSS	14.2	12.6	B	B	14.7	12.9	B	B
16 Hellman Av. & Remington Av.	TS	14.4	15.3	B	B	15.0	15.9	B	B
17 Archibald Av. & Merrill Av.	TS	24.8	18.1	C	B	26.6	18.5	C	B

¹ Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for all 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 re

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

6 OPENING YEAR CUMULATIVE (2025) TRAFFIC CONDITIONS

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

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements 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 6.12%, plus traffic from pending and approved but not yet constructed known development projects in the area. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2025) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Opening Year Cumulative (2025) Without Project traffic in conjunction with the addition of Project traffic. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2025) With Project traffic conditions are shown on Exhibit 6-2.

6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC CONDITIONS

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

- Euclid Avenue (SR-83) & Merrill Avenue (#1) – LOS F AM peak hour only
- Grove Avenue & Merrill Avenue (#3) – LOS F AM peak hour only
- Hellman Avenue & Merrill Avenue (#15) – LOS E AM peak hour only
- Archibald Avenue & Merrill Avenue (#17) – LOS F AM peak hour only

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



<p>1 Euclid Av. (SR-83) & Merrill Av.</p> <p>31,350 53(24) ↓ 1286(1233) ↓ 358(214) ↓ 162(228) ↑ 27(0) ↑ 249(221) ↑ 6(23) ↓ 4(25) ↓ 6(13) ↓ 850</p>	<p>2 Euclid Av. (SR-83) & Kimball Av.</p> <p>30,350 253(195) ↓ 784(1031) ↓ 90(252) ↓ 90(79) ↑ 760(297) ↑ 5(21) ↑ 82(203) ↓ 192(703) ↓ 44(148) ↓ 146(124) ↓ 840(793) ↓ 25(39) ↓ 19,100</p>	<p>3 Grove Av. & Merrill Av.</p> <p>11,950 98(127) ↓ 289(377) ↓ 370(360) ↑ 581(620) ↑ 109(110) ↓ 492(561) ↓ 16,100</p>	<p>4 Flight Av. & Merrill Av.</p> <p>20,500 597(716) ↑ 70(75) ↑ 585(690) ↓ 139(141) ↓ 257(197) ↓ 68(88) ↓ 23,200</p>	<p>5 Flight Av. & Remington Av.</p> <p>6,950 35(48) ↓ 106(259) ↓ 10(27) ↓ 36(41) ↑ 4(14) ↑ 23(41) ↑ 21(23) ↓ 6(17) ↓ 0(2) ↓ 2(6) ↓ 295(215) ↓ 18(24) ↓ 1,300</p>
<p>6 Flight Av. & Driveway 1</p> <p>6,400 129(302) ↓ 315(246) ↑ 6,400</p>	<p>7 Flight Av. & Driveway 2</p> <p>6,400 129(302) ↓ 315(246) ↑ 6,400</p>	<p>8 Flight Av. & Driveway 3</p> <p>6,400 129(302) ↓ 315(246) ↑ 6,400</p>	<p>9 Flight Av. & Kimball Av.</p> <p>6,350 90(155) ↓ 17(52) ↓ 28(112) ↓ 140(60) ↑ 545(216) ↑ 16(12) ↑ 120(118) ↓ 229(700) ↓ 17(41) ↓ 54(23) ↓ 66(46) ↓ 20(16) ↓ 14,800</p>	<p>10 Driveway 4 & Remington Av.</p> <p>1,900 64(97) ↓ 34(68) ↓ 1,900</p>
<p>11 Driveway 5 & Remington Av.</p> <p>1,900 64(97) ↓ 34(68) ↓ 1,900</p>	<p>12 Van Vliet Av. & Merrill Av.</p> <p>19,800 721(801) ↑ 38(43) ↓ 661(831) ↓ 48(52) ↓ 10(20) ↓ 17(12) ↓ 20,050</p>	<p>13 Van Vliet Av. & Remington Av.</p> <p>1,300 15(24) ↓ 36(45) ↓ 20(24) ↑ 48(72) ↑ 8(17) ↓ 25(51) ↓ 1,900</p>	<p>14 Driveway 6 & Remington Av.</p> <p>2,250 68(97) ↓ 61(95) ↓ 2,250</p>	<p>15 Hellman Av. & Merrill Av.</p> <p>20,150 3(0) ↑ 719(664) ↑ 120(110) ↑ 598(798) ↓ 87(79) ↓ 99(58) ↓ 123(137) ↓ 18,750</p>
<p>16 Hellman Av. & Remington Av.</p> <p>5,050 10(37) ↓ 164(205) ↓ 34(10) ↓ 14(19) ↑ 6(23) ↑ 33(46) ↑ 15(22) ↓ 19(18) ↓ 27(55) ↓ 52(37) ↓ 302(130) ↓ 81(8) ↓ 2,250</p>	<p>17 Archibald Av. & Merrill Av.</p> <p>36,600 583(386) ↓ 842(1081) ↓ 46(74) ↓ 101(54) ↑ 262(136) ↑ 82(60) ↑ 295(641) ↓ 113(334) ↓ 200(531) ↓ 528(256) ↓ 1026(1048) ↓ 58(89) ↓ 29,400</p>			

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

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



1	2	3	4	5
Euclid Av. (SR-83) & Merrill Av.	Euclid Av. (SR-83) & Kimball Av.	Grove Av. & Merrill Av.	Flight Av. & Merrill Av.	Flight Av. & Remington Av.
31,900 53(24) 1290(1235) 379(225) 169(254) 27(0) 251(223) 6(23) 4(25) 6(13) 850	16,300 16,650 30,500 19,200 26,000 16,650	12,050 98(127) 293(379) 109(110) 514(574) 16,650	22,100 371(366) 590(648) 597(716) 79(80) 23,850	20,700 7,800 35(48) 127(271) 25(35) 41(60) 4(14) 25(51) 21(23) 6(17) 0(2) 2(6) 304(242) 26(28) 1,300 7,100
6	7	8	9	10
Flight Av. & Driveway 1	Flight Av. & Driveway 2	Flight Av. & Driveway 3	Flight Av. & Kimball Av.	Driveway 4 & Remington Av.
7,100 134(315) 18(9) 5(23) 3(14) 326(254) 11(5) 650 6,950	6,950 134(325) 3(4) 4(4) 333(255) 150 6,800	6,800 134(325) 2(9) 333(255) 7(8) 150 6,950	6,900 94(175) 12(52) 31(124) 149(65) 545(216) 16(12) 136(126) 229(700) 17(41) 54(23) 66(46) 20(16) 15,150 2,200	2,100 65(98) 7(4) 35(69) 22(11) 6(28) 6(28) 2(9) 2,450 650
11	12	13	14	15
Driveway 5 & Remington Av.	Van Vliet Av. & Merrill Av.	Van Vliet Av. & Remington Av.	Driveway 6 & Remington Av.	Hellman Av. & Merrill Av.
2,200 72(101) 2(2) 37(78) 0(1) 2,100	20,100 730(806) 42(46) 664(843) 48(52) 10(20) 19(18) 20,250 1,700	1,400 19(26) 37(46) 21(25) 54(77) 9(22) 29(59) 2,200	2,500 74(102) 9(5) 65(103) 1(1) 1(1) 4(11) 2,500	2,700 74(102) 9(5) 603(816) 87(79) 99(58) 128(151) 19,100 4,950
16	17			
Hellman Av. & Remington Av.	Archibald Av. & Merrill Av.			
5,400 20(44) 164(205) 34(10) 14(19) 6(23) 33(46) 21(36) 19(18) 29(61) 2,700	1,450 38,900 594(393) 842(1081) 46(74) 101(54) 262(136) 82(60) 300(655) 113(334) 205(548) 541(264) 1026(1048) 58(89) 5,850 30,050			

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

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

# Intersection	Traffic Control ²	2025 Without Project				2025 With Project			
		Delay ¹ (secs.)		Level of Service		Delay ¹ (secs.)		Level of Service	
		AM	PM	AM	PM	AM	PM	AM	PM
1 Euclid Av. (SR-83) & Merrill Av.	TS	163.6	28.1	F	C	176.3	34.3	F	C
2 Euclid Av. (SR-83) & Kimball Av.	TS	53.0	33.7	D	C	54.0	37.2	D	D
3 Grove Av. & Merrill Av.	TS	141.1	54.8	F	D	145.4	70.2	F	E
4 Flight Av. & Merrill Av.	TS	13.9	12.7	B	B	14.7	13.8	B	B
5 Flight Av. & Remington Av.	TS	10.2	12.2	B	B	17.9	20.8	B	C
6 Flight Av. & Driveway 1	CSS	Future Intersection				10.6	10.8	B	B
7 Flight Av. & Driveway 2	CSS	Future Intersection				10.4	10.0	B	B
8 Flight Av. & Driveway 3	CSS	Future Intersection				10.7	11.2	B	B
9 Flight Av. & Kimball Av.	TS	24.5	22.7	C	C	25.0	22.8	C	C
10 Driveway 4 & Remington Av.	CSS	Future Intersection				9.1	9.6	A	A
11 Driveway 5 & Remington Av.	CSS	Future Intersection				8.7	9.0	A	A
12 Van Vliet Av. & Merrill Av.	CSS	15.0	12.5	C	B	15.0	12.3	C	B
13 Van Vliet Av. & Remington Av.	AWS	7.5	7.9	A	A	7.6	8.1	A	A
14 Driveway 6 & Remington Av.	CSS	Future Intersection				9.0	9.3	A	A
15 Hellman Av. & Merrill Av.	CSS	35.4	13.0	E	B	40.2	13.4	E	B
16 Hellman Av. & Remington Av.	TS	14.7	15.5	B	B	15.3	16.0	B	B
17 Archibald Av. & Merrill Av.	TS	99.7	18.7	F	B	106.7	19.1	F	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 de

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

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

6.4.2 OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC CONDITIONS

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

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Opening Year Cumulative (2025) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. The following study area intersection is anticipated to meet either peak hour volume or ADT volume-based warrants for Opening Year Cumulative (2025) Without Project traffic conditions (see Appendix 6.3):

- Hellman Avenue & Merrill Avenue (#15)

There are no additional study area intersections anticipated to meet either peak hour volume or ADT volume-based warrants for Opening Year Cumulative (2025) With Project traffic conditions (see Appendix 6.4).

6.6 NEAR-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections that have been identified as deficient under Opening Year Cumulative (2025) traffic conditions in an effort to achieve an acceptable LOS. The effectiveness of the recommended improvement strategies to address Opening Year Cumulative (2025) traffic deficiencies are presented in Table 6-2. Worksheets for Opening Year Cumulative (2025) Without Project and With Project conditions, with improvements, HCM calculation worksheets are provided in Appendices 6.5 and 6.6, respectively.

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

	Traffic Control ³	Intersection Approach Lanes ¹												Delay ² (secs.)		Level of Service		
		Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM	
		L	T	R	L	T	R	L	T	R	L	T	R					
1 Euclid Av. (SR-83) & Merrill Av.																		
	Without Project:	TS	1	<u>3</u>	<u>1</u> >	1	<u>3</u>	0	0	1	0	<u>1</u>	1	<u>1</u> >	37.1	16.6	D	B
	With Project:	TS	1	<u>3</u>	<u>1</u> >	1	<u>3</u>	0	0	1	0	<u>1</u>	1	<u>1</u> >	41.5	17.0	D	B
3 Grove Av. & Merrill Av.																		
	Without Project:	TS	0	0	0	<u>1</u>	<u>0</u>	<u>1</u> >	1	2	0	0	<u>2</u>	0	21.5	11.2	B	B
	With Project:	TS	0	0	0	<u>1</u>	<u>0</u>	<u>1</u> >	1	2	0	0	<u>2</u>	0	22.1	11.6	C	B
15 Hellman Av. & Merrill Av.																		
	Without Project:	CSS	1	0	1	0	0	0	0	2	0	1	<u>2</u>	0	22.4	12.6	C	B
	With Project:	CSS	1	0	1	0	0	0	0	2	0	1	<u>2</u>	0	23.8	12.9	C	B
17 Archibald Av. & Merrill Av.																		
	Without Project:	TS	2	3	1	2	<u>3</u>	1>	2	2	1	1	2	0	48.9	14.6	D	B
	With Project:	TS	2	3	1	2	<u>3</u>	1>	2	2	1	1	2	0	54.5	14.8	D	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; CSS = Cross-street Stop; TS = Traffic Signal

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 and traffic signal warrant 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.
- The Limonite Avenue extension is assumed to be completed, providing a through connection from Hellman Avenue to Archibald Avenue.

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.

7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC CONDITIONS

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*. As shown on Table 7-1, the following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours:

- Euclid Avenue (SR-83) & Merrill Avenue (#1) – LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Kimball Avenue (#2) – LOS F AM and PM peak hours
- Grove Avenue & Merrill Avenue (#3) – LOS F AM and PM peak hours
- Flight Avenue & Merrill Avenue (#4) – LOS F PM peak hour only
- Hellman Avenue & Merrill Avenue (#15) – LOS F AM peak hour only
- Archibald Avenue & Merrill Avenue (#17) – LOS F AM and PM peak hours

EXHIBIT 7-1: HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC VOLUMES (ACTUAL)



<p>1 Euclid Av. (SR-83) & Merrill Av.</p> <p>41,250 58(26) ↑ 178(251) ↓ 1542(1360) ← 29(0) 394(235) ↑ 274(482) 7(25) ↓ 43(7) ↑ 885(1050) 5(28) ↓ 432(306) ↑ 49,200 13(38) ↓ 895(1050) ↑ 432(306) ↑ 49,200</p> <p>950</p>	<p>2 Euclid Av. (SR-83) & Kimball Av.</p> <p>49,200 278(328) ↓ 277(110) 845(1134) ← 939(299) 90(554) ↑ 6(23) 159(262) ↓ 161(141) ↑ 277(110) 211(749) ↓ 924(991) ↑ 939(299) 64(163) ↓ 28(54) ↑ 6(23)</p> <p>36,450</p>	<p>3 Grove Av. & Merrill Av.</p> <p>11,950 108(140) ↓ 407(676) 554(415) ↑ 639(682) 120(124) ↓ 407(676) 542(617) ↓ 639(682)</p> <p>23,550</p>	<p>4 Flight Av. & Merrill Av.</p> <p>22,500 736(1088) ↑ 77(83) 77(83) ↓ 75(97) 873(860) ↓ 310(270) ↑ 75(97) 223(172) ↓ 75(97) ↑ 75(97)</p> <p>10,100</p>	<p>5 Flight Av. & Remington Av.</p> <p>7,650 39(53) ↓ 40(46) 117(285) ← 5(15) 11(29) ↑ 26(46) 23(26) ↓ 2(7) ↑ 40(46) 7(19) ↓ 325(237) ↑ 5(15) 0(2) ↓ 20(27) ↑ 26(46)</p> <p>2,100</p>
<p>6 Flight Av. & Driveway 1</p> <p>7,050 143(333) ↓ 347(271) ↑ 7,050</p>	<p>7 Flight Av. & Driveway 2</p> <p>7,050 143(333) ↓ 347(271) ↑ 7,050</p>	<p>8 Flight Av. & Driveway 3</p> <p>7,050 143(333) ↓ 347(271) ↑ 7,050</p>	<p>9 Flight Av. & Kimball Av.</p> <p>8,650 186(244) ↓ 154(67) 13(57) ↑ 715(238) 30(124) ↑ 17(13) 271(246) ↓ 90(29) ↑ 72(50) 252(770) ↓ 22(17) ↑ 22(17) 27(50) ↓ 22(17) ↑ 22(17)</p> <p>16,850</p>	<p>10 Driveway 4 & Remington Av.</p> <p>2,100 71(107) ← 38(75) → 2,100</p>
<p>11 Driveway 5 & Remington Av.</p> <p>2,100 71(107) ← 38(75) → 2,100</p>	<p>12 Van Vliet Av. & Merrill Av.</p> <p>21,750 732(1054) ↑ 81(117) 853(861) ↓ 11(22) ↑ 19(14) 95(96) ↓ 11(22) ↑ 19(14)</p> <p>1,750</p>	<p>13 Van Vliet Av. & Remington Av.</p> <p>2,450 17(27) ↓ 22(27) 39(49) ↑ 53(80) 9(19) ↓ 28(56) ↑ 22(27)</p> <p>2,100</p>	<p>14 Driveway 6 & Remington Av.</p> <p>2,450 75(107) ← 67(105) → 2,450</p>	<p>15 Hellman Av. & Merrill Av.</p> <p>22,200 32(0) ↑ 791(730) ↑ 132(121) ↑ 29(0) ↓ 698(878) ↓ 109(62) ↑ 137(151) ↑ 100(87) ↓ 109(62) ↑ 137(151) ↑</p> <p>5,100</p>
<p>16 Hellman Av. & Remington Av.</p> <p>5,600 11(41) ↓ 15(21) 180(226) ↓ 6(25) 37(11) ↓ 36(51) 16(25) ↓ 57(40) ↑ 332(143) ↑ 89(9) ↑ 21(20) ↓ 332(143) ↑ 89(9) ↑ 30(61) ↓ 57(40) ↑ 332(143) ↑ 89(9) ↑</p> <p>6,300</p>	<p>17 Archibald Av. & Merrill Av.</p> <p>42,450 641(424) ↓ 111(60) 997(1553) ↓ 289(150) 50(85) ↓ 120(71) 303(705) ↓ 581(281) ↑ 111(60) 124(367) ↓ 1404(1105) ↑ 289(150) 220(584) ↓ 60(132) ↑ 120(71)</p> <p>40,300</p>			

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

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



1	2	3	4	5
Euclid Av. (SR-83) & Merrill Av. 41,800 58(26) ↓ 1546(1362) ↓ 415(246) ↓ 7(25) ↓ 5(28) ↓ 13(38) ↓ 17,900 185(277) ↑ 29(0) ↓ 276(484) ↓ 43(7) ↑ 886(1055) ↑ 434(308) ↑ 950 49,350	Euclid Av. (SR-83) & Kimball Av. 49,350 278(328) ↓ 847(1136) ↓ 94(556) ↓ 159(262) ↓ 215(751) ↓ 64(163) ↓ 161(141) ↓ 926(993) ↓ 37(58) ↓ 22,800 278(115) ↑ 940(304) ↑ 8(34) ↑ 38,700	Grove Av. & Merrill Av. 12,050 108(140) ↓ 558(417) ↓ 120(124) ↓ 564(630) ↓ 24,200 408(682) ↑ 648(710) ↑ 18,250	Flight Av. & Merrill Av. 22,750 736(1088) ↓ 86(88) ↓ 873(860) ↓ 250(187) ↓ 320(304) ↓ 78(109) ↓ 8,500 39(53) ↓ 138(297) ↓ 26(37) ↓ 23(26) ↓ 7(19) ↓ 0(2) ↓ 2(7) ↓ 333(264) ↓ 28(31) ↓ 45(65) ↑ 5(15) ↑ 28(56) ↑ 7,300	Flight Av. & Remington Av. 2,600 45(65) ↑ 5(15) ↑ 28(56) ↑ 333(264) ↓ 28(31) ↓ 7,750
Flight Av. & Driveway 1 7,750 148(346) ↓ 18(9) ↓ 5(23) ↑ 3(14) ↑ 358(279) ↑ 11(5) ↑ 650 7,600	Flight Av. & Driveway 2 7,600 148(356) ↓ 3(4) ↓ 4(4) ↑ 365(280) ↑ 7(3) ↑ 150 7,450	Flight Av. & Driveway 3 7,450 148(356) ↓ 2(9) ↓ 365(280) ↑ 7(3) ↑ 150 7,600	Flight Av. & Kimball Av. 9,200 190(264) ↓ 13(57) ↓ 33(136) ↓ 287(254) ↓ 252(770) ↓ 27(50) ↓ 90(29) ↓ 72(50) ↓ 22(17) ↓ 14,750 163(72) ↑ 715(238) ↑ 17(13) ↑ 2,400	Driveway 4 & Remington Av. 2,300 72(108) ↓ 7(4) ↓ 39(76) ↓ 22(11) ↓ 6(28) ↓ 6(28) ↓ 2(9) ↓ 72(108) ↑ 7(4) ↑ 650
Driveway 5 & Remington Av. 2,400 79(111) ↑ 2(2) ↑ 41(85) ↓ 0(1) ↓ 1(1) ↓ 2(3) ↓ 2,300 100	Van Vliet Av. & Merrill Av. 22,100 741(1059) ↑ 85(120) ↑ 856(873) ↓ 95(96) ↓ 11(22) ↓ 21(20) ↓ 1,850	Van Vliet Av. & Remington Av. 1,550 21(29) ↓ 40(50) ↓ 23(28) ↑ 59(85) ↑ 10(24) ↓ 32(64) ↓ 2,700	Driveway 6 & Remington Av. 2,900 81(112) ↑ 9(5) ↑ 71(113) ↓ 1(1) ↓ 1(1) ↓ 4(11) ↓ 2,700	Hellman Av. & Merrill Av. 22,800 32(0) ↑ 805(737) ↑ 142(128) ↑ 703(896) ↓ 100(87) ↓ 109(62) ↓ 143(165) ↓ 5,400
Hellman Av. & Remington Av. 5,900 21(48) ↓ 180(226) ↓ 37(111) ↓ 22(39) ↓ 21(20) ↓ 32(67) ↓ 15(21) ↑ 6(25) ↑ 36(51) ↑ 61(43) ↓ 332(143) ↓ 89(9) ↓ 2,900 6,450	Archibald Av. & Merrill Av. 42,750 652(431) ↓ 997(1553) ↓ 50(85) ↓ 308(719) ↓ 124(367) ↓ 225(601) ↓ 594(289) ↓ 1404(1105) ↓ 60(132) ↓ 9,650 111(60) ↑ 289(150) ↑ 120(71) ↑ 40,600			

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

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

# Intersection	Traffic Control ²	2045 Without Project				2045 With Project			
		Delay ¹ (secs.)		Level of Service		Delay ¹ (secs.)		Level of Service	
		AM	PM	AM	PM	AM	PM	AM	PM
1 Euclid Av. (SR-83) & Merrill Av.	TS	>200.0	94.5	F	F	>200.0	103.7	F	F
2 Euclid Av. (SR-83) & Kimball Av.	TS	90.1	134.0	F	F	91.9	143.2	F	F
3 Grove Av. & Merrill Av.	TS	>200.0	>200.0	F	F	>200.0	>200.0	F	F
4 Flight Av. & Merrill Av.	TS	17.1	83.9	B	F	18.7	88.1	B	F
5 Flight Av. & Remington Av.	TS	10.4	12.7	B	B	18.6	21.5	B	C
6 Flight Av. & Driveway 1	CSS	Future Intersection				10.9	11.1	B	B
7 Flight Av. & Driveway 2	CSS	Future Intersection				10.7	10.2	B	B
8 Flight Av. & Driveway 3	CSS	Future Intersection				10.9	11.5	B	B
9 Flight Av. & Kimball Av.	TS	32.5	23.7	C	C	33.8	24.0	C	C
10 Driveway 4 & Remington Av.	CSS	Future Intersection				9.2	9.7	A	A
11 Driveway 5 & Remington Av.	CSS	Future Intersection				8.7	9.1	A	A
12 Van Vliet Av. & Merrill Av.	CSS	17.1	23.0	C	C	17.1	22.3	C	C
13 Van Vliet Av. & Remington Av.	AWS	7.6	8.1	A	A	7.7	8.3	A	A
14 Driveway 6 & Remington Av.	CSS	Future Intersection				8.9	9.1	A	A
15 Hellman Av. & Merrill Av.	CSS	56.6	17.1	F	C	66.7	17.8	F	C
16 Hellman Av. & Remington Av.	TS	15.2	15.8	B	B	15.8	16.3	B	B
17 Archibald Av. & Merrill Av.	TS	124.2	33.8	F	D	131.4	35.5	F	D

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

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

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

The intersection operations analysis worksheets for Horizon Year (2045) Without Project traffic conditions are included in Appendix 7.1 of this TA.

7.4.2 HORIZON YEAR (2045) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 7-1, the addition of Project traffic is not anticipated to result in any new deficiencies from those identified under Horizon Year (2045) Without Project traffic conditions. The intersection operations analysis worksheets for Horizon Year (2045) With Project traffic conditions are included in Appendix 7.2 of this TA.

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. No additional study area intersections are anticipated to meet either peak hour volume or ADT volume-based warrants for Horizon Year (2045) Without and With Project traffic conditions, in addition to the intersections that are anticipated to meet a traffic signal warrant under previous scenarios (see Appendix 7.3 and Appendix 7.4).

7.6 LONG-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

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 7-2. Table 7-2 also includes the improvements previously shown on Table 6-2 for Opening Year Cumulative (2025) traffic conditions for comparison purposes. Worksheets for Horizon Year (2045) Without Project and With Project conditions, with improvements, HCM calculation worksheets are provided in Appendices 7.5 and 7.6, respectively.

TABLE 7-2: INTERSECTION ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS WITH IMPROVEMENTS

	Traffic Control ³	Intersection Approach Lanes ¹												Delay ² (secs.)		Level of Service	
		Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM
		L	T	R	L	T	R	L	T	R	L	T	R				
1 Euclid Av. (SR-83) & Merrill Av.																	
2025 Without Project:	TS	1	<u>3</u>	<u>1</u> >	1	<u>3</u>	0	0	1	0	<u>1</u>	1	<u>1</u> >	37.1	16.6	D	B
2025 With Project:	TS	1	<u>3</u>	<u>1</u> >	1	<u>3</u>	0	0	1	0	<u>1</u>	1	<u>1</u> >	41.5	17.0	D	B
2045 Without Project:	TS	1	<u>3</u>	<u>1</u> >	1	<u>3</u>	0	<u>1</u>	1	0	<u>2</u>	1	<u>1</u> >	22.2	19.8	C	B
2045 With Project:	TS	1	<u>3</u>	<u>1</u> >	1	<u>3</u>	0	<u>1</u>	1	0	<u>2</u>	1	<u>1</u> >	23.3	20.6	C	C
2 Euclid Av. (SR-83) & Kimball Av.																	
2045 Without Project:	TS	1	<u>3</u>	1>	2	<u>3</u>	1>	2	2	1>	<u>2</u>	2	1>	42.5	46.0	D	D
2045 With Project:	TS	1	<u>3</u>	1>	2	<u>3</u>	1>	2	2	1>	<u>2</u>	2	1>	42.7	50.6	D	D
3 Grove Av. & Merrill Av.																	
2025 Without Project:	TS	0	0	0	<u>1</u>	<u>0</u>	<u>1</u> >	1	2	0	0	<u>2</u>	0	21.5	11.2	B	B
2025 With Project:	TS	0	0	0	<u>1</u>	<u>0</u>	<u>1</u> >	1	2	0	0	<u>2</u>	0	22.1	11.6	C	B
2045 Without Project:	TS	0	0	0	<u>1</u>	<u>0</u>	<u>1</u> >	1	2	0	0	<u>2</u>	0	39.6	19.5	D	B
2045 With Project:	TS	0	0	0	<u>1</u>	<u>0</u>	<u>1</u> >	1	2	0	0	<u>2</u>	0	41.4	21.0	D	C
4 Flight Av. & Merrill Av.																	
2045 Without Project:	TS	1	0	1	0	0	0	0	2	1	1	<u>2</u>	0	15.1	19.1	B	B
2045 With Project:	TS	1	0	1	0	0	0	0	2	1	1	<u>2</u>	0	16.1	23.8	B	C
15 Hellman Av. & Merrill Av.																	
2025 Without Project:	CSS	1	0	1	0	0	0	0	2	0	1	<u>2</u>	0	22.4	12.6	C	B
2025 With Project:	CSS	1	0	1	0	0	0	0	2	0	1	<u>2</u>	0	23.8	12.9	C	B
2045 Without Project:	TS	1	<u>1</u>	1	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	2	0	1	<u>2</u>	<u>1</u>	9.5	8.9	A	A
2045 With Project:	TS	1	<u>1</u>	1	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	2	0	1	<u>2</u>	<u>1</u>	10.1	9.6	B	A
17 Archibald Av. & Merrill Av.																	
2025 Without Project:	TS	2	3	1	2	<u>3</u>	1>	2	2	1	1	2	0	48.9	14.6	D	B
2025 With Project:	TS	2	3	1	2	<u>3</u>	1>	2	2	1	1	2	0	54.5	14.8	D	B
2045 Without Project:	TS	2	3	1	2	<u>3</u>	<u>1</u> >	2	2	1>>	1	2	0	66.1	15.4	E	B
2045 With Project:	TS	2	3	1	2	<u>3</u>	<u>1</u> >	2	2	1>>	1	2	0	70.4	15.8	E	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; >> = Free-Right Turn

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

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 Preserve Specific Plan has its own local Development Impact Fee (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 growth as identified in the City's General Plan Circulation Element. The Preserve Specific Plan DIF includes regional improvements to comply with Measure "I". The fee schedule and project transportation impacts fees are shown on Table 8-1. Under the DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

TABLE 8-1: CURRENT DEVELOPMENT IMPACT FEES

Fee Reference	Industrial (\$ PER SQ. FT.)
Industrial Uses (Circulation System: Streets, Signals, and Bridges)	\$4.65/SF

Source: City of Chino Preserve Development Impact Fees (DIF), effective July 5, 2022.

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 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 improvements 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, for the applicable deficient study area intersection are provided in Table 8-2. 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 8-2: PROJECT FAIR SHARE CALCULATIONS FOR INTERSECTIONS

#	Intersection		Existing (2022)	Project Long-Range	2045 With Project	Total New Traffic	Project % of New Traffic ¹
1	Euclid Av. (SR-83) & Merrill Av.	AM:	2,432	51	4,123	1,691	3.0%
		PM:	2,325	62	3,587	1,262	4.9%
2	Euclid Av. (SR-83) & Kimball Av.	AM:	2,711	32	4,460	1,749	1.8%
		PM:	3,102	40	4,785	1,683	2.4%
3	Grove Av. & Merrill Av.	AM:	1,145	51	2,641	1,496	3.4%
		PM:	1,246	63	2,063	817	7.7%
4	Flight Av. & Merrill Av.	AM:	1,250	63	2,408	1,158	5.4%
		PM:	1,395	80	2,718	1,323	6.0%
15	Hellman Av. & Merrill Av.	AM:	1,111	54	2,231	1,120	4.8%
		PM:	1,099	62	1,747	648	9.6%
17	Archibald Av. & Merrill Av.	AM:	2,837	52	5,364	2,527	2.1%
		PM:	3,024	62	4,913	1,889	3.3%

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

9 REFERENCES

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