

19. Project Driveway 1/Van Buren Boulevard (both a.m. and afternoon peak hours).

All other intersections are forecast to operate at a satisfactory LOS under cumulative without project conditions.

Under cumulative with project conditions, the following intersections are forecast to operate at a deficient LOS:

1. Washington Street/Van Buren Boulevard (both a.m. and afternoon peak hours);
2. Chicago Avenue – Alta Cresta Avenue/Van Buren Boulevard (both a.m. and afternoon peak hours);
4. Little Court/Van Buren Boulevard (both a.m. and afternoon peak hours);
5. Ridgeway Avenue/Van Buren Boulevard (both a.m. and afternoon peak hours);
6. Dauchy Avenue/Van Buren Boulevard (both a.m. and afternoon peak hours);
7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane (both a.m. and afternoon peak hours);
8. Dauchy Avenue – Taft Street/Krameria Avenue (both a.m. and afternoon peak hours);
11. Trautwein Road/Mission Grove Parkway (both a.m. and afternoon peak hours);
12. Trautwein Road/John F Kennedy Drive (a.m. peak hour only);
14. Trautwein Road/Orange Terrace Parkway (a.m. peak hour only);
16. Trautwein Road/Van Buren Boulevard (afternoon peak hour only);
18. Barton Street/Van Buren Boulevard (both a.m. and afternoon peak hours);
19. Project Driveway 1/Van Buren Boulevard (both a.m. and afternoon peak hours); and
21. Dauchy Avenue/Project Driveway 4 (both a.m. and afternoon peak hours).

All other intersections are forecast to operate at a satisfactory LOS under cumulative with project conditions.

1.6 TRAFFIC SIGNAL WARRANT ANALYSIS

A peak hour signal warrant analysis was conducted at Dauchy Avenue/Project Driveway 2 – Ardenwood Lane and Dauchy Avenue – Taft Street/Krameria Avenue which are forecast to operate at a deficient LOS under the Opening Year (2029) and Cumulative (2045) conditions. The signal warrant analysis for these intersections were conducted for Opening Year (2029) without Project, Opening Year (2029) with Project, Cumulative (2045) without Project, and Cumulative (2045) with Project conditions. The signal warrant analysis was conducted using the peak hour warrants from the *California Manual on Uniform Traffic Control Devices* (CAMUTCD).

The intersection of Dauchy Avenue/Project Driveway 2 – Ardenwood Lane meets the signal warrant for the a.m. peak hour under the Opening Year (2029) with Project scenario. The intersection of Dauchy Avenue – Taft Street/Krameria Avenue meets the signal warrant for the afternoon peak hour under the Opening Year (2029) with project scenario.

The intersection of Dauchy Avenue/Project Driveway 2 – Ardenwood Lane meets the signal warrant for the a.m. peak hour under the Cumulative (2045) with Project scenario. The intersection of Dauchy Avenue – Taft Street/Krameria Avenue meets the signal warrant for both a.m. and afternoon peak hours under the Cumulative (2045) without and with project scenario.

1.7 SITE ACCESS ANALYSIS

A site access analysis was conducted to analyze potential effects of project driveway designs on accessibility to the project site. Project design features include the realignment of Project Driveway 2 to remove the offset with Ardenwood Lane, the addition of a receiving lane at Project Driveway 2, the addition of a right turn lane for the eastbound direction at Project Driveway 2, and the relocation of bus parking at the rear parking lot, which will improve vehicular access. These changes proposed on the project site is not anticipated to reduce the accessibility of bicyclists, pedestrians, and transit users accessing the site.

1.8 SPEED SURVEY ANALYSIS

A speed survey analysis was conducted to identify changes in vehicle speed due to potential changes in traffic patterns. Speed surveys were conducted along Dauchy Avenue between Hawksbury Drive and Krameria Avenue to determine the average and 85th percentile speed within the project frontage. The posted speed limit on Dauchy Avenue is 25 miles per hour (mph). Speed surveys found that the average speed is 29 mph in the northbound direction and 29 mph in the southbound direction. The 85th percentile speed observed for the northbound direction is 35 mph and 34 mph in the southbound direction. It is estimated that approximately eleven percent of the project trips will be using this roadway segment. Most of these trips will be local trips generated from the nearby residences. As such, it is anticipated that there will be nominal cut-through project trips within the project neighborhood, which is not expected to affect the existing traffic speed pattern for the project neighborhood.

1.9 ACTIVE TRANSPORTATION AND PUBLIC TRANSIT ANALYSIS

An active transportation and public transit analysis was conducted to examine if the project has a conflict with adopted plans, policies, or programs regarding active transportation or public transit facilities, or otherwise decreases the performance or safety of such facilities.

Based on the City's PACT, a Class II bike lane exists along Trautwein Road, along Cole Avenue between Van Buren Boulevard and Krameria Avenue, along Grove Community Drive, along Orange Terrace Parkway, and along Van Buren Boulevard. A Class I & II Bike Lane/Path exists on John F Kennedy Drive between Dauchy Avenue and Trautwein Road. Proposed Class II buffered bike lanes are planned to be constructed on Wood Road and Mission Grove Parkway South in the immediate future. The project is not anticipated to decrease the accessibility of cyclists to the project. As such, the project will not decrease the performance or safety of any existing proposed bicycle facility.

The City's PACT has identified a tier 1 spot improvement has been identified within the study area is the intersection of Wood Road and Van Buren Boulevard. Pedestrian improvements at this intersection as presented in the City's PACT can include but are not limited to the following: curb extensions, right turn on red restrictions, crosswalks and curb camps, high visibility crosswalks, etc. While the intersection of Dauchy Avenue and Van Buren Boulevard has not been identified for spot improvements under the City's PACT, the following improvements has been recommended by City staff to improve pedestrian safety:

- Continental crosswalks;
- Audible pedestrian push buttons; and
- Pedestrian crossing restriction signs for the east leg of the intersection.

These improvements will improve accessibility and safety for pedestrians and students due to additional visibility provided. As such, the proposed project will improve the performance and safety of the existing and/or proposed pedestrian facility.

RTA local bus routes 20, 22, and 27 operate within the study area. At present, there are no additional service changes proposed in RTA's transit network as a result of the project. As such, the project will not decrease the performance or safety of any existing or proposed public transit facility.

As part of the expansion, the school is planning to provide circulation improvements within the project site. Circulation improvements include bus loading zones and bus pullouts in the main parking lot and rear parking lot. These bus loading zones and bus pullout will reduce student exposure to parking lot traffic and minimize conflict within the parking lot.

1.10 QUEUEING ANALYSIS

A queueing analysis was conducted at intersections/driveways to identify potential queuing deficiencies. The queuing analysis showed that some of the movements are exceeding the existing available turn-pocket storage length under opening year with project scenarios. The project related queues that exceed the available storage lengths are as follows:

6. Dauchy Avenue/Van Buren Boulevard: Northbound left (both a.m. and p.m. peak hour);
7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane: Northbound left-through-right (p.m. peak hour only).
7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane: Westbound left-through-right (a.m. peak hour only).

The queueing analysis showed that some of the movements are exceeding the existing available turn-pocket storage length under cumulative with project scenarios. The project related queues that exceed the available storage lengths are as follows:

6. Dauchy Avenue/Van Buren Boulevard: Northbound left (both a.m. and p.m. peak hour);

7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane: Northbound left-through-right (p.m. peak hour only);
7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane: Westbound left-through-right (a.m. peak hour only).
20. Dauchy Avenue/Project Driveway 3: Northbound through-left (both a.m. and p.m. peak hour).

Based on the results of the queuing analysis, improvements have been recommended at study intersections where the project related movements are forecast to contribute to queues exceeding existing storage lanes and where storage length extensions are feasible. Recommended improvements include the extension of storage lanes for the northbound left turn movement at Dauchy Avenue/Van Buren Boulevard. However, queues are still forecast to exceed the recommended storage lane extension and further extension is not feasible due to conflicts with upstream intersections and/or private driveways. It should be noted that queues for the northbound left turn movement at Dauchy Avenue/Van Buren Boulevard is forecast to further increase after implementation of improvements due to the prioritization of reducing traffic delay on the eastbound/westbound traffic along Van Buren Boulevard.

Queues for the northbound left-through-right movement at Dauchy Avenue/Project Driveway 2 – Ardenwood Lane is forecast to also increase after improvements due to the recommended improvement of installation of a traffic signal. However, the traffic signal is anticipated to improve intersection delay and reduce queuing along Ardenwood Lane. The addition of a two-way-left-turn-lane (TWLTL) between the intersection of Dauchy Avenue/Project Driveway 3 and Dauchy Avenue/Project Driveway 4 is anticipated to reduce queues caused for northbound left turn movement at Project Driveway 3 and Project Driveway 4 by separating northbound left turn and through movements.

1.11 CIRCULATION IMPROVEMENTS AND FUNDING SOURCES

1.11.1 Opening Year (2029) Conditions

Circulation improvements have been proposed to minimize the circulation deficiencies. Table 1-A summarizes the recommended improvements for study intersections and funding mechanism under Opening Year conditions. With the implementation of improvements recommended in Section 13.1, the following intersections are forecast to continue to operate at a deficient LOS:

11. Trautwein Road/Mission Grove Parkway (both a.m. and afternoon peak hours);
12. Trautwein Road/John F Kennedy Drive (a.m. peak hour only);
14. Trautwein Road/Orange Terrace Parkway (a.m. peak hour only);
16. Trautwein Road/Van Buren Boulevard (afternoon peak hour only); and
18. Barton Street/Van Buren Boulevard (both a.m. and afternoon peak hours).

All other previously deficient intersections are forecast to operate at a satisfactory LOS after improvements. It should be noted that while the intersection of Trautwein Road/Van Buren Boulevard and Barton Street/Van Buren Boulevard are still forecast to operate at a deficient LOS even after implementation of recommended improvements, the delay for Trautwein Road/Van Buren Boulevard and Barton Street/Van Buren Boulevard (afternoon peak hour only) is reduced to a value less or similar than the delay under opening year without project conditions.

Table 1-B summarizes the recommended improvements for study roadway segments and funding mechanism under Opening Year conditions. All three roadway segments are forecast to operate at a deficient LOS under opening year without and with project conditions. Based on the City's TIA Guidelines, the project is forecast to add to the operational deficiencies at two segments on Dauchy Avenue, as it increases the volume-to-capacity (V/C) ratio by more than 5 percent. However, improvements are not possible for the two segments on Dauchy Avenue due to right-of-way constraints. The roadway segment on Van Buren Boulevard is proposed to be widened to six lanes as part of intersection operations improvement. However, even after implementation of the improvement, the segment on Van Buren Boulevard is forecast to operate at a deficient LOS under Opening Year conditions.

1.11.2 Cumulative (2045) Conditions

Previously referenced Table 1-A summarizes the recommended improvements for study intersections and funding mechanism under Cumulative conditions. With implementation of improvements recommended in Section 11.1, the following intersections are forecast to continue to operate at a deficient LOS:

11. Trautwein Road/Mission Grove Parkway (both a.m. and afternoon peak hours);
12. Trautwein Road/John F Kennedy Drive (a.m. peak hour only);
14. Trautwein Road/Orange Terrace Parkway (a.m. peak hour only);
16. Trautwein Road/Van Buren Boulevard (afternoon peak hour only); and
18. Barton Street/Van Buren Boulevard (both a.m. and afternoon peak hours).

All other previously deficient intersections are forecast to operate at a satisfactory LOS after improvements. It should be noted that while the intersection of Trautwein Road/Van Buren Boulevard and Barton Street/Van Buren Boulevard are still forecast to operate at a deficient LOS even after implementation of recommended improvements, the delay for Trautwein Road/Van Buren Boulevard and Barton Street/Van Buren Boulevard (afternoon peak hour only) is reduced to a value less or similar than the delay under cumulative without project conditions.

Previously referenced Table 1-B summarizes the recommended improvements for study roadway segments and funding mechanism under Cumulative conditions. All three roadway segments are forecast to operate at a deficient LOS under Cumulative without and with project conditions. Based on the City's TIA Guidelines, the project is forecast to add to the operational deficiencies at two segments on Dauchy Avenue, as it increases the volume-to-capacity (V/C) ratio by more than 5 percent. However, improvements are not possible for the two segments on Dauchy Avenue due to

right-of-way constraints. The roadway segment on Van Buren Boulevard is proposed to be widened to six lanes as part intersection operations improvement. However, even after the implementation of the improvement the segment on Van Buren Boulevard is forecast to still operate at a deficient LOS under Cumulative conditions.

1.12 DROP-OFF/PICK-UP CIRCULATION

As part of the expansion, the school is planning to provide circulation improvements within the project site. Circulation improvements include bus loading zones and bus pullouts in the main parking lot and rear parking lot. These bus loading zones and bus pullout will minimize conflict within the parking lot and improve internal circulation. With the proposed circulation improvements, no internal queueing issues nor conflicts are anticipated, as the storage for vehicle drop-off and pick-up provides adequate storage room.

1.13 LIST OF CHAPTER 1.0 TABLES

- Table 1-A: Recommended Improvements for Intersections and Funding Mechanism
- Table 1-B: Recommended Improvements for Roadway Segments and Funding Mechanism

Table 1-A - Recommended Improvements for Intersections and Funding Mechanism

Intersection	Opening Year (2029) with Project Improvements	Cumulative (2045) with Project Improvements	Improvements Covered by TUMF	Improvements In Coordination With City and County	Improvements Covered by Fair Share (County Only)
1 . Washington Street/Van Buren Boulevard	Add EBT. Restripe WBR to WBTR.	No additional improvements required.	Add EBT.		Restripe WBR to WBTR.
2 . Chicago Avenue - Alta Cresta Avenue/Van Buren Boulevard	Add EBT. Add WBT.	No additional improvements required.	Add EBT. Add WBT.		
4 . Little Court/Van Buren Boulevard	Restripe EBR to EBTR.	No additional improvements required.	Restripe EBR to EBTR.		
5 . Ridgeway Avenue/Van Buren Boulevard	Restrict SBL movement during peak hours. Add EBT. Add WBT.	No additional improvements required.	Add EBT. Add WBT.	Restrict SBL movement during peak hours.	
6 . Dauchy Avenue/Van Buren Boulevard	Add EBT. Restripe WBR to WBTR. Extend NBL storage to 200'.	No additional improvements required.	Add EBT.	Restripe WBR to WBTR. Extend NBL storage to 200'. Add continental crosswalks, audible pedestrian push buttons, and pedestrian restriction signs.	
7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane	Add signal.	No additional improvements required.		Add signal. (Project Responsibility)	
8 . Dauchy Avenue - Taft Street/Krameria Avenue	Add signal.	No additional improvements required.		Add signal.	
11 . Trautwein Road/Mission Grove Parkway	No improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.	No improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.			
12 . Trautwein Road/John F Kennedy Drive	No improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.	No improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.			
14 . Trautwein Road/Orange Terrace Parkway	No improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.	No improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.			
16 . Trautwein Road/Van Buren Boulevard	Restripe EBR to EBTR. No additional improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.	No additional improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.		Restripe EBR to EBTR.	
18 . Barton Street/Van Buren Boulevard	Add EBT. Add WBL.	No additional improvements feasible due to right-of-way constraints and/or feasible improvements will have a nominal effect on intersection LOS.	Add EBT.	Add WBL.	
19 . Project Driveway 1/Van Buren Boulevard	Add EBT and WBT.	No additional improvements required.	Add EBT and WBT.		
20 . Dauchy Avenue/Project Driveway 3	Add TWLTL on Dauchy Ave.			Add TWLTL on Dauchy Ave. (Project Responsibility)	
21 . Dauchy Avenue/Project Driveway 4	Add TWLTL on Dauchy Ave.			Add TWLTL on Dauchy Ave. (Project Responsibility)	

Notes:

EB = Eastbound; WB = Westbound; L = Left; T = Through; R = Right

TWLTL = Two-Way-Left-Turn-Lane

TUMF refers to the Transportation Uniform Mitigation Fee Program.

Table 1-B - Recommended Improvements for Roadway Segments and Funding Mechanism

Roadway	#	Segment	Opening Year (2029) with Project Improvements	Cumulative (2045) with Project Improvements	Improvements Covered by TUMF	Improvements In Coordination With City and County	Improvements Covered by Fair Share (County Only)
Van Buren Boulevard	1	Between Little Court and Dauchy Avenue	Widen to 6 lanes. No additional improvements feasible due to right-of-way constraints.	No additional improvements feasible due to right-of-way constraints.	Widen to 6 lanes.		
Dauchy Avenue	2	Between Van Buren Boulevard and Ardenwood Lane	No improvements feasible due to right-of-way constraints.	No improvements feasible due to right-of-way constraints.			
	3	Between Ardenwood Lane and Hawksbury Drive	Add TWLTL between Project Driveway 3 and Project Driveway 4 (Project Responsibility). Parking restriction between Project Driveway 2 and Project Driveway 5 (Project Responsibility). No additional improvements feasible due to right-of-way constraints.	No additional improvements feasible due to right-of-way constraints.		Add TWLTL between Project Driveway 3 and Project Driveway 4 (Project Responsibility). Parking restriction between Project Driveway 2 and Project Driveway 5 (Project Responsibility).	

Notes:

TUMF refers to the Transportation Uniform Mitigation Fee Program.

TWLTL = Two-Way-Left-Turn-Lane

2.0 INTRODUCTION

The Traffic Operational Analysis (TOA) has been prepared for the proposed Woodcrest Christian School Expansion Project (project) to be located south of Van Buren Boulevard between Little Court and Dauchy Avenue in the City of Riverside (City). Figure 2-1 illustrates the regional and project location. (Figures and tables are located at the end of each chapter.)

This report is intended to satisfy the requirements established by the City of Riverside Public Works Department *Traffic Impact Analysis (TIA) Guidelines for Vehicle Miles Traveled (VMT) and Levels of Service Assessments* (dated July 2020), and the requirements for the disclosure of potential impacts and mitigation measures pursuant to the California Environmental Quality Act (CEQA). The scope of work for this TOA, including trip generation, trip distribution, study area, and analysis methodologies, was reviewed by City staff and adjacent jurisdictions via the Scoping Agreement process. Comments provided by city staff has been incorporated as part of preparation of this analysis. A copy of the Scoping Agreement is included in Appendix A.

This study examines traffic operations in the vicinity of the proposed project under the following five scenarios:

- Existing Conditions;
- Opening Year (2029) without Project Conditions;
- Opening Year (2029) with Project Conditions;
- Cumulative (2045) without Project Conditions; and
- Cumulative (2045) with Project Conditions.

Traffic conditions were examined for the weekday daily, a.m., and afternoon peak hour conditions. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The afternoon peak hour is the one hour of highest traffic volumes occurring between 2:00 p.m. and 4:00 p.m. Roadway segments were analyzed using daily volume counts and comparisons were made to the daily service volume standards provided in the City's TIA Guidelines.

2.1 PROJECT DESCRIPTION

The proposed Woodcrest Christian School Expansion Project will include expansion of the existing school's enrollment by 280 students. This project will include the expansion of administrative offices by 840 square feet (sf) (Building A), a 11,147 sf office/classrooms building (Building F), a 300 seat amphitheater (Building G), two 1,400 sf H.S. classrooms (Building H1 and H2), a 14,980 sf performing arts building (Building I-A), a 10,223 sf H.S. classrooms/administrative offices (Building I-B), a 5,605 sf grub hub/student center (Building I-C), a 12,426 sf H.S classrooms/offices/storage (Building T), a 7,220 sf sports club/weight room/snack bar (Building T), and multiple storage buildings/storage barn (Building P, S1, X, and Y).

The existing project parcel is considered as Public Facilities/Institutional (PF) in the General Plan Land Use and Public Facilities (PF-SP) Orangecrest Specific Plan Overlay as the Zoning. The adjacent

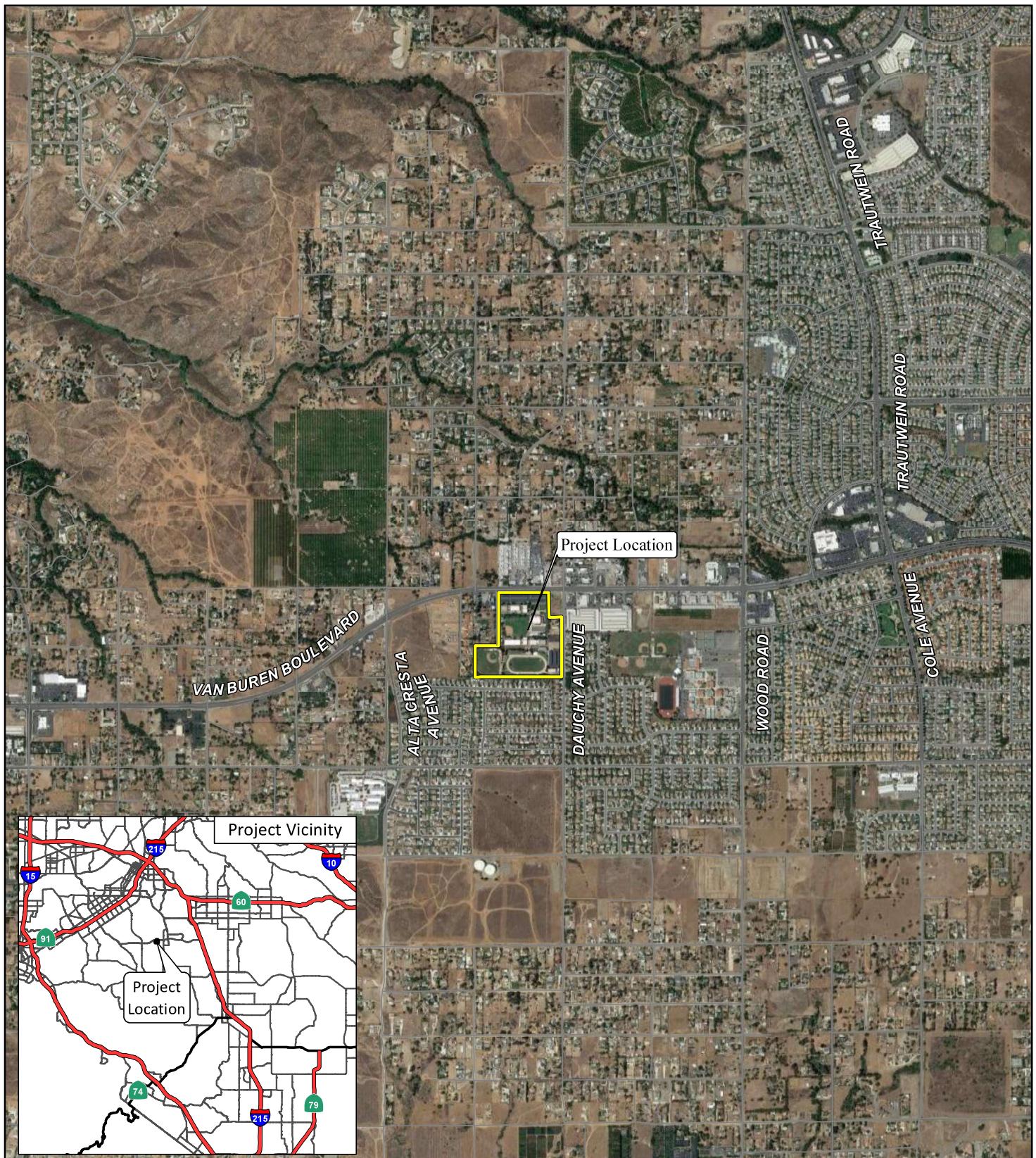
parcel (APN 266020059) located northeast of the current Woodcrest Christian School site will be acquired as part of this project. The adjacent parcel is considered as Mixed Use-Village (MU-V) in the General Plan Land Use and Mixed Use – Village – 2 Story Building – 15 feet Building Setback (MU-V-S-2-X-15-SP) Orangecrest Specific Plan Overlay as the Zoning. This project will only require a Conditional Use Permit (CUP) but not require a General Plan Amendment (GPA) nor Zone Change (ZC). The project is anticipated to be completed by year 2029. Figure 2-2 illustrates the conceptual site plan for the proposed project.

As shown in Figure 2-2, the project can be accessed through three of the five existing driveways, one of which will be reconstructed as a project design feature. Project Driveway 1 will remain gated and Project Driveway 5 is a restricted access driveway for authorized vehicles. Following is a description of all driveways providing access to the site:

- Driveway on Van Buren Boulevard:
 - Project Driveway 1: This is a gated right-in/right-out (RIRO) driveway. Project traffic would not be typically allowed to use this driveway.
- Driveways on Dauchy Avenue:
 - Project Driveway 2: This is a full-access driveway.
 - Project Driveway 3: This is an entrance only driveway.
 - Project Driveway 4: This is a full-access driveway.
 - Project Driveway 5: This is a restricted access driveway for authorized vehicles. Project traffic would not be allowed to use this driveway.

2.2 LIST OF CHAPTER 2.0 FIGURES

- Figure 2-1: Regional and Project Location
- Figure 2-2: Conceptual Site Plan



LSA

LEGEND

 Project Site



0 1000 2000
FEET

SOURCE: ESRI Streetmap, 2021; Google Earth, 2021.

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PR-2023-001080 (CUP, DR) - Exhibit 9g-ISMND - Appendix F

Woodcrest Christian School Expansion
Traffic Operational Analysis

Regional and Project Location

FIGURE 2-1

LEGEND

LEGEND							
BUILDING - FUNCTION NUMBER	PREVIOUS CUP NUMBER	BUILDING NAME	NUMBER OF CLASS ROOMS	REQUIRED PARKING	SQUARE FOOTAGE	STATUS	PHASE
A	100	ADMINISTRATION & MULTIPURPOSE ROOM	0	0	5,310 S.F.	EXISTING	
A-1	A-1	OFFICE EXPANSION	0	0	840 S.F.	APPROVED	-
B	200	M.S. CLASSROOMS	6	12	8,320 S.F.	EXISTING	
C	A	M.S. CLASSROOMS	4	8	6,016 S.F.	EXISTING	
*D	K	M.S. CLASSROOMS	0	0	960 S.F.	EXISTING	
*E	K	M.S. CLASSROOMS	0	0	960 S.F.	EXISTING	
F	-	M.S. 2 STORY - OFFICE/ CLASSROOMS	7	14	11,147 S.F. 2 STORY	PROPOSED	4
G	-	AMPHITHEATER	0	0	300 SEATS	PROPOSED	
H	600	GYMNASIUM & LOCKERS	0	0	20,208 S.F.	EXISTING	
H1	-	H.S. CLASS ROOM	1	7	1,400 S.F.	PROPOSED	3
H2	-	H.S. CLASSROOM	1	7	1,400 S.F.	PROPOSED	3
I-A	W	PERFORMING ARTS	0	0	14,980 S.F.	APPROVED	3
I-B	-	H.S. CLASSROOMS + ADMIN.	3	21	10,223 S.F.	PROPOSED	2
I-C	J	GRUB HUB+STUDENT CENTER	0	0	5,605 S.F.	APPROVED	2
J	B	H.S. CLASSROOMS	4	28	6,144 S.F.	EXISTING	
K	300	H.S. CLASSROOMS	4	28	6,142 S.F.	EXISTING	
L	500	LOWER LEVEL STAFF LOUNGE OFFICES & STORAGE	0	0	2,881 S.F.	EXISTING	
M	400	H.S. CLASSROOMS	10	70	14,848 S.F.	EXISTING	
****N	K	H.S. CLASSROOMS	0	0	960 S.F.	EXISTING	
****O	K	H.S. CLASSROOMS	0	0	960 S.F.	EXISTING	
P	-	SPORTS STORAGE/BINS	0	0	480 S.F.	PROPOSED	
Q	F	LUNCH SHELTER	0	0	5,600 S.F.	EXISTING	
R	500	MAIN LEVEL LIBRARY & ADMINISTRATION	0	0	960 S.F. EACH TOTAL OF 4	EXISTING	
S	G	CHOIR & BAND	2	14	3,066 S.F.	EXISTING	
S1	-	STORAGE	0	0	1,400 S.F.	PROPOSED	-
T	-	H.S. 2 STORY CLASSROOMS OFFICES, STORAGE	7	49	12,426 S.F.	PROPOSED	1
	H	SPORTS CLUB W/ STORAGE WEIGHT ROOM - SNACK BAR	0	0	7,220 S.F.	APPROVED	
**U	M	H.S. CLASSROOMS	0	0	3,840 S.F.	EXISTING	
W	C	BUS BARN	0	0	6,000 S.F.	EXISTING	
X	-	STORAGE	0	0	2,400 S.F.	PROPOSED	1
Y	-	STORAGE BARN	0	0	5,400 S.F.	PROPOSED	2
***Z	-	MAINTENANCE SHED	0	0	2,000 S.F.	EXISTING	-
***aa	-	STAFF HOUSING	0	0	1,000 S.F.	EXISTING	-
bb	Z	CELL TOWER EXPANSION	0	0	1,000 S.F.	PROPOSED	-
cc	-	PROJECT ENTRANCE	0	0	-	PROPOSED	2
dd	-	PLAY COURTS	0	0	-	PROPOSED	3
ee	-	STUDENT ACTIVITIES	0	0	-	PROPOSED	3
ff	-	OUTDOOR AMPHITHEATER	0	0	-	EXISTING	-
gg	-	FIELD LIGHTS	0	0	-	PROPOSED	2
TOTAL CLASSROOMS			49	-	17 MIDDLE SCHOOL - 32 HIGH SCHOOL		
TOTAL REQUIRED PARKING			258		2 M.S. BUSES - 3 H.S. BUSES		
TOTAL PARKING PROVIDED			365		INCLUDES 43 NEW SPACES IN PHASE 2		

- * TO BE REMOVED ON CONSTRUCTION OF BUILDING F
- ** TO BE REMOVED AFTER CONSTRUCTION OF BUILDING T
- *** TO BE REMOVED ON CONSTRUCTION OF PROJECT ENTRANCE
- **** TO BE USED AS STAFF OFFICES AFTER CONSTRUCTION OF BUILDING T

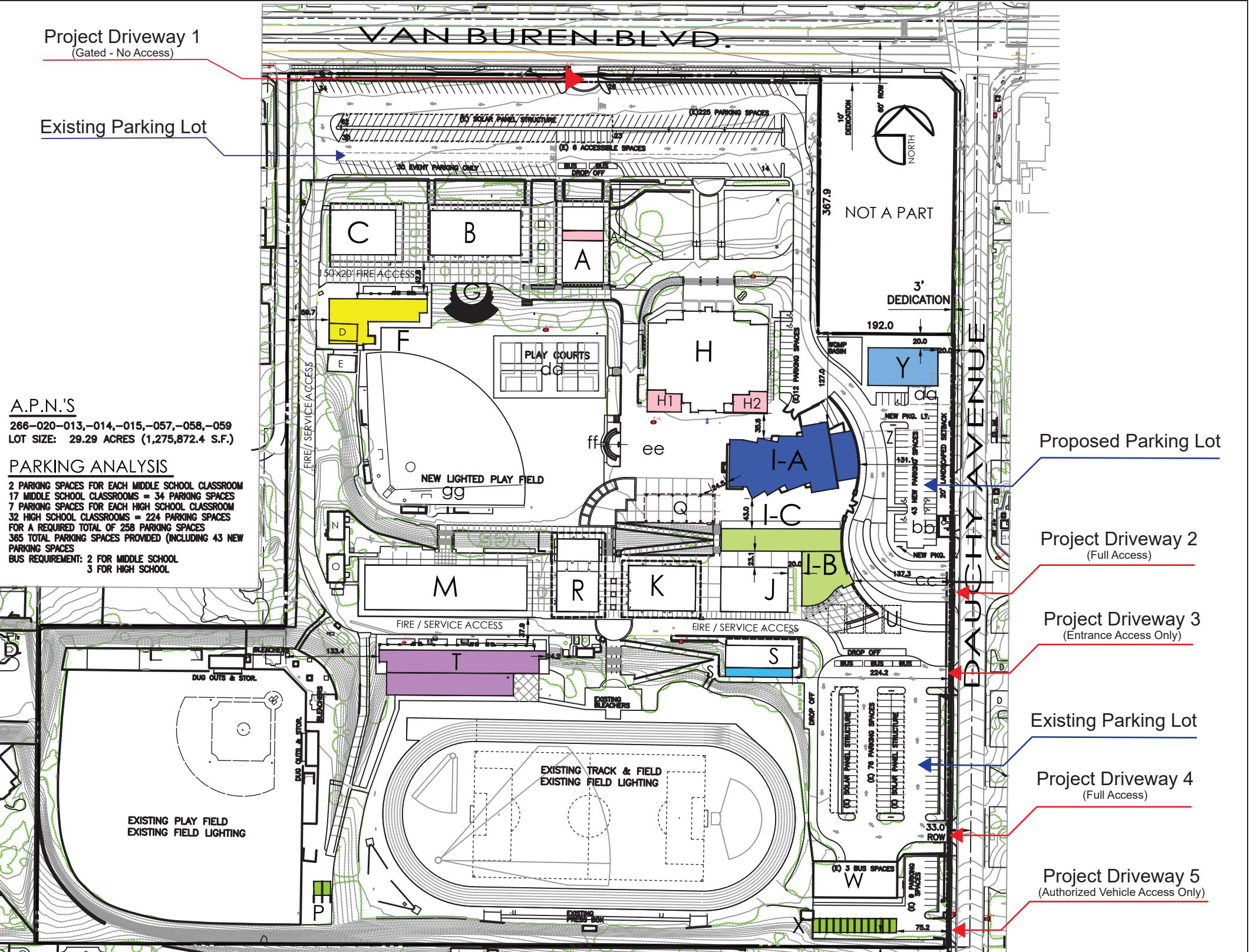


FIGURE 2-2

Woodcrest Christian School Expansion Project Traffic Operational Analysis

Conceptual Site Plan

SOURCE: Charles Brown Architect, October 2023

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PR-2023-001080 (CUP DR) - Exhibit 9a-ISMND - Appendix E

3.0 ANALYSIS METHODOLOGY AND CRITERIA

3.1 LEVEL OF SERVICE DEFINITIONS

LOS can be characterized for the whole intersection, by each intersection approach, and by each lane group. Control delay alone is used to characterize LOS for the entire intersection. Control delay quantifies the increase in travel time due to the traffic signal control, and is a surrogate measure of driver discomfort and fuel consumption.

A complete description of the meaning of LOS can be found in the Transportation Research Board Special Report 209, *Highway Capacity Manual* (HCM). The HCM establishes LOS A through F for intersections. A description of LOS for signalized and unsignalized intersections is summarized in Table 3-A. A description of LOS for roadway segments is summarized in Table 3-B.

Table 3-C shows the LOS criteria for unsignalized and signalized intersections. Table 3-D summarizes the LOS criteria used to evaluate roadway segments based on the daily capacity for each functional classification pursuant to the City's TIA Guidelines. The daily traffic volumes represent the total vehicles (both directions) traveling on a roadway segment within 24 hours.

For all study area intersections, the *Highway Capacity Manual 6th Edition* (HCM 6) analysis methodologies were used to determine intersection LOS. Intersection LOS was calculated using the Synchro 11 software, which uses the HCM 6 methodologies.

3.2 LEVEL OF SERVICE PROCEDURES AND CRITERIA

Study intersections and roadway segments analyzed in this report are under the jurisdiction of the City of Riverside and Riverside County. The City uses LOS D as its minimum level of service criterion for intersections of Collector or higher classification streets within the project vicinity. For all other intersections, the City uses LOS C as its minimum level of service criterion. The County uses LOS D as its minimum level of service criterion for intersections within the project vicinity (Woodcrest/Lake Matthews community development area).

For projects in which the proposed uses or intensities are above those contained in the General Plan, operational improvements are required at study intersections within the City when the addition of project trips causes either the intersection peak hour LOS to degrade from acceptable (LOS A through D) to unacceptable levels (LOS E or F) or the peak hour delay to increase from "without project" to "with project" as follows:

- LOS A/B by 10.0 seconds;
- LOS C by 8.0 seconds;
- LOS D by 5.0 seconds;
- LOS E by 2.0 seconds; and
- LOS F by 1.0 second.

Table 3-A: Intersection Level of Service Definitions

LOS	Description
A	Traffic operations with a control delay of 10 seconds per vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	Traffic operations with control delay between 10 seconds per vehicle and 20 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
C	Traffic operations with control delay between 20 and 35 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of the insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	Traffic operations with control delay between 35 and 55 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	Traffic operations with control delay between 55 and 80 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
F	Traffic operations with control delay exceeding 80 seconds per vehicle or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual (6th Edition)**Table 3-B: Roadway Segment Level of Service Definitions**

LOS	Description
A	Describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control Delay at the boundary intersection is minimal. The travel speed exceeds 80% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
B	Describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the boundary is not significant. The travel speed is between 67% and 80% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
C	Describes stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersection may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
D	Indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
E	Characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
F	Characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is between 30% or less of the base free-flow speed, and the volume-to-capacity ratio is greater than 1.0.

Source: *Highway Capacity Manual* (6th Edition)

Table 3-C: Level of Service Criteria for Unsignalized and Signalized Intersections

Level of Service	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Source: *Highway Capacity Manual* (6th Edition)**Table 3-D: Roadway Segment Capacity and Levels of Service**

Type of Roadway	Level of Service		
	C	D	E
Local	2,500–2,799	2,800–3,099	3,100+
Collector (66' or 80')	9,900–11,199	11,200–12,499	12,500+
Arterial ¹	14,400–16,199	16,200–17,999	18,000+
Arterial (88')	16,800–19,399	19,400–21,199	22,000+
Arterial (100')	26,200–29,599	29,600–32,999	33,000+
Arterial (120')	38,700–44,099	44,100–49,499	49,500+
Arterial (144')	50,600–57,799	57,800–64,999	65,000+

Source: City of Riverside Public Works Department *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*, July 2020.

¹ Two-lane roadways designated as future arterials that conform to arterial design standards for vertical and horizontal alignments are analyzed as arterials.

As stated in the City's TIA Guidelines, operational improvements at roadway segments are required when either the addition of project-related trips causes the roadway segment LOS to degrade from acceptable (LOS A through D) to unacceptable levels (LOS E or F) or when the roadway segment is operating at an unacceptable LOS in the no project scenario and the addition of project trips causes the volume-to-capacity (V/C) ratio to increase by more than 5 percent.

3.3 LIST OF CHAPTER 3.0 TABLES

- Table 3-A: Intersection Level of Service Definitions
- Table 3-B: Roadway Segment Level of Service Definitions
- Table 3-C: Level of Service Criteria for Unsignalized and Signalized Intersections
- Table 3-D: Roadway Segment Capacity and Levels of Service

4.0 EXISTING CONDITIONS

4.1 STUDY AREA

Based on the City's TIA Guidelines, the TOA is required to analyze all intersections of Collector or higher classification streets where the project would contribute 50 or more peak hour trips, along with intersections identified by City staff. Study intersections and roadway segments considered for the analysis were finalized during the TOA Scoping Agreement process, based on discussion with City staff.

4.1.1 Study Intersections

Per the Scoping Agreement (Appendix A), intersections analyzed in this study and their jurisdictions are as follows:

1. Washington Street/Van Buren Boulevard (County of Riverside);
2. Chicago Avenue – Alta Cresta Avenue/Van Buren Boulevard (County of Riverside/City of Riverside);
3. Van Buren Village Driveway/Van Buren Boulevard (County of Riverside/City of Riverside);
4. Little Court/Van Buren Boulevard (County of Riverside/City of Riverside);
5. Ridgeway Avenue/Van Buren Boulevard (County of Riverside/City of Riverside);
6. Dauchy Avenue/Van Buren Boulevard (County of Riverside/City of Riverside);
7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane (City of Riverside);
8. Dauchy Avenue – Taft Street/Krameria Avenue (City of Riverside);
9. Wood Road/Van Buren Boulevard (City of Riverside);
10. Bountiful Street/Van Buren Boulevard (City of Riverside);
11. Trautwein Road/Mission Grove Parkway (City of Riverside);
12. Trautwein Road/John F Kennedy Drive (City of Riverside);
13. Trautwein Road/Grove Community Drive (City of Riverside);
14. Trautwein Road/Orange Terrace Parkway (City of Riverside);
15. Trautwein Road/Shopping Center Driveway 1 (City of Riverside);
16. Trautwein Road/Van Buren Boulevard (City of Riverside);
17. Shopping Center Driveway 2/Van Buren Boulevard (City of Riverside);
18. Barton Street/Van Buren Boulevard (City of Riverside);
19. Project Driveway 1/Van Buren Boulevard (City of Riverside);
20. Dauchy Avenue/Project Driveway 3 (City of Riverside);

21. Dauchy Avenue/Project Driveway 4 (City of Riverside); and
22. Dauchy Avenue/Project Driveway 5 (City of Riverside).

Figure 4-1 illustrates the locations of all study intersections.

4.1.2 Roadway Segments

Per the Scoping Agreement (Appendix A), roadway segments analyzed in this study are as follows:

1. Van Buren Boulevard, between Little Court and Dauchy Avenue (County of Riverside/City of Riverside);
2. Dauchy Avenue, between Van Buren Blvd and Ardenwood Lane (City of Riverside); and
3. Dauchy Avenue, between Ardenwood Lane and Hawksbury Drive (City of Riverside).

The road segments are within the jurisdiction of County of Riverside/City of Riverside.

4.2 EXISTING ROADWAY NETWORK

This section provides a description of the circulation network within the study area. Figure 4-2 illustrates existing study intersection geometrics and traffic control. All major roadways within the City of Riverside are classified based on the Master Plan of Roadways provided in the Circulation and Community Mobility Element of the City of Riverside *General Plan 2025* (General Plan). Figure 4-3 illustrates the Master Plan of Roadways for the City. All major roadways within the County of Riverside (County) are classified based on the Lake Mathews/Woodcrest Area Plan Circulation of the County of Riverside *Lake Mathews/Woodcrest Area Plan 2016*. Figure 4-4 illustrates the Plan Circulation for the Woodcrest Area. Table 4-A summarizes the classifications and number of mid-block arterial lanes on major roadways in the TOA study area. Following is a brief description of major roadways within the study area:

- **Washington Boulevard:** Washington Boulevard north of Van Buren Boulevard is designated as a 110 ft arterial by the City's General Plan and as an arterial by the County's Lake Mathew/Woodcrest Area Plan. The segment north of Van Buren Boulevard is a three-lane undivided arterial that does not have bike facilities nor on-street parking. Washington Boulevard south of Van Buren Boulevard is designated as an 88 ft arterial by the City's General Plan and as a major by the County's Lake Mathews/Woodcrest Area Plan. The segment south of Van Buren Boulevard is a three-lane divided arterial with a two-way-left-turn-lane (TWLTL) median that does not have bike facilities nor on-street parking.
- **Chicago Avenue:** Chicago Avenue north of Van Buren Boulevard is designated as a 66 ft local roadway by the City's General Plan. This segment is a two-lane undivided local roadway that does not have bike facilities nor on-street parking.
- **Alta Cresta Avenue:** Alta Cresta Avenue south of Van Buren Boulevard is designated as a 66 ft local roadway by the City's General Plan. This segment is a two-lane undivided local roadway that does not have bike facilities but has on-street parking on the southbound side.

- **Little Court:** Little Court south of Van Buren Boulevard has no designation in the City's General Plan. This segment is a two-lane undivided road that does not have bike facilities but has on-street parking for the northbound side.
- **Ridgeway Avenue:** Ridgeway Avenue north of Van Buren Boulevard has no designation in the City's General Plan. This segment is a two-lane undivided road that does not have bike facilities nor on-street parking.
- **Dauchy Avenue:** Dauchy Avenue north of Van Buren Boulevard is designated as a 66 ft local roadway by the City's General Plan. The segment north of Van Buren Boulevard is a two lane-lane undivided local roadway that does not have bike facilities but has on-street parking for both sides. Dauchy Avenue between Van Buren Boulevard and Ardenwood Lane has no designation in the City's General Plan. The segment between Van Buren Boulevard and Ardenwood Lane is a two-lane undivided road with a TWLTL median that does not have bike facilities nor on-street parking. Dauchy Avenue south of Ardenwood Lane has no designation in the City's General Plan. The segment south of Ardenwood Lane is a two-lane undivided road that does not have bike facilities but has on-street parking for both sides.
- **Taft Street:** Taft Street south of Krameria Avenue has no designation in the City's General Plan. This segment is a two-lane undivided road that does not have bike facilities but has on-street parking for the northbound side.
- **Wood Road:** Wood Road is designated as an 88 ft arterial by the City's General Plan and as a secondary by the County's Lake Mathew/Woodcrest Area Plan. The segment north of Van Buren Boulevard is a two-lane divided road with a TWLTL median that does not have bike facilities but has on-street parking on the southbound side. The segment south of Van Buren Boulevard is a five-lane divided road with a TWLTL median that does not have bike facilities nor on-street parking.
- **Bountiful Street:** Bountiful Street north of Van Buren Boulevard has no designation in the City's General Plan. This segment is a two-lane divided road with a TWLTL median that does not have bike facilities nor on-street parking.
- **Trautwein Road:** Trautwein Road between Mission Grove Parkway and Orange Terrace Parkway is designated as a 110 ft scenic boulevard in the City's General Plan. Trautwein Road between Orange Terrace parkway and Van Buren Boulevard is designated as an 88 ft scenic boulevard in the City's General Plan. Both segments are a four-lane divided arterial with a raised median that has bicycle facilities but does not have on-street parking.
- **Cole Avenue:** Cole Avenue south of Van Buren Boulevard is designated as an 88 ft arterial in the City's General Plan. This segment is a two-lane divided arterial that has bicycle facilities but does not have on-street parking.
- **Barton Street:** Barton Street has no designation in the City's General Plan. The segment north of Van Buren Boulevard is a two-lane undivided road that does not have bike facilities but has on-street parking. The segment south of Van Buren Boulevard is a three-lane divided arterial with a TWLTL median that has bicycle facilities but does not have on-street parking.
- **Mission Grove Parkway:** Mission Grove Parkway west of Trautwein Road has no designation in the City's General Plan. The segment west of Trautwein Road is a two-lane undivided road that does not have bike facilities but has on-street parking. Mission Grove Parkway east of Trautwein

Road is designated as a 100 ft arterial in the City's General Plan. The segment east of Trautwein Road is a five-lane divided arterial with a raised median that does not have bicycle facilities but has on-street parking on the eastbound side.

- **John F Kennedy Drive:** John F Kennedy Drive west of Trautwein Road is designated as an 88 ft arterial in the City's General Plan. The segment west of Trautwein Road is a three-lane undivided arterial that does not have bike facilities nor on-street parking. John F Kennedy Drive east of Trautwein Road has no designation in the City's General Plan. The segment east of Trautwein Road is a two-lane undivided road that does not have bike facilities nor on-street parking.
- **Grove Community Drive:** Grove Community Drive is designated as a 66 ft collector in the City's General Plan. This segment is a two-lane divided collector with a TWLTL median that has bike facilities but does not have on-street parking.
- **Orange Terrace Parkway:** Orange Terrace Parkway west of Trautwein Road is not designated in the City's General Plan. The segment west of Trautwein Road is a two-lane road with a raised median that does not have bike facilities nor on-street parking. Orange Terrace Parkway east of Trautwein Road is designated as a 110 ft arterial in the City's General Plan. The segment east of Trautwein Road is a four-lane arterial that has bike facilities but does not have on-street parking.
- **Van Buren Boulevard:** Van Buren Boulevard is designated as a 120 ft arterial by the City's General Plan and as an urban arterial by the County's Lake Mathew/Woodcrest Area Plan. The segment between King Avenue and Wood Road is a four-lane divided arterial with a raised median that has bike facilities but not on-street parking. The segment between Wood Road and Trautwein Road-Cole Avenue is a six-lane divided arterial with a raised median that has bike facilities but does not have on-street parking. The segment between Trautwein Road-Cole Avenue and Barton Street is a five-lane divided arterial with a raised median that has bike facilities on the westbound side but does not have on-street parking on either side.
- **Krameria Avenue:** Krameria Avenue between Golden Lantern Road and Newbridge Road is not designated in the City's General Plan. This segment is a two-lane undivided road that does not have bike facilities but does have on-street parking.

4.3 EXISTING BICYCLE, PEDESTRIAN, AND TRANSIT FACILITIES

4.3.1 Bicycle Facilities

The City of Riverside promotes bicycling for recreation and mobility. Bicycling can be a viable alternative to local work commutes and offers children a healthy way to get to school. To facilitate and encourage bicycle trips, the City has adopted a Active Transportation Plan that includes a network of proposed facilities and a three-tier project prioritization for the recommended improvements. The *Pedestrian Target Safeguarding Plan, Active Transportation Plan, Complete Streets Ordinance, and Trails Master Plan (PACT)* (adopted December 2021) provides an updated inventory of all bicycle infrastructure and non-infrastructure improvements implemented between 2012 and 2020 within the City of Riverside. The Active Transportation Plan also provides an updated list of recommended bicycle improvements, including a new network of proposed bicycle facilities.

According to the City's *PACT: Active Transportation Plan*, the bikeway network within the City is classified into four categories: Class I – Shared Use Paths, Class II – Bicycle Lanes, Class III – Bicycle Routes/Boulevard, and Class IV - Separated Bikeways. Class I shared use paths are paved trails

completely separated from the street. Class II bicycle lanes are striped preferential lanes on the roadway for one-way bicycle travel, in which some of these lanes include a striped buffer on one or both sides to increase separation from the travel lane and/or parked cars. Class III bicycle routes are signed routes where cyclists share a travel lane with motor vehicle traffic, in which some routes include shared lane markings or “sharrows”. Class IV separated bikeways are on-street bicycle facilities that are physically separated from motor vehicle traffic by a vertical element or barrier, such as a curb, bollards, or vehicle parking aisle. This allows for one- or two-way travel on one or both sides of the roadway.

As part of the City's Bikeway Network, a Class II bike lane exists along Trautwein Road, Cole Avenue between Van Buren Boulevard and Krameria Avenue, Grove Community Drive, Orange Terrace Parkway, and Van Buren Boulevard. A Class I & II Bike Lane/Path exists on John F Kennedy Drive between Dauchy Avenue and Trautwein Road. A proposed Class II buffered bike lanes will be added on Wood Road. Figure 4-5 illustrates the existing and proposed bikeways within the City of Riverside.

4.3.2 Pedestrian Facilities

The implementation of enhanced pedestrian linkage with a comprehensive trails system links residential areas, schools, parks, and commercial centers so that residents can travel within the community without driving. Safe and attractive sidewalks and walkways improve the walkability of the City. Sidewalks are generally provided on both sides of the streets throughout the City. Additionally, standard paved trails and non-standard unpaved trails are frequently used by bicyclists and pedestrians in the City. Some trails are also available for equestrian riders. The existence of trails and sidewalks provides accessible facilities, provides safety features, and improves walkability in the City of Riverside.

According to the City's PACT, the current trails within the study area are along Wood Road between Krameria Avenue and John F Kennedy Drive, Bountiful Street, John F Kennedy Drive, and Grove Community Drive. Figure 4-6 illustrates the Master Plan of trails within the City.

In addition to trails within the study area, paved sidewalks are available at the following roadway facilities in within the study area:

- Northbound side of Washington Street north of Van Buren Boulevard;
- Both sides of Washington Street south of Van Buren Boulevard;
- Southbound of Alta Cresta Avenue south of Van Buren Boulevard;
- Northbound side of Dauchy Avenue north of Van Buren Boulevard;
- Both sides of Dauchy Avenue between Van Buren Boulevard and Krameria Avenue;
- Northbound side of Taft Street south of Krameria;
- Northbound side of Wood Road north of Van Buren Boulevard;
- Both sides of Wood south of Van Buren Boulevard;
- Both sides of Bountiful Street between Trautwein Road and Van Buren Boulevard;

- Both sides of Barton Street north of Van Buren Boulevard;
- Northbound side of Barton Street south of Van Buren Boulevard;
- Both sides of Mission Grove Parkway South;
- Both sides of John F Kennedy Drive;
- Both sides of Grove Community Drive;
- Both sides of Orange Terrace Parkway;
- Westbound side of Van Buren Boulevard near Washington Street;
- Both sides of Van Buren Boulevard between Washington Street and Woodcrest Plaza;
- Both sides of Van Buren Boulevard between Dauchy Avenue and Winchester Way;
- Eastbound side of Van Buren Boulevard near Blossom Center and Wood Road;
- Both sides of Van Buren between Wood Road and Trautwein Road-Cole Avenue;
- Westbound side of Van Buren Boulevard east of Trautwein Road-Cole Avenue;
- Westbound side of Krameria Avenue west of Dauchy Avenue-Taft Street; and
- Both sides of Krameria Avenue east of Dauchy Avenue-Taft Street.

4.3.3 Transit Facilities

Riverside Transit Agency (RTA) is the consolidated transportation service agency for western Riverside County and is responsible for coordinating transit services throughout the approximately 2,500-square mile service area. RTA provides both local and regional services throughout the region with 33 fixed routes, five CommuterLink Express routes, and Dial-A-Ride services using 334 vehicles. RTA local bus routes 20, 22, and 27 operate within the study area. Route 20 has stops on Mission Grove Parkway. Route 22 has stops on Trautwein Road, Van Buren Boulevard, and Wood Road. Route 27 has stops on Van Buren located at the project site and Orange Terrace Parkway. These routes provide connections to Moreno Valley College, Downtown Riverside, La Sierra Metrolink Station, and Perris.

4.4 EXISTING TRAFFIC VOLUMES

Traffic volumes for existing conditions are typically developed using existing count data collected at study intersections and roadway segments. Due to atypical conditions statewide because of COVID-19, new traffic counts may not reflect realistic traffic conditions at the study intersections and roadway segments. Therefore, LSA consulted with traffic counters to compile a list of historical counts available for both study intersections and roadway segments. Detailed count sheets are included in Appendix B.

The following intersections had recent historical counts that were used for volume development:

1. Washington Street/Van Buren Boulevard;
2. Chicago Avenue – Alta Cresta Avenue/Van Buren Boulevard;
6. Dauchy Avenue/Van Buren Boulevard;

9. Wood Road/Van Buren Boulevard;
11. Trautwein Road/Mission Grove Parkway;
12. Trautwein Road/John F Kennedy Drive;
14. Trautwein Road/Orange Terrace Parkway;
16. Trautwein Road/Van Buren Boulevard; and
18. Barton Street/Van Buren Boulevard.

At each study intersection where historical counts were available, a growth rate of 2 percent per annum was applied to the historical counts to develop year 2021 a.m. peak hour traffic volumes. These volumes were compared with the new counts collected at the study intersections. As a conservative approach, the higher of the two for each movement at every intersection was considered as the traffic volumes under existing conditions.

For the afternoon peak hour, historical counts were not available due to the operations of the school requiring an analysis of 2:00 a.m. – 4:00 p.m. As such, COVID adjustments were made based on the volumes at the roadway segment on Van Buren Boulevard between Little Court and Dauchy Avenue. A similar growth rate of 2 percent per annum was applied to the historical counts at the Van Buren Boulevard between Little Court and Dauchy Avenue roadway segment to develop 2021 traffic volumes. As conservative approach, the higher of the two daily traffic volumes was considered as the traffic volumes under existing conditions.

Vehicle classification counts were conducted at the following intersections:

1. Washington Street/Van Buren Boulevard;
2. Chicago Avenue – Alta Cresta Avenue/Van Buren Boulevard;
6. Dauchy Avenue/Van Buren Boulevard;
8. Dauchy Avenue – Taft Street/Krameria Avenue;
9. Wood Road/Van Buren Boulevard;
11. Trautwein Road/Mission Grove Parkway;
14. Trautwein Road/Orange Terrace Parkway;
16. Trautwein Road/Van Buren Boulevard; and
18. Barton Street/Van Buren Boulevard.

At these locations, counts were converted to Passenger Car Equivalent (PCE) volumes. The concept of PCEs accounts for the larger impact of trucks on traffic operations. It does so by assigning each type of truck a PCE factor that represents the number of passenger vehicles that could travel through an intersection in the same time that a particular type of truck could. PCE volumes at study intersections were computed using a factor of 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with four or more axles. The percentage of trucks at the remaining study intersections without classification counts was determined based on truck percentages derived from adjacent

intersections with classification counts. At these locations, truck PCE volumes were computed using a PCE factor of 2.0 for all trucks, consistent with HCM 6 methodologies.

Figures 4-7 illustrates existing peak hour traffic volumes at study intersections. Table 4-B summarizes the existing daily traffic volumes at study area roadway segments.

Detailed volume development worksheets are included in Appendix C.

4.5 EXISTING LEVELS OF SERVICE

4.5.1 Study Intersections

An intersection LOS analysis was conducted for existing conditions using the methodologies previously discussed. For all signalized intersections located in the City, existing signal timing sheets were obtained and the corresponding pedestrian phases, yellow time, and all-red timings were included in the Synchro files. These signal timing sheets are included in Appendix B. Table 4-C summarizes the results of this analysis and shows that the following intersections are currently operating at a deficient LOS:

5. Ridgeway Avenue/Van Buren Boulevard (afternoon peak hour only); and
12. Trautwein Road/John F Kennedy Drive (a.m. peak hour only).

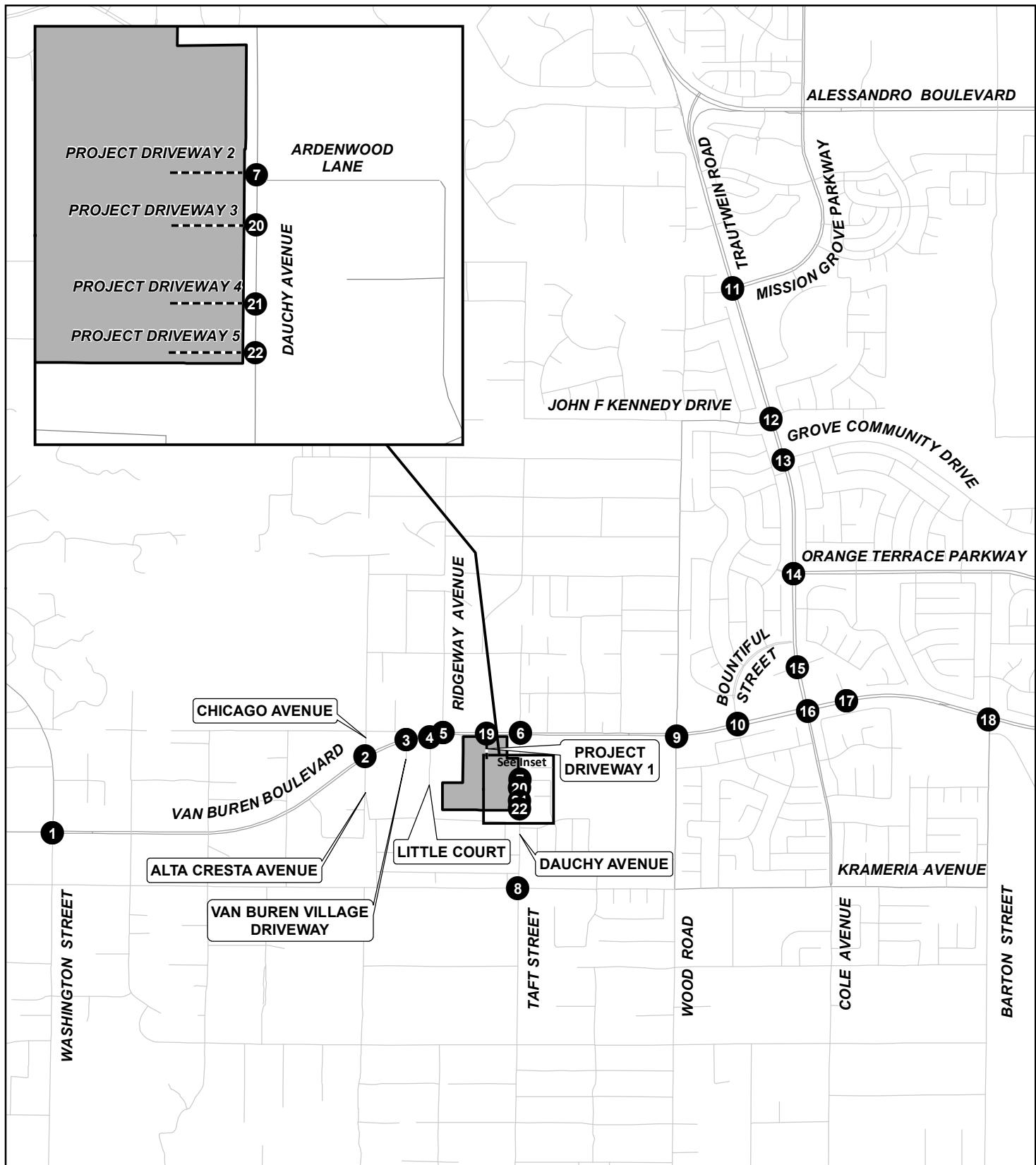
All other intersections currently operate at a satisfactory LOS. Detailed Level of Service Worksheets are included in Appendix D.

4.5.2 Roadway Segments

A roadway segment LOS analysis was conducted for existing conditions using the methodologies previously discussed. Table 4-D summarizes the results of this analysis and shows that all the study roadway segments are currently operating at a deficient LOS.

4.6 LIST OF CHAPTER 4.0 FIGURES AND TABLES

- Figure 4-1: Study Area Intersections
- Figure 4-2: Existing Plus Project Study Intersection Geometrics and Traffic Control
- Figure 4-3: City of Riverside Master Plan of Roadways
- Figure 4-4: Woodcrest Area Plan Circulation
- Figure 4-5: City of Riverside Existing and Proposed Bikeways
- Figure 4-6: City of Riverside Master Plan of Trails
- Figure 4-7: Existing Peak Hour Traffic Volumes
- Table 4-A: City of Riverside General Plan Roadway Segment Classification
- Table 4-B: Existing Roadway Segment Daily Traffic Volumes
- Table 4-C: Existing Intersection Levels of Service
- Table 4-D: Existing Roadway Segment Levels of Service



LSA

LEGEND

- Project Location
- Study Area Intersections
- Project Driveway

0 1150 2300
FEET

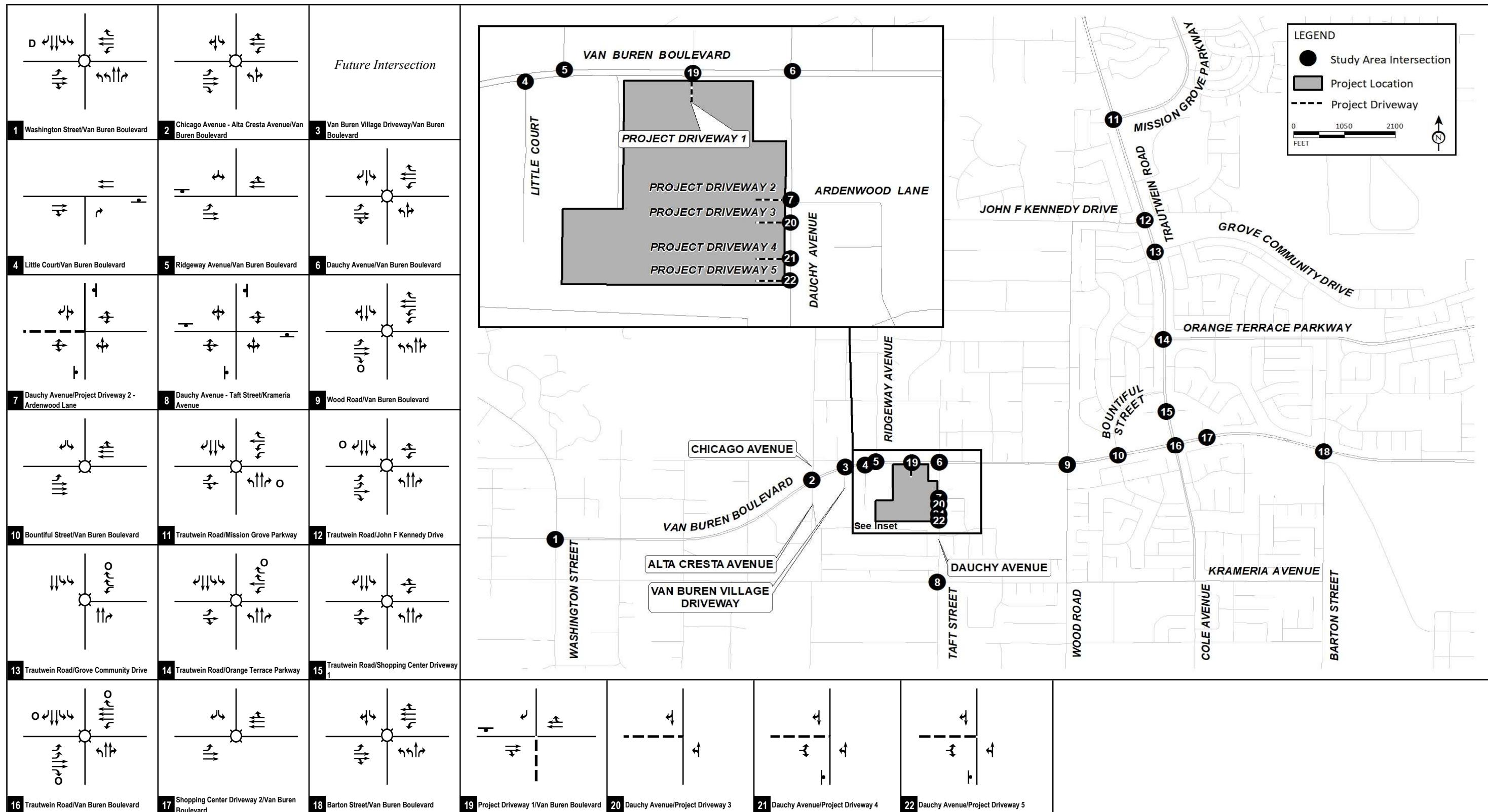
SOURCE: ESRI Streetmap, 2021.

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\GIS\Reports\fig4-1_Intersections.mxd (3/7/2024)

PR-2023-001080 (CUP, DR) - Exhibit 9g-ISMND - Appendix F

Woodcrest Christian School Expansion
Traffic Operational Analysis
Study Area Intersections

FIGURE 4-1



LSA

Legend
 D De-Facto Right
 ○ Signal
 - Stop Sign
 - - Project Driveway

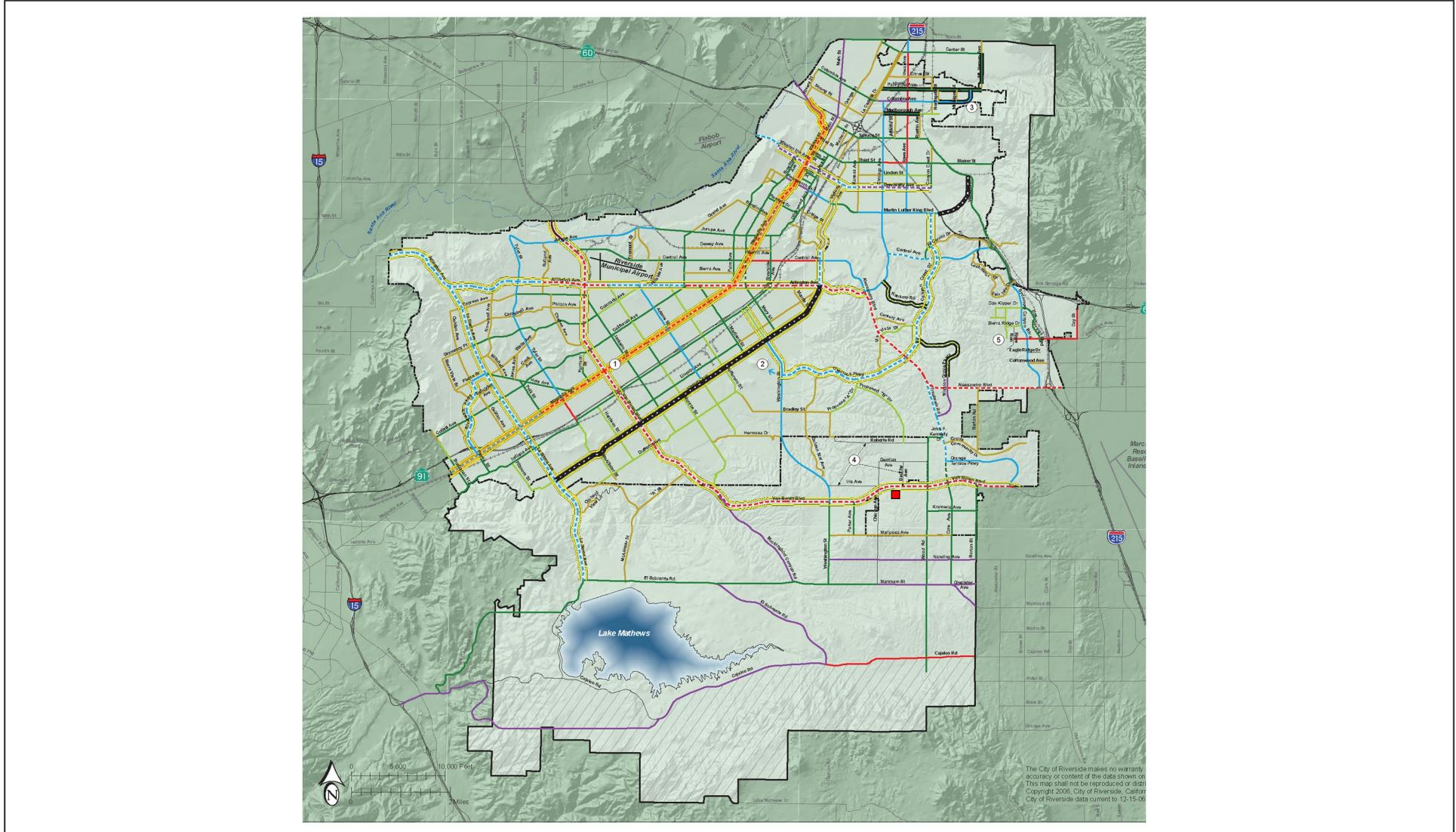
P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\g60_Geo_Exist.xlsx 3/13/2024

FIGURE 4-2

Woodcrest Christian School Expansion Project

Traffic Operational Analysis

Existing Study Intersection Geometrics and Traffic Control



LSA

LEGEND

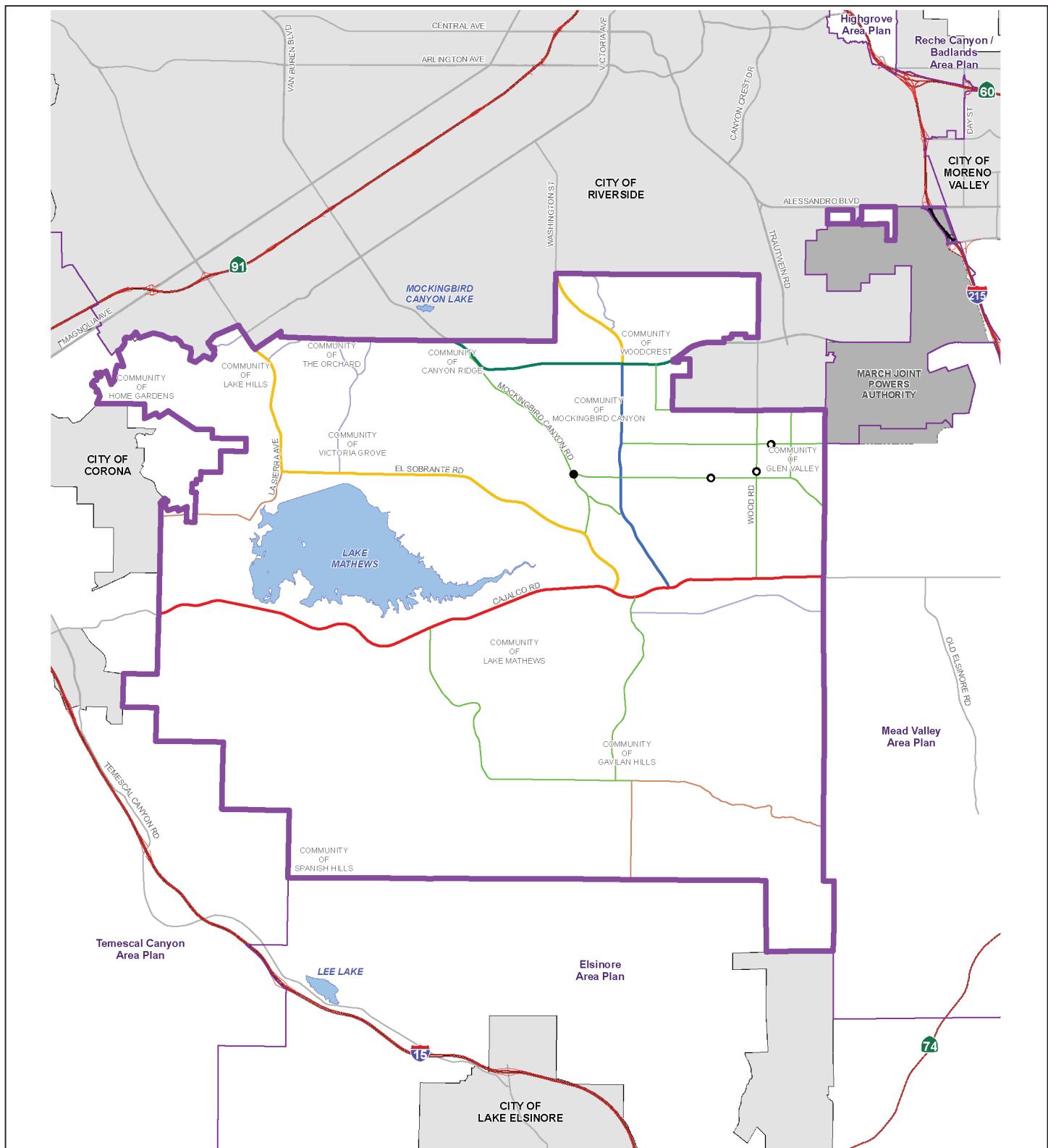
PROJECT SITE		SCENIC BOULEVARD REQUIRES SPECIAL LANDSCAPING, ADDITIONAL RIGHT-OF-WAY MAY BE REQUIRED.
66 FT LOCAL	2 LANES *	SPECIAL BOULEVARD TWO-LANE DIVIDED ROADWAY OF VARIABLE GEOMETRIC DESIGN
66 FT COLLECTOR	2 LANES	SPECIAL BOULEVARD VARIABLE WIDTHS AND DESIGN, CONTACT PUBLIC WORKS FOR DETAIL. SEE OBJECTIVE CCM-3 AND POLICIES CCM-3.1 THROUGH CCM-3.5.
80 FT COLLECTOR	2 LANES	PARKWAYS FOR INFORMATION ON PARKWAYS SEE LAND USE ELEMENT.
88 FT ARTERIAL	4 LANES	CETAP CORRIDOR AREA CORRIDOR OPTIONS SUBJECT TO SPECIAL STUDY.
100 FT ARTERIAL	4 LANES	RIVERSIDE CITY BOUNDARY
110 FT ARTERIAL	4 LANES	— RIVERSIDE PROPOSED SPHERE OF INFLUENCE
120 FT ARTERIAL	6 LANES	
144 FT ARTERIAL	8 LANES	

SOURCE: City of Riverside General Plan Circulation Element.

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\GIS\Reports\fig4-3_Rdwy Classification_01-18-2022.psd

PR-2023-001080 (CUP, DR) - Exhibit 9g-ISMND - Appendix F

FIGURE 4-3
*Woodcrest Christian School Expansion
Traffic Operational Analysis
City of Riverside Master Plan of Roadways*



LSA

- Freeway (Variable ROW)
- Expressway (128' to 220' ROW)
- Urban Arterial (152' ROW)
- Arterial (128' ROW)
- Major (118' ROW)
- Secondary (100' ROW)
- Mountain Arterial 2 Ln (110' ROW)
- Collector (74' ROW)
- Existing Interchange
- Highways
- Area Plan Boundary
- March Joint Powers Authority
- City Boundary
- Waterbodies
- Existing Bridge
- Proposed Bridge

SOURCE: County of Riverside, December 2015.

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\GIS\Reports\fig4-4_Rdw Classification_01-18-2022 (1/18/2022)

PR-2023-001080 (CUP, DR) - Exhibit 9g-ISMND - Appendix F

FIGURE 4-4

Woodcrest Christian School Expansion
Traffic Operational Analysis

Lake Mathews/Woodcrest Area Plan Circulation

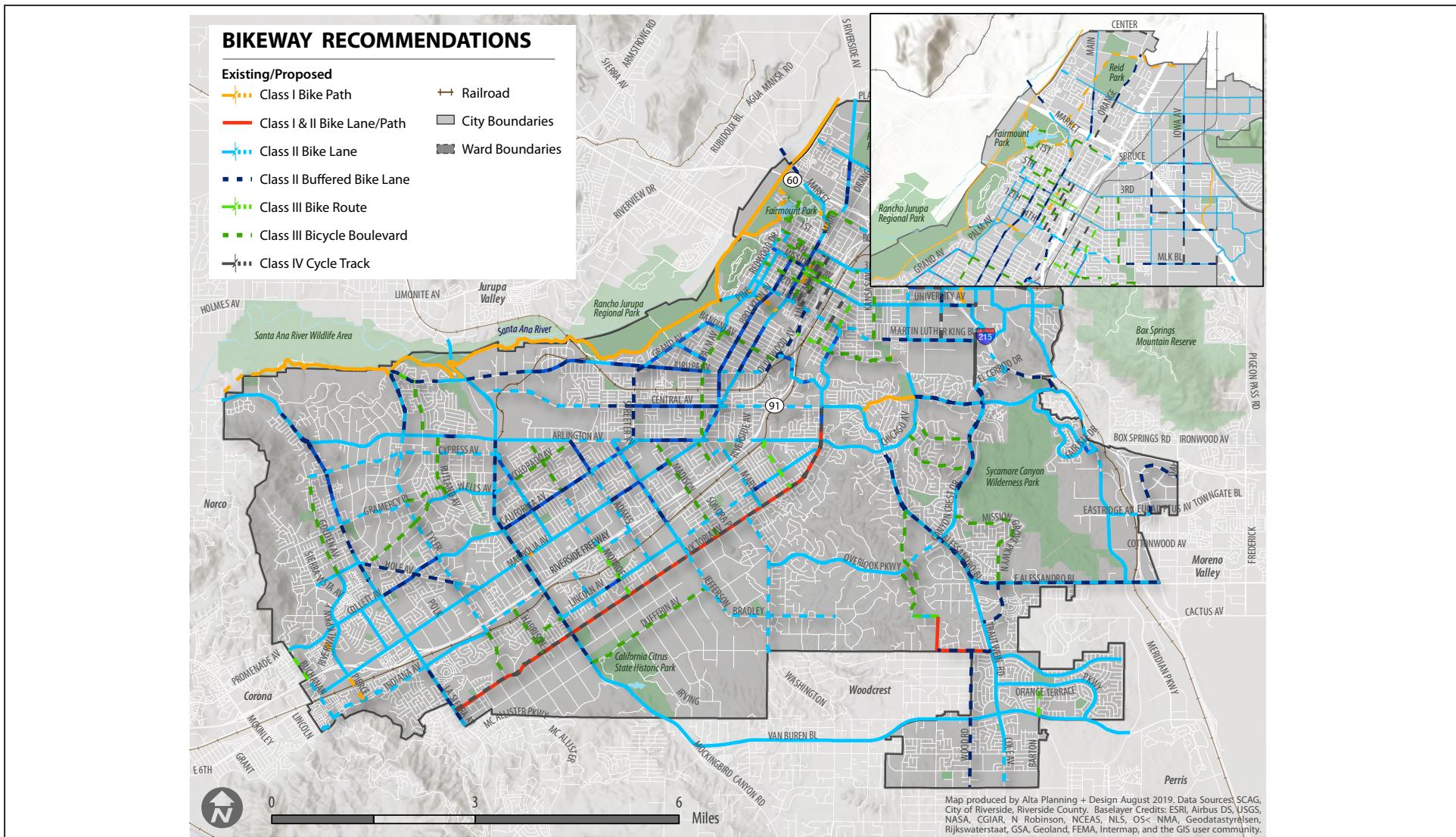


FIGURE 4-5

*Woodcrest Christian School Expansion
Traffic Operational Analysis*

SOURCE: City of Riverside PACT, December 2021

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\GIS\Reports\fig4-5_Bike_Network.ai (3/15/2023)

PR-2023-001080 (CUP, DR) - Exhibit 9g-ISMND - Appendix F

City of Riverside Existing/Proposed Bikeways