APPENDIX F

TRANSPORTATION

URBAN

Traffic Impact Analysis

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ARLINGTON MIXED USE (PR-2022-001252)

TRAFFIC ANALYSIS

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Reference Number	Agency	Date
15130-08 TA Report	City of Riverside	October 18, 2023

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CMP	Congestion Management Program
DIF	Development Impact Fee
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
PHF	Peak Hour Factor
Project	Arlington Mixed Use
RCTC	Riverside County Transportation Commission
RIVCOM	Riverside County Transportation Analysis Model
RTA	Riverside Transit Authority
TA	Traffic Analysis
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Riverside Council of Governments
v/c	Volume to Capacity
vphgpl	Vehicles per Hour Green per Lane

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1 INTRODUCTION

This report presents the results of the traffic analysis (TA) for the proposed Arlington Mixed Use development ("Project"), which is located between Arlington Avenue and Sierra Street North and to the east of Streeter Avenue, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential traffic and circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to resolve identified deficiencies and to achieve acceptable circulation system operational conditions in accordance with the City's General Plan. As directed by City of Riverside staff, this traffic study has been prepared in accordance with the City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment and consultation with City staff during the scoping process. (1) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

1.1 SUMMARY OF FINDINGS

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

- Project to construct Driveway 1 and Driveway 2 on Streeter Avenue with stop controls for the westbound traffic, Driveway 3 on Arlington Avenue with stop controls for the southbound traffic, and Driveway 4 with traffic signal controls for southbound traffic in order to facilitate site access.

Additional details and intersection lane geometrics are provided in Section 1.6 *Recommendations* of this report. There are no peak hour intersection operational deficiencies anticipated for existing and future traffic conditions. As such, no off-site improvements have been identified as part of this TA.

1.2 PROJECT OVERVIEW

The proposed Project is located between Arlington Avenue and Sierra Street North, to the east of Streeter Avenue, in the City of Riverside (see Exhibit 1-2). A circulation plan for the proposed Project is shown on Exhibit 1-3. The Existing Project site Assessor Parcel Number is 226180015. The Project is proposed to consist of 388 multifamily residential dwelling units (2-3 floors, low-rise) with a proposed 21,000 square foot grocery store and a stand-alone 5,000 square foot multi-tenant building (see Exhibit 1-2). As indicated on Exhibit 1-2, vehicular access will be provided via two full access driveways on Streeter Avenue and one full access and one right-in/right-out access driveway on Arlington Avenue.

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, 2021. (2) The Project is estimated to generate 3,372 two-way trip-ends per day on a typical weekday with 229 AM peak hour trips and 284 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

EXHIBIT 1-1: LOCATION MAP

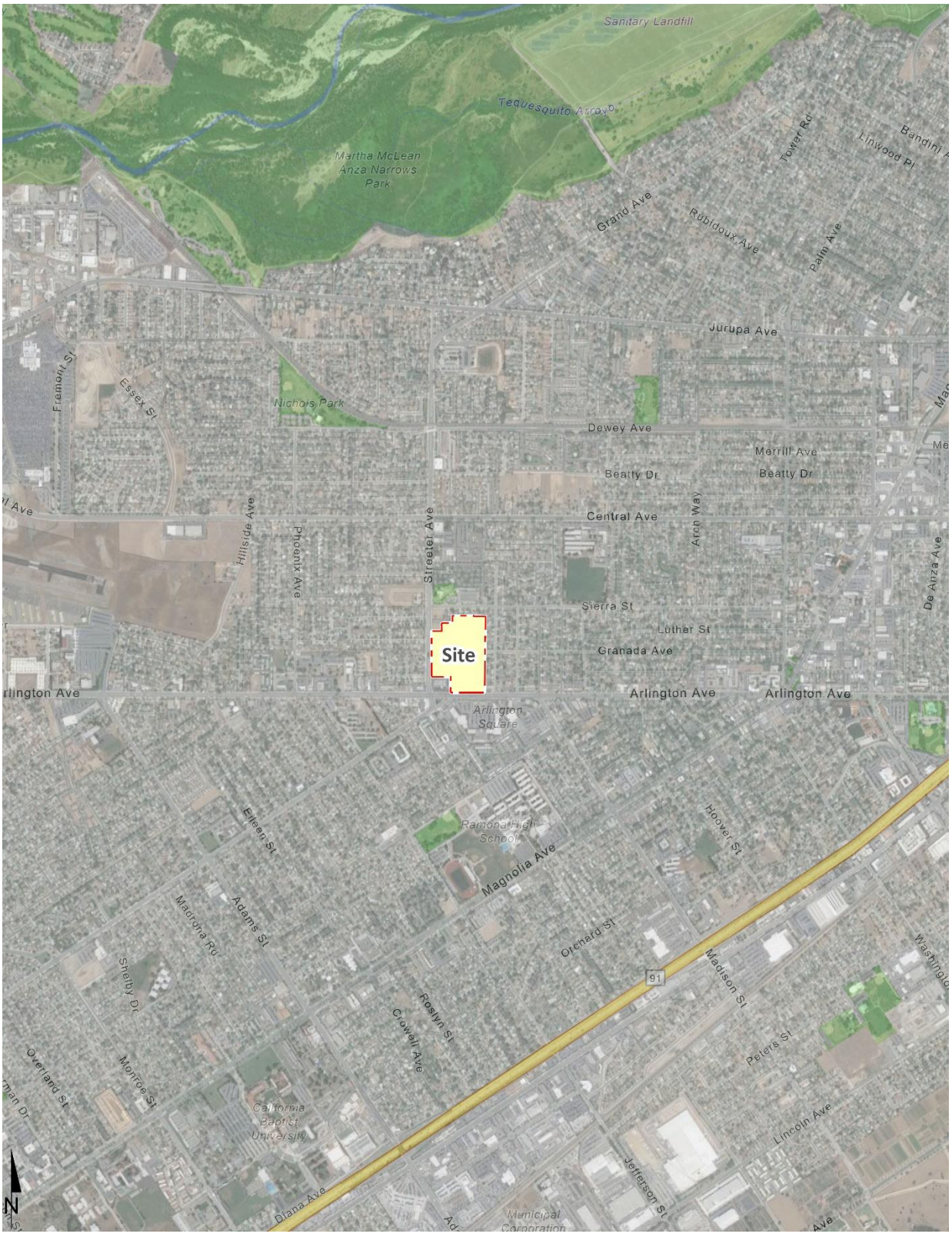


EXHIBIT 1-2: PRELIMINARY SITE PLAN

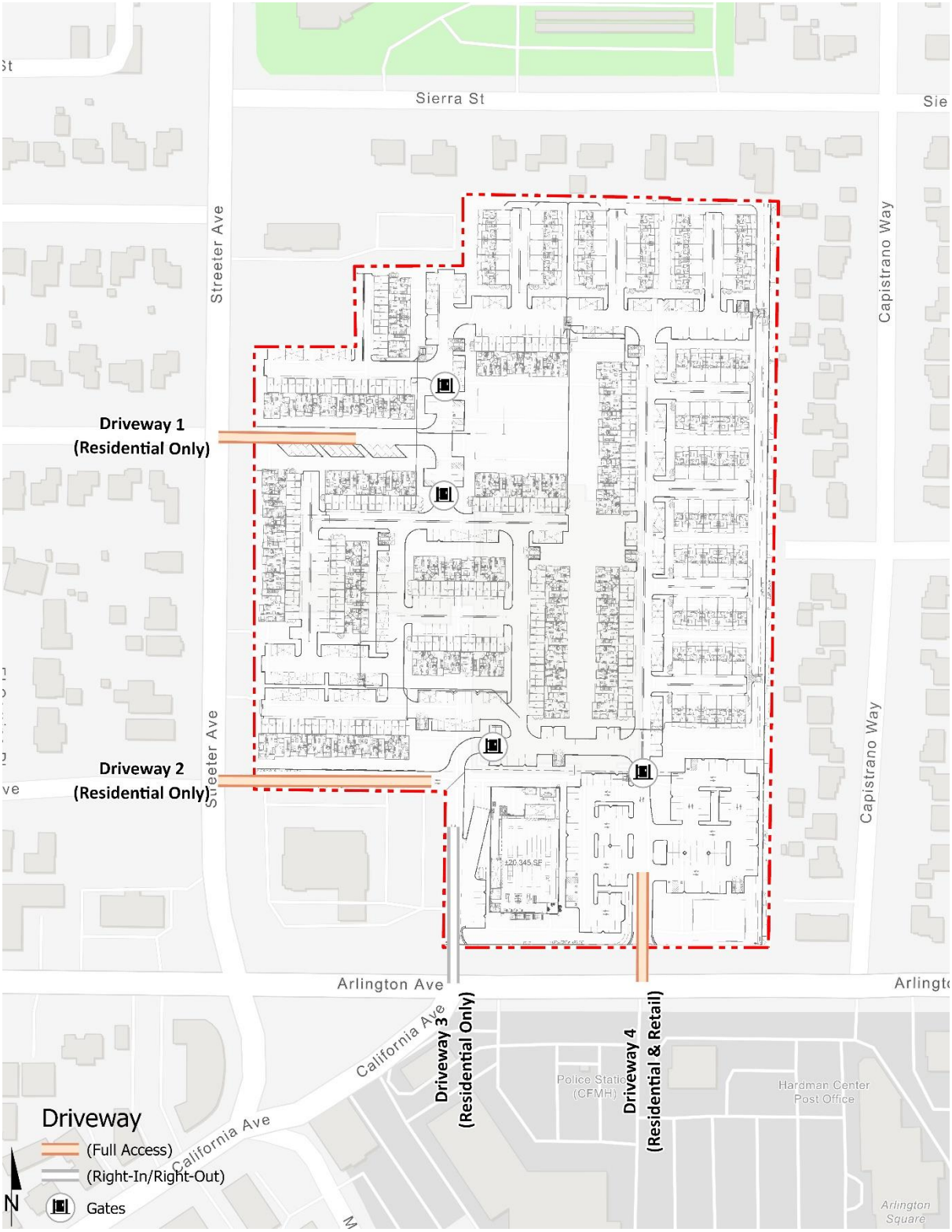
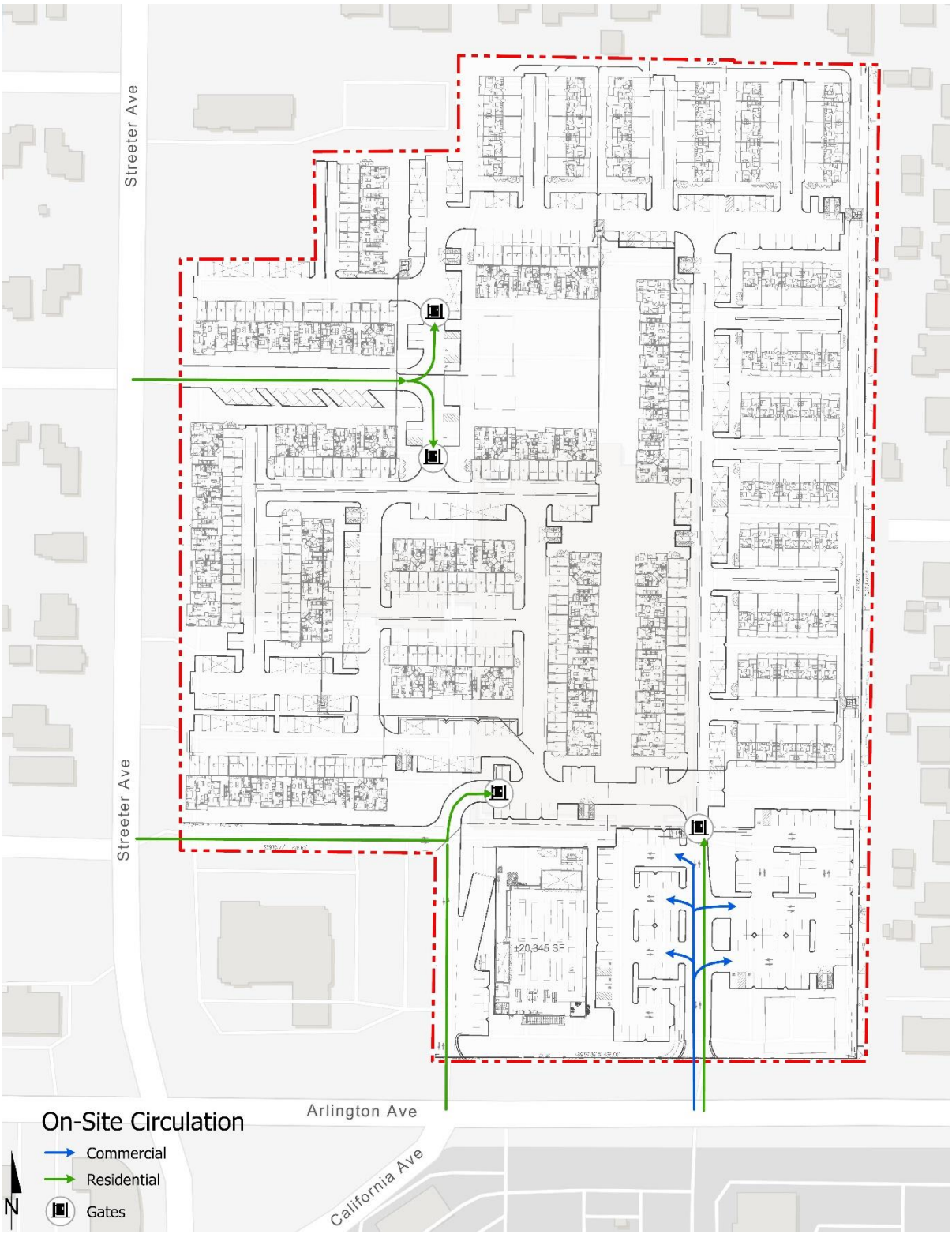


EXHIBIT 1-3: SITE CIRCULATION PLAN



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
- Opening Year Cumulative (2028) Without Project Conditions
- Opening Year Cumulative (2028) With Project Conditions
- Horizon Year (2045) Without Project Conditions
- Horizon Year (2045) With Project Conditions

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 November 2022.

1.3.2 OPENING YEAR CUMULATIVE (2028) CONDITIONS

The Opening Year Cumulative (2028) conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth from Existing (2022) conditions of 12.62% is included for Opening Year Cumulative (2028) traffic conditions (2.0% per year compounded annually over 6 years). A list of cumulative development projects was compiled from information provided by the City of Riverside and is consistent with other recent studies in the study area.

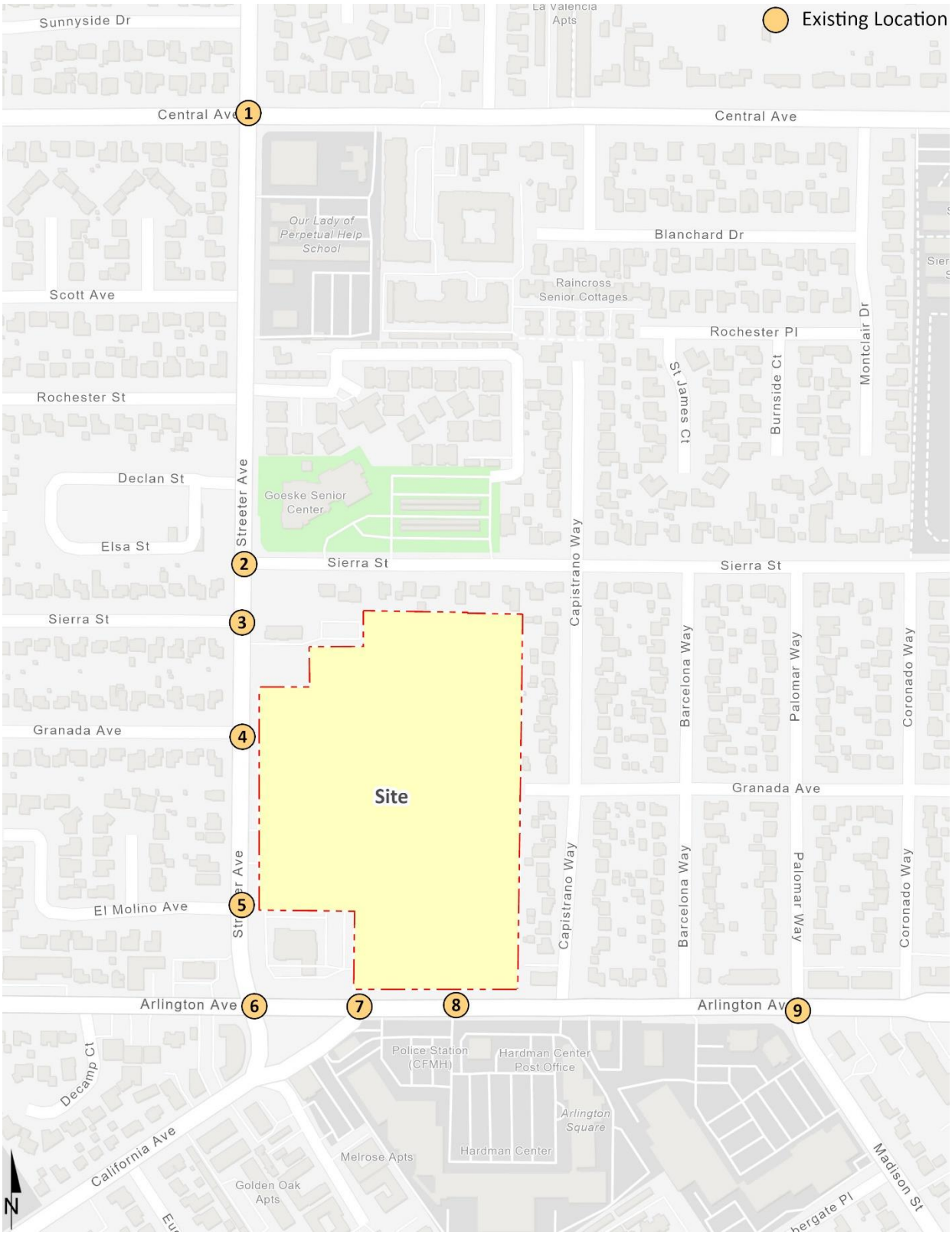
1.3.3 HORIZON YEAR (2045) CONDITIONS

Traffic projections for Horizon Year (2045) with Project conditions were derived from the latest Riverside Transportation Analysis Model (RIVCOM). The Horizon Year (2045) conditions analysis has been utilized to determine if improvements funded through regional transportation fee programs, such as the Development Impact Fee (DIF) program or Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF), or other approved funding mechanisms can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Riverside (lead agency). Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

1.4 STUDY AREA

To ensure that this TA satisfies the City of Riverside's traffic study requirements, Urban Crossroads, Inc. prepared a traffic study scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology and is included in Appendix 1.1. The following 9 study area intersections shown on Exhibit 1-4 and listed in Table 1-1 were selected for this TA based on consultation with City of Riverside staff.

EXHIBIT 1-4: STUDY AREA



The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and most recently updated in 2019 as part of the Riverside County Long Range Transportation Study. The Riverside County Transportation Commission (RCTC) adopted the 2019 CMP for the County of Riverside in December 2019. (3) There are no study area intersections identified as a Riverside County CMP intersection.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersection	Jurisdiction	CMP Facility?
1	Streeter Av. & Central Av.	Riverside	No
2	Streeter Av. & Sierra St. North	Riverside	No
3	Streeter Av. & Sierra St. South	Riverside	No
4	Streeter Av. & Granada Av./Driveway 1	Riverside	No
5	Streeter Av. & El Molino Av./ Driveway 2	Riverside	No
6	Streeter Av. & Arlington Av.	Riverside	No
7	California Av./Driveway 3 & Arlington Av.	Riverside	No
8	Driveway 4 & Arlington Av.	Riverside	No
9	Madison St./Palomar Wy. & Arlington Av.	Riverside	No

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 *Opening Year Cumulative (2028) Traffic Conditions* and Section 6 *Horizon Year (2045) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented in Table 1-2.

TABLE 1-2: SUMMARY OF LOS

		Existing		OYC (2028) With Project		OYC (2028) With Project		Horizon Year (2045) Without Project		Horizon Year (2045) With Project	
#	Intersection	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Streeter Av. & Central Av.										
2	Streeter Av. & Sierra St. North										
3	Streeter Av. & Sierra St. South										
4	Streeter Av. & Granada Av./Driveway 1										
5	Streeter Av. & El Molino Av./ Driveway 2										
6	Streeter Av. & Arlington Av.										
7	California Av./Driveway 3 & Arlington Av.										
8	Driveway 4 & Arlington Av.										
9	Madison St./Palomar Wy. & Arlington Av.										

= A - D = E = F

1.5.1 EXISTING (2022) CONDITIONS

All study area intersections are currently operating at an acceptable LOS during the peak hours under Existing (2022) traffic conditions.

1.5.2 OPENING YEAR CUMULATIVE (2028) CONDITIONS

All study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours under Opening Year Cumulative (2028) Without Project and With Project traffic conditions.

1.5.3 HORIZON YEAR (2045) CONDITIONS

The following study area intersection is anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2045) Without Project traffic conditions:

- California Av. & Arlington Av. (#7) – LOS E AM peak hour only

With the addition of Project traffic, there are no additional study area intersections anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2045) With Project traffic conditions. The site adjacent queuing analysis worksheets are provided in Appendix 1.2.

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the improvements needed to accommodate site access. The site adjacent recommendations are shown on Exhibit 1-5.

Recommendation 1 – ***Streeter Avenue & Granada Avenue (#4)*** – The following improvements are necessary to accommodate site access:

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

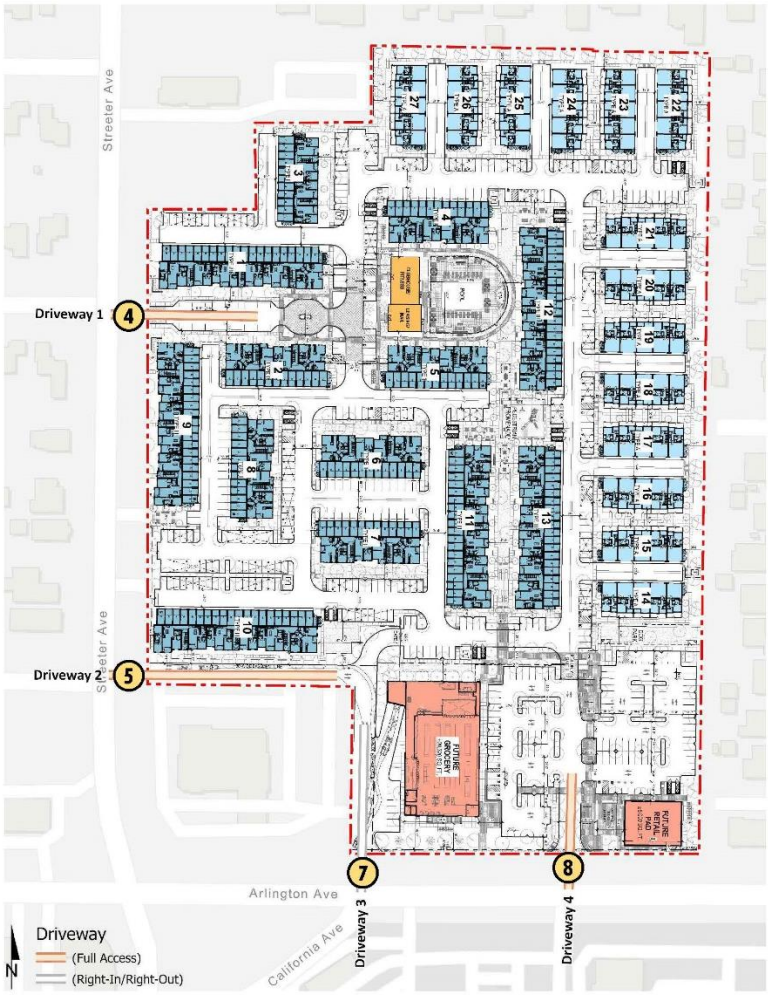
Recommendation 2 – ***Streeter Avenue & El Molino Avenue (#5)*** – The following improvement is necessary to accommodate site access:

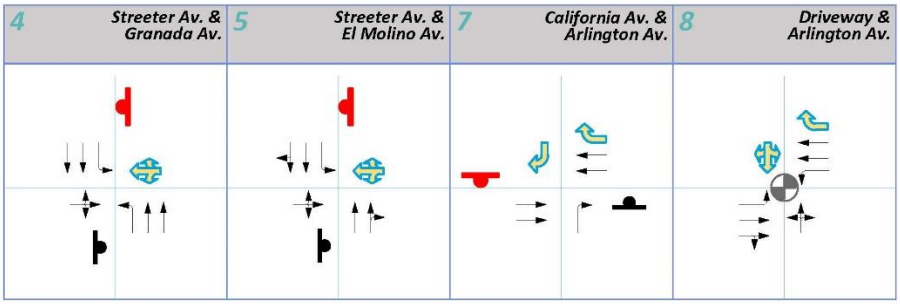
- Project to install a stop control on the westbound approach (Project driveway) and construct a shared left-through-right turn lane.
- Project to modify the existing median to provide 225-feet of storage for the southbound left turn lane.

Recommendation 3 – ***Streeter Avenue & Arlington Avenue (#6)*** – The following improvements are necessary to accommodate site access:

- Project to improve the existing traffic signal infrastructure with Audible Push Buttons.
- Project to cut back the medians on the north, east, and west legs to allow for a clear travel path for pedestrians. Note, per the City of Riverside, the median on the south leg will be modified by another project.
- Project to purchase a new traffic signal controller for this intersection.

EXHIBIT 1-5: SITE ACCESS RECOMMENDATIONS





= Traffic Signal
= Stop Sign Improvement
= Existing Stop Sign
= Existing Lane
= Lane Improvement

Recommendation 4 – ***Driveway 3/California Avenue & Arlington Avenue (#7)*** – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the southbound approach (Project Driveway 3) and construct a right turn lane.
- Project to construct a westbound right turn lane.

Recommendation 5 – ***Driveway 4 & Arlington Avenue (#8)*** – The following improvements are necessary to accommodate site access and improve existing traffic signal infrastructure:

- Project to construct a shared left-through-right turn lane on the southbound approach (Project driveway).
- Project to construct a westbound right turn lane.
- Project to improve the existing traffic signal infrastructure with Audible Push Buttons and install a new traffic signal pole on the north leg. Based on the proposed site plan, the drive aisle is to be widened at the Project's driveway (north leg of the intersection). As such, the existing traffic signal pole on the north leg will need to be relocated to accommodate the new drive aisle width and the proposed sidewalk/curb-and-gutter locations.

Recommendation 6 – Arlington Avenue is classified as an Arterial roadway along the Project's frontage. Project to dedicate an additional 5-feet of pavement from the existing curb-and-gutter (60-feet from centerline to edge of right-of-way) on Arlington Avenue, along the Project's frontage, from the Project's western boundary to the Project's eastern boundary. Project to improve the existing curb and gutter, sidewalk, and landscaping along the Project's frontage, as applicable, to accommodate site access.

Streeter Avenue is currently constructed to its ultimate half-section width as an Arterial along the Project's frontage from the Project's southern boundary to the Project's northern boundary. However, the Project should improve the curb and gutter, sidewalk, and landscaping as needed to accommodate site access. Project should stripe a Class II bike lane along Streeter Avenue, from Central Avenue to Arlington Avenue. This Class II bike lane is shown on the concept striping exhibits (Exhibit 1-6). Since the bike lane improvements can be accommodated by restriping the existing pavement, these Class II bike lanes are considered feasible improvements.

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 California Department of Transportation (Caltrans) and City of Riverside sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

1.6.2 OFF-SITE RECOMMENDATIONS

A summary of the off-site intersection improvements is provided in Table 1-4. Per City of Riverside staff, the City currently does not have a program to collect fair share payments at the time this traffic study was prepared. As such, fair share payment has not been identified for off-site intersection improvements. For additional details about fee programs, see Section 7 *Local and Regional Funding Mechanisms*.

TABLE 1-3: SUMMARY OF PROJECT IMPROVEMENTS

#	Intersection Location	Jurisdiction	Improvements	Project Responsibility
4	Streeter Av. & Granada Av./Driveway 1	City of Riverside	Install a stop control on the westbound approach	Construct
			Add WB shared left-through-right turn lane	Construct
			Stripe Class II bike lane on the east and west sides of Streeter Avenue	Construct
5	Streeter Av. & El Molino Av./ Driveway 2	City of Riverside	Install a stop control on the westbound approach	Construct
			Add WB shared left-through-right turn lane	Construct
			Modify the existing median to provide 225-feet of storage for the southbound left turn lane	Construct
			Stripe Class II bike lane on the east and west sides of Streeter Avenue	Construct
6	Streeter Av. & Arlington Av.	City of Riverside	Improve the existing traffic signal infrastructure with Audible Push Buttons	Construct
			Cut back the medians on the north, east, and west legs to allow for a clear travel path for pedestrians	Construct
			Purchase a new traffic signal controller for this intersection	Construct
7	California Av./Driveway 3 & Arlington Av.	City of Riverside	Install a stop control on the southbound approach	Construct
			Add SB right turn lane	Construct
			Add WB right turn lane	Construct
8	Driveway 4 & Arlington Av.	City of Riverside	Add SB shared left-through-right turn lane	Construct
			Add WB right turn lane	Construct
			Improve the existing traffic signal infrastructure with Audible Push Buttons and install a new traffic signal pole on the north leg	Construct
Roadway Segment Location		Jurisdiction	Improvements	Project Responsibility
Streeter Avenue, from southern Project boundary to northern Project boundary		City of Riverside	Improve curb and gutter, sidewalk, and landscaping as necessary for site access and consistent with City standards	Construct
Streeter Avenue, from Central Avenue to Arlington Avenue		City of Riverside	Stripe Class II bike lane	Construct
Arlington Avenue, from western Project boundary to eastern Project boundary		City of Riverside	Improve curb and gutter, sidewalk, and landscaping as necessary for site access and consistent with City standards	Construct

TABLE 1-4: SUMMARY OF OFF-SITE IMPROVEMENTS

#	Intersection Location	Jurisdiction	Analysis Scenario			Improvements in DIF[1,2]
			Existing (2022)	2028 With Project	2045 With Project	
6	California Av./Streeter Av. & Arlington Av.	City of Riverside	None	Modify the traffic signal to implement a 130-second cycle[2]	Same[2]	No

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

[2] Although this intersection is anticipated to operate at an acceptable LOS during the peak hours under all analysis scenarios, the City of Riverside has requested the following: "While overall intersection operates with an acceptable level of service, some of the movements experience unacceptable level of service during peak per the study appendices. Please provide feasible movements/adjustments to alleviate this delay." As such, improvements have been identified for this intersection.

1.7 QUEUING ANALYSIS

A queuing analysis was conducted for all study area intersections for Existing conditions and Horizon Year (2045) Without Project and With Project traffic conditions to determine the turn pocket lengths necessary to accommodate near-term 95th percentile queues. The traffic modeling and signal timing optimization software package Synchro/SimTraffic (Version 11) has been utilized to assess queues at the Project access points. Synchro is a macroscopic traffic software program that is based on the signalized and unsignalized intersection capacity analyses as specified in the HCM. SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations.

The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). Many jurisdictions utilize the 95th percentile queues for design purposes. SimTraffic simulations have been recorded 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals.

The results of the queuing analysis are shown in Table 1-5 for Existing conditions and Table 1-6 for Horizon Year conditions. The minimum storage length for turn pockets to accommodate the 95th percentile queues at the site adjacent intersections and Project driveways were previously shown on Exhibit 1-5. Queuing worksheets are included in Appendix 1.2.

Based on the operations analysis at the intersection of Streeter Avenue & Driveway 1 (#4), the intersection is anticipated to operate at an acceptable LOS during the peak hours under Horizon Year (2045) With Project traffic conditions. Additionally, the anticipated northbound right turn volume at this location is 15 vehicles during the AM peak hour and 40 vehicles during the PM peak hour under Horizon Year (2045) With Project traffic conditions. As such, a northbound right turn lane does not appear necessary for this intersection.

At the request of the City of Riverside, improvements have been identified at the intersection movements where the 95th percentile queue exceeds the existing available storage. These improvements are identified to satisfy City comments and address long-range traffic deficiencies, likely attributable to the ambient and cumulative development growth. Table 1-6 provides the queuing analysis for Horizon Year (2045) conditions to provide acceptable storage length for the turn pockets shown. Concept striping plans for each of the intersection improvements, as shown in Table 1-7, and provided on Exhibit 1-6.

The anticipated queuing deficiencies at the study area intersections are consistent under both Horizon Year (2045) Without Project and With Project, with the exception of the following movements:

- Streeter Avenue & El Molino Avenue/Driveway 2 (#5), SBL – PM peak hour only
- Driveway 4 & Arlington Avenue (#8), EBL – PM peak hour only

The two locations identified above are both movements that provide direct access into the Project site. As such, the queuing deficiencies will be addressed based on the proposed Project's design features (see Section 1.6.1 for a discussion of the proposed improvements that the Project will construct). All other movements shown in Table 1-7 are anticipated to experience queuing issues under Without Project conditions, therefore the deficiency is likely caused by the local and regional traffic growth. As such, the Project is not proposed to construct the improvements shown on Exhibit 1-6, with the exception of the site access improvements (please refer to Exhibit 1-5 for site access recommendations).

It should be noted, with the identified improvements to address long-range Horizon Year (2045) queues, there are turn pocket storage recommendations that may affect access to existing uses. This includes the west leg of the intersection of Streeter Avenue/California Avenue & Arlington Avenue (#6). However, the access restriction would not be due to the proposed improvements alone. The west leg at this intersection is currently striped as a two-way left-turn lane, which can be utilized for additional storage for the eastbound left turn movement. As such, access to existing uses would be restricted regardless of the proposed improvements shown on Exhibit 1-6, since the excess queues from the eastbound left turn lane will spill into the two-way left-turn lane, which prevents vehicles from turning into existing uses along Arlington Avenue.

A summary of the improvements identified to address all Horizon Year (2045) queuing deficiencies is provided in Table 1-8. As shown in Table 1-8, the Project responsibility has been identified based on the results of the Horizon Year (2045) Without Project and With Project queuing analysis, as shown in Table 1-6. Movements that are identified as a Project deficiency in Table 1-6 are identified as construct obligations in Table 1-8. All other queuing deficiencies are identified under both Without Project and With Project, meaning the Project does not solely cause the queuing deficiency for that specific movement. Since the City does not have a fair share program to collect fair share fees, the Project responsibility for these movements is identified as "None."

TABLE 1-5: QUEUING ANALYSIS FOR EXISTING (2022) CONDITIONS

#	Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet) [1] AM Peak Hour	PM Peak Hour
1	Streeter Av. & Central Av.	NBL	100	**163**	**129**
		SBL	100	**156**	50
		EBL	145	89	63
		WBL	150	**194**	**166**
2	Streeter Av. & Sierra St. North	NBR	90	54	41
		SBL	75	55	49
		WBL	80	55	34
3	Streeter Av. & Sierra St. South	NBL	90	10	7
4	Streeter Av. & Granada Av.	NBL	50	16	19
		SBL	90	7	16
5	Streeter Av. & El Molino Av.	SBL	150	19	25
6	Streeter Av. & Arlington Av.	NBL	85	68	85
		SBL	115	**167**	**172**
		EBL	145	**192**	**172**
		EBR	50	36	19
		WBL	125	**195**	**211**
		WBR	185	93	81
8	Driveway 4 & Arlington Av.	EBL	90	250	26
		WBL	80	70	258
9	Madison St./Palomar Wy. & Arlington Av.	NBL	110	**201**	**214**
		SBL	40	37	29
		EBL	50	40	**75**
		WBL	65	**135**	**168**

[*] **BOLD** = Stacking distance is greater than available stacking distance.

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

TABLE 1-6: QUEUING ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS

#	Intersection	Movement	Available Stacking Distance (Feet)	2045 Without Project 95th Percentile Queue (Feet) [1,2] AM Peak Hour	2045 Without Project 95th Percentile Queue (Feet) [1,2] PM Peak Hour	2045 With Project 95th Percentile Queue (Feet) [1,2] AM Peak Hour	2045 With Project 95th Percentile Queue (Feet) [1,2] PM Peak Hour	Project Deficiency? [3] AM	Project Deficiency? [3] PM
1	Streeter Av. & Central Av.	NBL	100	**218**	**168**	**210**	**208**	No	No
		SBL	100	**186**	96	**191**	100	No	No
		EBL	145	131	98	160	94	No	No
		WBL	150	**250**	**187**	**229**	**248**	No	No
2	Streeter Av. & Sierra St. North	NBR	90	73	49	92	45	No	No
		SBL	75	75	52	73	57	No	No
		WBL	80	59	44	59	42	No	No
3	Streeter Av. & Sierra St. South	NBL	90	16	11	11	15	No	No
4	Streeter Av. & Granada Av./Dri	NBL	50	20	26	25	31	No	No
		SBL	90	5	19	29	81	No	No
5	Streeter Av. & El Molino Av./ Driveway 2	SBL	150	70	85	100	**215**	No	**Yes**
6	Streeter Av. & Arlington Av.	NBL	85	**103**	**127**	**98**	**140**	No	No
		SBL	115	**161**	**157**	**153**	**153**	No	No
		EBL	145	**215**	**219**	**213**	**214**	No	No
		EBR	50	**224**	**126**	**294**	**233**	No	No
		WBL	125	**229**	**230**	**239**	**233**	No	No
		WBR	185	147	133	197	156	No	No
8	Driveway 4 & Arlington Av.	EBL	90	0	40	85	**138**	No	**Yes**
		WBL	80	83	**151**	**105**	**233**	No	No
9	Madison St./Palomar Wy. & Arlington Av.	NBL	110	**255**	**231**	**246**	**263**	No	No
		SBL	40	**52**	37	**62**	30	No	No
		EBL	50	35	**97**	48	**104**	No	No
		WBL	65	191	187	193	197	No	No

* **BOLD** = Stacking distance is greater than available stacking distance.

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

[2] Due to the random simulations evaluated using the SimTraffic software, there are cases where the Without Project conditions generates results that are higher than the With Project condition.

[3] Project deficiency is anticipated if there is identified queuing issue under With Project conditions but not under Without Project conditions

TABLE 1-7: QUEUING ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS WITH IMPROVEMENTS

#	Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet) [1] AM Peak Hour	PM Peak Hour
1	Streeter Av. & Central Av.	NBL	**225**	210	208
		SBL	**200**	191	100
		EBL	**175**	160	94
		WBL	**250**	229	248
5	Streeter Av. & El Molino Av.	SBL	**225**	100	215
6	Streeter Av. & Arlington Av.	NBL	**150**	98	140
		SBL	**175**	153	153
		EBL	**225**	213	214
		EBR	**300**	294	233
		WBL	**250**	239	233
		WBR	185	197	156
8	Driveway 4 & Arlington Av.	EBL	**150**	85	138
		WBL[2]	80	105	233
9	Madison St./Palomar Wy. & Arlington Av.	NBL	**275**	246	263
		SBL	**75**	62	30
		EBL[2]	50	48	104
		WBL[2]	65	193	197

[1] **100** = Improvement

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

[2] Although the 95th percentile queue is anticipated to exceed the available storage, there is currently not enough space within the existing right-of-way to provide additional storage length, as there is a back-to-back left turn with the adjacent intersection.

TABLE 1-8: SUMMARY OF QUEUING IMPROVEMENTS

#	Intersection Location	Movement	Improvement	Changes to Current Parking Restrictions?	Changes to Current Access Restrictions?	Feasible?	Project Responsibility[1]	Peak Hour	Project Trips	Project % of Total Traffic (2045)
1	Streeter Av. & Central Av.	Northbound	Restripe NB left turn pocket to provide 225-feet of storage	None (maintain existing restrictions)	None	Yes, restripe only	None	AM:	61	1.8%
			Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	None	PM:	78	2.5%
		Southbound	Restripe SB left turn pocket to provide 200-feet of storage	None (maintain existing restrictions)	None	Yes, restripe only	None			
		Eastbound	Restripe EB left turn pocket to provide 175-feet of storage	Yes, remove parking for 390-feet on north side of Central Avenue and 265-feet on the south side of Central Avenue	None	Yes, restripe only	None			
		Westbound	Restripe SB left turn pocket to provide 250-feet of storage	Yes, remove parking for 385-feet on north side of Central Avenue and 385-feet on the south side of Central Avenue	None	Yes, restripe only	None			
2	Streeter Av. & Sierra St. (North)	Northbound	Stripe the center painted median	None (maintain existing restrictions)	None	Yes, restripe only	None	AM:	65	3.0%
		Southbound	Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	PM:	83	4.1%
		Westbound	None	None	None	Not Applicable	None			
3	Streeter Av. & Sierra St. (South)	Northbound	Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	AM:	65	3.1%
		Southbound	Stripe Class II bike lane on the west side of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	PM:	83	4.3%
		Eastbound	None	None	None	Not Applicable	None			
4	Streeter Av. & Granada Av./Driveway 1	Northbound	Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	AM:	130	5.9%
		Southbound	Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	PM:	149	7.3%
		Eastbound	None	None	None	Not Applicable	None			
		Westbound	Project Driveway (see Table 1-3)	--	--	--	--			

#	Intersection Location	Movement	Improvement	Changes to Current Parking Restrictions?	Changes to Current Access Restrictions?	Feasible?	Project Responsibility[1]	Peak Hour	Project Trips	Project % of Total Traffic (2045)
5	Streeter Av. & El Molino Av./ Driveway 2	Northbound	Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	AM:	107	4.8%
		Southbound	Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	PM:	127	6.1%
			Modify existing raised median to provide 225-foot SB left turn pocket	None (maintain existing restrictions)	None	Yes	Construct			
		Eastbound	None	None	None	Not Applicable	None			
		Westbound	Project Driveway (see Table 1-3)	--	--	--	--			
6	Streeter Av. & Arlington Av.	Northbound	None (Improvements done by others)	--	--	--	--	AM:	144	3.4%
		Southbound	Stripe Class II bike lane on the east and west sides of Streeter Avenue	None (maintain existing restrictions)	None	Yes, restripe only	Construct	PM:	174	4.1%
			Cut back existing median nose	None	None	Yes	Construct			
		Eastbound	Restripe EB left turn pocket to provide 225-feet of storage	None	Potential access changes to properties on north and south sides of Arlington Avenue, due to the extended left turn pocket	Yes, restripe only	None			
			Restripe EB right turn pocket to provide 300-feet of storage	None (maintain existing restrictions)	None	Yes, restripe only	None			
		Westbound	Cut back existing median nose	None	None	Yes	Construct			
			Modify existing raised median to provide 250-foot WB left turn pocket	None (maintain existing restrictions)	None	Yes	Construct			
			Cut back existing median nose	None	None	Yes	Construct			
7	California Av./Driveway 3 & Arlington Av.	Northbound	None	None	None	Not Applicable	None	AM:	123	4.0%
		Southbound	Project Driveway (see Table 1-3)	--	--	--	--	PM:	150	4.7%
		Eastbound	None	None	None	Not Applicable	None			
		Westbound	None (see Intersection #6 for Westbound for median improvements)	None	None	Not Applicable	None			
			Stripe WB right turn lane	None (maintain existing restrictions)	None	Yes, restripe only	Construct			

#	Intersection Location	Movement	Improvement	Changes to Current Parking Restrictions?	Changes to Current Access Restrictions?	Feasible?	Project Responsibility[1]	Peak Hour	Project Trips	Project % of Total Traffic (2045)
8	Driveway 4 & Arlington Av.	Northbound	None	None	None	Not Applicable	None	AM:	153	4.8%
		Southbound	Project Driveway (see Table 1-3)	--	--	--	--	PM:	270	8.0%
		Eastbound	Modify existing raised median to provide 150-foot EB left turn pocket	None (maintain existing restrictions)	None	Yes	Construct			
		Westbound	Add WB right turn lane	None (maintain existing restrictions)	None	Yes	Construct			
9	Madison St./Palomar Wy. & Arlington Av.	Northbound	Restripe NB left turn pocket to provide 275-feet of storage	None (maintain existing restrictions)	Potential access change to the existing adjacent shopping center (for exiting left turning traffic)	Yes, restripe only	None	AM:	88	2.6%
		Southbound	Restripe NB left turn pocket to provide 75-feet of storage	Yes, remove parking for 196-feet on west side of Palomar Way and 205-feet on the east side of Palomar Way	None	Yes, restripe only	None	PM:	107	3.1%
		Eastbound	None	None	None	Not Applicable	None			
		Westbound	None	None	None	Not Applicable	None			

[1] If marked "None" Project is not recommended to make any noted changes as the deficiency and improvement needs are required under pre-project conditions as well with a nominal contribution by the Project.

EXHIBIT 1-6: CONCEPT STRIPING PLANS (PAGE 1 OF 4)

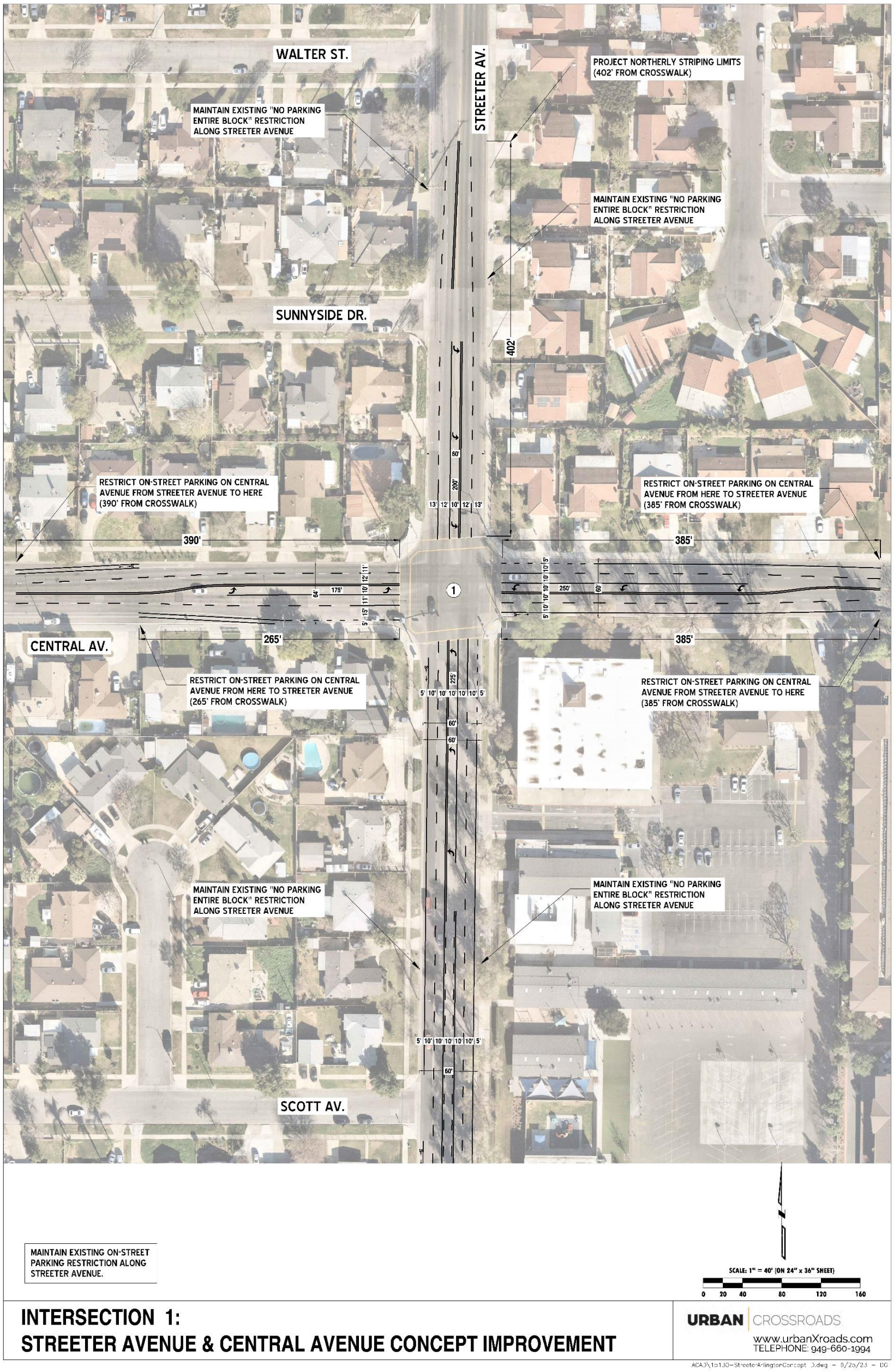


EXHIBIT 1-6: CONCEPT STRIPING PLANS (PAGE 2 OF 4)

INTERSECTIONS 2, 3 & 4: STREETER AVENUE & SIERRA STREET AND STREETER AVENUE & GRANADA AVENUE CONCEPT IMPROVEMENT

URBAN CROSSROADS
www.urbanXroads.com
TELEPHONE: 949-660-1994

ACAD\15130-StreeterArlingtonConcept 3.dwg - 8/20/23 - DG

EXHIBIT 1-6: CONCEPT STRIPING PLANS (PAGE 3 OF 4)

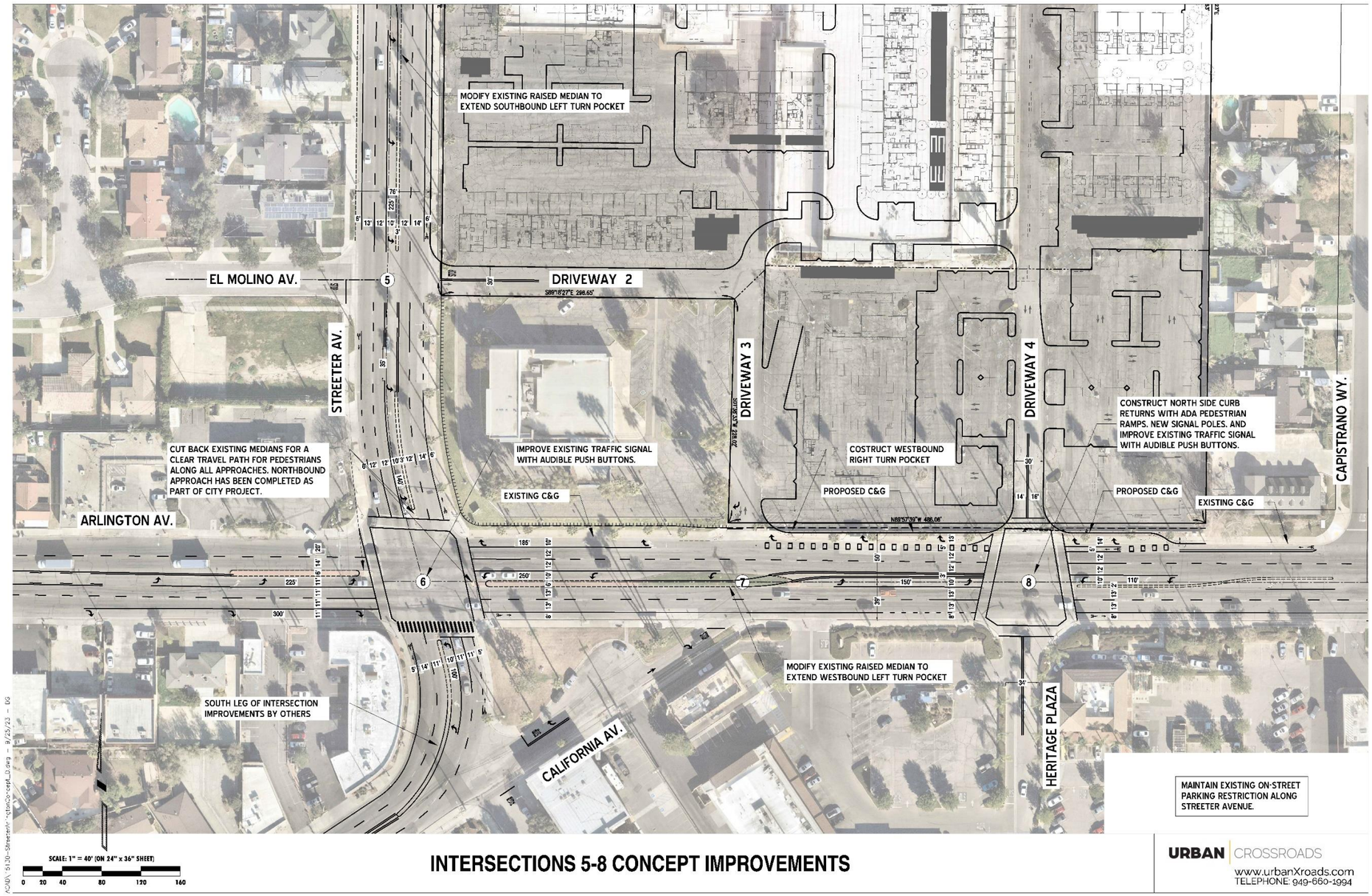
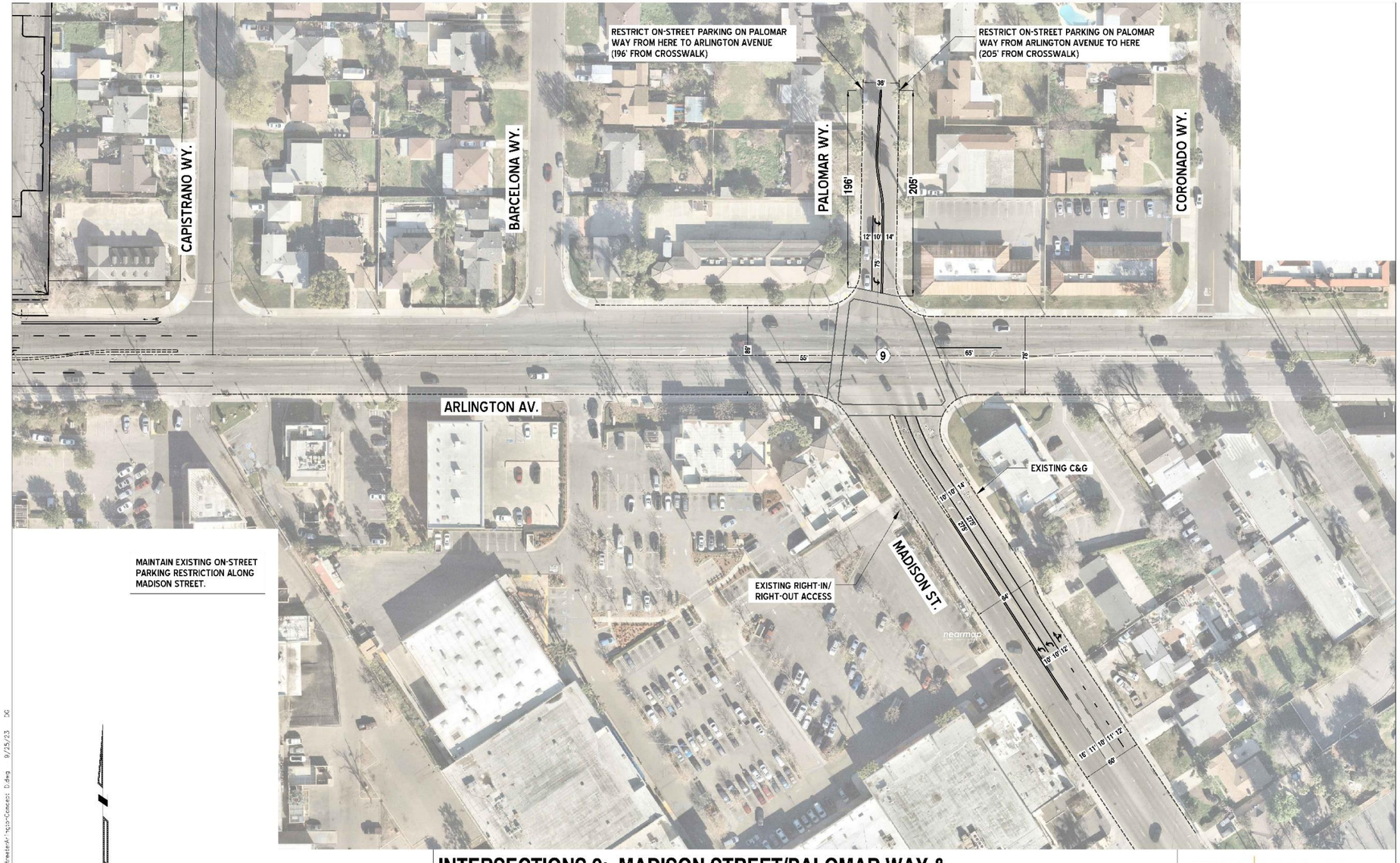


EXHIBIT 1-6: CONCEPT STRIPING PLANS (PAGE 4 OF 4)



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 Riverside'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 Riverside 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 in Table 2-1.

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.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

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

Source: HCM, 6th Edition

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

A saturation flow rate of 1900 has been utilized for all study area intersections located within the City of Riverside. The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Customary practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (4)

2.2.2 UNSIGNALIZED INTERSECTIONS

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

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

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

Source: HCM, 6th Edition

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

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by 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 over 40 miles per hour while urban warrants have been used where speeds 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. Table 2-3 provides the unsignalized intersections that have been evaluated for traffic signal warrant analysis.

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

#	Intersection
3	Streeter Av. & Sierra St. South
4	Streeter Av. & Granada Av./Driveway 1
5	Streeter Av. & El Molino Av./ Driveway 2

Although unsignalized, the intersection of California Avenue & Arlington Avenue has not been evaluated for traffic signal warrant analysis as the intersection will continue to operate with restricted access (right-in/right-out only).

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 *Opening Year Cumulative (2028) Traffic Conditions* and Section 6 *Horizon Year (2045) Traffic Conditions* of this report. Table 2-4 provides a summary of the traffic signal warrant analysis for each scenario. 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.

TABLE 2-4: TRAFFIC SIGNAL WARRANT ANALYSIS SUMMARY

	Intersection	Type	Existing (2022)	OYC (2028) NP	OYC (2028) WP	2045 NP	2045 WP
3	Streeter Av. & Sierra St. South		Not Met	Not Met	Not Met	Not Met	Not Met
4	Streeter Av. & Granada Av./Driveway 1		Not Met	Not Met	Not Met	Not Met	Not Met
5	Streeter Av. & El Molino Av./ Driveway 2		Not Met	Not Met	Not Met	Not Met	Not Met

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

The City of Riverside has established LOS D as the minimum level of service for its intersections. Therefore, any intersection operating at LOS E or F will be considered deficient for the purposes of this analysis.

2.5 DEFICIENCY CRITERIA

Per the City of Riverside traffic study guidelines, for Projects that are in conformance with the General Plan:

a) LOS C is to be maintained at all street intersections

b) LOS D is to be maintained at intersections of Collector or higher classification (see General Plan Policy CCM 2.3).

For Projects that propose uses or intensities above that contained in the General Plan, operational improvements are required when the addition of Project related trips causes either peak hour LOS to degrade from acceptable (A through D) to unacceptable levels (E or F) or the peak hour delay to increase as follows:

LOS	Delay Threshold
LOS A/B	By 10 Seconds
LOS C	By 8 Seconds
LOS D	By 5 Seconds
LOS E	By 2 Seconds
LOS F	By 1 Second

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3 AREA CONDITIONS

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

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Riverside staff (Appendix 1.1), the study area includes a total of 9 existing intersections as shown previously on Exhibit 1-4. 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 RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

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

Study area roadways that are classified as an Arterial are identified as having four to eight lanes of travel. The following study area roadways within the City of Riverside are classified as an Arterial:

- Streeter Avenue
- Central Avenue
- Arlington Avenue

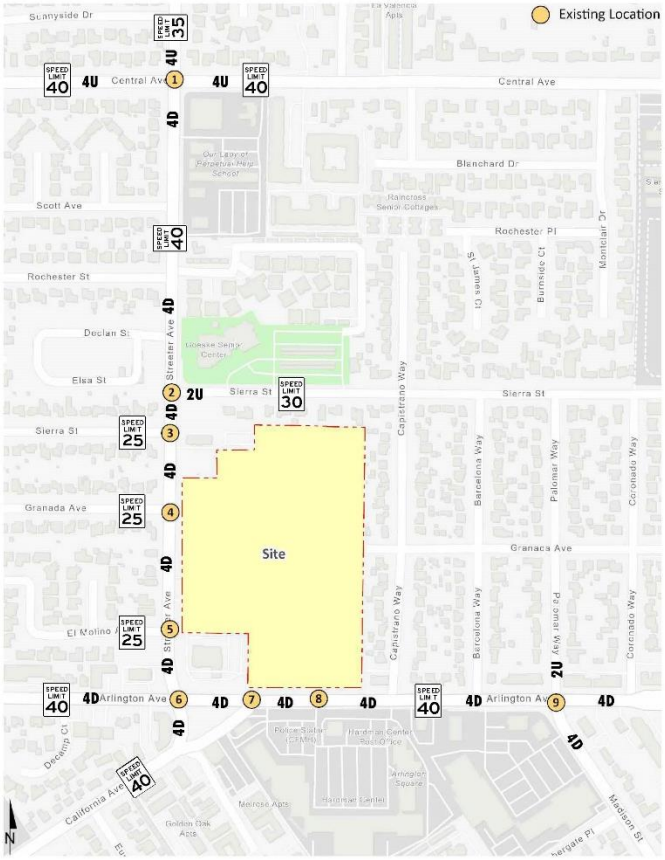
Study area roadways that are classified as a Collector are identified as having two lanes of travel. The following study area roadways within the City of Riverside are classified as a Collector:

- Sierra Avenue North

3.3 BICYCLE AND PEDESTRIAN FACILITIES

The City of Riverside Master Plan of Trails and Bikeways is shown on Exhibit 3-4. There is a designated Class II bikeway that runs along Van Buren Boulevard and Central Avenue in the vicinity of the study area. Existing pedestrian facilities within the study area are shown on Exhibit 3-5. As shown on Exhibit 3-5, there are existing pedestrian facilities provided along the Project's frontage and in the vicinity of the Project site to provide pedestrian connectivity throughout the study area.

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



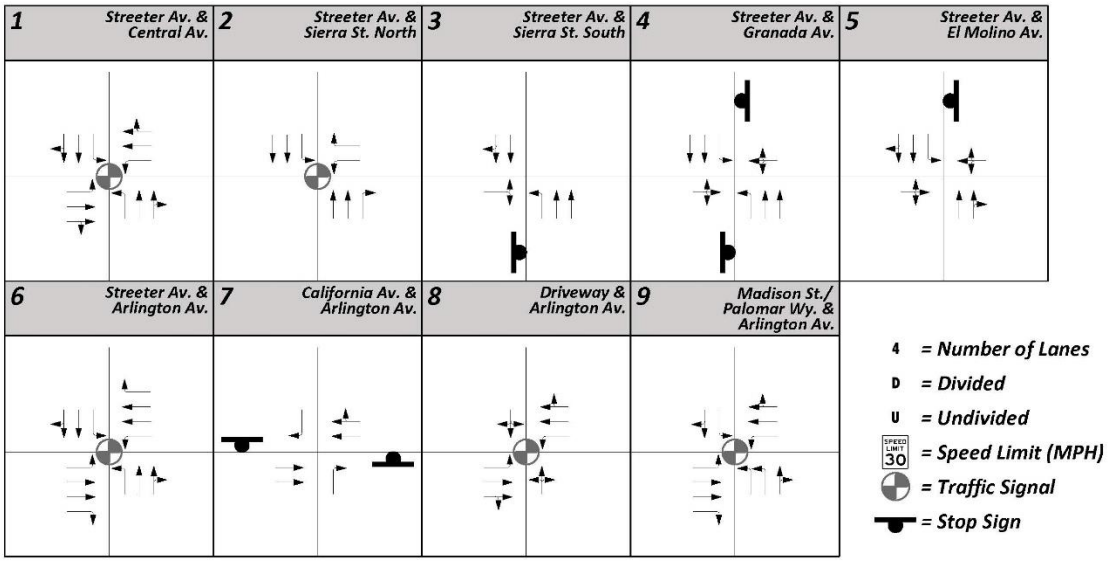


EXHIBIT 3-2: CITY OF RIVERSIDE GENERAL PLAN CIRCULATION ELEMENT

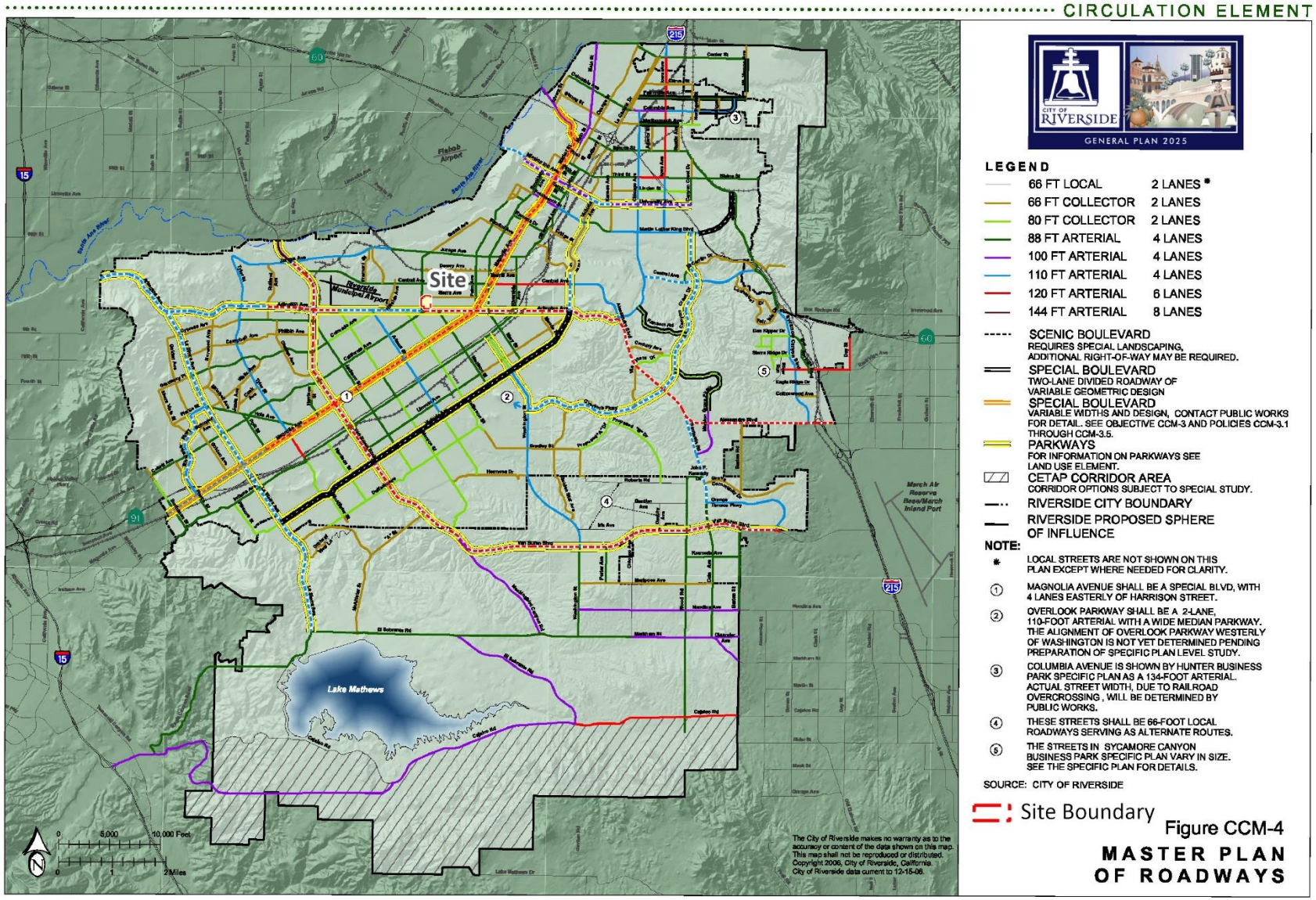
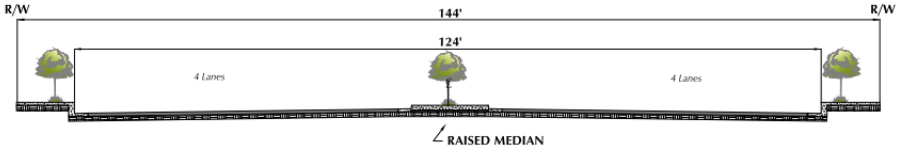
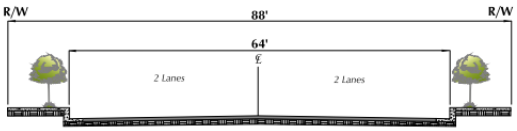


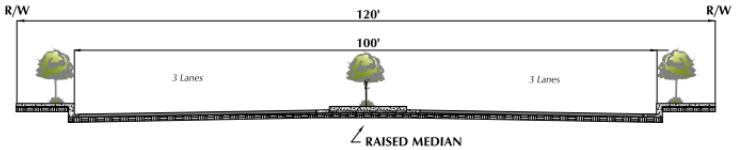
EXHIBIT 3-3: CITY OF RIVERSIDE GENERAL PLAN ROADWAY CROSS-SECTIONS



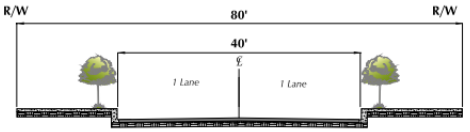
144-FOOT ARTERIAL



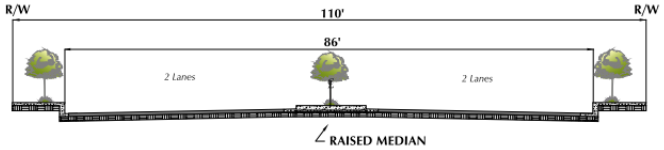
88-FOOT ARTERIAL



120-FOOT ARTERIAL



80-FOOT COLLECTOR



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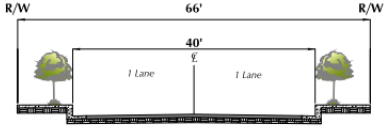
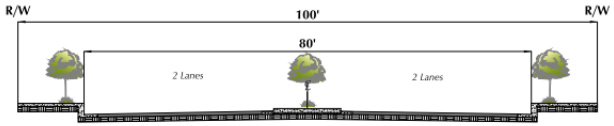
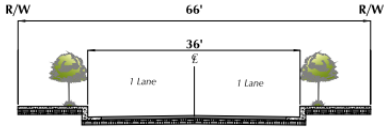


66-FOOT COLLECTOR



100-FOOT ARTERIAL



LOCAL STREET

EXHIBIT 3-4: CITY OF RIVERSIDE MASTER PLAN OF TRAILS AND BIKEWAY

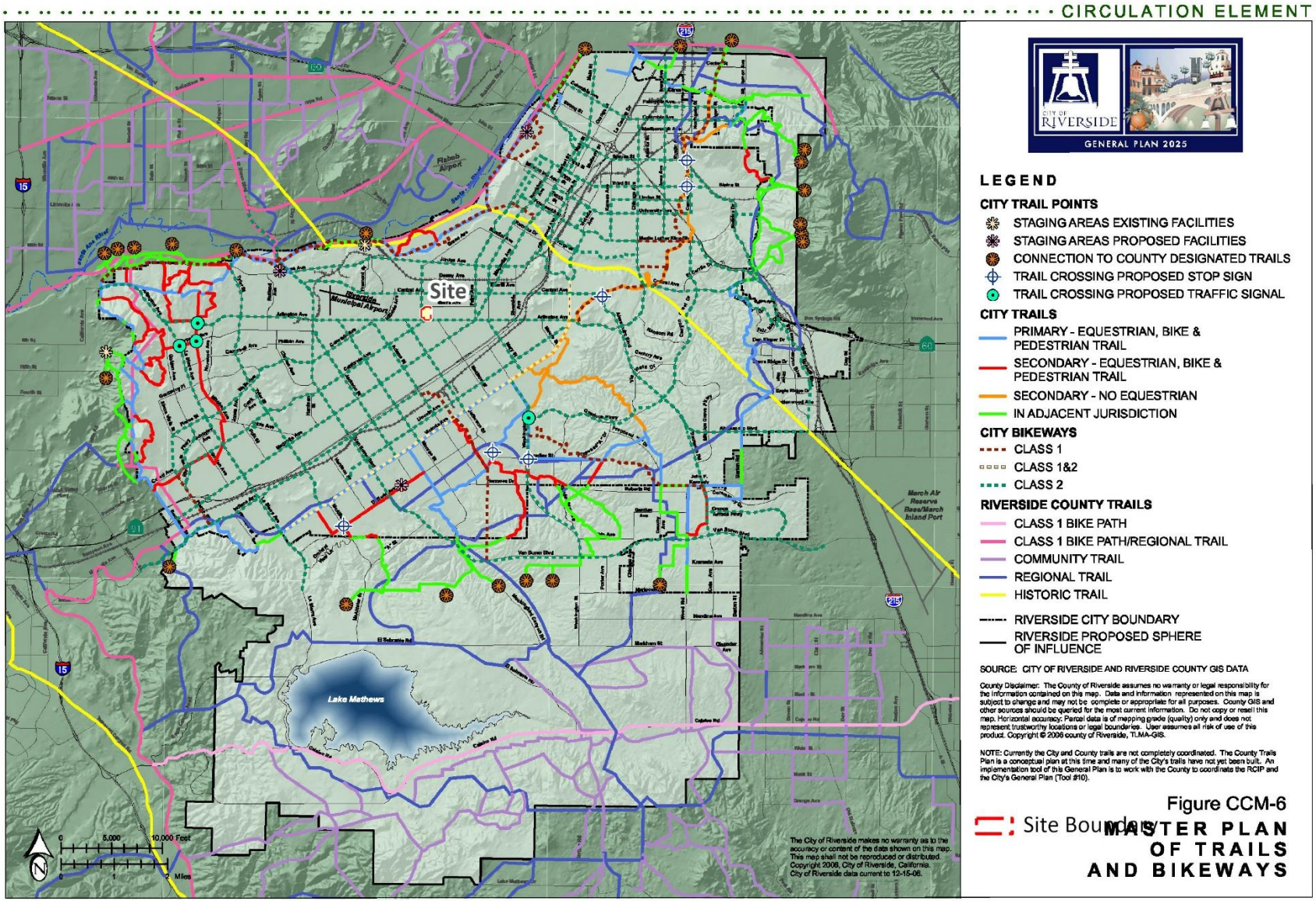
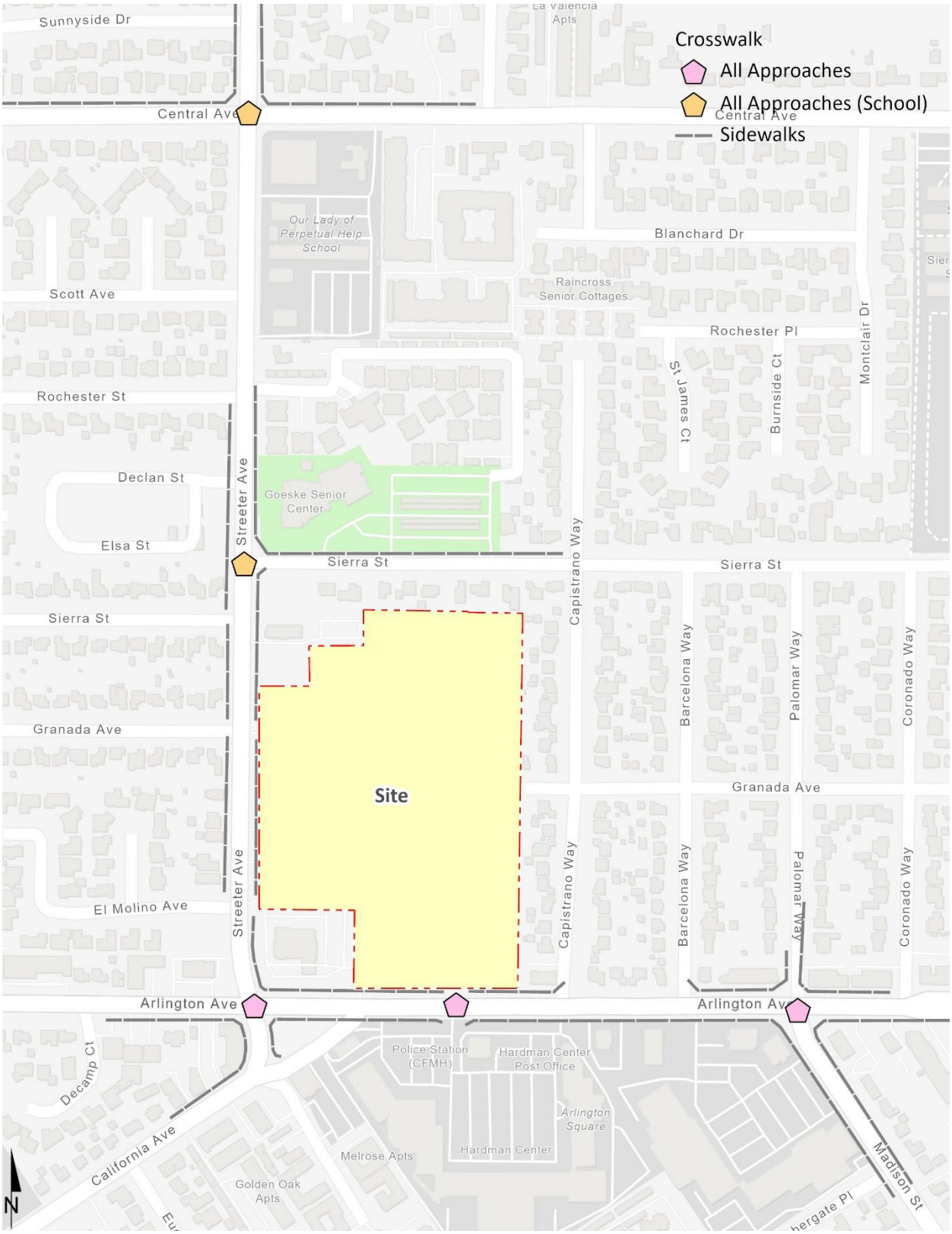


EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES



3.4 TRANSIT SERVICE

The Riverside Transit Authority (RTA) currently serves the City of Riverside. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Existing transit routes in the vicinity of the study area are illustrated on Exhibit 3-6. As shown, there are several existing lines that provide service along Streeter Avenue, Central Avenue, and Arlington Avenue. There are existing bus stops along the western and southern border of the Project, Streeter Avenue and Arlington Avenue. RTA Route 12 and RTA Route 15 are the closest routes which run along Streeter Avenue and Arlington Avenue, respectively. These existing transit routes could provide transit service for the proposed Project. As such, it is recommended that the applicant work in conjunction with RTA to potentially provide bus service to the site.

3.5 EXISTING TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in 2022. The following peak hours were selected for analysis:

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

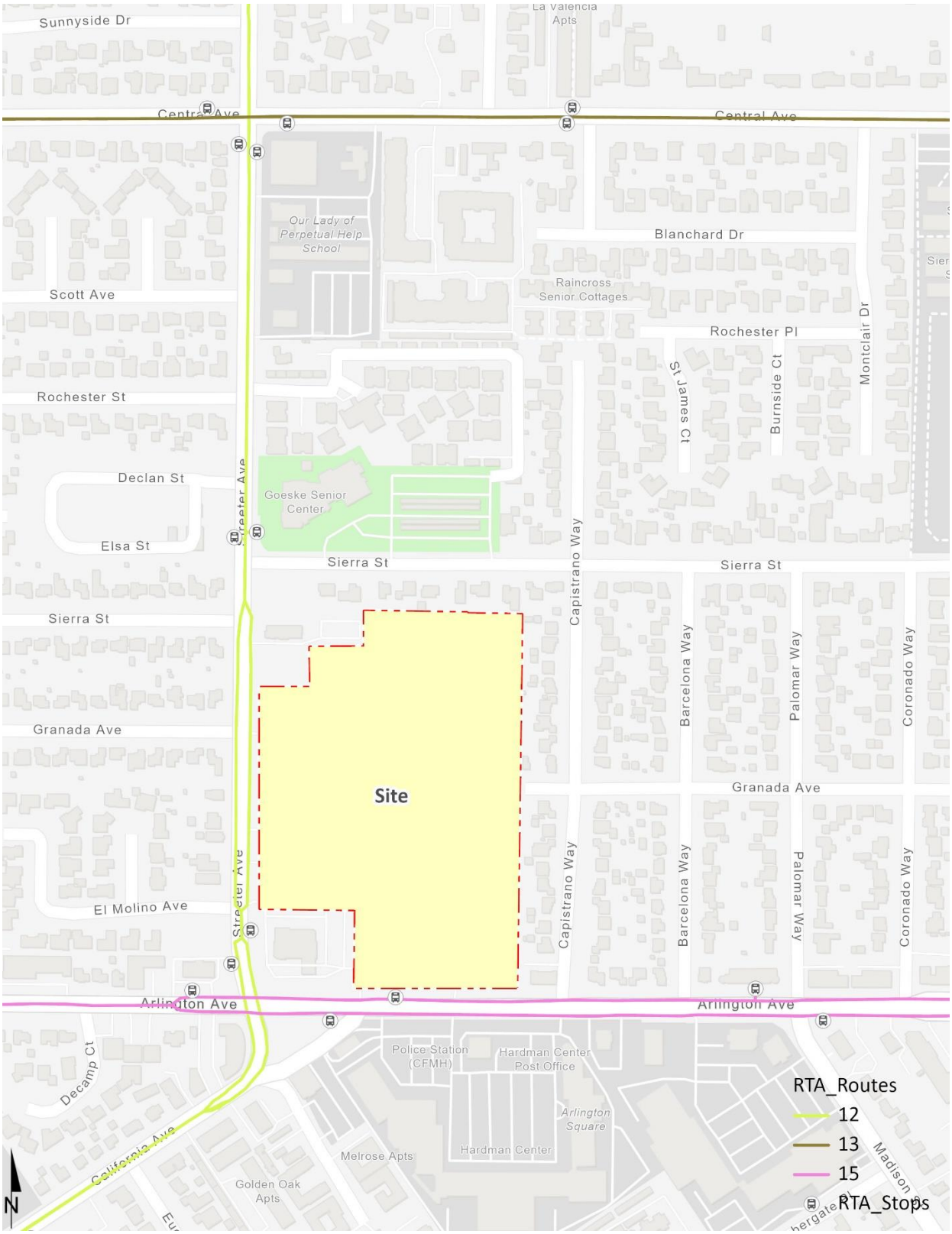
Local schools are back in session with in-person instruction, as such, no additional adjustments were made to the traffic counts for the purposes of establishing the existing baseline. The 2022 weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions 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.

Existing weekday ADT volumes are shown on Exhibit 3-7. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 12.42 = 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 8.05 percent. As such, the above equation utilizing a factor of 12.42 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.05 percent (i.e., 1/0.0805 = 12.42) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-7.

EXHIBIT 3-6: CITY OF RIVERSIDE TRANSIT MAP



3.6 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that all the study area intersections are currently operating at an acceptable LOS during the peak hours under Existing (2022) traffic conditions. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing (2022) 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 (2022) traffic conditions (see Appendix 3.3).

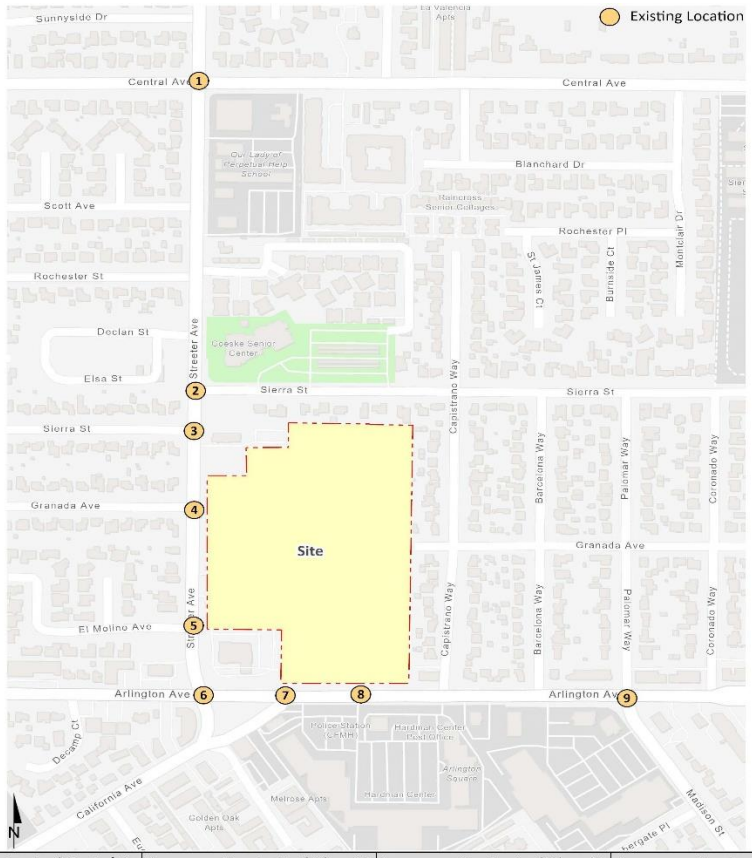
TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2022) CONDITIONS

			Delay[1] (secs.)		Level of Service	
#	Intersection	Traffic Control[2]	AM	PM	AM	PM
1	Streeter Av. & Central Av.	TS	31.9	20.4	C	C
2	Streeter Av. & Sierra St. North	TS	6.4	5.0	A	A
3	Streeter Av. & Sierra St. South	CSS	12.9	11.7	B	B
4	Streeter Av. & Granada Av./Driveway 1	CSS	13.8	11.6	B	B
5	Streeter Av. & El Molino Av./ Driveway 2	CSS	17.2	13.8	C	B
6	Streeter Av. & Arlington Av.	TS	30.0	33.6	C	C
7	California Av./Driveway 3 & Arlington Av.	CSS	21.6	17.1	C	C
8	Driveway 4 & Arlington Av.	TS	11.7	12.5	B	B
9	Madison St./Palomar Wy. & Arlington Av.	TS	16.9	13.6	B	B

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

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

EXHIBIT 3-7: EXISTING (2022) TRAFFIC VOLUMES



1 Streeter Av. & Central Av.

12,600			14,650
52(57) ←	457(429) ←	105(17) ↳	↰ 80(38)
			← 423(451)
			↑ 212(184)
47(39) ↳	↰	↑	↱
450(348) →	133(101)	344(435)	250(142)
123(142) ↲	↓		17,800
14,150			

2 Streeter Av. & Sierra St. North

18,450		1,400
738(741) ←	45(24) ↳	↰ 52(40)
		↑ 58(22)
	↑	↱
	746(681)	43(25)
	↓	18,250

3 Streeter Av. & Sierra St. South

18,250		
4(6) ←	792(757) ←	
4(2) ↳	↰	↑
17(12) ↲	3(3)	785(704)
300		18,350

4 Streeter Av. & Granada Av.

18,450		Nominal
4(5) ←	804(758) ←	1(6) ↳
5(1) ↳	↰	↑
35(18) ↲	7(11)	783(714)
450	↓	18,650

5 Streeter Av. & El Molino Av.

18,700			800
5(5) ←	827(755) ←	7(16) ↳	↰ 12(19)
			↑ 9(8)
5(1) ↳	↰	↑	↱
11(9) ↲	4(5)	773(709)	22(23)
250	↓		18,750

6 Streeter Av. & Arlington Av.

17,400			27,850
143(157) ←	439(367) ←	248(248) ↳	↰ 273(240)
			← 656(791)
			↑ 148(205)
178(152) ↳	↰	↑	↱
722(656) →	25(41)	348(345)	24(8)
58(31) ↲	↓		12,400
22,700			

7 California Av. & Arlington Av.

300		29,750
10(17) ←		↰ 7(8)
		← 1067(1234)
	↑	↱
994(912) →		280(243)
27,850	↓	3,000

8 Driveway & Arlington Av.

100			27,400
	0(2) ←	0(2) ↳	↰ 0(1)
			← 959(1078)
			↑ 33(65)
0(4) ↳	↰	↑	↱
1173(1009) →	115(164)		31(50)
84(101) ↲	↓		4,750
29,250			

9 Madison St./Palomar Wy. & Arlington Av.

2,150			21,350
11(11) ←	149(65) ←	11(8) ↳	↰ 9(9)
			← 640(846)
			↑ 76(84)
7(30) ↳	↰	↑	↱
779(707) →	423(378)	87(50)	79(64)
382(419) ↲	↓		13,150
29,700			

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

Average Daily Trips

4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the existing land use and the Project, a comparison of the existing land use to the proposed project, as well as the Project's trip assignment onto the study area roadway network. A preliminary site plan for the proposed Project is shown previously on Exhibit 1-2. The existing use consists of a 205,350 square foot department store which is currently vacant. The Project is proposed to consist of 388 multifamily residential dwelling units (2-3 floors, low-rise) with a proposed 21,000 square foot grocery store and a stand-alone 5,000 square foot multi-tenant building. Vehicular access will be provided via two full access driveways on Streeter Avenue and one full access and one right-in/right-out access driveway on Arlington 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. Trip generation rates for the proposed Project are provided in Appendix 4.1.

4.1.1 EXISTING TRIP GENERATION

A trip generation summary for the existing land use, a Sears department store, is shown in Table 4-1. In order to develop the traffic characteristics of the existing department store as if it were not vacant, project trip-generation statistics published in the ITE Trip Generation Manual (11th Edition, 2021) was used to calculate the trip generation. (2) As shown in Table 4-1, if occupied, the existing building would be anticipated to generate a total of 4,698 trip-ends per day with 119 AM peak hour trips and 400 PM peak hour trips. However, since the existing building is currently vacant, a trip credit has not been taken for the existing use.

TABLE 4-1: EXISTING TRIP GENERATION SUMMARY

	ITE LU		AM Peak Hour			PM Peak Hour			
Land Use[1]	Code	Units[2]	In	Out	Total	In	Out	Total	Daily
Department Store	875	TSF	0.37	0.21	0.58	0.98	0.97	1.95	22.88

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

[2] TSF = thousand square feet

			AM Peak Hour			PM Peak Hour			
Project Land Use	Quantity	Units[1]	In	Out	Total	In	Out	Total	Daily
Sears	205.350	TSF	76	43	119	201	199	400	4,698

[1] TSF = thousand square feet

4.1.2 PROJECT TRIP GENERATION

Trip generation rates for the proposed uses are summarized in Table 4-2. A summary of the proposed Project trip generation is also shown in Table 4-2. As shown in Table 4-2, the proposed Project is anticipated to generate 3,372 two-way trips per day with 229 AM peak hour trips and 284 PM peak hour trips.

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Multifamily (Low-Rise) Residential	221	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74
Strip Retail (Regression Equation)	822	TSF	2.19	1.46	3.64	4.76	4.76	9.52	88.14
Supermarket	850	TSF	1.69	1.17	2.86	4.48	4.47	8.95	93.84

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

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

Project Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Multifamily (Low-Rise) Residential	388	DU	37	118	155	125	73	198	2,616
Internal Capture (Residential)			-1	-1	-2	-31	-12	-43	-568
Strip Retail	5.000	TSF	11	7	18	24	24	48	441
Pass-by Reduction (PM/Daily = 40%)			0	0	0	-10	-10	-19	-176
Supermarket	21.000	TSF	35	25	60	94	94	188	1,972
Pass-by Reduction (PM/Daily = 24%)			0	0	0	-23	-23	-45	-473
Internal Capture (Retail)			-1	-1	-2	-12	-31	-43	-440
TOTAL			**81**	**148**	**229**	**168**	**116**	**284**	**3,372**

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

As the Project is proposed to include retail uses, pass-by percentages have been obtained from the latest ITE Trip Generation Manual (2021). (2) Pass-by trips are associated with existing traffic on the roadway network that might visit a use on-site on their way to their primary destination. Internal capture is a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. In other words, trips may be made between individual retail and restaurant uses on-site and can be made either by walking or using internal roadways without using external streets. An internal capture reduction was applied to recognize the interactions that would occur between the various complementary land uses proposed as part of the Project. The internal capture is based on the National Cooperative Highway Research Program's (NCHRP Report 684) internal capture trip capture estimation tool.

4.1.3 TRIP GENERATION COMPARISON

As shown in Table 4-3, the proposed Project is anticipated to generate 1,326 fewer trip-ends per day with 110 additional AM peak hour trips and 116 fewer PM peak hour trips compared to the existing use evaluated. However, since the existing use is currently vacant, a trip credit has not been taken and the trip generation comparison shown in Table 4-3 is provided for informational purposes only. For the analysis of the proposed Project, the trip generation shown in Table 4-2 has been evaluated.

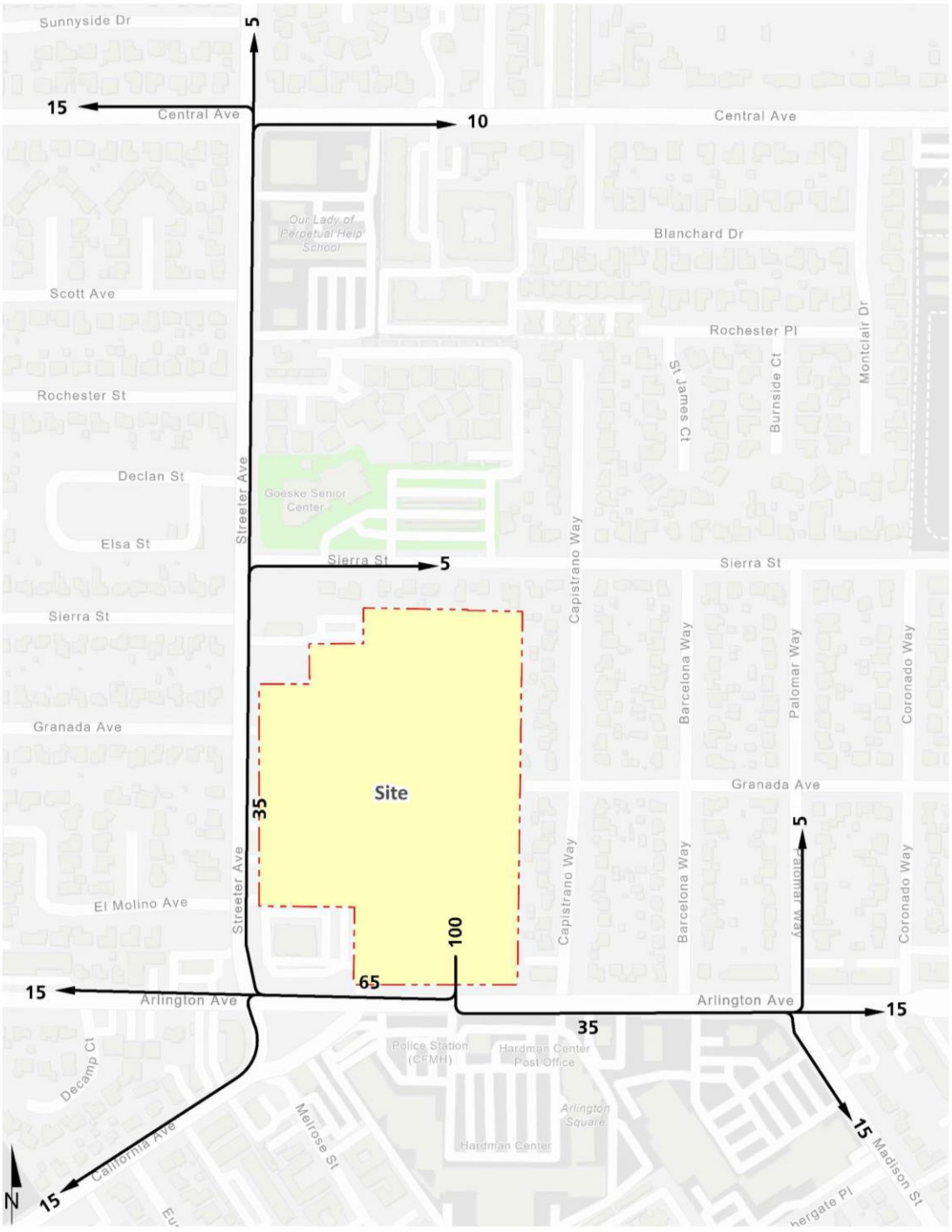
TABLE 4-3: TRIP GENERATION COMPARISON SUMMARY

	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Proposed Project	81	148	229	168	116	284	3,372
Existing Use	76	43	119	201	199	400	4,698
Variance	**5**	**105**	**110**	**-33**	**-83**	**-116**	**-1,326**

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. The Project trip distribution was developed based on anticipated travel patterns to and from the Project site and are consistent with other similar projects that have been reviewed and approved by City of Riverside staff. The proposed Project trip distribution patterns are illustrated on Exhibit 4-1 for the retail uses and Exhibit 4-2 for the residential use. Each of these distribution patterns was reviewed and approved by the City of Riverside as part of the traffic study scoping process (see Appendix 1.1).

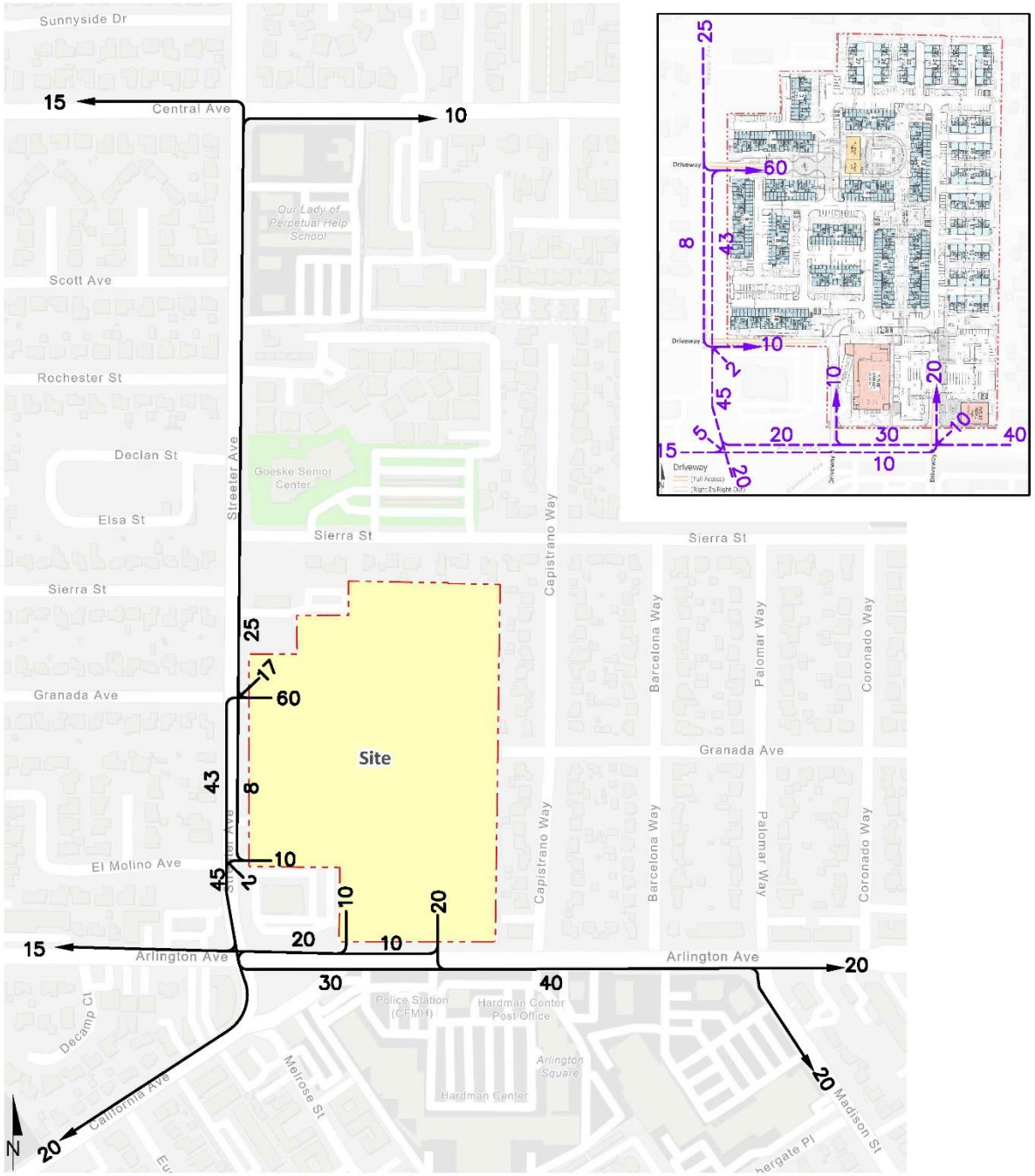
EXHIBIT 4-1: PROJECT (RETAIL) TRIP DISTRIBUTION



10 = *Percent To/From Project*

N

EXHIBIT 4-2: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION



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, the Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

4.5 BACKGROUND TRAFFIC

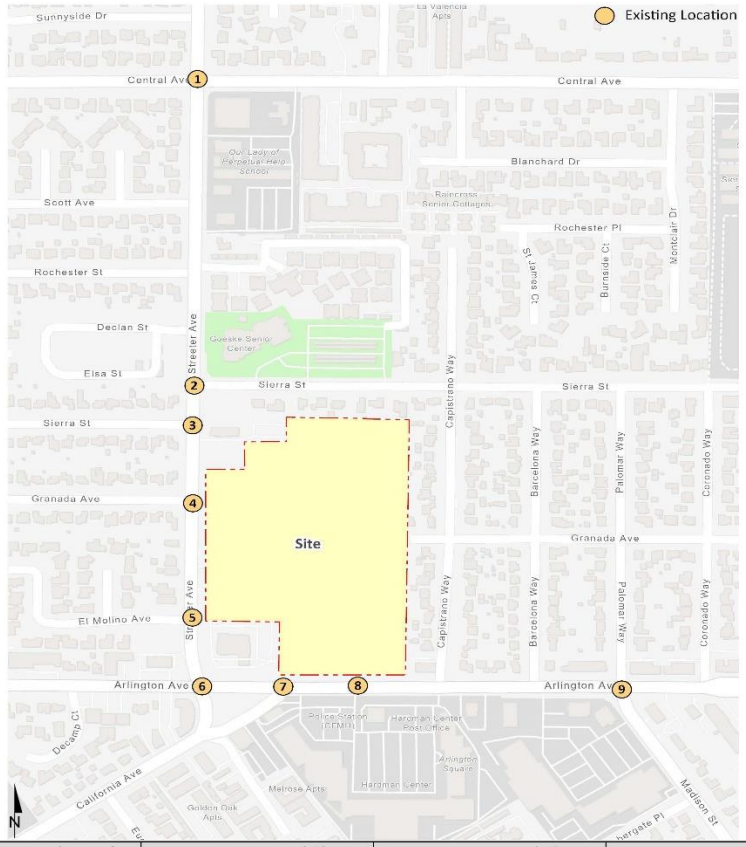
4.5.1 OPENING YEAR CUMULATIVE CONDITIONS

Future year traffic forecasts have been based upon background (ambient) growth at 2.0% per year. The total ambient growth is 12.62% for 2028 conditions (2.0% per year compounded over 6 years). The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. Opening Year Cumulative (2028) traffic volumes are provided in Section 5 of this report. The traffic generated by the proposed Project was then manually added to the base volume to determine Opening Year Cumulative "With Project" forecasts 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 2028 Opening Year time frame assumed for the Project (see also Section 4.6 *Cumulative Development Traffic*).

4.5.2 HORIZON YEAR (2045) CONDITIONS

The Horizon Year (2045) traffic conditions were derived from the latest RIVCOM using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing conditions and Horizon Year conditions. See additional discussion in Section 4.7 *Horizon Year (2045) Volume Development*.

EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES



1 Streeter Av. & Central Av.

Nominal: 2(4) ←; 8(17) ←; 22(17) ↰, 2(3) →, 15(12) ↱; 12(25) ↲; 500; 350; 900

2 Streeter Av. & Sierra St. North

900: 22(45) ←; Nominal: 2(4) ←; 39(31) →, 2(3) ↱; 1,000

3 Streeter Av. & Sierra St. South

1,000: 25(49) ←; 40(34) →; 1,000

4 Streeter Av. & Granada Av.

1,000: 19(33) ←, 6(16) ↳; 20(10) ↰; 50(26) ↰; 20(24) →, 15(40) ↱; 1,500; 1,250

5 Streeter Av. & El Molino Av.

1,500: 66(52) ←, 3(8) ↳; 9(5) ↰; 2(1) ↰; 26(59) →, 1(2) ↱; 1,400; 200

6 Streeter Av. & Arlington Av.

1,400: 6(3) ↲, 23(12) ←, 39(38) ↳; 18(38) ↰; 16(14) ←; 16(14) ↰; 2(5) ⇀; 10(20) →; 7(19) →, 7(11) ↱; 500; 1,600; 700

7 California Av. & Arlington Av.

200: 12(6) ↲; 4(9) ↰; 39(60) ←; 68(75) →; 1,700; 1,700

8 Driveway & Arlington Av.

2,400: 32(74) ↲, 23(58) ↳; 19(68) ↰; 11(-5) ←; 33(90) ⇀; 35(-15) →; 1,700; 1,300

9 Madison St./Palomar Wy. & Arlington Av.

Nominal: 2(4) ↲; 14(30) ←; 2(3) ⇀; 28(20) →; 28(20) ↲; 14(30) ↰; 1,300; 600

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

Average Daily Trips

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

Other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area have also been included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Riverside. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e., 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year Cumulative (2028) forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-4, listed in Table 4-4, and have been considered for inclusion.

These cumulative projects have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic deficiencies. Any other cumulative projects that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5.

TABLE 4-4: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

ID	Project Name	Land Use	Quantity	Units[1]
R1	PR-2021-001198	Manufacturing	25.250	TSF
		General Office	40.000	TSF
R2	P20-0429/P20-0430/P20-0431/P20-0432/P20-0433	Convenience Store	4.750	TSF
R3	P20-0044	Office/Warehouse	3.256	TSF
R4	P19-0874	Office/Warehouse	3.600	TSF

[1] TSF = Thousand Square Feet

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

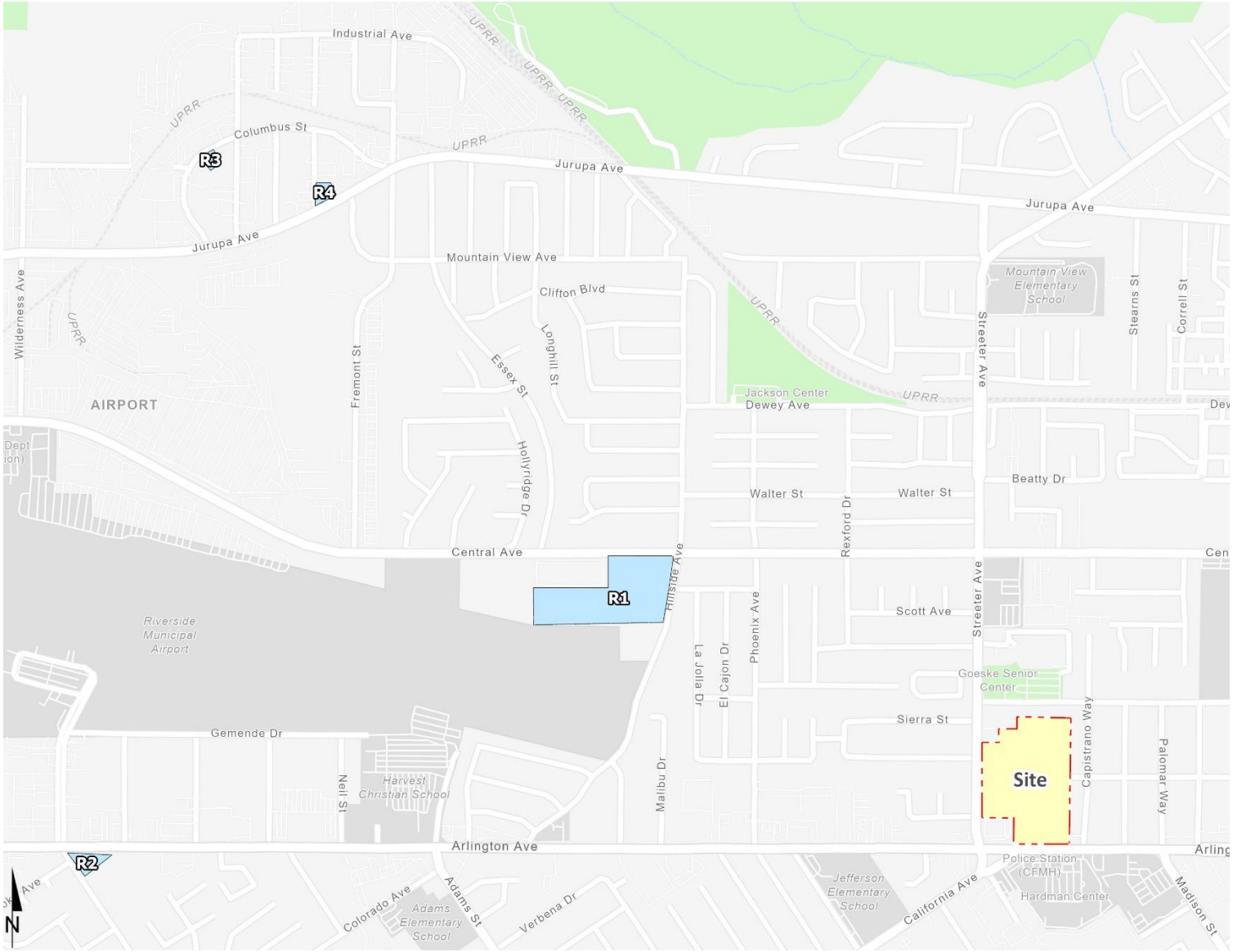
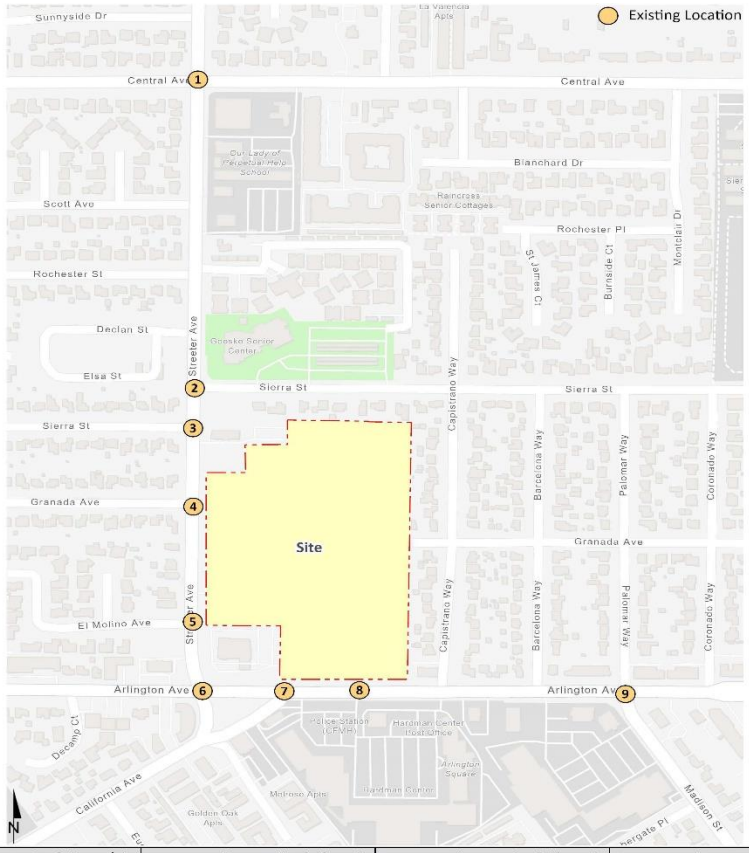


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES



1 Streeter Av. & Central Av.	2 Streeter Av. & Sierra St. North	3 Streeter Av. & Sierra St. South	4 Streeter Av. & Granada Av.
350 ← 15(12) ; 600 ← 29(15) ; 10(32) → ; 15(11) → ; 600 ; 350	350 ← 15(12) ; 15(11) → ; 350	350 ← 15(12) ; 15(11) → ; 350	350 ← 15(12) ; 15(11) → ; 350

5 Streeter Av. & El Molino Av.	6 Streeter Av. & Arlington Av.	7 California Av. & Arlington Av.	8 Driveway & Arlington Av.
350 ← 15(12) ; 15(11) → ; 350	350 ← 15(12) ; 550 ← 22(18) ; 15(11) → ; 22(17) → ; 900	550 ← 22(18) ; 22(17) → ; 550	550 ← 22(18) ; 22(17) → ; 550

9 Madison St./Palomar Wy. & Arlington Av.
550 ← 22(18) ; 22(17) → ; 550

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

4.7 HORIZON YEAR (2045) CONDITIONS

"Buildout" traffic projections for Horizon Year conditions are based on traffic model forecasts and were derived from the RivCOM using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of Riverside. The Horizon Year traffic conditions analyses was utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the TUMF, can accommodate the long-range traffic at the target LOS identified in the City of Riverside General Plan.

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 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. The RivCOM has a base (validation) year of 2018 and a horizon (future forecast) year of 2045. The RivCOM 2045 model utilized for the purposes of this analysis assumes buildout of the City of Riverside.

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 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 worksheets for Horizon Year (2045) Without Project traffic conditions are provided in Appendix 4.1.

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5 OPENING YEAR CUMULATIVE (2028) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2028) Without and With Project traffic forecasts, and the resulting intersection operations and traffic signal warrant and analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2028) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

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

5.2 OPENING YEAR CUMULATIVE (2028) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 12.62% 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 (2028) Without Project traffic conditions are shown on Exhibit 5-1.

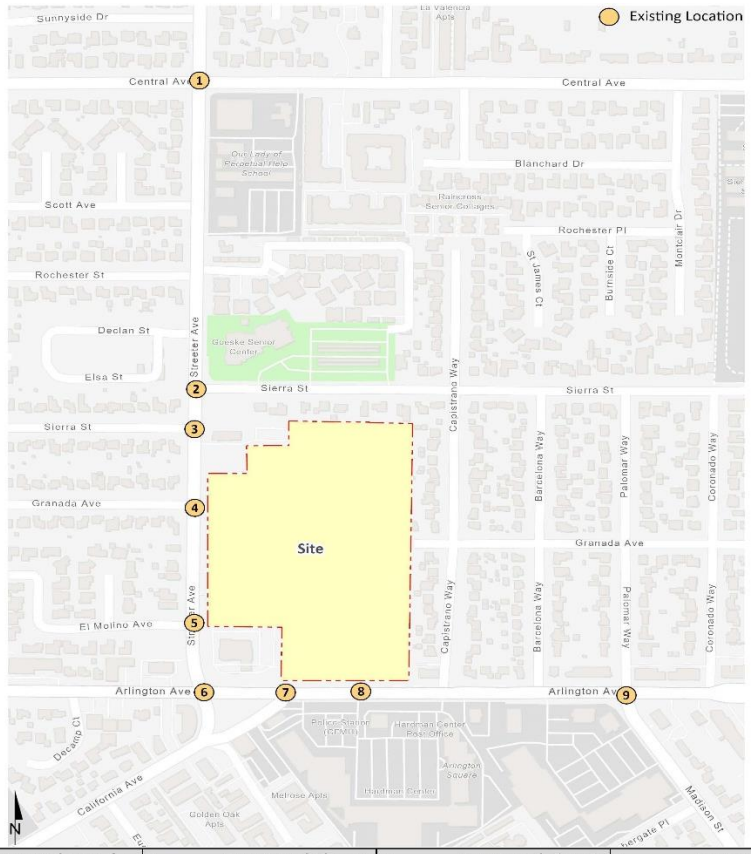
5.3 OPENING YEAR CUMULATIVE (2028) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Opening Year Cumulative (2028) 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 (2028) With Project traffic conditions are shown on Exhibit 5-2.

5.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2028) traffic conditions with the roadway and intersection geometrics consistent with Section 5.1 *Roadway Improvements*. As shown in Table 5-1, the study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours under Opening Year Cumulative (2028) Without Project and With Project traffic conditions, consistent with Existing (2022) traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2028) Without Project and Opening Year Cumulative (2028) With Project traffic conditions are included in Appendices 5.1 and 5.2, respectively.

EXHIBIT 5-1: OPENING YEAR CUMULATIVE (2028) WITHOUT PROJECT TRAFFIC VOLUMES



1 Streeter Av. & Central Av.

14,550			17,100
59(64) ↲	530(495) ↓	118(19) ↳	↑ 90(43)
			← 505(523)
			↰ 239(207)
53(44) ↳			
517(424) →			
139(160) ↲	150(114) ↰	402(501) ↑	282(160) ↱
16,500			20,400

2 Streeter Av. & Sierra St. North

21,150			1,550
	846(846) ↓	51(27) ↳	↱ 59(45)
			← 65(25)
		855(778) ↑	48(28) ↱
			20,900

3 Streeter Av. & Sierra St. South

20,900			
5(7) ↲	907(865) ↓		
5(2) ↳		↰ 3(3)	↑ 899(804)
19(14) ↲			21,000
300			

4 Streeter Av. & Granada Av.

21,100			100
5(6) ↲	920(866) ↓	1(7) ↳	
6(1) ↳			↰ 8(12) ↑ 897(815)
39(20) ↲			21,350
500			

5 Streeter Av. & El Molino Av.

21,400			900
6(6) ↲	946(862) ↓	8(18) ↳	↱ 14(21)
			↰ 10(9)
6(1) ↳			
12(10) ↲		5(6) ↰	886(809) ↑ 25(26) ↱
300			21,450

6 Streeter Av. & Arlington Av.

19,950			31,900
176(189) ↲	494(413) ↓	279(279) ↳	↱ 307(270)
			← 761(909)
			↰ 167(231)
215(182) ↳		↰	
835(756) →		28(46) ↑	392(389) ↱ 27(9)
65(35) ↲			13,950
26,500			

7 California Av. & Arlington Av.

350			34,050
11(19) ↲			↱ 8(9)
			← 1224(1408)
1141(1044) →			↱ 315(274)
31,900			3,400

8 Driveway & Arlington Av.

150			31,400
	0(2) ↓	0(2) ↳	↱ 0(1)
			← 1102(1232)
			↰ 37(73)
0(5) ↳			
1343(1153) →			↱
95(114) ↲		130(185) ↰	35(56) ↱
33,500			5,350

9 Madison St./Palomar Wy. & Arlington Av.

2,400			24,550
12(12) ↲	168(73) ↓	12(9) ↳	↱ 10(10)
			← 743(971)
			↰ 86(95)
8(34) ↳			
899(813) →			
430(472) ↲	476(426) ↰	98(56) ↑	89(72) ↱
34,000			14,850

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

Average Daily Trips

EXHIBIT 5-2: OPENING YEAR CUMULATIVE (2028) WITH PROJECT TRAFFIC VOLUMES

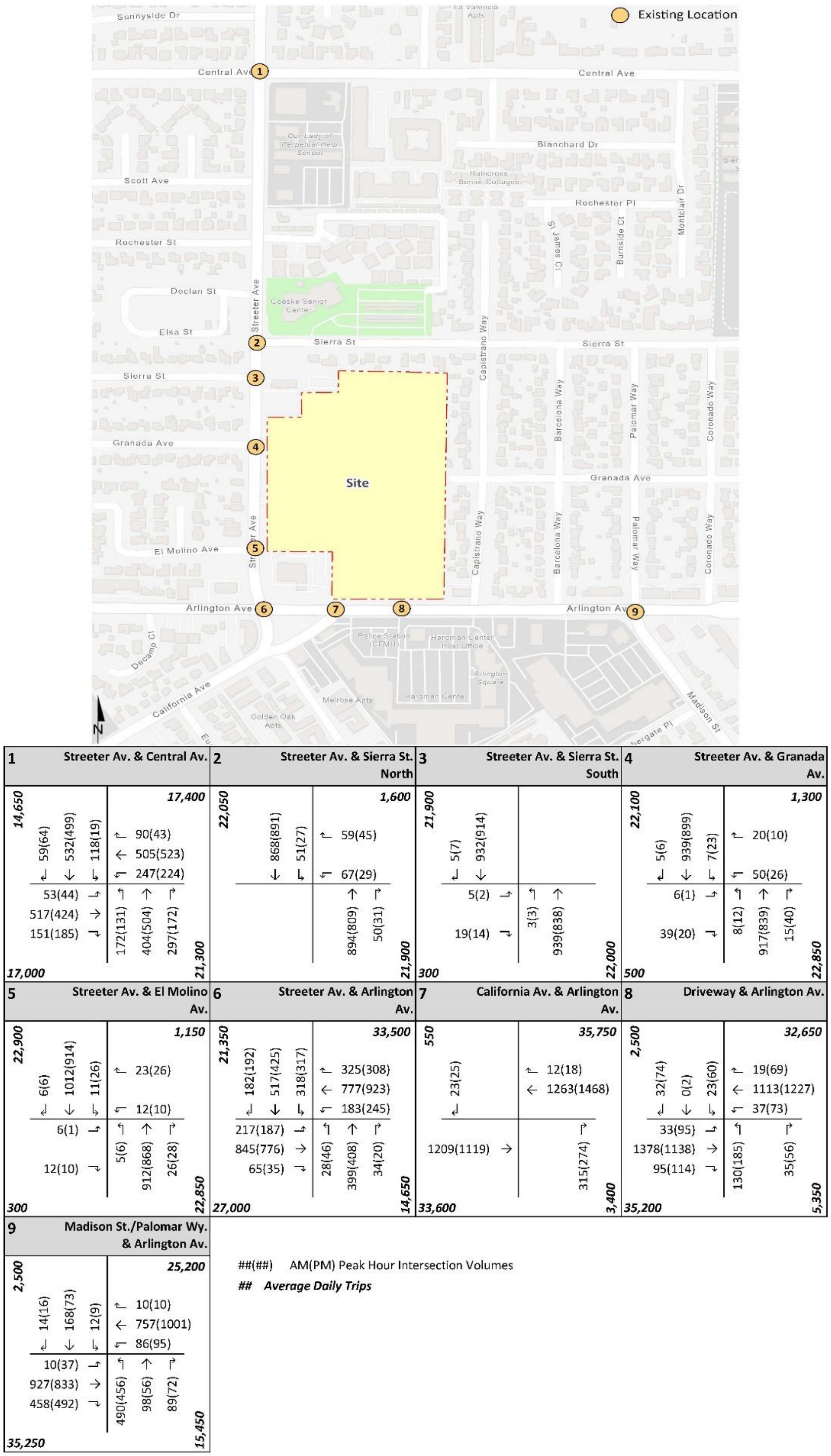


TABLE 5-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2028) CONDITIONS

#	Intersection	Traffic Control[2]	2028 Without Project Delay[1] (secs.) AM	2028 Without Project Delay[1] (secs.) PM	2028 Without Project Level of Service AM	2028 Without Project Level of Service PM	2028 With Project Delay[1] (secs.) AM	2028 With Project Delay[1] (secs.) PM	2028 With Project Level of Service AM	2028 With Project Level of Service PM	Project-Related Traffic Deficiency?[3]
1	Streeter Av. & Central Av.	TS	43.6	23.9	D	C	48.5	25.9	D	C	No
2	Streeter Av. & Sierra St. North	TS	6.7	5.1	A	A	6.8	5.2	A	A	No
3	Streeter Av. & Sierra St. South	CSS	14.1	12.3	B	B	14.4	12.6	B	B	No
4	Streeter Av. & Granada Av./Driveway 1	CSS	15.5	12.3	C	B	23.3	21.2	C	C	No
5	Streeter Av. & El Molino Av./ Driveway 2	CSS	19.7	15.2	C	C	20.1	16.0	C	C	No
6	Streeter Av. & Arlington Av.	TS	37.2	37.1	D	D	41.4	41.6	D	D	No
7	California Av./Driveway 3 & Arlington Av.	CSS	32.2	21.6	D	C	34.6	23.8	D	C	No
8	Driveway 4 & Arlington Av.	TS	11.7	14.8	B	B	13.8	16.3	B	B	No
9	Madison St./Palomar Wy. & Arlington Av.	TS	20.2	14.8	B	B	20.6	15.5	C	B	No

* **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 s or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or mo sharing a single lane) are shown. HCM delay reported in seconds.

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

3 Project-related traffic deficiency occurs when the addition of project-related trips causes either peak hour LOS to degrade from acceptable LOS through LOS D) to unacceptable levels (LOS E or LOS F) or the peak hour delay is increased by the following values:

LOS A/B = 10 seconds or more
LOS C = 8 seconds or more
LOS D = 5 seconds or more
LOS E = 2 seconds or more
LOS F = 1 second or more

5.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for Opening Year Cumulative (2028) traffic conditions based on peak hour intersection turning movements volumes and daily planning level volumes. There are no unsignalized study area intersections anticipated to meet a traffic signal warrant under Opening Year Cumulative (2028) Without Project or With Project traffic conditions (see Appendices 5.3 and 5.4).

5.6 DEFICIENCIES AND IMPROVEMENTS

As shown in Table 5-1, the study area intersections are anticipated to operate at an acceptable LOS during the peak hours under Opening Year Cumulative (2028) Without Project and With Project traffic conditions, and the Project is not anticipated to increase the delay beyond the deficiency threshold as discussed in Section 2.5 *Deficiency Criteria*. However, per the City of Riverside, improvements should be identified at the intersection of Street Avenue & Arlington Avenue (#6) in order to improve the LOS for any deficient movements. As such, a signal timing modification improvement has been identified for this intersection. These improvements are not required per the City's traffic study guidelines but have been provided at the request of the City of Riverside. Table 5-2 provides the results of this intersection operations analysis for Opening Year (2028) With Project traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2028) With Project traffic conditions are included in Appendix 5.5.

TABLE 5-2: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2028) CONDITIONS WITH IMPROVEMENTS

		Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
	Traffic	Northbound			Southbound			Eastbound			Westbound						
	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
6 Streeter Av. & Arlington Av.																	
Without Improvements:	TS	1	2	0	1	2	0	1	2	1	1	2	1	41.4	41.6	D	D
With Improvements[4]:	TS	1	2	0	1	2	0	1	2	1	1	2	1	41.0	40.5	D	D

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

L = Left; T = Through; R = Right; **1** = Improvement

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

[3] TS = Traffic Signal

[4] Improvement consists of modifying the traffic signal cycle length to provide a 130-second cycle.

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6 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.

6.1 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).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).
- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area.

6.2 HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes developed from the RIVCOM (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 6-1.

6.3 HORIZON YEAR (2045) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes developed from the RIVCOM pus Project traffic. 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 6-2.

6.4 INTERSECTION OPERATIONS ANALYSIS

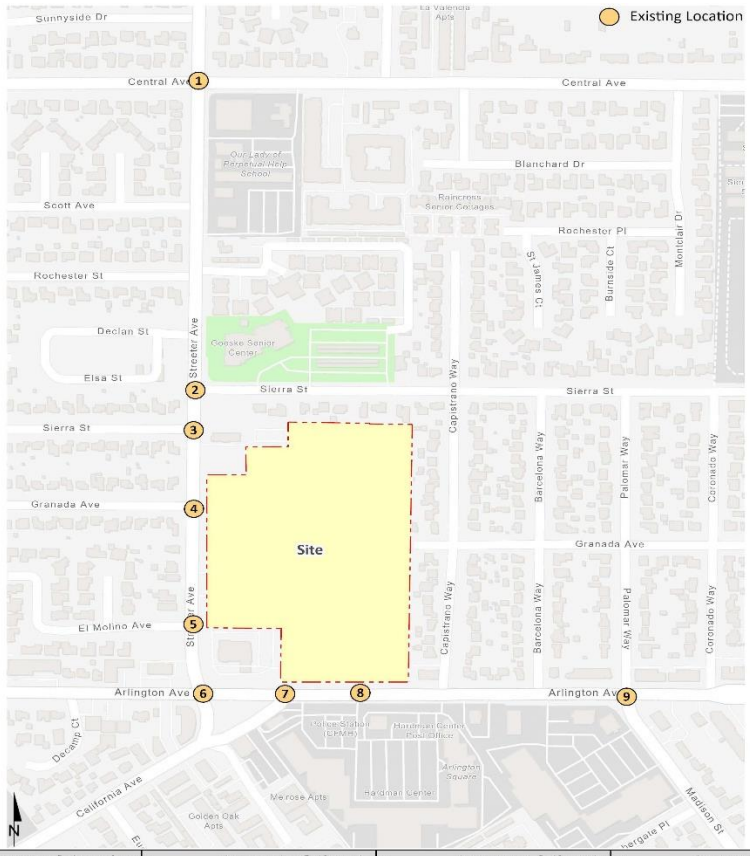
6.4.1 HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC CONDITIONS

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 6.1 *Roadway Improvements*. As shown in Table 6-1, the following study area intersection is anticipated to operate at an unacceptable LOS during one or more peak hours:

- California Avenue & Arlington Avenue (#7) – LOS E AM peak hour only

The intersection operations analysis worksheets for Horizon Year (2045) Without Project traffic conditions are included in Appendix 6.1 of this TA.

EXHIBIT 6-1: HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC VOLUMES



1 Streeter Av. & Central Av.	2 Streeter Av. & Sierra St. North	3 Streeter Av. & Sierra St. South	4 Streeter Av. & Granada Av.
16,000 / 18,800 64(80) ↲ 583(577) ↓ 130(21) ↳ 99(51) ↱ 556(575) ← 263(228) ↰ 58(62) ↳ 568(466) → 152(176) ↲ 165(125) ↰ 443(551) ↑ 310(176) ↱ 18,150 / 22,450	23,250 / 1,700 931(931) ↓ 56(30) ↳ 64(50) ↱ 72(27) ↰ 941(856) ↑ 53(31) ↱ 23,000	23,000 5(7) ↲ 998(951) ↓ 5(2) ↳ 21(15) ↲ 4(4) ↰ 989(884) ↑ 350 / 23,100	23,250 / 100 5(6) ↲ 1012(952) ↓ 1(7) ↳ 6(1) ↳ 43(22) ↲ 9(14) ↰ 986(897) ↑ 550 / 23,500

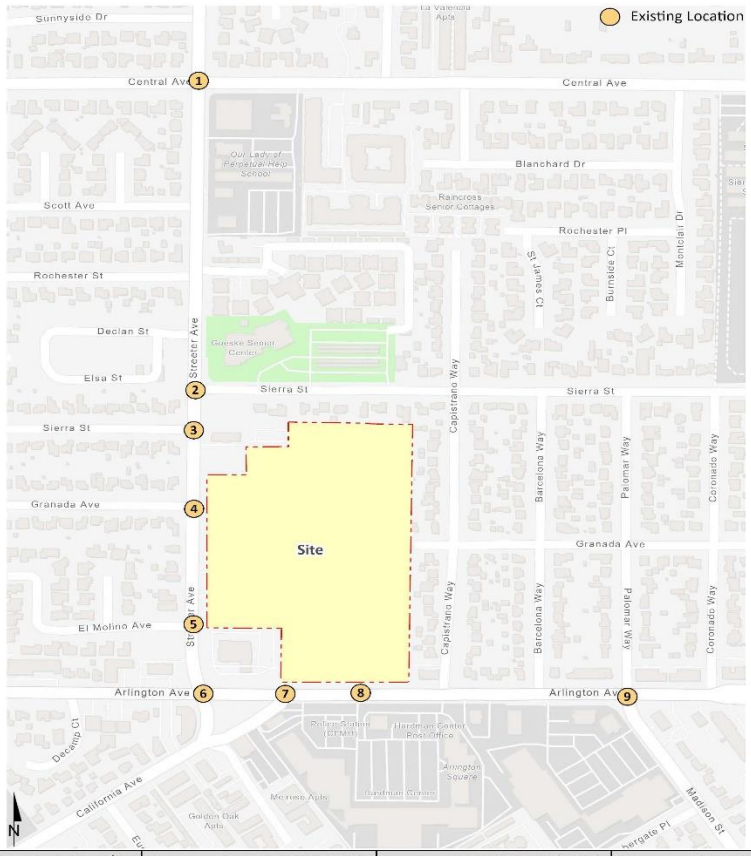
5 Streeter Av. & El Molino Av.	6 Streeter Av. & Arlington Av.	7 California Av. & Arlington Av.	8 Driveway & Arlington Av.
23,550 / 1,000 6(6) ↲ 1041(948) ↓ 9(20) ↳ 15(24) ↱ 11(10) ↰ 6(1) ↳ 14(11) ↲ 5(6) ↰ 974(890) ↑ 27(28) ↱ 300 / 23,600	21,950 / 35,100 194(208) ↲ 544(455) ↓ 307(307) ↳ 338(297) ↱ 837(1000) ← 183(254) ↰ 237(200) ↳ 919(831) → 72(38) ↲ 31(51) ↰ 437(427) ↑ 30(10) ↱ 29,100 / 15,350	400 / 37,500 12(21) ↲ 9(10) ↱ 1346(1548) ← 1256(1148) → 347(301) ↱ 35,100 / 3,750	150 / 34,550 0(2) ↓ 0(2) ↳ 0(1) ↱ 1212(1355) ← 41(81) ↰ 0(5) ↳ 1477(1269) → 104(125) ↲ 142(203) ↰ 38(62) ↱ 36,850 / 5,900

9 Madison St./Palomar Wy. & Arlington Av.
2,650 / 27,050 14(14) ↲ 185(81) ↓ 14(10) ↳ 11(11) ↱ 817(1068) ← 94(104) ↰ 9(37) ↳ 989(895) → 473(519) ↲ 524(468) ↰ 108(62) ↑ 98(79) ↱ 37,400 / 16,300

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

***Average Daily Trips***

EXHIBIT 6-2: HORIZON YEAR (2045) WITH PROJECT TRAFFIC VOLUMES



1 Streeter Av. & Central Av.										2 Streeter Av. & Sierra St. North										3 Streeter Av. & Sierra St. South										4 Streeter Av. & Granada Av.									
									19,150										1,750										1,300									
16,100										24,150										24,000										24,200									
	64(80)	585(581)	130(21)					99(51)			953(976)	56(30)				64(50)					5(7)	1023(1000)									5(6)	1031(985)	7(23)					20(10)		
	↲	↓	↳				↱				↓	↳			↰					↲	↓								↲	↓	↳			↰				
	58(62)	↳		↰	↑	↱	←	556(575)						↰	↑	↱					5(2)	↳		↰	↑					6(1)	↳		↰	↑	↱			
	568(466)	↓		187(142)	445(554)	325(188)	←	271(245)						74(31)	↑	↱																		9(14)	1006(921)	15(40)	←	50(26)	
	164(201)	↲												980(887)	55(34)						21(15)	↲		4(4)	1029(918)					43(22)	↲								
18,650									23,350									24,000		350							24,100		550									25,000

5 Streeter Av. & El Molino Av.										6 Streeter Av. & Arlington Av.										7 California Av. & Arlington Av.										8 Driveway & Arlington Av.									
									1,200										36,650										39,150										35,800
25,050										23,350										600										2,500									
	6(6)	1107(1000)	12(28)					24(29)			200(211)	567(467)	346(345)			356(335)					24(27)					13(19)					32(74)	0(2)	23(60)					19(69)		
	↲	↓	↳				↱				↲	↓	↳			↰					↲					↱					↲	↓	↳			↰				
	6(1)	↳		↰	↑	↱	←	13(11)			239(205)	↳		↰	↑	↱	←	853(1014)																		←	1223(1350)		
	14(11)	↲		5(6)	1000(949)	28(30)					929(851)	↓		31(51)	444(446)	37(21)	←	199(268)			1324(1223)	↓				347(301)	↱				33(95)	↳		↰	↑	↱	←	41(81)		
											72(38)	↲																			1512(1254)	↓		142(203)		38(62)				
300									25,000	29,650									16,050	36,750									3,750	38,550									5,900

9 Madison St./Palomar Wy. & Arlington Av.									
									27,650
2,750									
	16(18)	185(81)	14(10)				↱	11(11)	
	↲	↓	↳				←	831(1098)	
	11(40)	↳		↰	↑	↱	↰	94(104)	
	1017(915)	↓		538(498)	108(62)	98(79)			
	501(539)	↲							
38,650									16,900

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

TABLE 6-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS

#	Intersection	Traffic Control[2]	HY (2045) Without Project Delay[1] (secs.) AM	HY (2045) Without Project Delay[1] (secs.) PM	HY (2045) Without Project Level of Service AM	HY (2045) Without Project Level of Service PM	HY (2045) With Project Delay[1] (secs.) AM	HY (2045) With Project Delay[1] (secs.) PM	HY (2045) With Project Level of Service AM	HY (2045) With Project Level of Service PM	Project-Related Traffic Deficiency?[3]
1	Streeter Av. & Central Av.	TS	50.9	28.7	D	C	51.1	32.0	D	C	No
2	Streeter Av. & Sierra St. North	TS	7.1	5.3	A	A	7.3	5.4	A	A	No
3	Streeter Av. & Sierra St. South	CSS	15.0	12.9	C	B	15.3	13.2	C	B	No
4	Streeter Av. & Granada Av./Driveway 1	CSS	16.8	12.8	C	B	24.4	22.7	C	C	No
5	Streeter Av. & El Molino Av./ Driveway 2	CSS	22.3	16.4	C	C	22.7	17.4	C	C	No
6	Streeter Av. & Arlington Av.	TS	48.8	48.0	D	D	53.4	52.5	D	D	No
7	California Av./Driveway 3 & Arlington Av.	CSS	**38.4**	28.0	**E**	D	**40.3**	32.1	**E**	D	No
8	Driveway 4 & Arlington Av.	TS	13.3	17.8	B	B	15.6	19.8	B	B	No
9	Madison St./Palomar Wy. & Arlington Av.	TS	22.7	16.6	C	B	23.1	17.5	C	B	No

* **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 or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

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

[3] Project-related traffic deficiency occurs when the addition of project-related trips causes either peak hour LOS to degrade from acceptable LOS A through LOS D) to unacceptable levels (LOS E or LOS F) or the peak hour delay is increased by the following values:

LOS A/B = 10 seconds or more
LOS C = 8 seconds or more
LOS D = 5 seconds or more
LOS E = 2 seconds or more
LOS F = 1 second or more

6.4.2 HORIZON YEAR (2045) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 6-1, 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 of California Avenue & Arlington Avenue (#7) is not anticipated to increase the delay by 2 seconds or more. Additionally, the deficiency at this location is for the northbound movement. The proposed Project driveway on the north leg is anticipated to operate at an acceptable LOS C. The intersection operations analysis worksheets for Horizon Year (2045) With Project traffic conditions are included in Appendix 6.2 of this TA.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for Horizon Year (2045) traffic conditions based on peak hour intersection turning movements volumes and daily planning level volumes. There are no unsignalized study area intersections that are anticipated to meet a traffic signal warrant under Horizon Year (2045) Without Project or With Project traffic conditions (see Appendices 6.3 and 6.4).

6.6 DEFICIENCIES AND IMPROVEMENTS

As shown in Table 6-1, the study area intersections are anticipated to operate at an acceptable LOS during the peak hours under Horizon Year (2045) traffic conditions, with the exception of the following intersection:

- California Avenue & Arlington Avenue (#7) – LOS E AM peak hour only

The addition of project volume increases the delay by less than 2 seconds for LOS E and the intersection continues is anticipated to operate at an acceptable LOS C for the proposed Project driveway (southbound approach). As such, no improvements have been identified for this location.

Per the City of Riverside, improvements should be identified at the intersection of Street Avenue & Arlington Avenue (#6) in order to improve the LOS for any deficient movements. As such, a signal timing modification improvement has been identified for this intersection. Table 6-2 provides the results of this intersection operations analysis for Horizon Year (2045) With Project traffic conditions. It should be noted, the signal timing modification improvement improves the LOS for each movement to pre-Project conditions, or better. These improvements are not required per the City's traffic study guidelines but have been provided at the request of the City of Riverside.

It should be noted, the intersection is currently built out and additional lanes cannot be accommodated within the existing pavement width. Per the City's traffic study guidelines, traffic signal cycle lengths should not exceed 130-seconds. As such, additional improvements have not been identified to improve the movement delay to acceptable LOS as such additional improvements are considered infeasible. The intersection operations analysis worksheets for Horizon Year (2045) With Project traffic conditions are included in Appendix 6.5.

TABLE 6-2: INTERSECTION ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS WITH IMPROVEMENTS

	Traffic	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Northbound			Southbound			Eastbound			Westbound						
	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
6 Streeter Av. & Arlington Av.																	
Without Improvements:	TS	1	2	0	1	2	0	1	2	1	1	2	1	53.4	52.5	D	D
With Improvements[4]:	TS	1	2	0	1	2	0	1	2	1	1	2	1	54.7	53.1	D	D

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

L = Left; T = Through; R = Right; **1** = Improvement

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

3 TS = Traffic Signal

4 Improvement consists of modifying the traffic signal cycle length to provide a 130-second cycle.

7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Riverside are funded through a combination of improvements constructed by the Project, regional impact fee programs, or fair share contributions. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

7.1 CITY OF RIVERSIDE DEVELOPMENT IMPACT FEE PROGRAM

The City of Riverside has created its own local DIF program to impose and collect fees from new residential, commercial, and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. Under the City's 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.

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 necessary improvements. The City also uses this data to ensure that the improvements are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds.

The Project Applicant will be subject to the City's DIF fee program and will pay the requisite City DIF fees at the rates then in effect pursuant to the City's ordinance. The Project Applicant's payment of the requisite DIF at the rates then in effect, pursuant to the City DIF Program, would satisfy the Project's proportional mitigation requirements at potentially affected DIF-funded facilities. At the time of preparation of the traffic study, the City of Riverside does not currently maintain a list of DIF covered facilities.

7.2 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (6) This regional program was put into place to ensure that development pays its fair share, and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County. TUMF guidelines empower a local zone committee to prioritize and arbitrate certain projects. The Project is located in the Northwest Zone. The zone has developed a 5-year capital improvement program to prioritize public construction of certain roads. TUMF is focused on improvements necessitated by regional growth.

7.3 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. However, per the City of Riverside, there currently is no program in place to collect fair share fees at the time this traffic study has been prepared. As such, and per the direction of the City of Riverside, fair share contribution has not been identified for the proposed Project.

8 REFERENCES

1. **City of Riverside.** *Traffic Impact Analysis Guidelines for Vehicles Traveled and Level of Service Assessment.* Riverside : s.n., July 2020.
2. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.
3. **VRPA Technologies, Inc. for Riverside County Transportation Commission.** *Riverside County Long Range Transportation Study.* County of Riverside : VRPA Technologies, Inc., December 2019.
4. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
5. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CA MUTCD).* 2014, Updated March 30, 2021 (Revision 6).
6. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.

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WEBB-C

Vehicular Miles Traveled Screening Memorandum

ALBERT A. WEBB ASSOCIATES

Memorandum

To: Philip Nitollama, Vital Patel
City of Riverside

From: Kawai Mang, EIT
Project Engineer, Albert A. Webb Associates

Date: June 6, 2023

Subject: Vehicle miles traveled screening assessment for proposed Arlington mixed-use development (PR-2022-001252)

Albert A. Webb Associates is pleased to provide this vehicle miles traveled (VMT) screening assessment for the proposed Arlington mixed-use development at 5261 Arlington Avenue in the City of Riverside. This assessment is based on the latest agency guidelines, proposed project site plan (**Attachment A**), and the approved project scoping form (**Attachment B**), dated November 30, 2022.

The proposed project site is located on the northeast corner of the intersection of Arlington Avenue and Streeter Avenue. The project proposes to construct 388 townhome units along with a 20,320 square-foot (sf) grocery store and a separate 5,000 sf retail building. The development is planned to be completed and fully occupied in 2028.

A. Background

Following the adoption of California Senate Bill 743 (SB 743) in 2013, the California Office of Planning and Research (OPR) identified VMT as the most appropriate measure of determining transportation impacts under CEQA, replacing previous level of service (LOS) analyses. Accordingly, the City's *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (2020) include the following criteria to screen for projects that are presumed to have a less-than-significant effect on VMT:

1. Transit Priority Area (TPA) Screening

Projects located within a TPA may be presumed to have a less than significant impact absent substantial evidence to the contrary. This presumption may NOT be appropriate if the project:

- ***1.1.*** *Has a Floor Area Ratio (FAR) of less than 0.75;*
- ***1.2.*** *Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);*
- ***1.3.*** *Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the City), with input from the Metropolitan Planning Organization); or*
- ***1.4.*** *Replaces affordable residential units with a smaller number of moderate- or high-income residential units.*

A TPA is defined as a half mile area around an existing major transit stop or an existing stop along a high quality transit corridor per the definitions below.

Pub. Resources Code, § 21064.3 - 'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or ra il transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Pub. Resources Code, § 21155 - For purposes of this section, a 'high-quality transit corridor' means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

2. Low VMT Area Screening

Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident or per worker that is similar to the existing land uses in the low VMT area—provided the VMT of the area falls below thresholds.

For this screening in the WRCOG area, the Riverside County Transportation Model (RIVCOM) travel forecasting model was used to measure VMT performance for individual jurisdictions and for individual traffic analysis zones (TAZs). TAZs are geographic polygons similar to Census block groups used to represent areas of homogenous travel behavior. Daily VMT per capita was estimated for each TAZ. This presumption may not be appropriate if the project land uses would alter the existing built environment in such a way as to increase the rate or length of vehicle trips.

3. Project Type Screening

Local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.

4. Mixed-Use Projects

To identify if the proposed project requires a VMT analysis, the City of Riverside may evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included (e.g. residential and retail).

5. Redevelopment Projects

Where a project replaces existing VMT generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to less than significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds described above should apply.

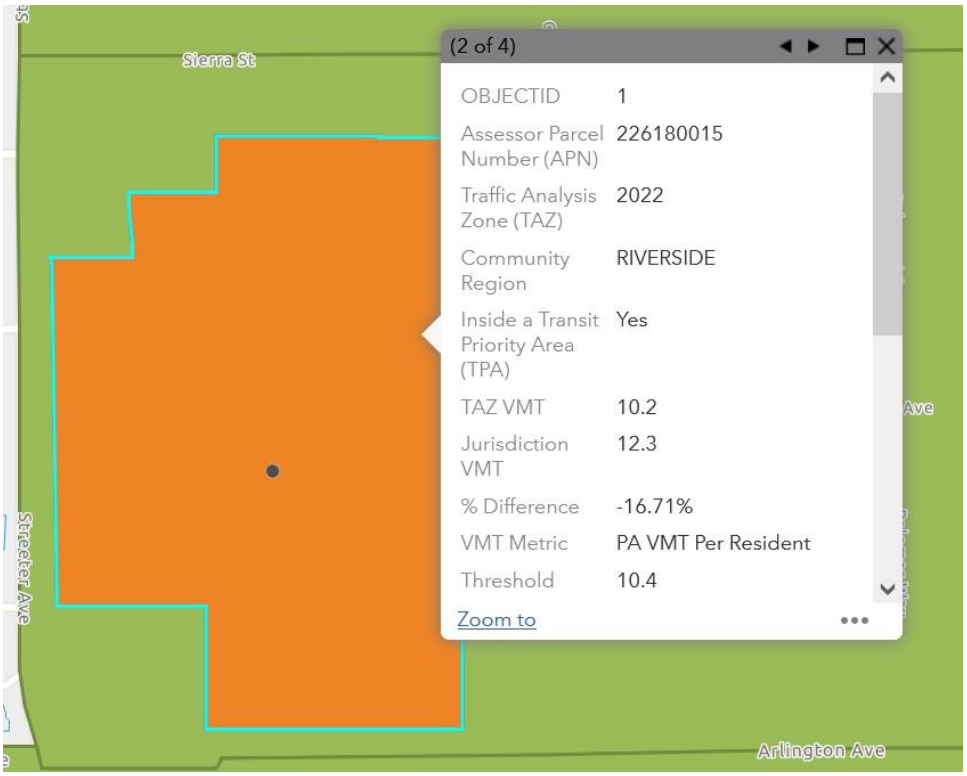
B. Findings

The VMT screening criteria were evaluated for this project based on the approved project scoping form (Attachment A), which includes the project location, land use, and trip generation characteristics, using the latest Institute of Transportation Engineers (ITE) Trip Generation Manual, proposed project site plan, and the Western Riverside Council of Governments (WRCOG) online VMT screening tool.

1. Transit Priority Area (TPA) Screening

Per the WRCOG tool, the project is in traffic analysis zone (TAZ) 2022, which is located within a designated TPA (**Figure 1**).

Figure 1: WRCOG VMT Tool Outputs (TAZ and TPA)



Per the City of Riverside *Guidelines*, the following sub-requirements are also considered for projects within a TPA:

1.1. The project has a FAR of 0.6, which is less than 0.75. Therefore, this sub-criterion disqualifies the project.

1.2. Based on the project size and land uses, 815 parking spaces are required (682 residential, 132 retail, and 1 USPS). The project is proposing to provide 814 parking spaces. Therefore, this sub-criterion does not disqualify the project.

1.3. Per discussions with the City, the project will be required to comply with the SCS as it is located within a TPA. The environmental impact report (EIR) will provide more details on this compliance. Therefore, this sub-criterion does not disqualify the project.

1.4. The project site previously had a Sears retail store, which is not residential use. Therefore, this sub-requirement does not disqualify the project.

While the project is located within a TPA, provides no more parking than is required, does not replace affordable housing, and will be required to comply with the SCS, it also has a proposed FAR less than 0.75. Therefore, this criterion is not met.

2. Low VMT Area Screening

Per the WRCOG tool, the project is located in traffic analysis zone (TAZ) 2022, which is located within a low VMT-generating area (**Figure 2**). Therefore, this criterion is met.

Figure 2: WRCOG VMT Tool Outputs (Low VMT)

3. Project Type Screening

The project consists of 20,320 sf grocery store, which is a local-serving retail use, with an additional 5,000 sf retail, which can be considered local-serving due to its size. The total retail space in the project is less than 50,000 sf and considered local-serving. Therefore, this criterion is met by the retail portion of the project.

The residential portion of the project would not be considered local-serving due to its size (over 16 townhomes). Therefore, this criterion is not met by the residential portion of the project.

4. Mixed-Use Projects

Per the City guidelines, the residential and retail portions of the project are analyzed separately for criteria 2 and 3 above.

5. Redevelopment Projects

While the project is proposing to replace the existing Sears store, due to its land use and size, it is not expected to generate less VMT than the previous use. Therefore, this criterion is not met.

C. Summary

In accordance with the City of Riverside Guidelines, the proposed Arlington mixed-use project is presumed to have a less than significant transportation impact and is therefore screened from further VMT analysis based on the following criteria:

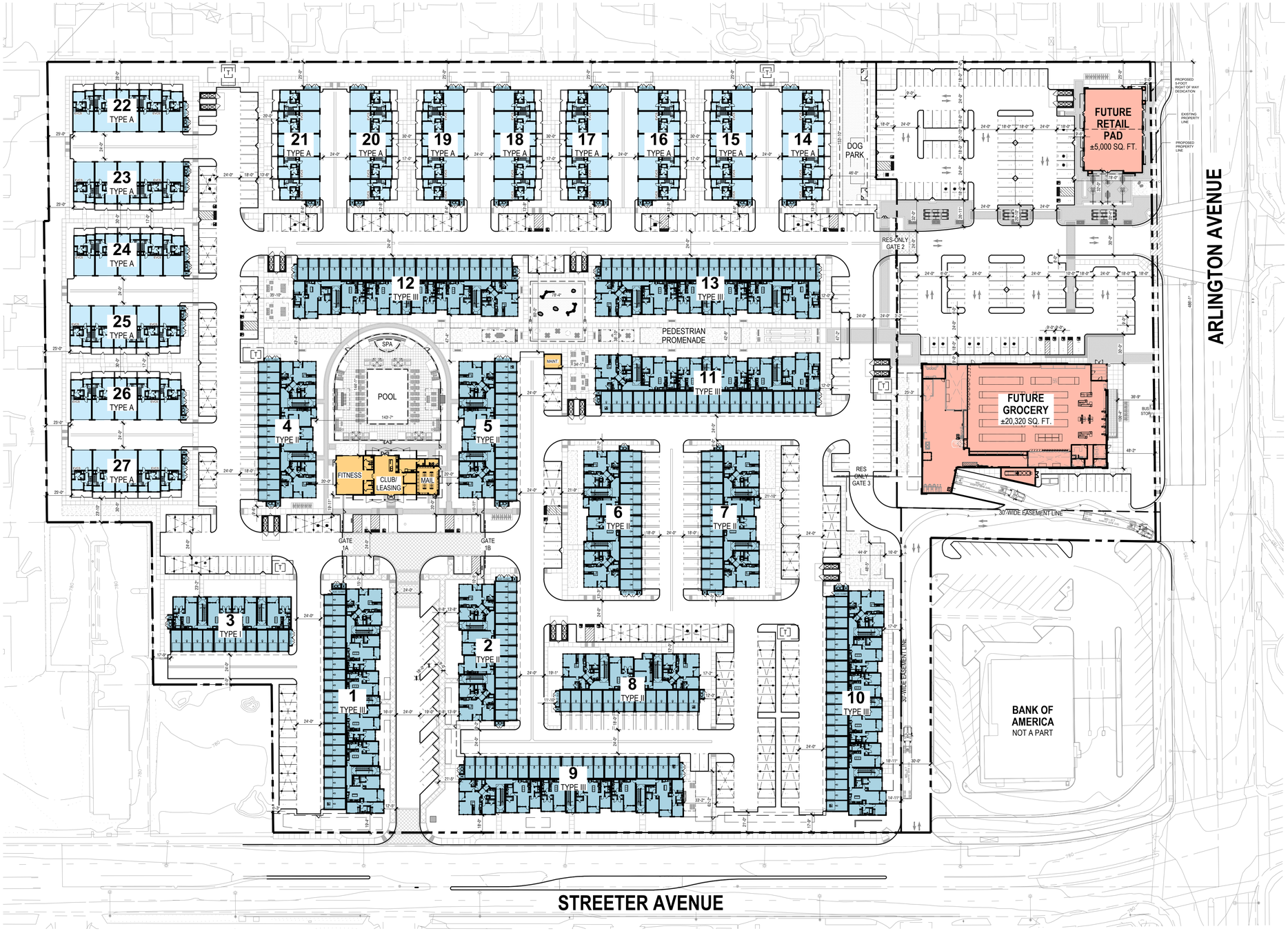
- Project is within a low VMT-generating area.

The retail portion of the project may be analyzed separately per the City guidelines and further meets the following criteria for screening from further VMT analysis:

- Retail portion of the project is under 50,000 sf and considered a local-serving project.

Attachments:

A. Proposed project site plan
B. Approved project scoping form



LEGEND

- RESIDENTIAL: 2-STORY TOWNHOMES
- RESIDENTIAL: 3-STORY TUCK-UNDER
- RESIDENTIAL: LEASING/AMENITY
- COMMERCIAL

NORTH

1"=50'-0" 0 25' 50' 100' 150'

SITE PLAN

A1.2

ARLINGTON MIXED USE

RIVERSIDE, CA

DATE: 03-29-2023
JOB NO.: 2020-055

FOULGER-PRATT

SERITAGE GROWTH PROPERTIES

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

APPROVED
Vital Patel
11/30/2022

CITY OF RIVERSIDE
City of Arts & Innovation

Public Works Department

Traffic Analysis Scoping Form

This scoping form shall be submitted to the City of Riverside Traffic Engineering Division

Project Identification:

Case Number:	PR-2022-001252 (GPA, RZ, PPE)
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Arlington Mixed Use
Project Address:	northeast corner of Streeter Av. & Arlington Av. - 5261 Arlington Avenue
Project Opening Year:	2028
Project Description:	388 multifamily residential dwelling units (2-3 floors, low-rise) with a proposed 21,000 SF ALDI grocery store and stand-alone 5,000 SF multi-tenant building.

	Consultant:	**Developer:** (Representative)
Name:	Urban Crossroads - Charlene So	Foulger - Pratt - Jaime Chapman
Address:	1133 Camelback St, #8329	136 Calle de Los Molinos
	Newport Beach, CA 92658	San Clemente, CA 92672
Telephone:	949-861-0177	949-596-9572
Fax/Email:	cso@urbanxroads.com	jchapman@foulgerpratt.com

Scoping & Study Fees:

Fees to be made payable to "City of Riverside" and delivered to Land Development. City Hall 3rd Floor, 3900 Main Street, Riverside, CA 92522

✓ 1) Scoping Agreement Fee (For all projects not screened from analysis): **$271.00**

✓ 2) TIA Review (For projects with both LOS & VMT analysis of any scale, or standalone LOS analyses with over 100 vehicle trips per hour): **$2671.02**

3) TIA Review (For standalone VMT analysis, or standalone LOS analyses with under 100 vehicle trips per hour): **$1288.20**

Trip Generation Information:

Trip Generation Data Source: ITE Trip Generation Manual (11th Edition, 2021)

Current General Plan Land Use: C - Commercial

Proposed General Plan Land Use: MU-V Mixed Use Village

Current Zoning: CG -Commercial General

Proposed Zoning: MU-V Mixed Use Village

Sears Building (currently vacant)

	Existing Trip Generation (per ITE)			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	76	43	119	81	148	229
PM Trips	201	199	400	168	116	284

Trip Internalization: [X] Yes [ ] No (2-30% Trip Discount) See attached worksheets

Pass-By Allowance: [X] Yes [ ] No (24/40% Trip Discount) Per ITE Trip Gen Manual

Potential Screening Checks

Is your project screened from specific analyses in accordance with City Guidelines?

Is the project screened from LOS assessment? [ ] Yes [X] No

LOS screening justification (see Page 6 of the guidelines): _____

Is the project screened from VMT assessment? [X] Yes [ ] No

VMT screening justification (see Pages 23-25 of the guidelines): _____
Project lies within a low VMT area (see attached)

A separate VMT memo has been completed and submitted to the City for review.

Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution): See attached graphics

North	South	East	West
varies %	varies %	varies %	varies %

- Attach list of Approved and Pending Projects that need to be considered (provided by the lead agency and adjacent agencies)
- Attach list of study intersections/roadway segments See Attached
- Attach legible site plan See Attached
- Note other specific items to be addressed:
  - Site access
  - ✓ On-site circulation
  - Parking
  - ✓ Consistency with Plans supporting Bikes/Peds/Transit
  - ✓ Other _____
- Date of Traffic Counts To be conducted once the scope is approved
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)

Queuing analysis for all intersections & signal warrants for the intersection of Streeter Av at Granada Av./Driveway 1 and Streeter Av. at Driveway 2.

Assess feasibility of installing a NB right turn lane at Driveway 1 on Streeter Av.

VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model _____
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Specific Issues to be addressed in the Study (in addition to the standard analysis described in the Guidelines) (To be filled out by the Public Works Traffic Engineering Division)

* Project shall assess the feasibility of installing a right turn for the driveway located at StreeterAv.

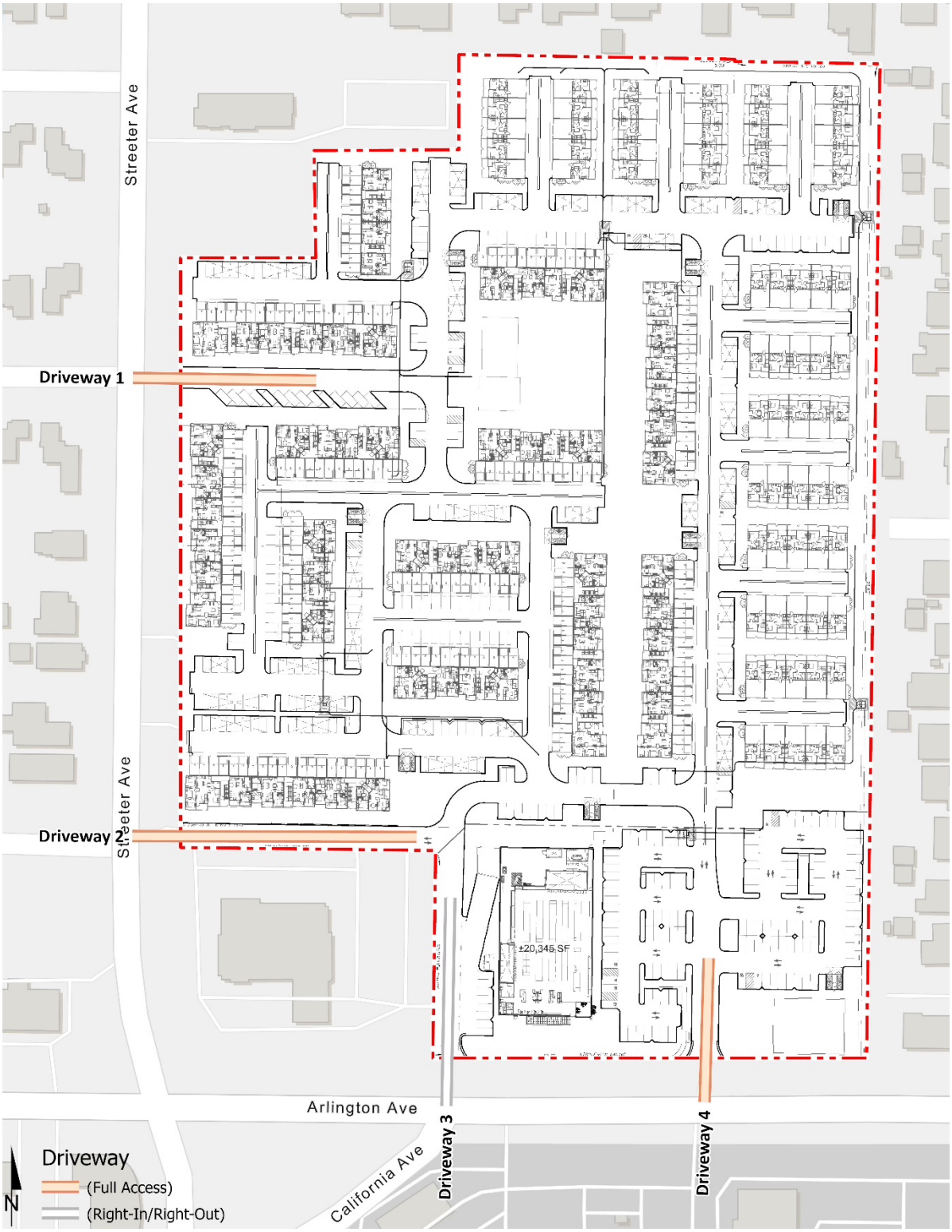
* Project shall construct median improvements to cut back the medians to have a clear path of travel for pedestrians for all approaches for the intersection of Arlington Av. and StreeterAv..

* Project will be conditioned to improve the existing traffic signal infrastructure at the intersection of Arlington @ Streeter/California and signalized project driveway /Sears at Arlington Av.
(Items to be considered: Audible Push Buttons, signal controller upgrades, battery back-up system etc.)

No Phasing is proposed.
Proposed analysis scenarios are as follows:

1. Existing (2022)
2. Opening Year Cumulative (2028) Without Project - City to provide cumulative projects
3. Opening Year Cumulative (2028) With Project
4. Horizon Year (2045) Without Project - post processed forecasts from RIVCOM
5. Horizon Year (2045) With Project

EXHIBIT 1: PRELIMINARY SITE PLAN




Granada Ave
9 FT
Driveway 1
ASPHALT PAVEMENT
WALL FACE ON 0.1 EAST
CURB DRAIN
STORM MANHOLE
ELEC MH
LANDSCAPE
ROW LINE
779.1
778.6
778.9
778.7
778.8
N


El Molino
Driveway 2
WALL FACE ON
ON LOT LINE
REF: FD 3/4 PER P.M. 51/38-39 &
ASPHALT PAVEMENT
CONCRETE SIDEWALK
LANDSCAPE
CONCRETE APRON
ASPHALT DRIVE
LANDSCAPE
BUS STOP
CONCRETE
BUS SHELTER
55'
NC
778.4
779.3
779.5
778.1
779.6
780.5
779.7
779.9
779.9
779.8
781.6
N

EXHIBIT 2: LOCATION MAP

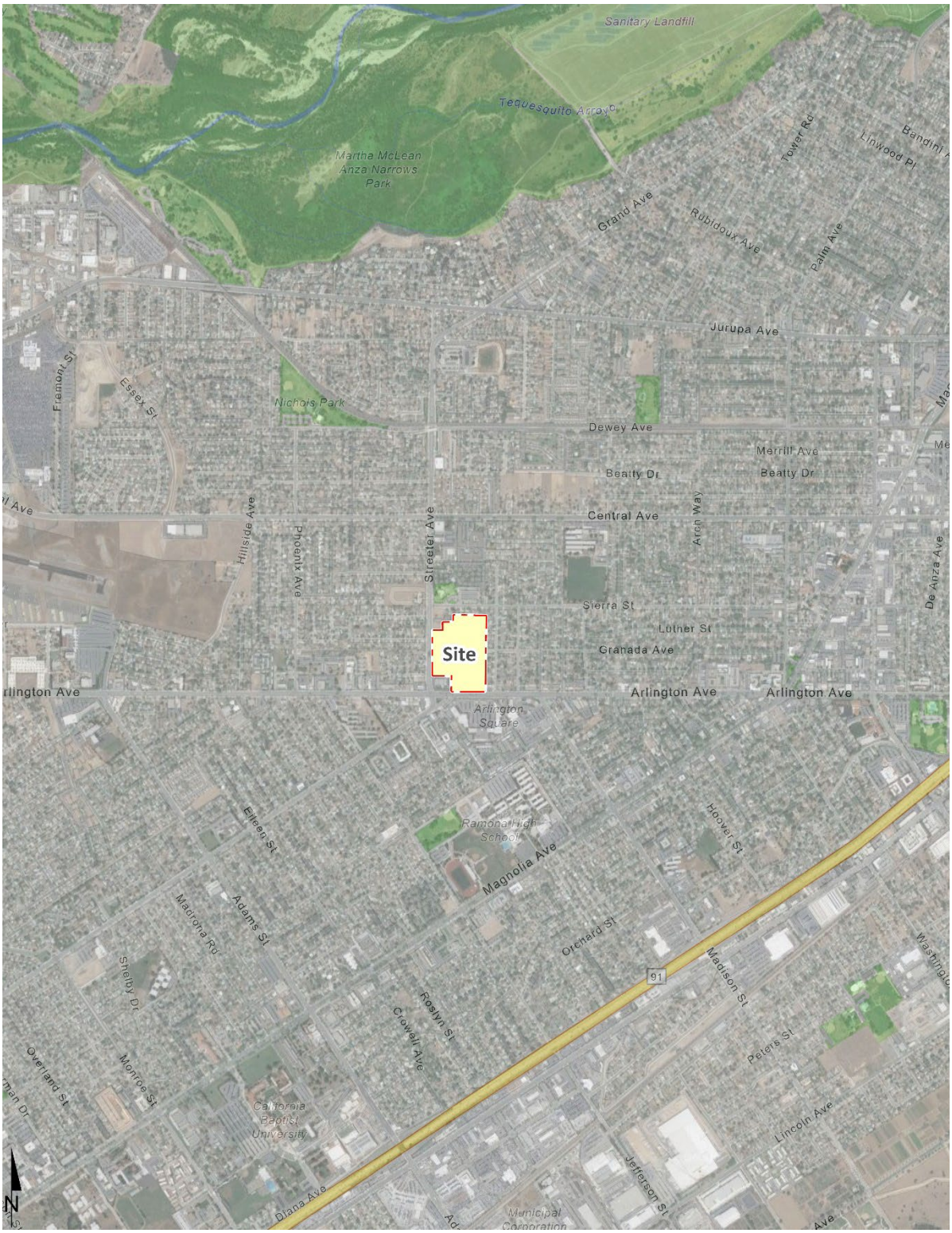


EXHIBIT 3: STUDY AREA

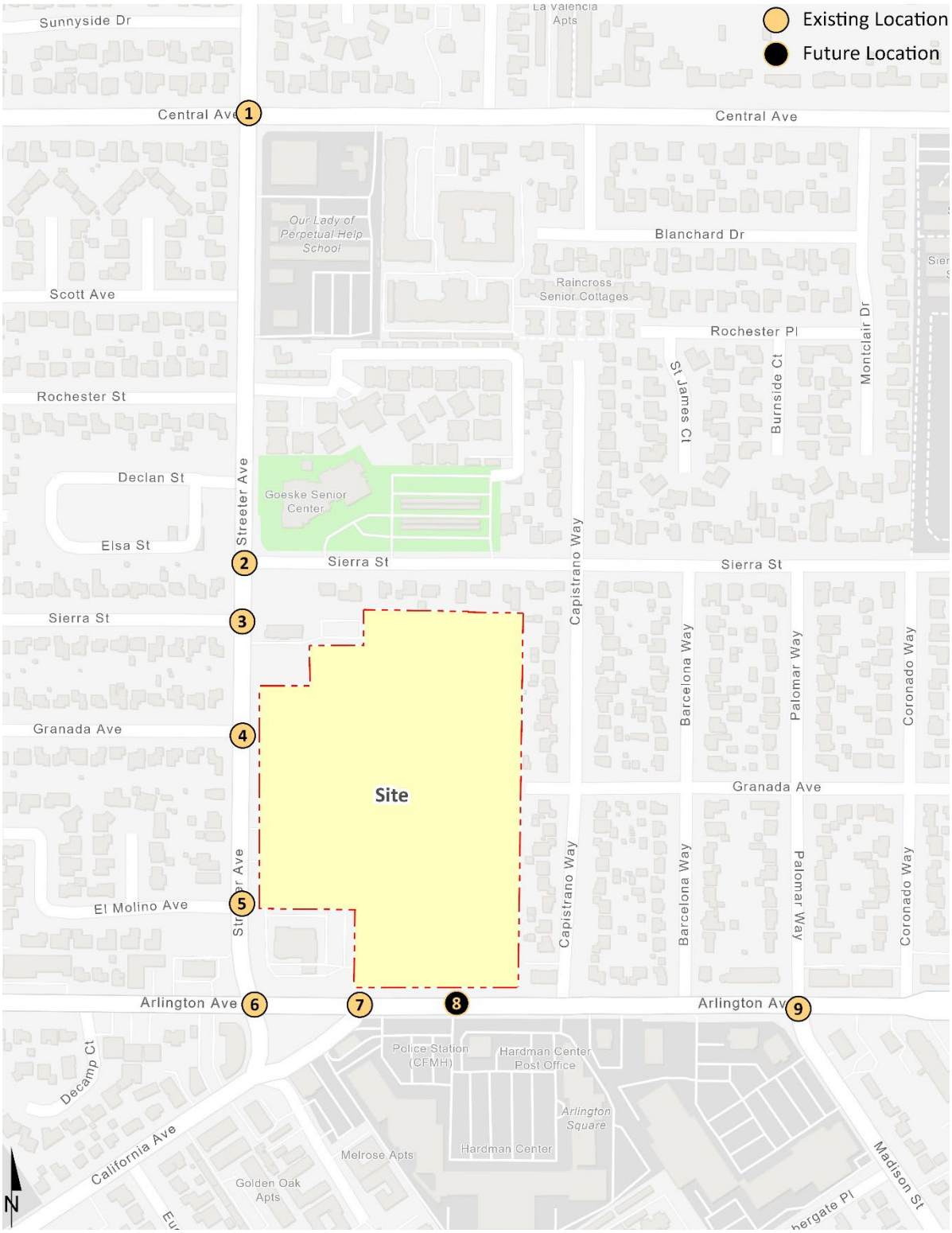
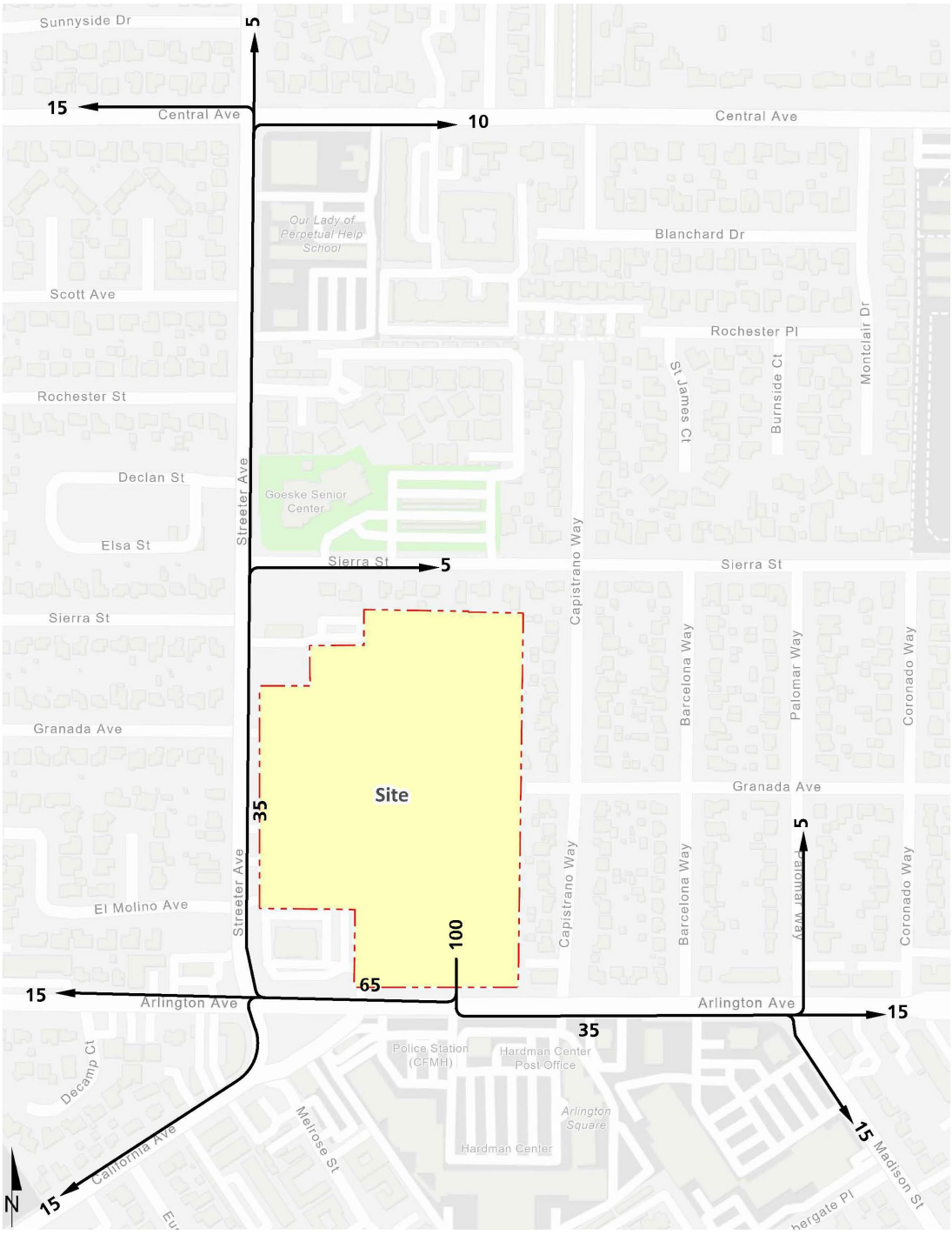
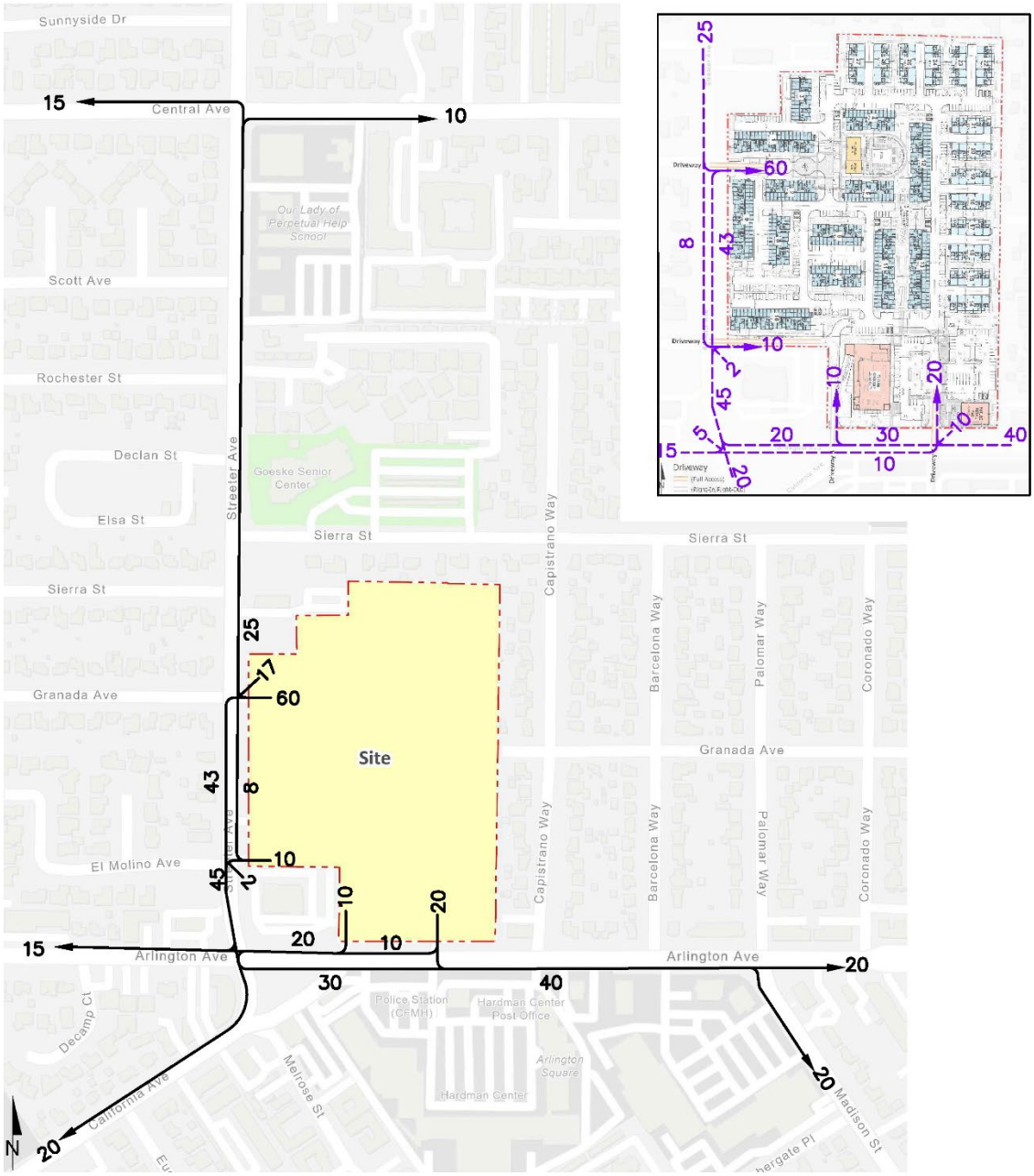


EXHIBIT 4: PROJECT (RETAIL) TRIP DISTRIBUTION



10 ***= Percent To/From Project***

EXHIBIT 5: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION



10 = Percent To/From Project
= Outbound
= Inbound

Table 1: Existing Trip Generation Summary

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Department Store	875	TSF	0.37	0.21	0.58	0.98	0.97	1.95	22.88

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

[2] TSF = thousand square feet

Project Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Sears	205.350	TSF	76	43	119	201	199	400	4,698

[1] TSF = thousand square feet

Table 2: Proposed Project Trip Generation Summary

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Multifamily (Low-Rise) Residential	221	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74
Strip Retail (Regression Equation)	822	TSF	2.19	1.46	3.64	4.76	4.76	9.52	88.14
Supermarket	850	TSF	1.69	1.17	2.86	4.48	4.47	8.95	93.84

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

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

Project Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Multifamily (Low-Rise) Residential	388	DU	37	118	155	125	73	198	2,616
Internal Capture (Residential)			-1	-1	-2	-31	-12	-43	-568
Strip Retail	5.000	TSF	11	7	18	24	24	48	441
Pass-by Reduction (PM/Daily = 40%)			0	0	0	-10	-10	-19	-176
Supermarket	21.000	TSF	35	25	60	94	94	188	1,972
Pass-by Reduction (PM/Daily = 24%)			0	0	0	-23	-23	-45	-473
Internal Capture (Retail)			-1	-1	-2	-12	-31	-43	-440
TOTAL			**81**	**148**	**229**	**168**	**116**	**284**	**3,372**

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

Table 3: Trip Generation Comparison

Land Use	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Proposed Project	81	148	229	168	116	284	3,372
Existing Use	76	43	119	201	199	400	4,698
Variance	**5**	**105**	**110**	**-33**	**-83**	**-116**	**-1,326**

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Arlington	**Organization:**	Urban Crossroads, Inc.
Project Location:	Riverside	**Performed By:**	CS
Scenario Description:		**Date:**	9/14/2022
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				78	46	32
Restaurant				0		
Cinema/Entertainment				0		
Residential				155	37	118
Hotel				0		
All Other Land Uses[2]				0		
				233	83	150

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	233	83	150
Internal Capture Percentage	2%	2%	1%
External Vehicle-Trips[5]	229	81	148
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	2%	3%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	3%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Arlington	**Organization:**	Urban Crossroads, Inc.
Project Location:	Riverside	**Performed By:**	CS
Scenario Description:		**Date:**	9/14/2022
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				236	118	118
Restaurant				0		
Cinema/Entertainment				0		
Residential				198	125	73
Hotel				0		
All Other Land Uses[2]				0		
				434	243	191

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	31	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	12	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	434	243	191
Internal Capture Percentage	20%	18%	23%
External Vehicle-Trips[5]	348	200	148
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	26%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	25%	16%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

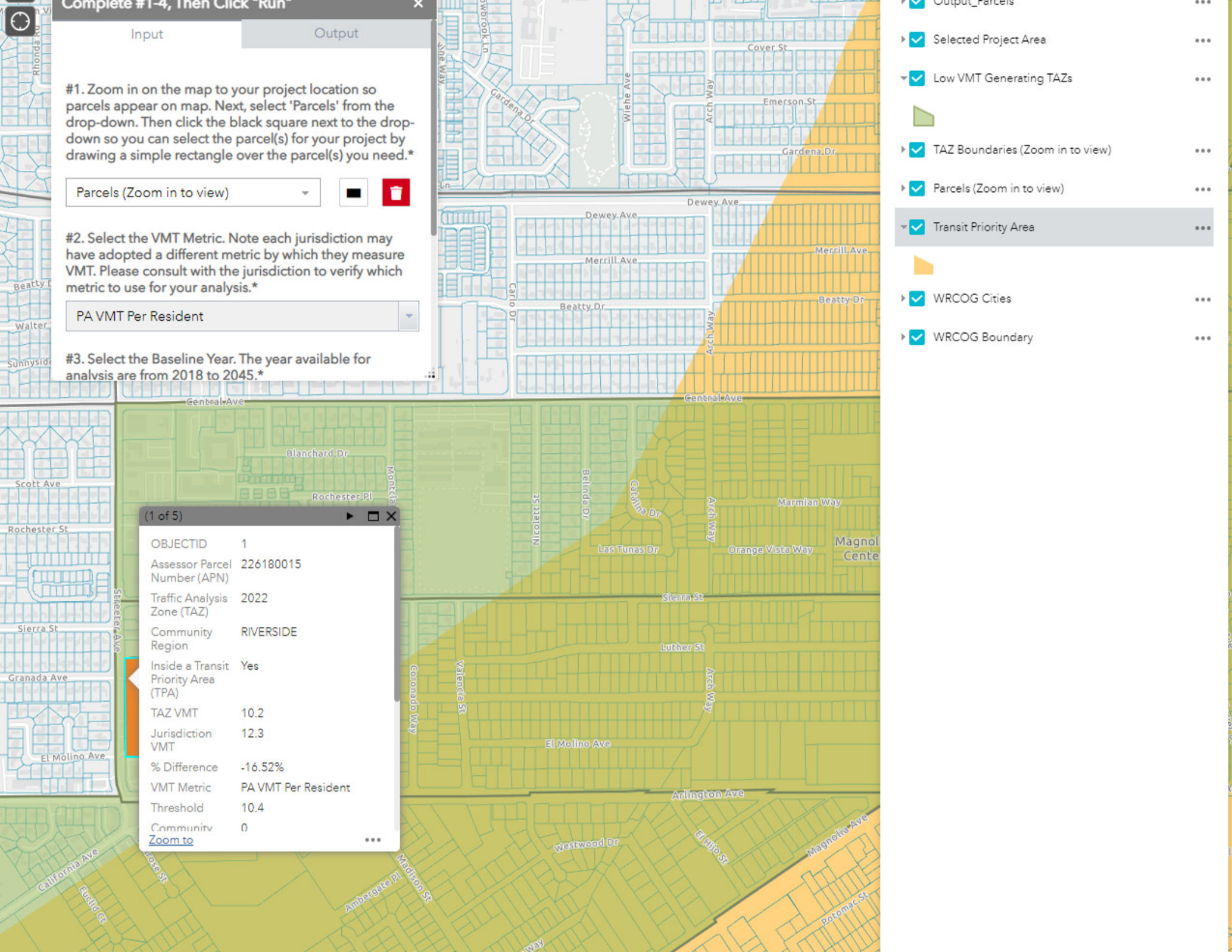
[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1


Complete #1-4, Then Click "Run"
Input
Output
#1. Zoom in on the map to your project location so parcels appear on map. Next, select 'Parcels' from the drop-down. Then click the black square next to the drop-down so you can select the parcel(s) for your project by drawing a simple rectangle over the parcel(s) you need.*
Parcels (Zoom in to view)
#2. Select the VMT Metric. Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
PA VMT Per Resident
#3. Select the Baseline Year. The year available for analysis are from 2018 to 2045.*
(1 of 5)
OBJECTID 1
Assessor Parcel Number (APN) 226180015
Traffic Analysis Zone (TAZ) 2022
Community Region RIVERSIDE
Inside a Transit Priority Area (TPA) Yes
TAZ VMT 10.2
Jurisdiction VMT 12.3
% Difference -16.52%
VMT Metric PA VMT Per Resident
Threshold 10.4
Community 0
Zoom to
Output_Parcels
Selected Project Area
Low VMT Generating TAZs
TAZ Boundaries (Zoom in to view)
Parcels (Zoom in to view)
Transit Priority Area
WRCOG Cities
WRCOG Boundary
Dewey Ave
Merrill Ave
Beatty Dr
Central Ave
Blanchard Dr
Rochester Pl
Rochester St
Scott Ave
Sierra St
Granada Ave
El Molino Ave
Arlington Ave
Luther St
Las Tunas Dr
Orange Vista Way
Marmian Way
Cover St
Emerson St
Gardena Dr
Arch Way
Wiehe Ave
Carlo Dr
Belinda Dr
Catalina Dr
Nicolet St
Valencia St
Coronado Way
Westwood Dr
El Hilo St
Magnolia Ave
Potomac St
Madison St
Ambergate Pl
California Ave
Euclid Ct
Rose St
Streeter Ave