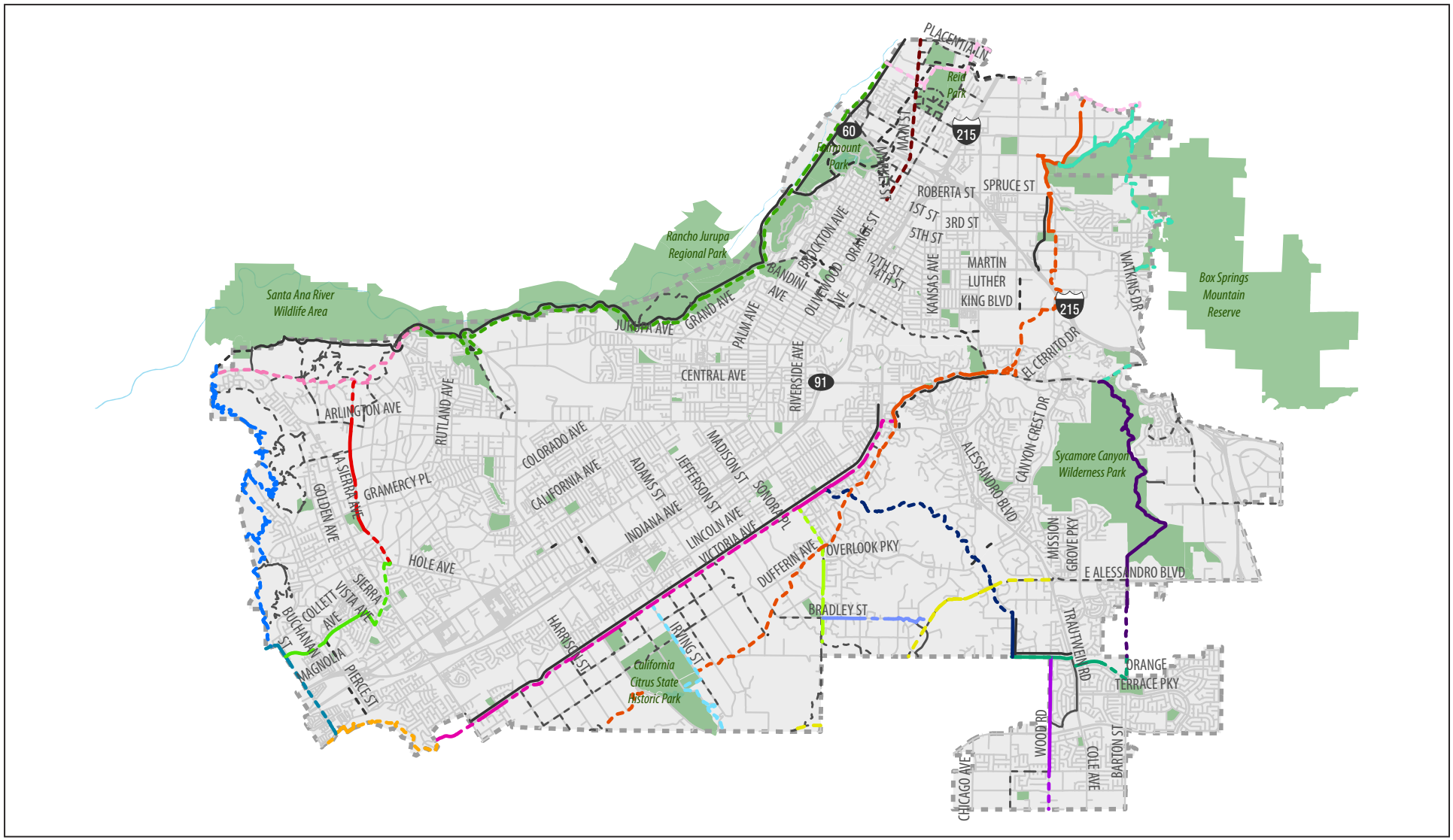



LSA

LEGEND

Primary Corridors (Existing/Proposed)

- 7 Mile Trail
- Box Springs
- Bradley
- Buchanan
- Gage Canal
- Indiana Ave
- Irving
- John F Kennedy
- La Sierra
- Main Street
- Mitchell
- Mitchell to Buchanan
- Prenda Arroyo Trail
- Primary EW 1
- Rancho La Sierra
- Santa Ana River Trail
- Sycamore Canyon Park
- Victoria Ave
- Washington
- Wood

- Proposed Multipurpose Trails
- Existing Multipurpose Trails
- Proposed Class I Bikeways
- Existing Class I Bikeways
- City Limits
- Parks

N

0 1 2
MILE

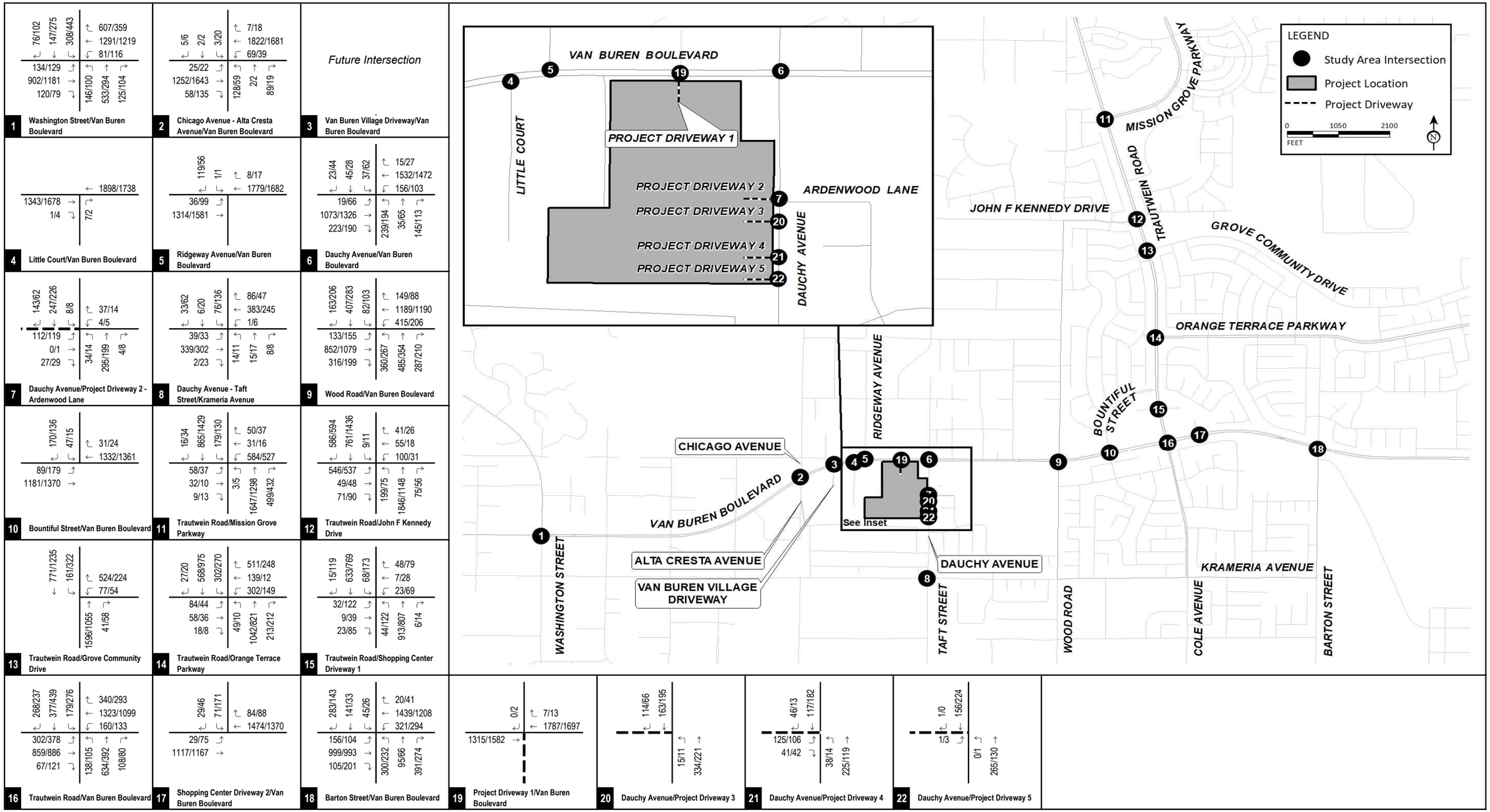
SOURCE: City of Riverside PACT, December 2021

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\GIS\Reports\fig4-6_Trails_03-15-2023.ai (3/15/2023)

FIGURE 4-6

*Woodcrest Christian School Expansion*
*Traffic Operational Analysis*

City of Riverside Trail Corridors




LSA

FIGURE 4-7

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Existing Peak Hour Traffic Volumes

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LSA

## Table 4-A - City of Riverside General Plan Roadway Segment Classification

| Roadway | # | Segment | Jurisdiction | Existing Conditions Number of Lanes | General Plan Classification[1] |
|---|---|---|---|---|---|
| **Van Buren Boulevard** | 1 | Between Little Court and Dauchy Avenue | County of Riverside/City of Riverside | 4 | Arterial (120') |
| **Dauchy Avenue** | 2 | Between Van Buren Boulevard and Ardenwood Lane | City of Riverside | 2 | Local |
| | 3 | Between Ardenwood Lane and Hawksbury Drive | City of Riverside | 2 | Local |

**Notes:**

[1]Classifications for all segments have been obtained from the City of Riverside General Plan Circulation and Community Mobility Element Master Plan of Roadways.

LSA

## Table 4-B - Existing Roadway Segment Daily Traffic Volumes

| Roadway | # | Segment | Historical Counts | Growth Historical Year to Year 2021 | Historical Plus Growth | Existing COVID-19 ADT | Adjusted Existing ADT |
|---|---|---|---|---|---|---|---|
| **Van Buren Boulevard** | 1 | Between Little Court and Dauchy Avenue | 37,151 | 1,486 | 38,637 | 39,223 | 39,223 |
| **Dauchy Avenue** | 2 | Between Van Buren Boulevard and Ardenwood Lane | N/A | N/A | N/A | 5,537 | 5,537 |
| | 3 | Between Ardenwood Lane and Hawksbury Drive | N/A | N/A | N/A | 3,247 | 3,247 |

LSA

## Table 4-C - Existing Intersection Levels of Service

| Intersection | Jurisdiction | Control | LOS Standard | Without Project | | | |
|---|---|---|---|---|---|---|---|
| | | | | A.M. Peak Hour | | Afternoon Peak Hour | |
| | | | | Delay (sec.) | LOS | Delay (sec.) | LOS |
| 1 . Washington Street/Van Buren Boulevard | County of Riverside | Signal | D | 41.0 | D | 40.2 | D |
| 2 . Chicago Avenue - Alta Cresta Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | Signal | D | 23.8 | C | 15.3 | B |
| 3 . Van Buren Village Driveway/Van Buren Boulevard | County of Riverside/City of Riverside | N/A[1] | | *Does Not Exist* | | *Does Not Exist* | |
| 4 . Little Court/Van Buren Boulevard | County of Riverside/City of Riverside | OWSC | D | 16.5 | C | 20.6 | C |
| 5 . Ridgeway Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | OWSC | D | 27.3 | D | 47.8 | **E** * |
| 6 . Dauchy Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | Signal | D | 32.8 | C | 26.4 | C |
| 7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane | City of Riverside | TWSC | C | 24.0 | C | 21.0 | C |
| 8 . Dauchy Avenue - Taft Street/Krameria Avenue | City of Riverside | AWSC | C | 24.2 | C | 17.8 | C |
| 9 . Wood Road/Van Buren Boulevard | City of Riverside | Signal | D | 47.8 | D | 29.6 | C |
| 10 . Bountiful Street/Van Buren Boulevard | City of Riverside | Signal | D | 6.8 | A | 6.8 | A |
| 11 . Trautwein Road/Mission Grove Parkway | City of Riverside | Signal | D | 51.2 | D | 47.2 | D |
| 12 . Trautwein Road/John F Kennedy Drive | City of Riverside | Signal | D | 69.0 | **E** * | 23.9 | C |
| 13 . Trautwein Road/Grove Community Drive | City of Riverside | Signal | D | 11.1 | B | 7.1 | A |
| 14 . Trautwein Road/Orange Terrace Parkway | City of Riverside | Signal | D | 37.9 | D | 13.8 | B |
| 15 . Trautwein Road/Shopping Center Driveway 1 | City of Riverside | Signal | D | 10.5 | B | 16.0 | B |
| 16 . Trautwein Road/Van Buren Boulevard | City of Riverside | Signal | D | 32.3 | C | 37.5 | D |
| 17 . Shopping Center Driveway 2/Van Buren Boulevard | City of Riverside | Signal | D | 10.1 | B | 10.6 | B |
| 18 . Barton Street/Van Buren Boulevard | County of Riverside/City of Riverside | Signal | D | 36.4 | D | 48.9 | D |
| 19 . Project Driveway 1/Van Buren Boulevard | County of Riverside/City of Riverside | TWSC | D | 0.0 | A | 14.2 | B |
| 20 . Dauchy Avenue/Project Driveway 3[2] | City of Riverside | - | C | 7.9 | A | 7.9 | A |
| 21 . Dauchy Avenue/Project Driveway 4 | City of Riverside | OWSC | C | 14.8 | B | 13.0 | B |
| 22 . Dauchy Avenue/Project Driveway 5 | City of Riverside | OWSC | C | 11.6 | B | 11.3 | B |

**Notes:**

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC/TWSC intersections, reported delay is for worst-case movement).

* Exceeds LOS Standard

[1] This intersection does not exist under existing conditions.

[2] This intersection has no stop control, but conflicting movements exist.

LSA

## Table 4-D - Existing Roadway Segment Levels of Service

| Roadway Segment | Jurisdiction | Classification[1] | LOS Standard | Number of Lanes | Without Project | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Roadway Capacity[2] | Daily Volume | V/C Ratio | LOS |
| **Segments on Van Buren Boulevard** | | | | | | | | |
| 1 . Between Little Court and Dauchy Avenue | County of Riverside/City of Riverside | Arterial (120') | D | 4 | 36,400 | 39,230 | 1.08 | F * |
| **Segments on Dauchy Avenue** | | | | | | | | |
| 2 . Between Van Buren Boulevard and Ardenwood Lane | City of Riverside | Local | D | 2 | 3,400 | 5,540 | 1.63 | F * |
| 3 . Between Ardenwood Lane and Hawksbury Drive | City of Riverside | Local | D | 2 | 3,400 | 3,250 | 0.96 | E * |

**Notes:**

LOS = Level of Service

***** Exceeds LOS Standard

[1] Classifications for all segments have been obtained from the City of Riverside General Plan Circulation and Community Mobility Element Master Plan of Roadways.

[2] Roadway capacities have been obtained from the City of Riverside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (dated July 2020).

# 5.0 PROJECT TRAFFIC

## 5.1 PROJECT TRIP GENERATION

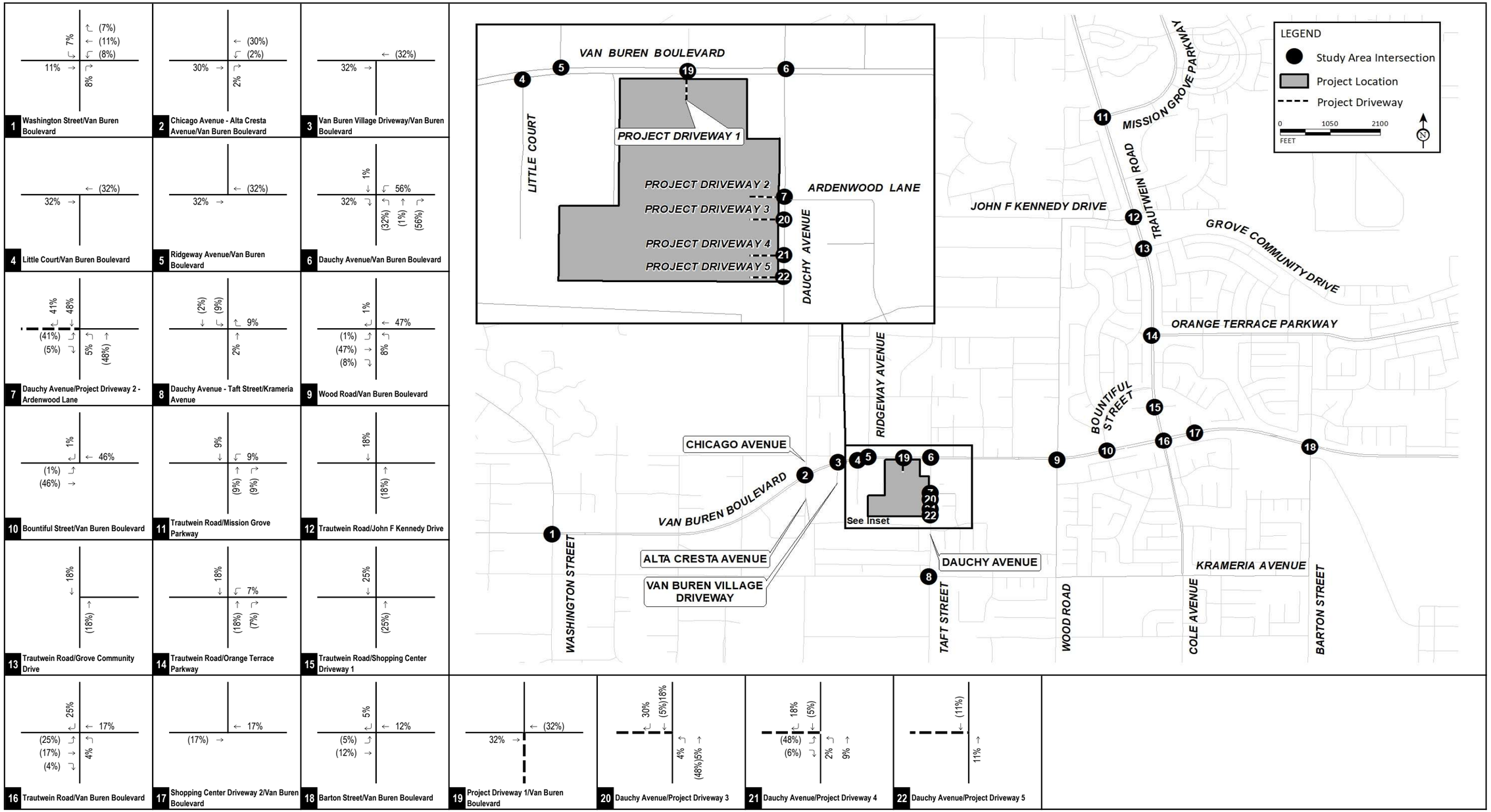
The trip generation for the proposed use was developed based on trip generation survey counts collected from the project site driveways for the existing on-site use. The counts were collected by Counts Unlimited on Thursday October 14, 2021 and Tuesday October 19, 2021. For purposes of this analysis, the highest a.m. peak hour, afternoon peak hour, and daily counts over the two days was used for developing the trip generation for the existing on-site use. Trip generation rates were developed using the empirical trip generation data collected and the number of students currently enrolled. The trip generation rate was then applied to the future number of students anticipated to be enrolled after the expansion. As shown in Table 5-A, the expansion of the school is anticipated to generate 303 trips in the a.m. peak hour, 209 trips in the p.m. peak hour, and 814 daily trips.

## 5.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The overall project trip distribution was developed using select zone model runs obtained from the Riverside County Transportation Model (RIVCOM). The select zone model plot for the proposed project has been included as part of the scoping agreement in Appendix A. However, project trip distribution at driveways was adjusted taking into consideration the size of each parking lot and the student drop-off/pick-up zones. Figure 5-1 illustrates the project trip distribution. The project trip assignment is the product of the project trip generation and trip distribution percentages. Figure 5-2 illustrates the project trip assignment.

## 5.3 LIST OF CHAPTER 5.0 FIGURES AND TABLES

- Figure 5-1: Project Trip Distribution
- Figure 5-2: Project Trip Assignment
- Table 5-A: Project Trip Generation




LSA

FIGURE 5-1

XX% (YY%)
Inbound (Outbound) Distribution

Project Driveway

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Project Trip Distribution

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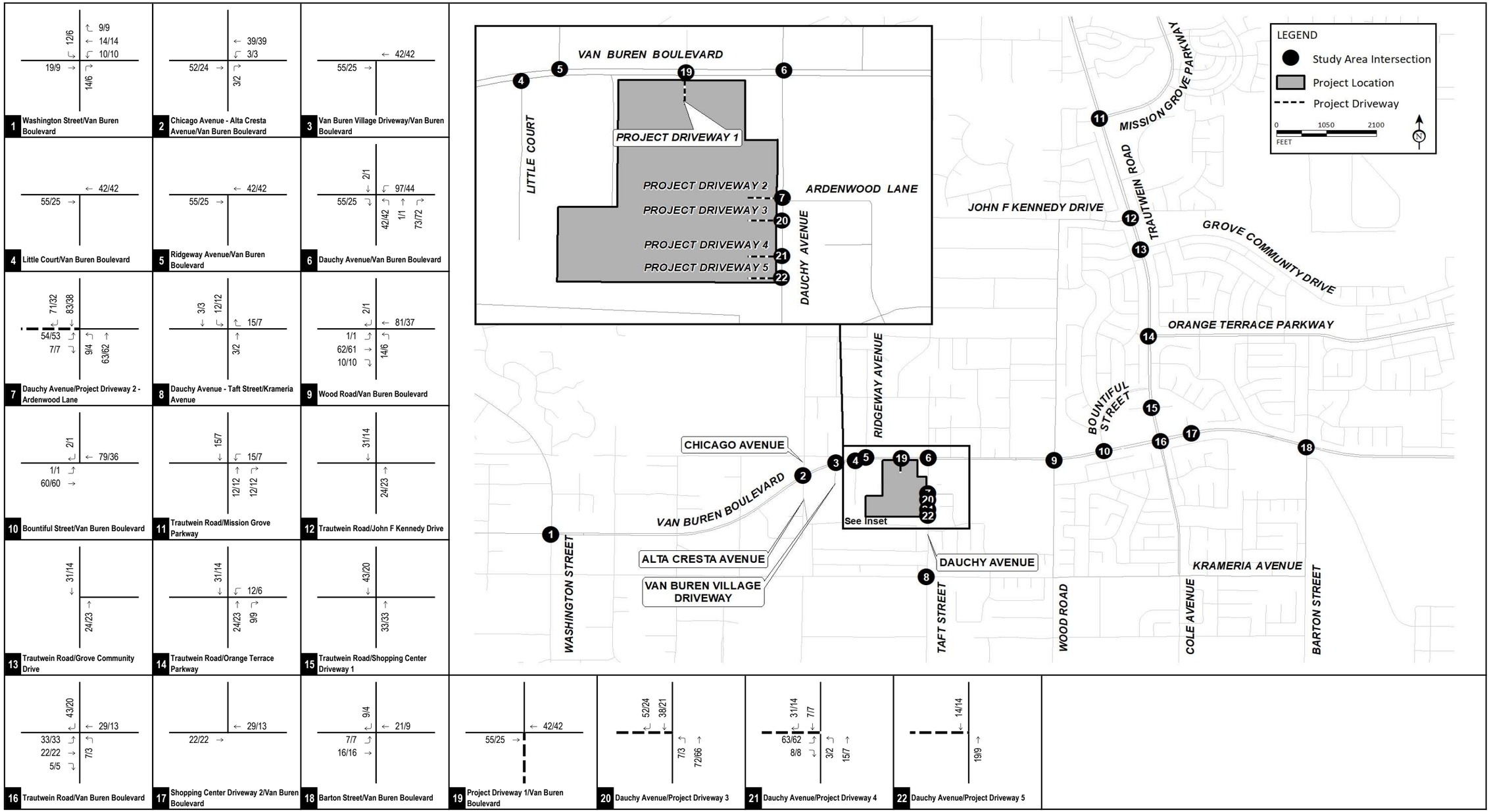


LSA

XX/YY
AM/Afternoon Peak Hour Trips

Project Driveway

FIGURE 5-2

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Project Trip Assignment

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LSA

## Table 5-A - Project Trip Generation

| Land Use | Units | | A.M. Peak Hour In | A.M. Peak Hour Out | A.M. Peak Hour Total | Afternoon Peak Hour In | Afternoon Peak Hour Out | Afternoon Peak Hour Total | Daily |
|---|---|---|---|---|---|---|---|---|---|
| **Existing School** | 644 | STU | | | | | | | |
| Trip Generation | | | 396 | 302 | 698 | 181 | 300 | 481 | 1,872 |
| **Proposed Project** | 280 | STU | | | | | | | |
| Trip Generation | | | 172 | 131 | 303 | 79 | 130 | 209 | 814 |

Notes:

STU = Students

[1] The trip generation was developed based on existing driveway counts taken by Counts Unlimited on October 14 and 19, 2021.

# 6.0 OPENING YEAR (2029) ANALYSIS

## 6.1 CUMULATIVE PROJECT ROADWAY IMPROVEMENTS

As part of the Van Buren Village Project, a traffic signal will be installed at the Van Buren Village Driveway on Van Buren Boulevard within the study area. Therefore, this improvement has been included under Opening Year (2029) and Cumulative (2045) conditions. Figure 6-1 illustrates the Opening Year (2029) and Cumulative (2045) without project study intersection geometrics and traffic control.

## 6.2 PROJECT DESIGN FEATURES

Project design features has been proposed to minimize the potential effects on traffic operations as a result of the school expansion. The following features were identified as a project design features to address potential effects on operations and queueing issues from vehicles turning into and out of the project:

- Realignment of Project Driveway 2 to remove the existing offset with Ardenwood Lane.
- Addition of a second receiving lane at Project Driveway 2 to improve ingress maneuvers.
- Restripe existing lane geometry for the eastbound direction at Project Driveway 2 from a shared left-through-right to a through-left turn lane.
- Addition of a right turn lane for the eastbound direction at Project Driveway 2.
- Relocation of bus parking at rear parking lot to extend vehicle storage for student drop-off and pick-up.

Figure 6-2 illustrates the Opening Year (2029) and Cumulative (2045) with project study intersection geometrics and traffic control with the implementation of project design features.

## 6.3 OPENING YEAR (2029) WITHOUT PROJECT TRAFFIC VOLUMES

As discussed during the City's scoping agreement process (Appendix A), traffic volumes for opening year without project conditions were developed by a growth of 2.0 percent per annum to existing traffic volumes and adding trips from approved and pending development projects in the study area. This methodology was applied for both study intersections and roadway segments. Information regarding cumulative projects in vicinity of the proposed project was obtained from City staff and nearby jurisdictions. Figure 6-3 illustrates the cumulative project locations. Trip generation for cumulative projects was either obtained from the respective traffic studies prepared for the projects or developed using rates from the ITE *Trip Generation Manual* (11th Edition). Table 6-A lists the cumulative projects included in this analysis and shows the cumulative projects are expected to generate to generate 5,360 net trips in the a.m. peak hour, 6,291 net trips in the afternoon peak hour, and 63,937 daily trips.

Cumulative project trips were assigned to the roadway network based on their locations in relation to surrounding land uses and regional arterials. Figure 6-4 illustrates the total peak hour cumulative project trip assignment at study area intersections. Figure 6-5 illustrates the peak hour traffic

volumes at study intersections under opening year without project conditions. Table 6-B summarizes opening year without project daily traffic volumes at study area roadway segments.

## 6.4 OPENING YEAR (2029) WITH PROJECT TRAFFIC VOLUMES

Opening year with project traffic volumes were developed by adding proposed project traffic to the opening year without project traffic volumes. Figure 6-6 illustrates the opening year with project peak hour traffic volumes at study intersections. Table 6-B summarizes the opening year with project daily traffic volumes at study roadway segments.

Detailed volume development worksheets are included in Appendix C.

## 6.5 OPENING YEAR (2029) WITHOUT PROJECT LEVELS OF SERVICE

### 6.5.1 Study Intersections

An intersection LOS analysis was conducted for opening year without project conditions using the methodologies previously discussed. Table 6-C summarizes the results of the analysis and shows that the following intersections are forecast to operate at a deficient LOS under opening year without project conditions:

1. Washington Street/Van Buren Boulevard (afternoon peak hour only);
2. Chicago Avenue – Alta Cresta Avenue/Van Buren Boulevard (both a.m. and afternoon peak hours);
4. Little Court/Van Buren Boulevard (afternoon peak hour only);
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); and
19. Project Driveway 1/Van Buren Boulevard (afternoon peak hour only).

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

### 6.5.2 Roadway Segments

A roadway segment LOS analysis was conducted for opening year without project conditions using the methodologies previously discussed. Table 6-D summarizes the results of this analysis and shows that all study roadway segments are forecast to operate at a deficient LOS under opening year without project conditions. The following is the list of roadway segments forecast to operate at a deficient LOS:

1. Van Buren Boulevard, between Little Court and Dauchy Avenue;
2. Dauchy Avenue, between Van Buren Blvd and Ardenwood Lane; and
3. Dauchy Avenue, between Ardenwood Lane and Hawksbury Drive.

## 6.6 OPENING YEAR (2029) WITH PROJECT LEVELS OF SERVICE

### 6.6.1 Study Intersections

An intersection LOS analysis was conducted for opening year with project conditions using the methodologies previously discussed. Table 6-C summarizes the results of the analysis and shows that the following intersections are forecast to operate at a deficient LOS under opening year with project conditions:

1. Washington Street/Van Buren Boulevard (afternoon peak hour only);
2. Chicago Avenue – Alta Cresta Avenue/Van Buren Boulevard (both a.m. and afternoon peak hours);
4. Little Court/Van Buren Boulevard (afternoon peak hour only);
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 (afternoon peak hour only); and
21. Dauchy Avenue/Project Driveway 4 (a.m. peak hour only).

All of the intersections with the exception of Dauchy Avenue/Project Driveway 4 are forecast to operate at a deficient LOS even under opening year without project conditions. Dauchy Avenue/Project Driveway 4 is forecasted to operate at a deficient LOS under with project conditions. Therefore, the project will contribute to the forecasted deficiency at the listed intersections. As such, improvements will be required where feasible.

All other intersections are forecast to operate at a satisfactory LOS under opening year with project conditions. Detailed Level of Service Worksheets are included in Appendix D.

### 6.6.2 Roadway Segments

A roadway segment LOS analysis was conducted for opening year with project conditions using the methodologies previously discussed. Table 6-D summarizes the results of this analysis and shows that all study roadway segments are forecast to operate at a deficient LOS under opening year with project conditions. The following is the list of roadway segments operating at a deficient LOS:

1. Van Buren Boulevard, between Little Court and Dauchy Avenue;
2. Dauchy Avenue, between Van Buren Blvd and Ardenwood Lane; and
3. Dauchy Avenue, between Ardenwood Lane and Hawksbury Drive.

All these segments are forecast to operate at a deficient LOS even under opening year (2029) without project conditions.

Based on the criteria discussed in the “Levels of Service Procedures” section of this report, the project is forecast to create project related operational deficiencies for two of the three segments. The addition of project-related trips either causes the following roadway segments to degrade from acceptable LOS (A through D) to unacceptable levels (E or F) or increases the V/C ratio by more than 5 percent when the roadway segment is forecast to operate at an unacceptable LOS under the no project scenario:

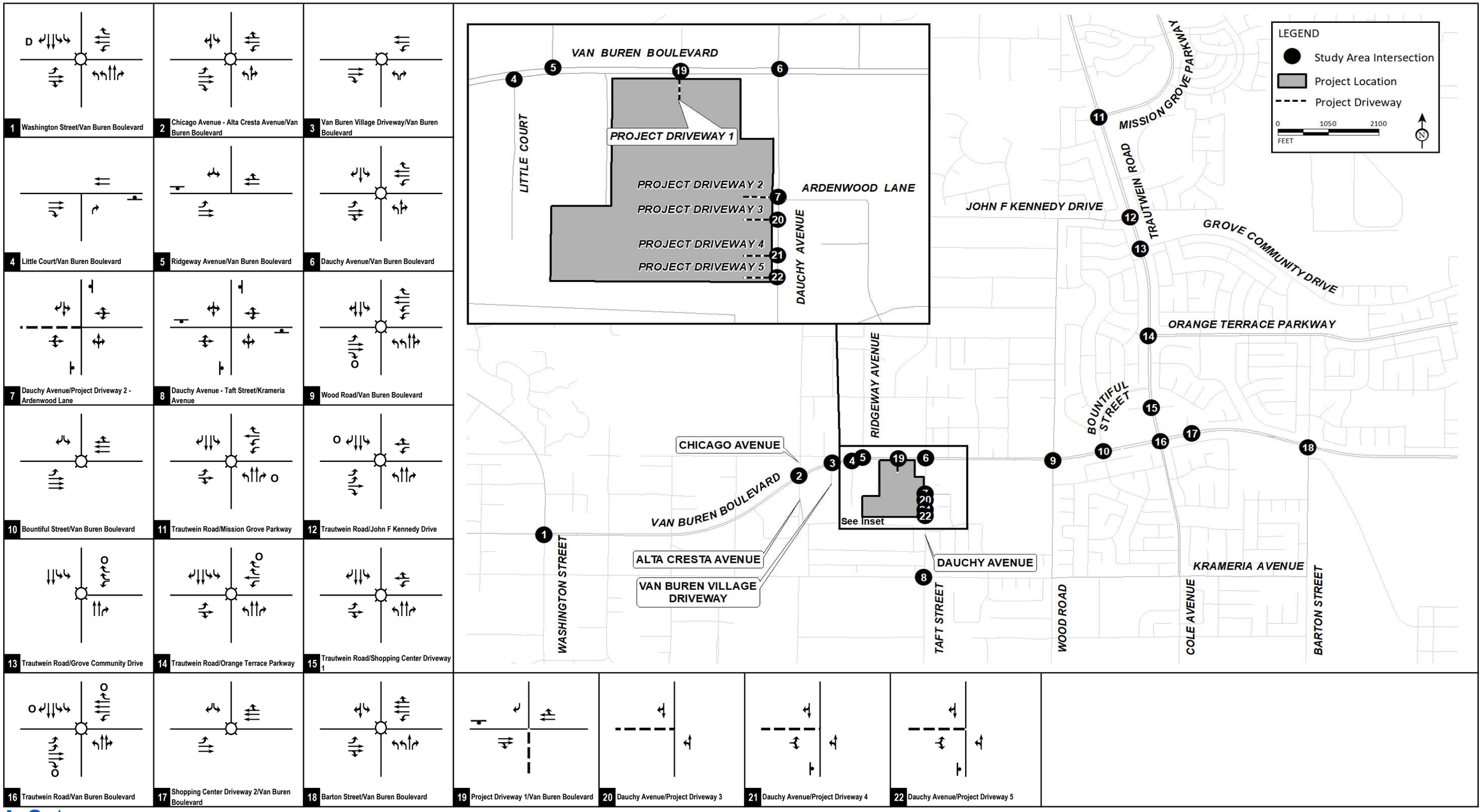
2. Dauchy Avenue, between Van Buren Blvd and Ardenwood Lane; and
3. Dauchy Avenue, between Ardenwood Lane and Hawksbury Drive.

Therefore, improvements will be required to offset the project related operational deficiencies at these segments. However, improvements are not feasible for any of these segments due to right-of-way constraints. As such, these segments will continue to operate at a deficiency.

## 6.7 LIST OF CHAPTER 6.0 FIGURES AND TABLES

- Figure 6-1: Opening Year (2029) and Cumulative (2045) without Project Study Intersection Geometrics and Traffic Control
- Figure 6-2: Opening Year (2029) and Cumulative (2045) with Project Study Intersection Geometrics and Traffic Control
- Figure 6-3: Cumulative Project Locations
- Figure 6-4: Cumulative Projects Trip Assignment

- Figure 6-5: Opening Year (2029) Peak Hour Traffic Volumes
- Figure 6-6: Opening Year (2029) with Project Peak Hour Traffic Volumes
- Table 6-A: Cumulative Projects Trip Generation
- Table 6-B: Opening Year (2029) Roadway Segment Daily Traffic Volumes
- Table 6-C: Opening Year (2029) Intersection Levels of Service
- Table 6-D: Opening Year (2029) Roadway Segment Levels of Service




LSA

Legend
- Signal
- Stop Sign
- D De-Facto Right
- O Overlap
- Project Driveway

FIGURE 6-1

*Woodcrest Christian School Expansion Project*

*Traffic Operational Analysis*

Opening Year (2029) and Cumulative (2045) without Project Study Intersection Geometrics and Traffic Control

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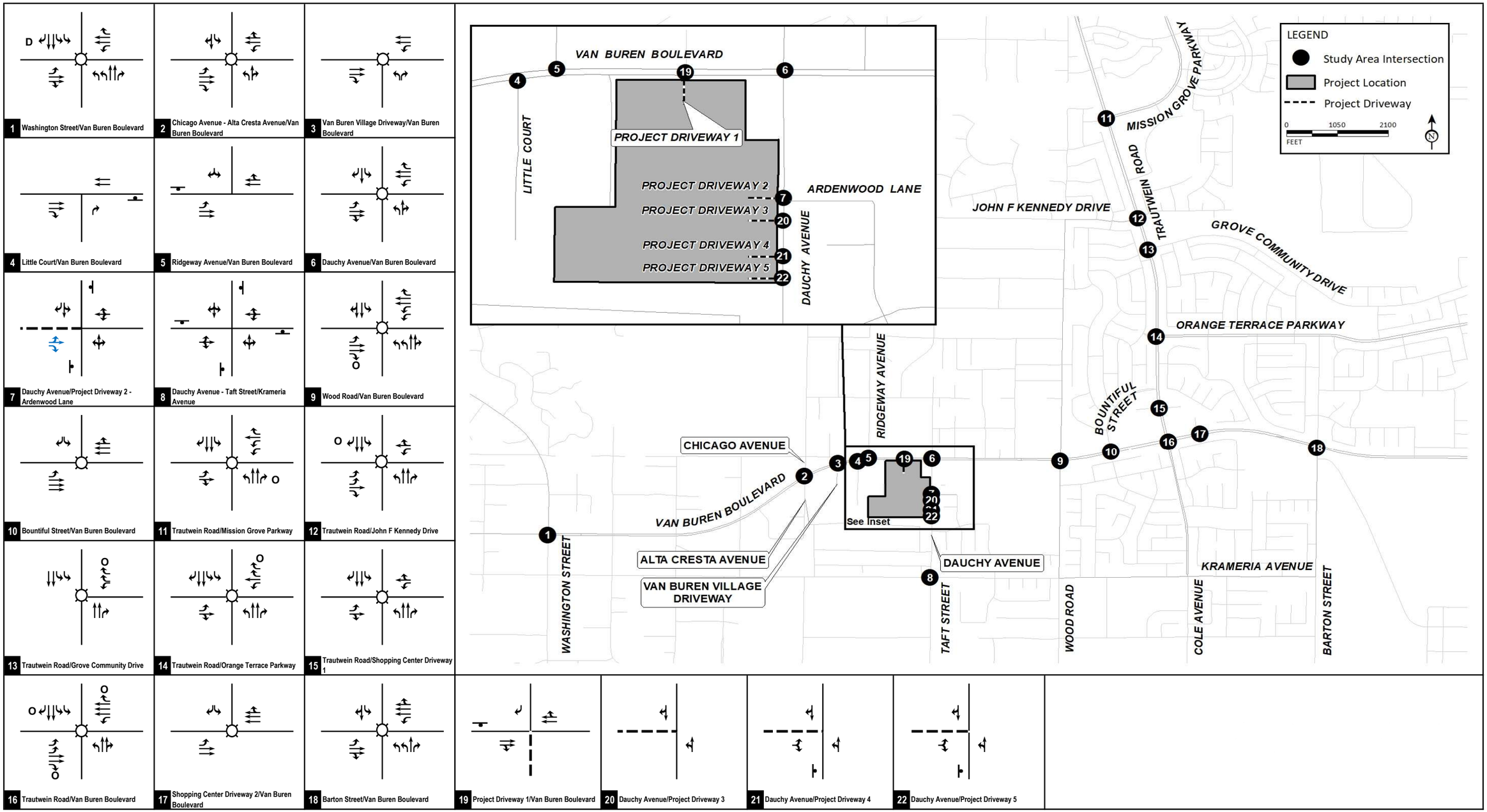


LSA

Legend
Signal
Stop Sign
D De-Facto Right
O Overlap
Project Design Feature
Project Driveway

FIGURE 6-2
*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Opening Year (2029) and Cumulative (2045) with Project Study Intersection Geometrics and Traffic Control

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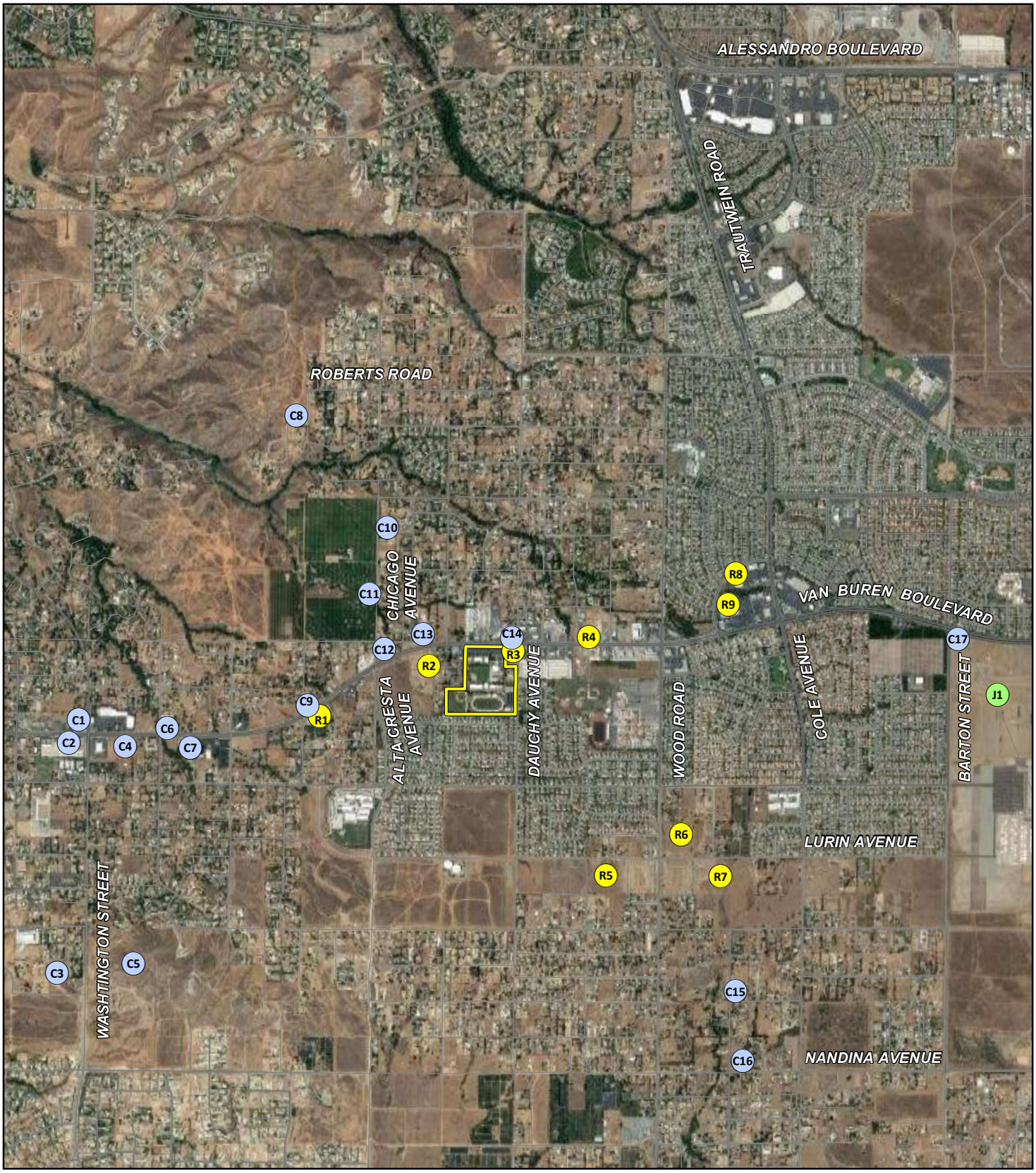


LSA

LEGEND

- Project Location
- City of Riverside Cumulative Project
- County of Riverside Cumulative Project
- March Joint Powers Authority Cumulative Project

0 1250 2500
FEET

FIGURE 6-3

*Woodcrest Christian School Expansion*
*Traffic Operational Analysis*
Cumulative Project Locations

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

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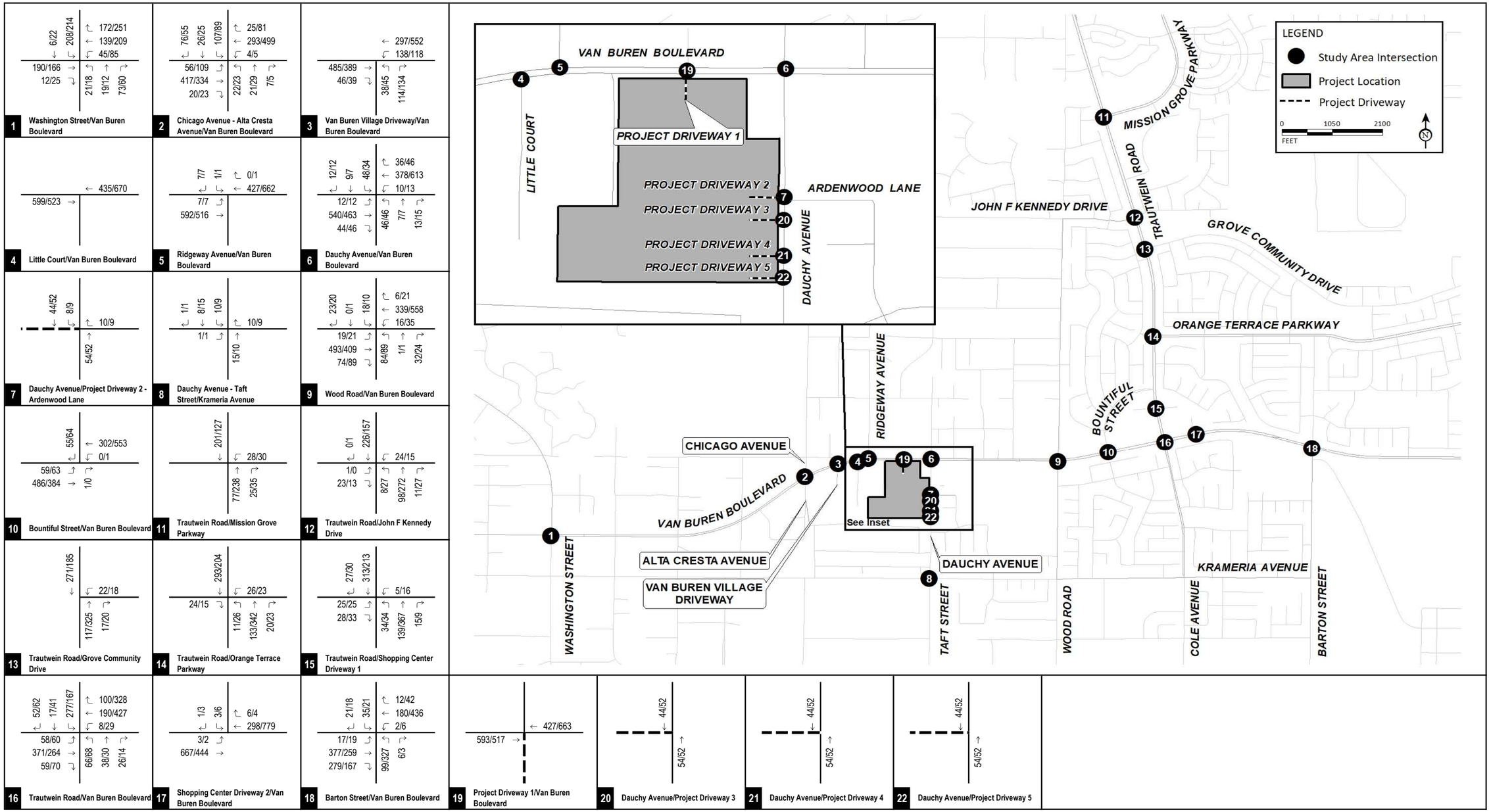


LSA

FIGURE 6-4

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Cumulative Projects Trip Assignment

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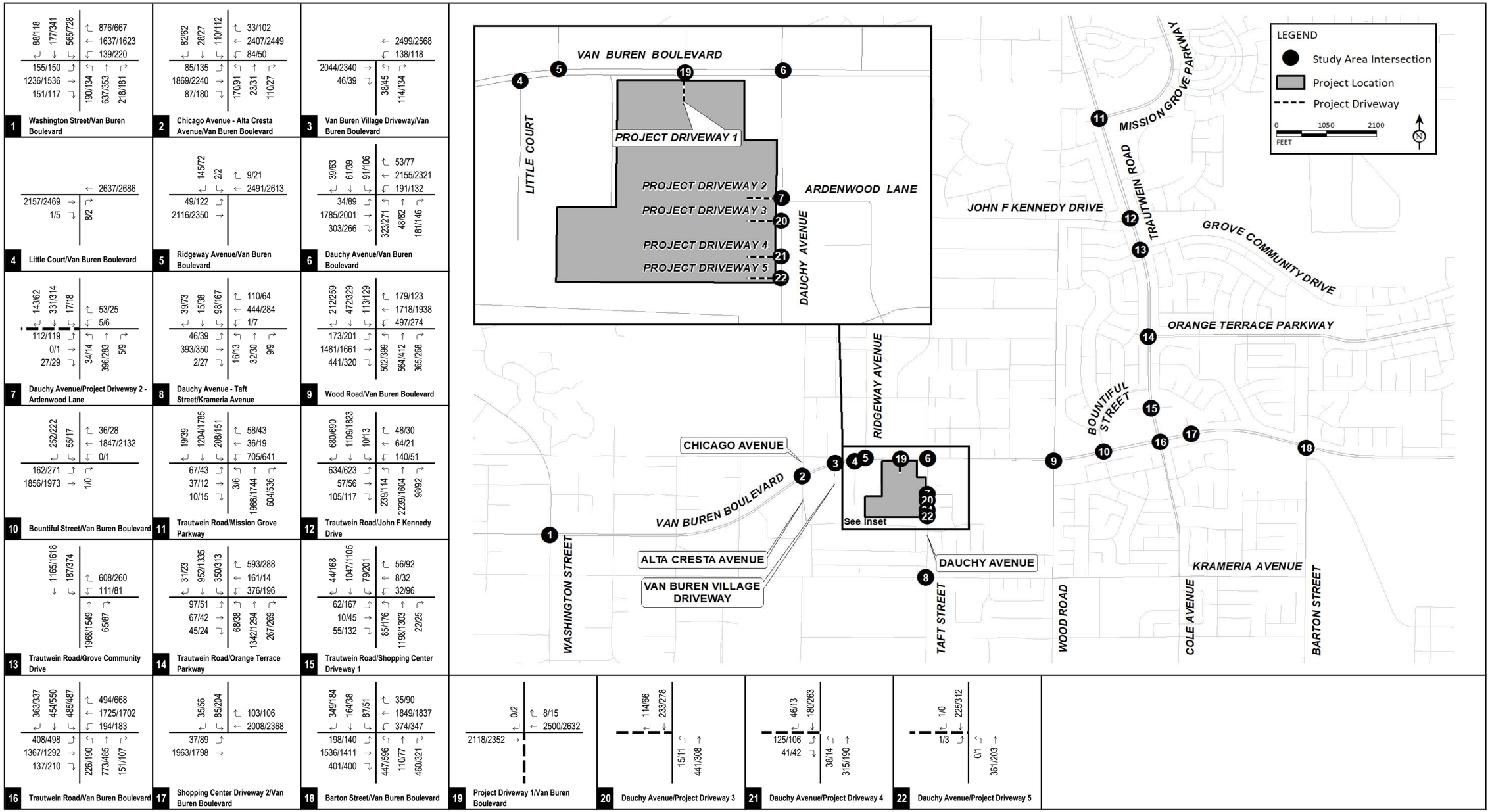


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FIGURE 6-5

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Opening Year (2029) Peak Hour Traffic Volumes

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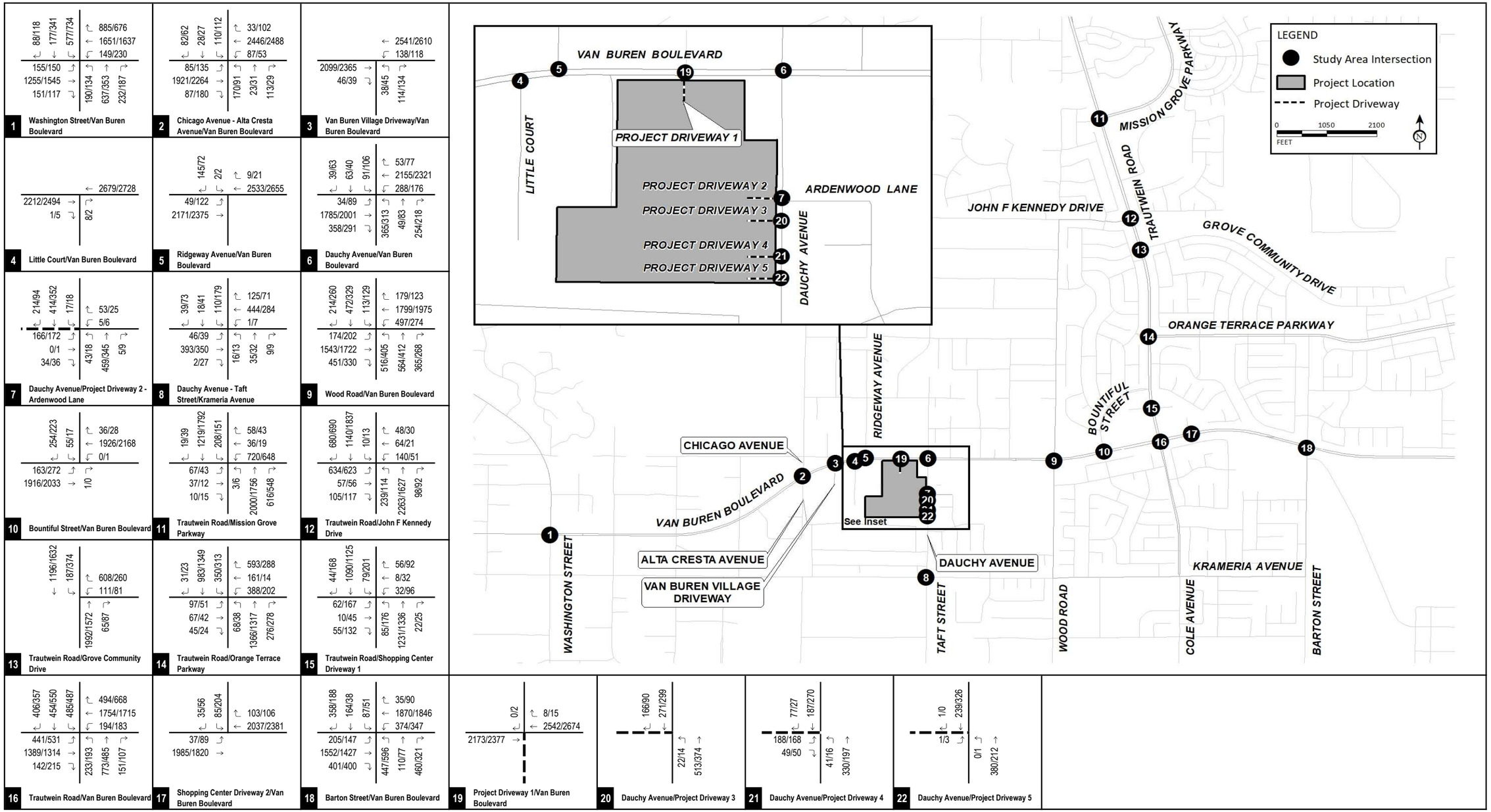


XXXX/YYYY
AM/Afternoon Peak Hour Trips

Project Driveway

FIGURE 6-6

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Opening Year (2029) with Project Peak Hour Traffic Volumes

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LSA

## Table 6-A - Cumulative Projects Trip Generation

| Project No. | Land Use/Builder/Applicant/Project Name | Units | | A.M. Peak Hour In | A.M. Peak Hour Out | A.M. Peak Hour Total | Afternoon Peak Hour[1] In | Afternoon Peak Hour[1] Out | Afternoon Peak Hour[1] Total | Daily |
|---|---|---|---|---|---|---|---|---|---|---|
| R1 . | **P18-0255 (Comercial Building and Drive Thru)** | | | | | | | | | |
| | **17815 Van Buren Blvd** | 4.40 | TSF | | | | | | | |
| | Trips/Unit[2] | | | 22.75 | 21.86 | 44.61 | 17.18 | 15.85 | 33.03 | 467.48 |
| | Trip Generation | | | 100 | 96 | 196 | 76 | 70 | 146 | 2,057 |
| | Pass-By Trips[3,4] | | | (25) | (24) | (49) | (19) | (18) | (37) | (514) |
| | Net Trip Generation | | | 75 | 72 | 147 | 57 | 52 | 109 | 1,543 |
| R2 . | **P20-0372 [Van Buren Village] (Daycare, Office, Medical Office Building, Retail, Fast Food Drive Thru, Coffee Shop, Casual Resturant)** | | | | | | | | | |
| | **18233 Van Buren Blvd** | | | | | | | | | |
| | **Daycare Center** | 11.00 | TSF | | | | | | | |
| | Trips/Unit[5] | | | 5.83 | 5.17 | 11.00 | 5.23 | 5.89 | 11.12 | 47.62 |
| | Trip Generation[5] | | | 64 | 57 | 121 | 57 | 65 | 122 | 524 |
| | **Office** | 10.00 | TSF | | | | | | | |
| | Trips/Unit[5] | | | 1.00 | 0.16 | 1.16 | 0.18 | 0.97 | 1.15 | 9.74 |
| | Trip Generation | | | 10 | 2 | 12 | 2 | 10 | 12 | 97 |
| | Internal Trip Capture[5] | | | 0 | 0 | 0 | 0 | 0 | 0 | (6) |
| | Net Trip Generation | | | 10 | 2 | 12 | 2 | 10 | 12 | 91 |
| | **Medical-Dental Office Building** | 8.00 | TSF | | | | | | | |
| | Trips/Unit[5] | | | 2.17 | 0.61 | 2.78 | 0.97 | 2.49 | 3.46 | 34.80 |
| | Trip Generation | | | 17 | 5 | 22 | 8 | 20 | 28 | 278 |
| | Internal Trip Capture[5] | | | 0 | 0 | 0 | 0 | (1) | (1) | (17) |
| | Net Trip Generation | | | 17 | 5 | 22 | 8 | 19 | 27 | 261 |
| | **Retail** | 10.70 | TSF | | | | | | | |
| | Trips/Unit[5] | | | 0.58 | 0.36 | 0.94 | 1.83 | 1.98 | 3.81 | 37.75 |
| | Trip Generation | | | 6 | 4 | 10 | 20 | 21 | 41 | 404 |
| | Internal Trip Capture[5] | | | 0 | 0 | 0 | (1) | (1) | (2) | (24) |
| | | | Sub-Total | 6 | 4 | 10 | 19 | 20 | 39 | 380 |
| | Pass-By Trips[5] | | | (1) | 0 | (1) | (6) | (7) | (13) | (38) |
| | Net Trip Generation | | | 5 | 4 | 9 | 13 | 13 | 26 | 342 |
| | **Fast-Food with Drive-Through** | 2.38 | TSF | | | | | | | |
| | Trips/Unit[5] | | | 20.50 | 19.69 | 40.19 | 16.99 | 15.68 | 32.67 | 470.95 |
| | Trip Generation | | | 49 | 47 | 96 | 41 | 37 | 78 | 1,119 |
| | Internal Trip Capture[5] | | | 0 | 0 | 0 | (2) | (1) | (3) | (67) |
| | | | Sub-Total | 49 | 47 | 96 | 39 | 36 | 75 | 1,052 |
| | Pass-By Trips[5] | | | (24) | (23) | (47) | (20) | (18) | (38) | (515) |
| | Net Trip Generation | | | 25 | 24 | 49 | 19 | 18 | 37 | 537 |
| | **Coffee Shop** | 2.61 | TSF | | | | | | | |
| | Trips/Unit[5] | | | 45.38 | 43.61 | 88.99 | 21.69 | 21.69 | 43.38 | 820.38 |
| | Trip Generation | | | 118 | 114 | 232 | 57 | 56 | 113 | 2,140 |
| | Internal Trip Capture[5] | | | 0 | 0 | 0 | (2) | (3) | (5) | (128) |
| | | | Sub-Total | 118 | 114 | 232 | 55 | 53 | 108 | 2,012 |
| | Pass-By Trips[5] | | | (59) | (57) | (116) | (14) | (13) | (27) | (503) |
| | Net Trip Generation | | | 59 | 57 | 116 | 41 | 40 | 81 | 1,509 |
| | **Fast Casual Resturant** | 3.80 | TSF | | | | | | | |
| | Trips/Unit[5] | | | 1.39 | 0.68 | 2.07 | 7.77 | 6.36 | 14.13 | 315.17 |
| | Trip Generation | | | 5 | 3 | 8 | 30 | 24 | 54 | 1,199 |
| | Internal Trip Capture[5] | | | 0 | 0 | 0 | (1) | (1) | (2) | (72) |
| | | | Sub-Total | 5 | 3 | 8 | 29 | 23 | 52 | 1,127 |
| | Pass-By Trips[5] | | | (1) | 0 | (1) | (12) | (10) | (22) | (113) |
| | Net Trip Generation | | | 4 | 3 | 7 | 17 | 13 | 30 | 1,014 |
| | | | Gross Trip Generations | 269 | 232 | 501 | 215 | 233 | 448 | 5,761 |
| | | | Total Internal Capture | 0 | 0 | 0 | (6) | (7) | (13) | (314) |
| | | | Total Pass-By Trips | (85) | (80) | (165) | (52) | (48) | (100) | (1,169) |
| | | | Net Trip Generation | 184 | 152 | 336 | 157 | 178 | 335 | 4,278 |

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## Table 6-A - Cumulative Projects Trip Generation

| Project No. | Land Use/Builder/Applicant/Project Name | Units | | A.M. Peak Hour In | A.M. Peak Hour Out | A.M. Peak Hour Total | Afternoon Peak Hour[1] In | Afternoon Peak Hour[1] Out | Afternoon Peak Hour[1] Total | Daily |
|---|---|---|---|---|---|---|---|---|---|---|
| **R3 .** | **P19-0042 (Denny's Resturant and Office Building)** | | | | | | | | | |
| | **18451 Van Buren Blvd** | | | | | | | | | |
| | **High-Turnover (Sit-Down) Resturant** | 4.30 | TSF | | | | | | | |
| | Trips/Unit[6] | | | 5.26 | 4.31 | 9.57 | 5.52 | 3.53 | 9.05 | 107.20 |
| | Trip Generation | | | 23 | 19 | 42 | 24 | 15 | 39 | 461 |
| | Pass-By Trips[7,8] | | | 0 | 0 | 0 | (6) | (4) | (10) | (115) |
| | Net Trip Generation | | | 23 | 19 | 42 | 18 | 11 | 29 | 346 |
| | **Office** | 9.90 | TSF | | | | | | | |
| | Trips/Unit[9] | | | 1.37 | 0.30 | 1.67 | 0.73 | 1.43 | 2.16 | 14.39 |
| | Trip Generation | | | 14 | 3 | 17 | 7 | 14 | 21 | 142 |
| | | | Gross Trip Generation | 37 | 22 | 59 | 31 | 29 | 60 | 603 |
| | | | Total Pass-By Trips | 0 | 0 | 0 | (6) | (4) | (10) | (115) |
| | | | Net Trip Generation | 37 | 22 | 59 | 25 | 25 | 50 | 488 |
| **R4 .** | **P17-0688 (Automated Car Wash)** | | | | | | | | | |
| | **18806 Van Buren Blvd** | 5.40 | TSF | | | | | | | |
| | Trips/Unit[10] | | | 5.66 | 3.32 | 8.98 | 7.10 | 7.10 | 14.20 | 163.09 |
| | Trip Generation | | | 31 | 18 | 49 | 38 | 38 | 76 | 881 |
| **R5 .** | **P20-0385 (Tentative Tract Map 37733 - Single Family Residential)** | | | | | | | | | |
| | **18875 Lurin Ave** | 40 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 7 | 21 | 28 | 24 | 14 | 38 | 377 |
| **R6 .** | **PR-2021-001053 (Tentative Tract Map 38094 - Single Family Residential)** | | | | | | | | | |
| | **Wood Rd/Krameria Ave** | 72 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 13 | 37 | 50 | 42 | 25 | 67 | 679 |
| **R7 .** | **P20-0018 (Tentative Tract Map 37731 - Residential)** | | | | | | | | | |
| | **19331 Lurin Ave** | 138 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 25 | 72 | 97 | 81 | 48 | 129 | 1,301 |
| **R8 .** | **R19-0151 (Health and Fitness Center)** | | | | | | | | | |
| | **8719 Trautwein Rd** | 21.7 | TSF | | | | | | | |
| | Trips/Unit[12,13] | | | 0.67 | 0.64 | 1.31 | 1.97 | 1.48 | 3.45 | 23.80 |
| | Trip Generation | | | 15 | 14 | 29 | 43 | 32 | 75 | 516 |
| **R9 .** | **P19-0022 (Panera Bread with Drive Thru)** | | | | | | | | | |
| | **19260 Van Buren Blvd** | 4.3 | TSF | | | | | | | |
| | Trips/Unit[2] | | | 22.75 | 21.86 | 44.61 | 17.18 | 15.85 | 33.03 | 467.48 |
| | Trip Generation | | | 98 | 94 | 192 | 74 | 68 | 142 | 2,019 |
| | Pass-By Trips[3,4] | | | (25) | (24) | (49) | (19) | (17) | (36) | (505) |
| | Net Trip Generation | | | 73 | 70 | 143 | 55 | 51 | 106 | 1,514 |

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## Table 6-A - Cumulative Projects Trip Generation

| Project No. | Land Use/Builder/Applicant/Project Name | Units | | A.M. Peak Hour In | A.M. Peak Hour Out | A.M. Peak Hour Total | Afternoon Peak Hour[1] In | Afternoon Peak Hour[1] Out | Afternoon Peak Hour[1] Total | Daily |
|---|---|---|---|---|---|---|---|---|---|---|
| **C1 .** | **PAR210018 (Market, Retail Shop, and Two Fast Food Resturant with Drive Thru)** | | | | | | | | | |
| | **16261 Washington St** | | | | | | | | | |
| | **Shopping Plaza (40-150k)** | 53.52 | TSF | | | | | | | |
| | Trips/Unit[14] | | | 2.19 | 1.34 | 3.53 | 4.33 | 4.70 | 9.03 | 94.49 |
| | Trip Generation | | | 117 | 72 | 189 | 232 | 252 | 484 | 5,057 |
| | Pass-By Trips[7,15] | | | 0 | 0 | 0 | (58) | (63) | (121) | (1,264) |
| | Net Trip Generation | | | 117 | 72 | 189 | 174 | 189 | 363 | 3,793 |
| | **Drive Thru Resturant** | 6.0 | TSF | | | | | | | |
| | Trips/Unit[2] | | | 22.75 | 21.86 | 44.61 | 17.18 | 15.85 | 33.03 | 467.48 |
| | Trip Generation | | | 137 | 131 | 268 | 103 | 95 | 198 | 2,805 |
| | Pass-By Trips[3,4] | | | (34) | (33) | (67) | (26) | (24) | (50) | (701) |
| | Net Trip Generation | | | 103 | 98 | 201 | 77 | 71 | 148 | 2,104 |
| | | Gross Trip Generation | | 254 | 203 | 457 | 335 | 347 | 682 | 7,862 |
| | | Total Pass-By Trips | | (34) | (33) | (67) | (84) | (87) | (171) | (1,965) |
| | | Net Trip Generation | | 220 | 170 | 390 | 251 | 260 | 511 | 5,897 |
| **C2 .** | **PAR200001 (Pre-Application Review - Fast Food Drive Thru)** | | | | | | | | | |
| | **16935 Van Buren Blvd** | 4.7 | TSF | | | | | | | |
| | Trips/Unit[2] | | | 22.75 | 21.86 | 44.61 | 17.18 | 15.85 | 33.03 | 467.48 |
| | Trip Generation | | | 107 | 103 | 210 | 81 | 74 | 155 | 2,197 |
| | Pass-By Trips[3,4] | | | (27) | (26) | (53) | (20) | (19) | (39) | (549) |
| | Net Trip Generation | | | 80 | 77 | 157 | 61 | 55 | 116 | 1,648 |
| **C3 .** | **PM37101 (Tenative Parcel Map - Residential)** | | | | | | | | | |
| | **17220 Washington St** | 4 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 1 | 2 | 3 | 2 | 1 | 3 | 38 |
| **C4 .** | **CUP180016 (Tractor Supply Store)** | | | | | | | | | |
| | **South of Van Buren Blvd between Washington St and Gardner Ave** | 18.8 | TSF | | | | | | | |
| | Trips/Unit[16] | | | 0.23 | 0.20 | 0.43 | 0.66 | 0.74 | 1.40 | 3.79 |
| | Trip Generation | | | 4 | 4 | 8 | 12 | 14 | 26 | 71 |
| **C5 .** | **PAR200047TR36639E01 (Pre-Application Review - Residential)** | | | | | | | | | |
| | **17010 Washington St** | 140 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 25 | 73 | 98 | 83 | 49 | 132 | 1,320 |
| **C6 .** | **CUP03766 (Car Wash with Office)** | | | | | | | | | |
| | **16270 Gardner Ave** | 4.8 | TSF | | | | | | | |
| | Trips/Unit[10] | | | 5.66 | 3.32 | 8.98 | 7.10 | 7.10 | 14.20 | 163.09 |
| | Trip Generation | | | 27 | 16 | 43 | 34 | 34 | 68 | 783 |
| **C7 .** | **CUP170002 (Storage Yard with Office)** | | | | | | | | | |
| | **17333 Van Buren Blvd** | 4.4 | TSF | | | | | | | |
| | Trips/Unit[17] | | | 1.23 | 0.43 | 1.66 | 0.62 | 1.31 | 1.93 | 9.82 |
| | Trip Generation | | | 5 | 2 | 7 | 3 | 6 | 9 | 43 |
| **C8 .** | **TR36763 (Tract Map - Residential)** | | | | | | | | | |
| | **Northwest Corner of Roberts Rd and Kross Rd** | 24 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 4 | 12 | 16 | 14 | 8 | 22 | 226 |
| **C9 .** | **PPT180002 (Drive Thru Resturant)** | | | | | | | | | |
| | **Northeast Corner of Gamble Ave and Van Buren Blvd** | 2.1 | TSF | | | | | | | |
| | Trips/Unit[2] | | | 22.75 | 21.86 | 44.61 | 17.18 | 15.85 | 33.03 | 467.48 |
| | Trip Generation | | | 48 | 46 | 94 | 36 | 33 | 69 | 982 |
| | Pass-By Trips[3,4] | | | (12) | (12) | (24) | (9) | (8) | (17) | (246) |
| | Net Trip Generation | | | 36 | 34 | 70 | 27 | 25 | 52 | 736 |
| **C10 .** | **PM37340 (Tentative Parcel Map - Residential)** | | | | | | | | | |
| | **15600 Chicago Ave** | 2 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 0 | 1 | 1 | 1 | 1 | 2 | 19 |
| **C11 .** | **PAR210156PM37402 (Pre-Application Review - Residential)** | | | | | | | | | |
| | **15701 Chicago Ave** | 273 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 49 | 142 | 191 | 161 | 96 | 257 | 2,574 |

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## Table 6-A - Cumulative Projects Trip Generation

| Project No. | Land Use/Builder/Applicant/Project Name | Units | | A.M. Peak Hour In | A.M. Peak Hour Out | A.M. Peak Hour Total | Afternoon Peak Hour[1] In | Afternoon Peak Hour[1] Out | Afternoon Peak Hour[1] Total | Daily |
|---|---|---|---|---|---|---|---|---|---|---|
| **C12 .** | **CUP190021 (Gas Station with Convenience Store and Car Wash)** | | | | | | | | | |
| | **Northeast Corner of Chicago Ave and Van Buren Blvd** | 16 | VFP | | | | | | | |
| | Trips/Unit[18] | | | 6.36 | 6.11 | 12.47 | 7.13 | 6.86 | 13.99 | 205.36 |
| | Trip Generation | | | 102 | 98 | 200 | 114 | 110 | 224 | 3,286 |
| | Pass-By Trips[18] | | | (26) | (25) | (51) | (29) | (28) | (57) | (822) |
| | Net Trip Generation | | | 76 | 73 | 149 | 85 | 82 | 167 | 2,464 |
| **C13 .** | **PP26337 (Child Day Care Center with Classrooms and Office)** | | | | | | | | | |
| | **Northeast Corner of Eastern Terminus of Iris Ave** | 48 | STU | | | | | | | |
| | Trips/Unit[19] | | | 0.41 | 0.37 | 0.78 | 0.37 | 0.42 | 0.79 | 4.09 |
| | Trip Generation | | | 20 | 18 | 38 | 18 | 20 | 38 | 196 |
| **C14 .** | **PPT210010 (Drive Thru Resturant)** | | | | | | | | | |
| | **18494 Van Buren Rd** | 3.0 | TSF | | | | | | | |
| | Trips/Unit[2] | | | 22.75 | 21.86 | 44.61 | 17.18 | 15.85 | 33.03 | 467.48 |
| | Trip Generation | | | 68 | 66 | 134 | 52 | 48 | 100 | 1,402 |
| | Pass-By Trips[3,4] | | | (17) | (17) | (34) | (13) | (12) | (25) | (351) |
| | Net Trip Generation | | | 51 | 49 | 100 | 39 | 36 | 75 | 1,051 |
| **C15 .** | **TPM38026 (Tenative Parcel Map Division)** | | | | | | | | | |
| | **17140 Parsons Rd** | 2 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 0 | 1 | 1 | 1 | 1 | 2 | 19 |
| **C16 .** | **TTM37594 (Tenative Tract Map - Residential Division)** | | | | | | | | | |
| | **Northeast Corner of Parsons Rd and Nandina Ave** | 5 | DU | | | | | | | |
| | Trips/Unit[11] | | | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 | 9.43 |
| | Trip Generation | | | 1 | 3 | 4 | 3 | 2 | 5 | 47 |
| **C17 .** | **PP25382 (Commerical Office)** | | | | | | | | | |
| | **Southeast Corner of Barton St and Van Buren Blvd** | 10.3 | TSF | | | | | | | |
| | Trips/Unit[20] | | | 1.34 | 0.18 | 1.52 | 0.24 | 1.20 | 1.44 | 10.84 |
| | Trip Generation | | | 14 | 2 | 16 | 2 | 12 | 14 | 112 |

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## Table 6-A - Cumulative Projects Trip Generation

| Project No. | Land Use/Builder/Applicant/Project Name | Units | | A.M. Peak Hour In | A.M. Peak Hour Out | A.M. Peak Hour Total | Afternoon Peak Hour[1] In | Afternoon Peak Hour[1] Out | Afternoon Peak Hour[1] Total | Daily |
|---|---|---|---|---|---|---|---|---|---|---|
| **J1 .** | **March Business Center (Meridian South Campus: March JPA SP-1)** | | | | | | | | | |
| | **Office[21]** | 388.0 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 331 | 53 | 384 | 65 | 338 | 403 | 3,874 |
| | Truck Trip Generation | | | 7 | 1 | 8 | 1 | 7 | 8 | 80 |
| | Subtotal Trip Generation | | | 338 | 54 | 392 | 66 | 345 | 411 | 3,954 |
| | **Commerical Retail[21]** | 282.7 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 303 | 185 | 488 | 481 | 510 | 991 | 10,162 |
| | Truck Trip Generation | | | 6 | 4 | 10 | 10 | 10 | 20 | 208 |
| | Subtotal Trip Generation | | | 309 | 189 | 498 | 491 | 520 | 1,011 | 10,370 |
| | **Business Park Office[21]** | 529.3 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 441 | 73 | 514 | 88 | 457 | 545 | 5,234 |
| | Truck Trip Generation | | | 9 | 1 | 10 | 2 | 9 | 11 | 108 |
| | Subtotal Trip Generation | | | 450 | 74 | 524 | 90 | 466 | 556 | 5,342 |
| | **Business Park Warehouse[21]** | 1234.9 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 92 | 28 | 120 | 37 | 100 | 137 | 1,262 |
| | Truck Trip Generation | | | 41 | 12 | 53 | 10 | 28 | 38 | 736 |
| | Subtotal Trip Generation | | | 133 | 40 | 173 | 47 | 128 | 175 | 1,998 |
| | **Industrial Warehousing[21]** | 274.4 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 31 | 9 | 40 | 13 | 34 | 47 | 302 |
| | Truck Trip Generation | | | 14 | 4 | 18 | 3 | 10 | 13 | 178 |
| | Subtotal Trip Generation | | | 45 | 13 | 58 | 16 | 44 | 60 | 480 |
| | **Industrial High-Cube Cold Storage Warehouse[21]** | 700.0 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 41 | 12 | 53 | 18 | 48 | 66 | 1,000 |
| | Truck Trip Generation | | | 18 | 6 | 24 | 5 | 13 | 18 | 584 |
| | Subtotal Trip Generation | | | 59 | 18 | 77 | 23 | 61 | 84 | 1,584 |
| | **Industrial High-Cube Transload Short-Term Warehouse (Building D)[21]** | 800.0 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 34 | 10 | 44 | 17 | 45 | 63 | 706 |
| | Truck Trip Generation | | | 15 | 5 | 20 | 5 | 13 | 17 | 414 |
| | Subtotal Trip Generation | | | 49 | 15 | 64 | 22 | 58 | 80 | 1,120 |
| | **Dog Park & Paseo[21]** | 6.2 | Ac | | | | | | | |
| | Trip Generation | | | 0 | 0 | 0 | 13 | 10 | 23 | 94 |
| | **LGB6 (Building A)[21]** | 1000.0 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 222 | 87 | 309 | 127 | 235 | 362 | 2,306 |
| | Truck Trip Generation | | | 57 | 22 | 79 | 33 | 60 | 93 | 592 |
| | Subtotal Trip Generation | | | 279 | 109 | 388 | 160 | 295 | 455 | 2,898 |
| | **Parcel Delivery Site (Building B + Parking Lot)[21]** | 1000.0 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 341 | 132 | 473 | 221 | 410 | 631 | 2,952 |
| | Truck Trip Generation | | | 151 | 59 | 210 | 61 | 113 | 174 | 1,720 |
| | Subtotal Trip Generation | | | 492 | 191 | 683 | 282 | 523 | 805 | 4,672 |
| | **Commercial (Parcel 72)[21]** | 15.5 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 64 | 55 | 119 | 65 | 70 | 135 | 1,502 |
| | Truck Trip Generation | | | 1 | 1 | 2 | 1 | 1 | 2 | 32 |
| | Subtotal Trip Generation | | | 65 | 56 | 121 | 66 | 71 | 137 | 1,534 |
| | **Warehousing (Building C)[21]** | 500.0 | TSF | | | | | | | |
| | Passenger Car Trip Generation | | | 46 | 14 | 60 | 20 | 54 | 74 | 550 |
| | Truck Trip Generation | | | 21 | 6 | 27 | 5 | 15 | 20 | 320 |
| | Subtotal Trip Generation | | | 67 | 20 | 87 | 25 | 69 | 94 | 870 |
| | Gross Passenger Car Trip Generations | | | 1,946 | 658 | 2,604 | 1,165 | 2,311 | 3,477 | 29,944 |
| | Gross Truck Trip Generations | | | 340 | 121 | 461 | 136 | 279 | 414 | 4,972 |
| | Gross Trip Generation | | | 2,286 | 779 | 3,065 | 1,301 | 2,590 | 3,891 | 34,916 |
| | Passenger Car Internal Reduction (10%) | | | (195) | (66) | (260) | (117) | (231) | (348) | (2,994) |
| | Truck Internal Reduction (10%) | | | (34) | (12) | (46) | (14) | (28) | (41) | (497) |
| | Net Passenger Trip Generation | | | 1,751 | 592 | 2,344 | 1,049 | 2,080 | 3,129 | 26,950 |
| | Net Truck Trip Generation | | | 306 | 109 | 415 | 122 | 251 | 373 | 4,475 |
| | Net Truck Trip Generation (PCE) | | | 612 | 218 | 830 | 245 | 502 | 745 | 8,950 |
| | Total Trip Generation | | | 2,057 | 701 | 2,759 | 1,171 | 2,331 | 3,502 | 31,424 |
| | Total Trip Generation (PCE) | | | 2,363 | 810 | 3,173 | 1,293 | 2,582 | 3,875 | 35,899 |
| | **Total Gross Trip Generation** | | | **3,610** | **2,177** | **5,787** | **2,877** | **4,003** | **6,880** | **70,287** |
| | **Total Pass-By Trips** | | | **(251)** | **(241)** | **(492)** | **(251)** | **(241)** | **(492)** | **(6,236)** |
| | **Total Internal Trips** | | | **(229)** | **(78)** | **(307)** | **(136)** | **(266)** | **(402)** | **(3,806)** |
| | **Total Net Trip Generation** | | | **3,130** | **1,858** | **4,989** | **2,490** | **3,496** | **5,986** | **60,245** |
| | **Total Net Trip Generation (PCE)** | | | **3,409** | **1,951** | **5,360** | **2,578** | **3,713** | **6,291** | **63,937** |

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## Table 6-A - Cumulative Projects Trip Generation

| Project No. | Land Use/Builder/Applicant/Project Name | Units | A.M. Peak Hour In | A.M. Peak Hour Out | A.M. Peak Hour Total | Afternoon Peak Hour[1] In | Afternoon Peak Hour[1] Out | Afternoon Peak Hour[1] Total | Daily |
|---|---|---|---|---|---|---|---|---|---|

**Notes:**

TSF = Thousand Square Feet; DU = Dwelling Units; VFP = Vehicle Fueling Positions; STU = Student; Ac = Acres

[1] There is no data available for afternoon peak hour trips; therefore, the P.M. peak hour was applied for the afternoon trip generation.

[2] Rates based on the Institue of Transportation Engineers (ITE) Trip Generation Manual (11th Edition) for Land Use 934 - "Fast-Food Resturant with Drive-Through Window", Setting Location - "General Urban/Suburban."

[3] Pass-by rates based on Land Use 934 – "Fast-Food Resturant with Drive-Through" from ITE *Trip Generation Manual,* 11th Edition. As per the City of Riverside Public Works Department Traffic Impact Analysis Preparation Guide, dated December 2017, the pass-by rate shall not be assumed to exceed 25%. Since the pass-by rates provideds in the ITE *Trip Generation Manual* are higher than 25%, a pass-by rate of 25% was used.

[4] There is no data available for daily pass-by trips; therefore, the average of AM and PM pass-by rate was applied for the daily trip generation.

[5] Rates, trip generation, internal trip capture, and pass-by rates based on Linscott Law & Greenspan *Van Buren Village Traffic Circulation Anlaysis Report* .

[6] Rates based on the *ITE Trip Generation Manual* (11th Edition) for Land Use 932 - "High-Turnover (Sit-Down) Restaurant", Setting Location - "General Urban/Suburban."

[7] There is no data available for AM peak hour and daily pass-by trips; therefore, the PM pass-by rate was applied for the daily trip generation.

[8] Pass-by rates based on Land Use 932 – "High-Turnover (Sit-Down) Restaurant" from ITE *Trip Generation Manual,* 11th Edition. As per the City of Riverside Public Works Department Traffic Impact Analysis Preparation Guide, dated December 2017, the pass-by rate shall not be assumed to exceed 25%. Since the pass-by rates provideds in the ITE *Trip Generation Manual* are higher than 25%, a pass-by rate of 25% was used.

[9] Rates based on the ITE *Trip Generation Manua* l (11th Edition) for Land Use 712 - "Small Office Building", Setting Location - "General Urban/Suburban."

[10] Trip generation rates obtained from the ITE *Trip Generation Manual* (11th Edition) for Land Use 948 - "Automated Car Wash", Setting/Location - "General Urban/Suburban." Only P.M. peak hour rates are available for this land use in the ITE manual. The AM peak hour and daily rates were obtained by using the PM peak hour trip generation rate ratio between Land Use 948 and Land Use 949 - "Car Wash and Detail Center" and applying the ratio to the PM peak hour and daily rates for Land Use 949. Also, the PM peak hour splits for Land Use 948 were used for the AM peak hour.

[11] Rates based on the ITE *Trip* Generation Manual (11th Edition) for Land Use 210 - "Single-Family Detached Housing", Setting Location - "General Urban/Suburban."

[12] Rates based on the ITE *Trip* Generation Manual (11th Edition) for Land Use 492 - "Health/Fitness Club", Setting Location - "General Urban/Suburban."

[13] There is no data on daily trip generation rates for Land Use 492 - "Health/Fitness Club" the daily rate was calculated by ten times the average AM and PM peak hour trips.

[14] Rates based on the ITE *Trip* Generation Manual (11th Edition) for Land Use 821 - "Shopping Plaza (40-150k) - Supermarket - Yes", Setting Location - "General Urban/Suburban."

[15] Pass-by rates based on Land Use 821 – "Shopping Plaza (40 - 150k)" from ITE *Trip Generation Manual,* 11th Edition. As per the City of Riverside Public Works Department Traffic Impact Analysis Preparation Guide , dated December 2017, the pass-by rate shall not be assumed to exceed 25%. Since the pass-by rates provideds in the ITE *Trip Generation Manual* are higher than 25%, a pass-by rate of 25% was used.

[16] Trip generation rates obtained from the ITE *Trip Generation Manual* (11th Edition) for Land Use 810 - "Tractor Supply Store", Setting/Location - "General Urban/Suburban." Only P.M. peak hour rates are available for this land use in the ITE manual. The AM peak hour and daily rates were obtained by using the PM peak hour trip generation rate ratio between Land Use 810 and Land Use 816 - "Hardware/Paint Store" and applying the ratio to the PM peak hour and daily rates for Land Use 816. Also, the PM peak hour splits for Land Use 816 were used for the AM peak hour.

[17] Rates based on the ITE *Trip* Generation Manual (11th Edition) for Land Use 180 - "Specialty Trade Contractor", Setting Location - "General Urban/Suburban."

[18] Rates, trip generation, internal trip capture, and pass-by rates based on LSA *Van Buren/Chicago Gasoline Station Project Traffic Impact Analysis* .

[19] Rates based on the ITE *Trip* Generation Manual (11th Edition) for Land Use 565 - "Day Care Center", Setting Location - "General Urban/Suburban."

[20] Rates based on the ITE *Trip* Generation Manual (11th Edition) for Land Use 710 - "General Office Building", Setting Location - "General Urban/Suburban."

[21] Trip generation based on the *Meridian South Campus Traffic Impact Analysis* - March Joint Powers Authority.

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## Table 6-B - Opening Year (2029) Roadway Segment Daily Traffic Volumes

| Roadway | # | Segment | Existing (2021) ADT | 2021 - 2029 Growth | Cumulative Projects Trips | Opening Year (2029) Without Project ADT | Project Trips | Opening Year (2029) With Project ADT |
|---|---|---|---|---|---|---|---|---|
| **Van Buren Boulevard** | 1 | Between Little Court and Dauchy Avenue | 39,223 | 6,276 | 12,782 | 58,281 | 260 | 58,541 |
| **Dauchy Avenue** | 2 | Between Van Buren Boulevard and Ardenwood Lane | 5,537 | 886 | 1,202 | 7,625 | 724 | 8,349 |
| | 3 | Between Ardenwood Lane and Hawksbury Drive | 3,247 | 520 | 1,202 | 4,969 | 430 | 5,399 |

LSA

## Table 6-C - Opening Year (2029) Intersection Levels of Service

| Intersection | Jurisdiction | LOS Standard | Without Project | | | | | | With Project | | | | | | Project Related Operational Deficiency? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A.M. Peak Hour | | Afternoon Peak Hour | | | | A.M. Peak Hour | | Afternoon Peak Hour | | | |
| | | | Control | Delay (sec.) | LOS | Delay (sec.) | LOS | | Control | Delay (sec.) | LOS | Delay (sec.) | LOS | | |
| 1 . Washington Street/Van Buren Boulevard | County of Riverside | D | Signal | 41.2 | D | 67.6 | E | * | Signal | 42.9 | D | 67.9 | E | * | Yes |
| 2 . Chicago Avenue - Alta Cresta Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | 76.5 | E | * | 71.6 | E | * | Signal | 82.3 | F | * | 76.4 | E | * | Yes |
| 3 . Van Buren Village Driveway/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | 7.5 | A | 9.2 | A | | Signal | 7.8 | A | 9.9 | A | | No |
| 4 . Little Court/Van Buren Boulevard | County of Riverside/City of Riverside | D | OWSC | 26.1 | D | 68.4 | F | * | OWSC | 29.6 | D | >100 | F | * | Yes |
| 5 . Ridgeway Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | D | OWSC | >100 | F | * | - | F | * | OWSC | >100 | F | * | - | F | * | Yes |
| 6 . Dauchy Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | 79.8 | E | * | >100 | F | * | Signal | >100 | F | * | >100 | F | * | Yes |
| 7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane | City of Riverside | C | TWSC | 49.2 | E | * | 44.2 | E | * | TWSC | >100 | F | * | 97.9 | F | * | Yes |
| 8 . Dauchy Avenue - Taft Street/Krameria Avenue | City of Riverside | C | AWSC | 63.7 | F | * | 40.8 | E | * | AWSC | 75.2 | F | * | 45.7 | E | * | Yes |
| 9 . Wood Road/Van Buren Boulevard | City of Riverside | D | Signal | 53.4 | D | 32.3 | C | | Signal | 53.8 | D | 32.2 | C | | No |
| 10 . Bountiful Street/Van Buren Boulevard | City of Riverside | D | Signal | 7.2 | A | 7.1 | A | | Signal | 7.1 | A | 7.2 | A | | No |
| 11 . Trautwein Road/Mission Grove Parkway | City of Riverside | D | Signal | 88.4 | F | * | 69.3 | E | * | Signal | 88.6 | F | * | 70.7 | E | * | Yes |
| 12 . Trautwein Road/John F Kennedy Drive | City of Riverside | D | Signal | 85.3 | F | * | 45.7 | D | | Signal | 88.3 | F | * | 45.8 | D | | Yes |
| 13 . Trautwein Road/Grove Community Drive | City of Riverside | D | Signal | 36.0 | D | 9.1 | A | | Signal | 36.0 | D | 9.1 | A | | No |
| 14 . Trautwein Road/Orange Terrace Parkway | City of Riverside | D | Signal | 66.2 | E | * | 13.8 | B | | Signal | 73.0 | E | * | 19.0 | B | | Yes |
| 15 . Trautwein Road/Shopping Center Driveway 1 | City of Riverside | D | Signal | 12.5 | B | 18.2 | B | | Signal | 16.1 | B | 24.7 | C | | No |
| 16 . Trautwein Road/Van Buren Boulevard | City of Riverside | D | Signal | 45.8 | D | 61.5 | E | * | Signal | 46.9 | D | 73.4 | E | * | Yes |
| 17 . Shopping Center Driveway 2/Van Buren Boulevard | City of Riverside | D | Signal | 11.7 | B | 12.7 | B | | Signal | 13.7 | B | 12.6 | B | | No |
| 18 . Barton Street/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | 55.7 | E | * | >100 | F | * | Signal | 57.3 | E | * | >100 | F | * | Yes |
| 19 . Project Driveway 1/Van Buren Boulevard | County of Riverside/City of Riverside | D | TWSC | 0.0 | A | - | F | * | TWSC | 0.0 | A | - | F | * | Yes |
| 20 . Dauchy Avenue/Project Driveway 3[1] | City of Riverside | C | - | 8.1 | A | 8.2 | A | | - | 8.4 | A | 8.3 | A | | No |
| 21 . Dauchy Avenue/Project Driveway 4 | City of Riverside | C | OWSC | 19.1 | C | 16.2 | C | | OWSC | 25.6 | D | * | 19.1 | C | | Yes |
| 22 . Dauchy Avenue/Project Driveway 5 | City of Riverside | C | OWSC | 13.6 | B | 13.2 | B | | OWSC | 14.0 | B | 13.5 | B | | No |

**Notes:**

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC/TWSC intersections, reported delay is for worst-case movement).

* Exceeds LOS Standard

[1] This intersection has no stop control, but conflicting movements exist.
Based on Synchro results, intersections where the delay is represented with a dash ( - ) has through volumes that block the turn movements throughout the peak hour. As such, Synchro does not report a delay at these intersections for the blocked turn movements. Therefore, the worst-case movements at these intersections operate at LOS F.

LSA

**Table 6-D - Opening Year (2029) Roadway Segment Levels of Service**

| Roadway Segment | Jurisdiction | Classification[1] | LOS Standard | Number of Lanes | Without Project | | | | With Project | | | | V/C Ratio Difference | Project Related Operational Deficiency?[3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Roadway Capacity[2] | Daily Volume | V/C Ratio | LOS | Roadway Capacity[2] | Daily Volume | V/C Ratio | LOS | | |
| **Segments on Van Buren Boulevard** | | | | | | | | | | | | | | |
| 1 . Between Little Court and Dauchy Avenue | County of Riverside/City of Riverside | Arterial (120') | D | 4 | 36,400 | 58,290 | 1.60 | F * | 36,400 | 58,550 | 1.61 | F * | 0.01 | No |
| **Segments on Dauchy Avenue** | | | | | | | | | | | | | | |
| 2 . Between Van Buren Boulevard and Ardenwood Lane | City of Riverside | Local | D | 2 | 3,400 | 7,630 | 2.24 | F * | 3,400 | 8,350 | 2.46 | F * | 0.21 | **Yes** |
| 3 . Between Ardenwood Lane and Hawksbury Drive | City of Riverside | Local | D | 2 | 3,400 | 4,970 | 1.46 | F * | 3,400 | 5,400 | 1.59 | F * | 0.13 | **Yes** |

**Notes:**

LOS = Level of Service

* Exceeds LOS Standard

[1] Classifications for all segments have been obtained from the City of Riverside General Plan Circulation and Community Mobility Element Master Plan of Roadways.

[2] Roadway capacities have been obtained from the City of Riverside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (dated July 2020).

[3] Operational deficiency determined based on the criteria included in the City of Riverside*Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (dated July 2020).

# 7.0 CUMULATIVE (2045) ANALYSIS

## 7.1 CUMULATIVE (2045) WITHOUT PROJECT TRAFFIC VOLUMES

Cumulative (2045) traffic without projects volumes were developed using traffic forecasts from RIVCOM. The methodology used to develop Cumulative (2045) without project traffic volumes at all study intersections and roadway segments is consistent with the recommended methodologies outlined in the National Cooperative Highway Research Program (NCHRP) as well as local procedures for post-processing of modeled traffic volumes.

Figure 7-1 illustrates the cumulative peak hour traffic volumes at study intersections. Table 7-A summarizes cumulative daily traffic volumes at study area roadway segments.

## 7.2 CUMULATIVE (2045) WITH PROJECT TRAFFIC VOLUMES

Cumulative (2045) with project traffic volumes were developed by adding project traffic to the cumulative without project traffic volumes.

Figure 7-2 illustrates the cumulative with project peak hour traffic volumes at study intersections. Table 7-A summarizes cumulative with project daily traffic volumes at study area roadway segments.

Detailed volume development worksheets are included in Appendix C.

## 7.3 CUMULATIVE (2045) WITHOUT PROJECT LEVELS OF SERVICE

### 7.3.1 Study Intersections

Previously referenced Figure 6-1 illustrates study intersections geometrics and traffic control under cumulative with project conditions. An intersection LOS analysis was conducted for cumulative without project conditions using the methodologies previously discussed. Table 7-B summarizes the results of the analysis and shows that the following intersections are forecast to operate at a deficient LOS under cumulative without project conditions:

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 (afternoon peak hour only);
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); and
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.

### 7.3.2 Roadway Segments

A roadway segment LOS analysis was conducted for cumulative without project conditions using the methodologies previously discussed. Table 7-C summarizes the results of this analysis and shows that all study roadway segments are forecast to operate at a deficient LOS under cumulative without project conditions. The following is the list of roadway segments operating at a deficient LOS:

1. Van Buren Boulevard, between Little Court and Dauchy Avenue;
2. Dauchy Avenue, between Van Buren Blvd and Ardenwood Lane; and
3. Dauchy Avenue, between Ardenwood Lane and Hawksbury Drive.

## 7.4 CUMULATIVE (2045) WITH PROJECT LEVELS OF SERVICE

### 7.4.1 Study Intersections

An intersection LOS analysis was conducted for cumulative with project conditions using methodologies previously discussed. Table 7-B summarizes the results of the analysis and shows that the following intersections are forecast to operate at a deficient LOS under cumulative with project conditions:

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 of the study intersections with the exception of Dauchy Avenue/Project Driveway 4 are forecasted to operate at a deficient LOS even under cumulative without project conditions. Dauchy Avenue/Project Driveway 4 is forecast to operate at a deficient LOS in the with project conditions. Therefore, the project will contribute to the forecasted deficiency at the listed intersections. As such, improvements will be required where feasible.

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

Detailed Level of Service Worksheets are included in Appendix D.

### 7.4.2 Roadway Segments

A roadway segment LOS analysis was conducted for cumulative with project conditions using the methodologies previously discussed. Table 7-C summarizes the results of this analysis and shows that all study roadway segments are forecast to operate at a deficient LOS under cumulative with project conditions. The following is the list of roadway segments operating at a deficient LOS:

1. Van Buren Boulevard, between Little Court and Dauchy Avenue;
2. Dauchy Avenue, between Van Buren Blvd and Ardenwood Lane; and
3. Dauchy Avenue, between Ardenwood Lane and Hawksbury Drive.

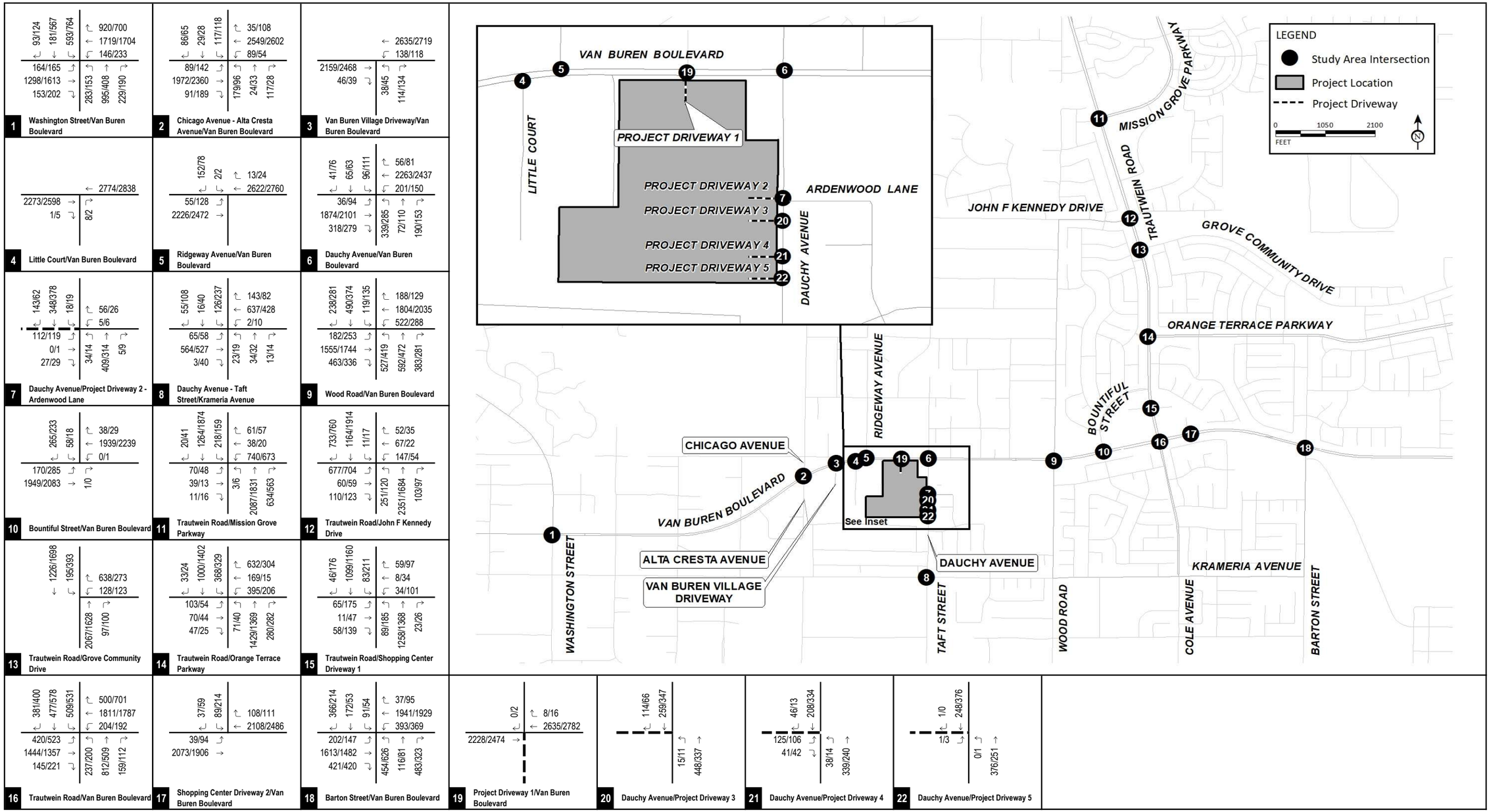
All these segments are forecast to operate at a deficient LOS even under cumulative (2045) without project conditions.

Based on the criteria discussed in the “Levels of Service Procedures” section of this report, the project is forecast to create project related operational deficiencies for two of the three segments. The addition of project-related trips either causes the following roadway segments to degrade from acceptable LOS (A through D) to unacceptable levels (E or F) or increases V/C ratio by more than 5 percent when the roadway segment is operating at an unacceptable LOS under the no project scenario:

2. Dauchy Avenue, between Van Buren Blvd and Ardenwood Lane; and
3. Dauchy Avenue, between Ardenwood Lane and Hawksbury Drive.

Therefore, improvements will be required to offset the project related operational deficiencies at these segments. However, improvements are not feasible for any of these segments due to right-of-way constraints. As such, these segments will continue to operate at a deficiency.

## 7.5 LIST OF CHAPTER 7.0 FIGURES AND TABLES

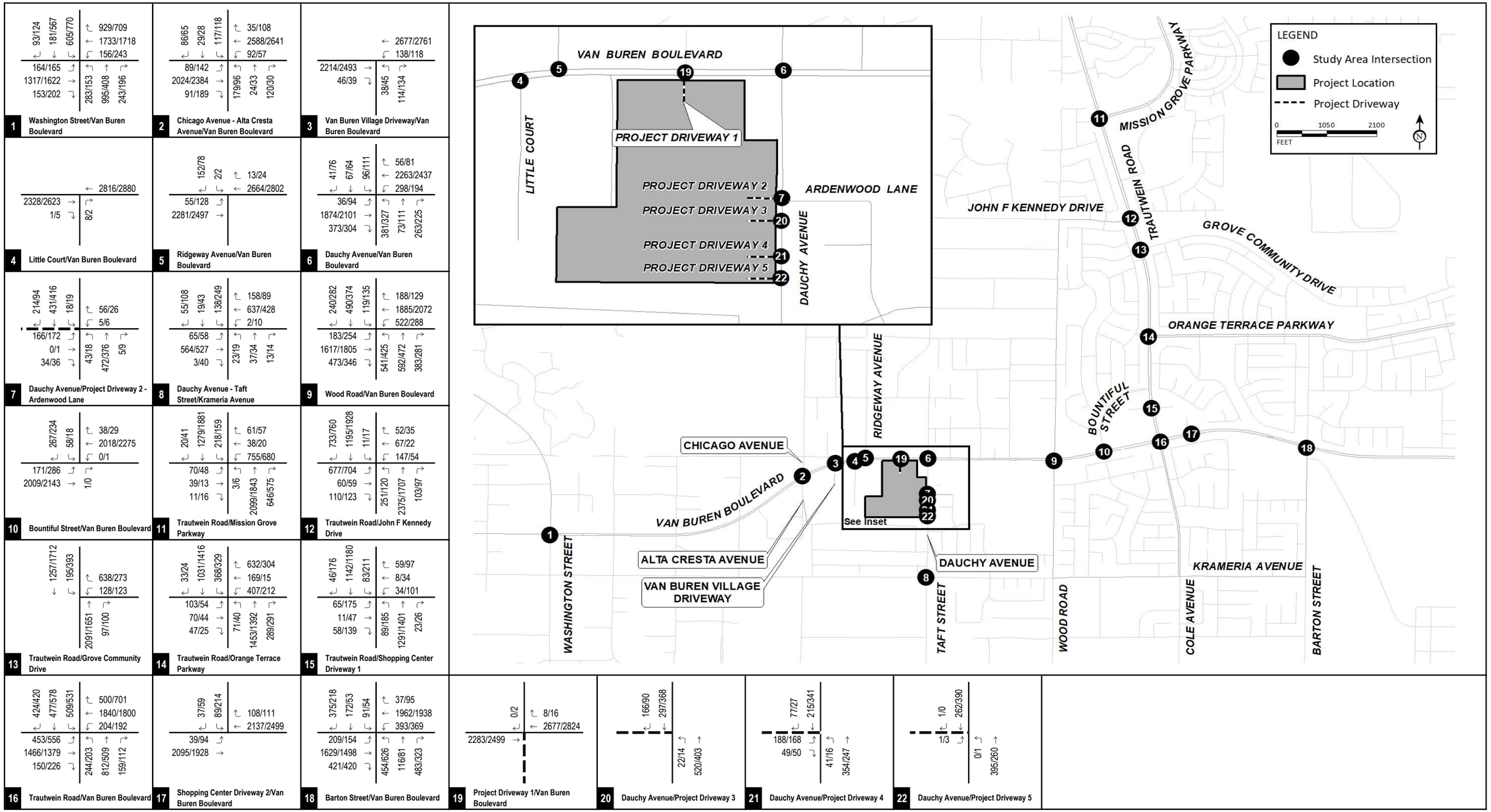



LSA

FIGURE 7-1

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Cumulative (2045) Peak Hour Traffic Volumes

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\z60-Vol_Cumul_NP.xlsx (3/13/2024)




LSA

XXXX/YYYY
AM/Afternoon Peak Hour Trips

Project Driveway

FIGURE 7-2

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*
Cumulative (2045) with Project Peak Hour Traffic Volumes

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\z60-Vol_Cumul_WP.xlsx (3/13/2024)

LSA

## Table 7-A - Cumulative (2045) Roadway Segment Daily Traffic Volumes

| Roadway | # | Segment | Cumulative (2045) Without Project ADT | Project Trips | Cumulative (2045) With Project ADT |
|---|---|---|---|---|---|
| **Van Buren Boulevard** | 1 | Between Little Court and Dauchy Avenue | 61,195 | 260 | 61,455 |
| **Dauchy Avenue** | 2 | Between Van Buren Boulevard and Ardenwood Lane | 7,876 | 724 | 8,600 |
| | 3 | Between Ardenwood Lane and Hawksbury Drive | 5,586 | 430 | 6,016 |

LSA

## Table 7-B - Cumulative (2045) Intersection Levels of Service

| Intersection | Jurisdiction | LOS Standard | Without Project | | | | | | With Project | | | | | | Project Related Operational Deficiency? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A.M. Peak Hour | | | Afternoon Peak Hour | | | A.M. Peak Hour | | | Afternoon Peak Hour | | |
| | | | Control | Delay (sec.) | LOS | | Delay (sec.) | LOS | | Control | Delay (sec.) | LOS | | Delay (sec.) | LOS | | |
| 1 . Washington Street/Van Buren Boulevard | County of Riverside | D | Signal | 68.8 | **E** | * | 68.1 | **E** | * | Signal | 70.6 | **E** | * | 70.6 | **E** | * | **Yes** |
| 2 . Chicago Avenue - Alta Cresta Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | 76.9 | **E** | * | 81.4 | **F** | * | Signal | 82.1 | **F** | * | 86.3 | **F** | * | **Yes** |
| 3 . Van Buren Village Driveway/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | 8.8 | A | | 14.9 | B | | Signal | 10.3 | B | | 17.6 | B | | No |
| 4 . Little Court/Van Buren Boulevard | County of Riverside/City of Riverside | D | OWSC | 34.4 | D | | >100 | **F** | * | OWSC | 41.5 | **E** | * | - | **F** | * | **Yes** |
| 5 . Ridgeway Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | D | OWSC | - | **F** | * | - | **F** | * | OWSC | - | **F** | * | - | **F** | * | **Yes** |
| 6 . Dauchy Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | >100 | **F** | * | >100 | **F** | * | Signal | >100 | **F** | * | >100 | **F** | * | **Yes** |
| 7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane | City of Riverside | C | TWSC | 58.1 | **F** | * | 75.4 | **F** | * | TWSC | >100 | **F** | * | >100 | **F** | * | **Yes** |
| 8 . Dauchy Avenue - Taft Street/Krameria Avenue | City of Riverside | C | AWSC | >100 | **F** | * | >100 | **F** | * | AWSC | >100 | **F** | * | >100 | **F** | * | **Yes** |
| 9 . Wood Road/Van Buren Boulevard | City of Riverside | D | Signal | 53.4 | D | | 37.9 | D | | Signal | 53.5 | D | | 38.0 | D | | No |
| 10 . Bountiful Street/Van Buren Boulevard | City of Riverside | D | Signal | 7.5 | A | | 8.4 | A | | Signal | 7.4 | A | | 8.3 | A | | No |
| 11 . Trautwein Road/Mission Grove Parkway | City of Riverside | D | Signal | >100 | **F** | * | 85.9 | **F** | * | Signal | >100 | **F** | * | 88.0 | **F** | * | **Yes** |
| 12 . Trautwein Road/John F Kennedy Drive | City of Riverside | D | Signal | 95.2 | **F** | * | 50.2 | D | | Signal | 99.9 | **F** | * | 50.4 | D | | **Yes** |
| 13 . Trautwein Road/Grove Community Drive | City of Riverside | D | Signal | 36.4 | D | | 9.6 | A | | Signal | 36.4 | D | | 9.5 | A | | No |
| 14 . Trautwein Road/Orange Terrace Parkway | City of Riverside | D | Signal | 69.0 | **E** | * | 13.8 | B | | Signal | 73.7 | **E** | * | 19.5 | B | | **Yes** |
| 15 . Trautwein Road/Shopping Center Driveway 1 | City of Riverside | D | Signal | 15.9 | B | | 18.7 | B | | Signal | 15.9 | B | | 25.5 | C | | No |
| 16 . Trautwein Road/Van Buren Boulevard | City of Riverside | D | Signal | 46.5 | D | | 77.9 | **E** | * | Signal | 47.7 | D | | 82.5 | **F** | * | **Yes** |
| 17 . Shopping Center Driveway 2/Van Buren Boulevard | City of Riverside | D | Signal | 14.2 | B | | 13.4 | B | | Signal | 16.7 | B | | 14.5 | B | | No |
| 18 . Barton Street/Van Buren Boulevard | County of Riverside/City of Riverside | D | Signal | 59.1 | **E** | * | >100 | **F** | * | Signal | 60.9 | **E** | * | >100 | **F** | * | **Yes** |
| 19 . Project Driveway 1/Van Buren Boulevard | County of Riverside/City of Riverside | D | TWSC | 0.0 | A | | - | **F** | * | TWSC | 0.0 | A | | - | **F** | * | **Yes** |
| 20 . Dauchy Avenue/Project Driveway 3[1] | City of Riverside | C | - | 8.2 | A | | 8.4 | A | | - | 8.5 | A | | 8.5 | A | | No |
| 21 . Dauchy Avenue/Project Driveway 4 | City of Riverside | C | OWSC | 21.2 | C | | 20.2 | C | | OWSC | 29.9 | **D** | * | 25.8 | **D** | * | **Yes** |
| 22 . Dauchy Avenue/Project Driveway 5 | City of Riverside | C | OWSC | 14.0 | B | | 14.9 | B | | OWSC | 14.5 | B | | 15.2 | C | | No |

**Notes:**

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC/TWSC intersections, reported delay is for worst-case movement).

* Exceeds LOS Standard

[1] This intersection has no stop control, but conflicting movements exist.

Based on Synchro results, intersections where the delay is represented with a dash ( - ) has through volumes that block the turn movements throughout the peak hour. As such, Synchro does not report a delay at these intersections for the blocked turn movements. Therefore, the worst-case movements at these intersections operate at LOS F.

LSA

**Table 7-C - Cumulative (2045) Roadway Segment Levels of Service**

| Roadway Segment | Jurisdiction | General Plan Classification[1] | LOS Standard | Number of Lanes | Without Project | | | | With Project | | | | V/C Ratio Difference | Project Related Operational Deficiency?[3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Roadway Capacity[2] | Daily Volume | V/C Ratio | LOS | Roadway Capacity[2] | Daily Volume | V/C Ratio | LOS | | |
| **Segments on Van Buren Boulevard** | | | | | | | | | | | | | | |
| 1 . Between Little Court and Dauchy Avenue | County of Riverside/City of Riverside | Arterial (120') | D | 4 | 36,400 | 61,200 | 1.68 | F * | 36,400 | 61,460 | 1.69 | F * | 0.01 | No |
| **Segments on Dauchy Avenue** | | | | | | | | | | | | | | |
| 2 . Between Van Buren Boulevard and Ardenwood Lane | City of Riverside | Local | D | 2 | 3,400 | 7,880 | 2.32 | F * | 3,400 | 8,600 | 2.53 | F * | 0.21 | **Yes** |
| 3 . Between Ardenwood Lane and Hawksbury Drive | City of Riverside | Local | D | 2 | 3,400 | 5,590 | 1.64 | F * | 3,400 | 6,020 | 1.77 | F * | 0.13 | **Yes** |

**Notes:**

LOS = Level of Service

* Exceeds LOS Standard

[1] Classifications for all segments have been obtained from the City of Riverside General Plan Circulation and Community Mobility Element Master Plan of Roadways.

[2] Roadway capacities have been obtained from the City of Riverside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (dated July 2020).

[3] Operational deficiency determined based on the criteria included in the City of Riverside*Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (dated July 2020).

# 8.0 TRAFFIC SIGNAL WARRANT ANALYSIS

A peak hour signal warrant analysis was conducted at the following unsignalized intersections operating at a deficient LOS. 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 scenarios. The following intersections had signal warrants conducted for feasibility of installing a traffic signal as an improvement:

7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane; and
8. Dauchy Avenue – Taft Street/Krameria Avenue.

The signal warrant analysis was conducted using the peak hour warrants from the most recent edition of the CAMUTCD. Therefore, this analysis is based on the provisions of the *CAMUTCD*, 2014, Chapter 4C *Traffic Control Signal Needs Studies* for Warrant 3 – Peak Hour. The peak hour signal warrant is intended for use where traffic conditions are such that for a minimum of one hour on an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

## 8.1 OPENING YEAR (2029) SCENARIO

Figure 8-1 illustrates the peak hour signal warrant for the intersection of Dauchy Avenue/Project Driveway 2 – Ardenwood Lane under the Opening Year (2029) scenario. Figure 8-2 illustrates the peak hour signal warrant for the intersection of Dauchy Avenue – Taft Street/Krameria Avenue under the Opening Year (2029) scenario.

As shown in Figure 8-1, the intersection of Dauchy Avenue/Project Driveway 2 – Ardenwood Lane meets the signal warrant for a.m. peak hour under the Opening Year (2029) with Project scenario.

As shown in Figure 8-2, the intersection of Dauchy Avenue – Taft Street/Krameria Avenue meets the signal warrant for afternoon peak hour under the Opening Year (2029) with project scenario.

## 8.2 CUMULATIVE (2045) SCENARIO

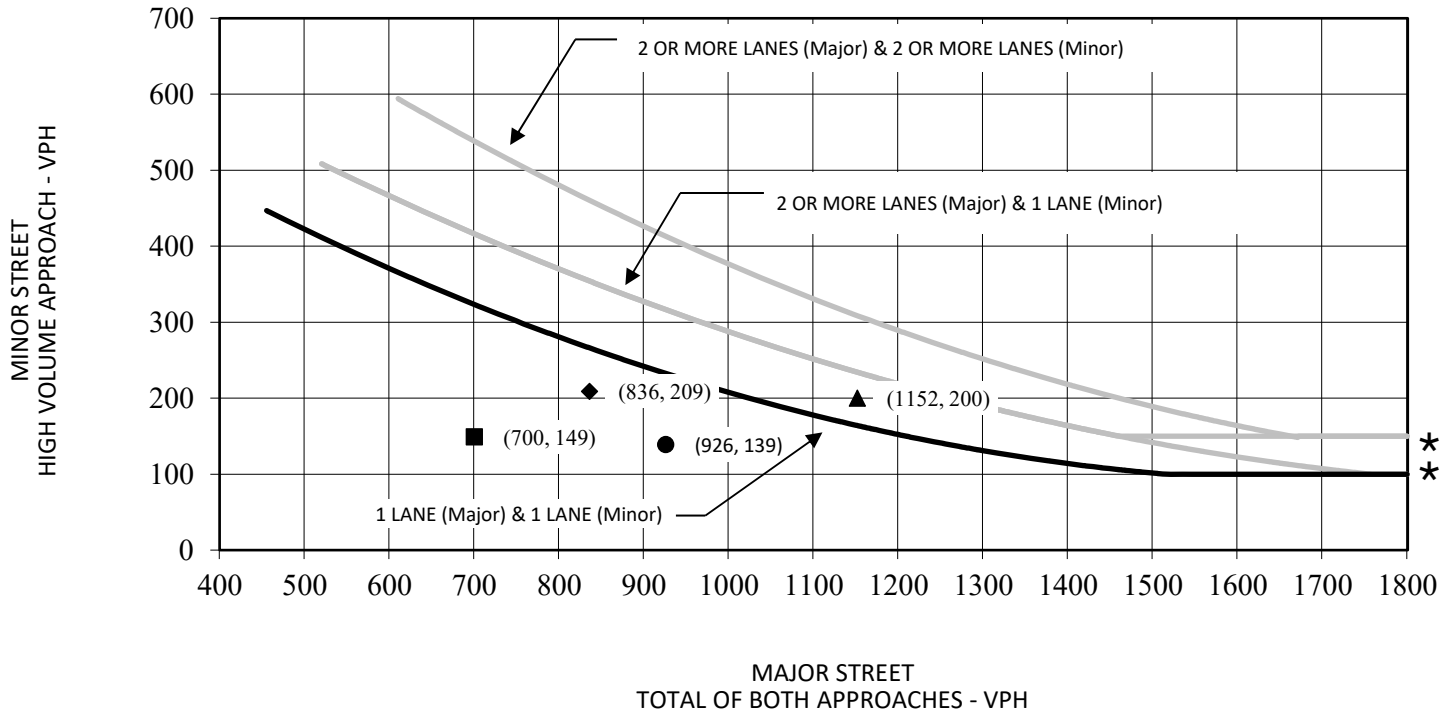
Figure 8-3 illustrates the peak hour signal warrant for the intersection of Dauchy Avenue/Project Driveway 2 – Ardenwood Lane under the Cumulative (2045) scenario. Figure 8-4 illustrates the peak hour signal warrant for the intersection of Dauchy Avenue – Taft Street/Krameria Avenue under the Cumulative (2045) scenario.

As shown in Figure 8-3, the intersection of Dauchy Avenue/Project Driveway 2 – Ardenwood Lane meets the signal warrant for a.m. peak hour under the Cumulative (2045) with Project scenario.

As shown in Figure 8-4, 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) with and without project scenario.

## 8.3 LIST OF CHAPTER 8.0 TABLES

# WARRANT 3, PEAK HOUR




* 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

LSA

FIGURE 8-1

● Without Project AM Peak Hour
▲ With Project AM Peak Hour
■ Without Project Afternoon Peak Hour
◆ With Project Afternoon Peak Hour

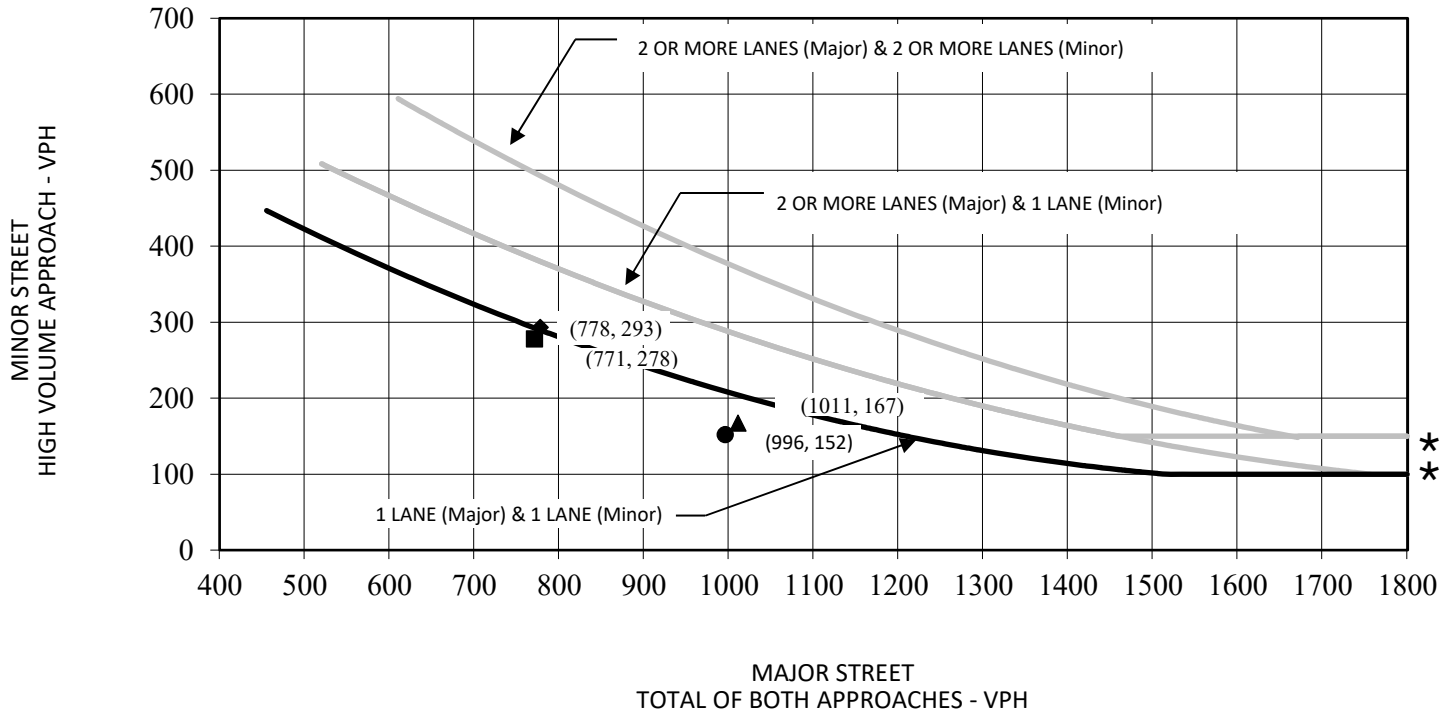
*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*

SOURCE: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, FIGURE 4C-3

Opening Year (2029) Peak Hour Warrant - Dauchy Avenue/Project Driveway 2-Ardenwood Lane

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\Signal Warrant Analysis\SW_INT 7_OY.xlsx (11/15/2023)

# WARRANT 3, PEAK HOUR




* 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

LSA

FIGURE 8-2

● Without Project AM Peak Hour

▲ With Project AM Peak Hour

■ Without Project Afternoon Peak Hour

◆ With Project Afternoon Peak Hour

*Woodcrest Christian School Expansion Project*

*Traffic Operational Analysis*

SOURCE: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, FIGURE 4C-3

Opening Year (2029) Peak Hour Warrant - Dauchy Avenue/Krameria Avenue

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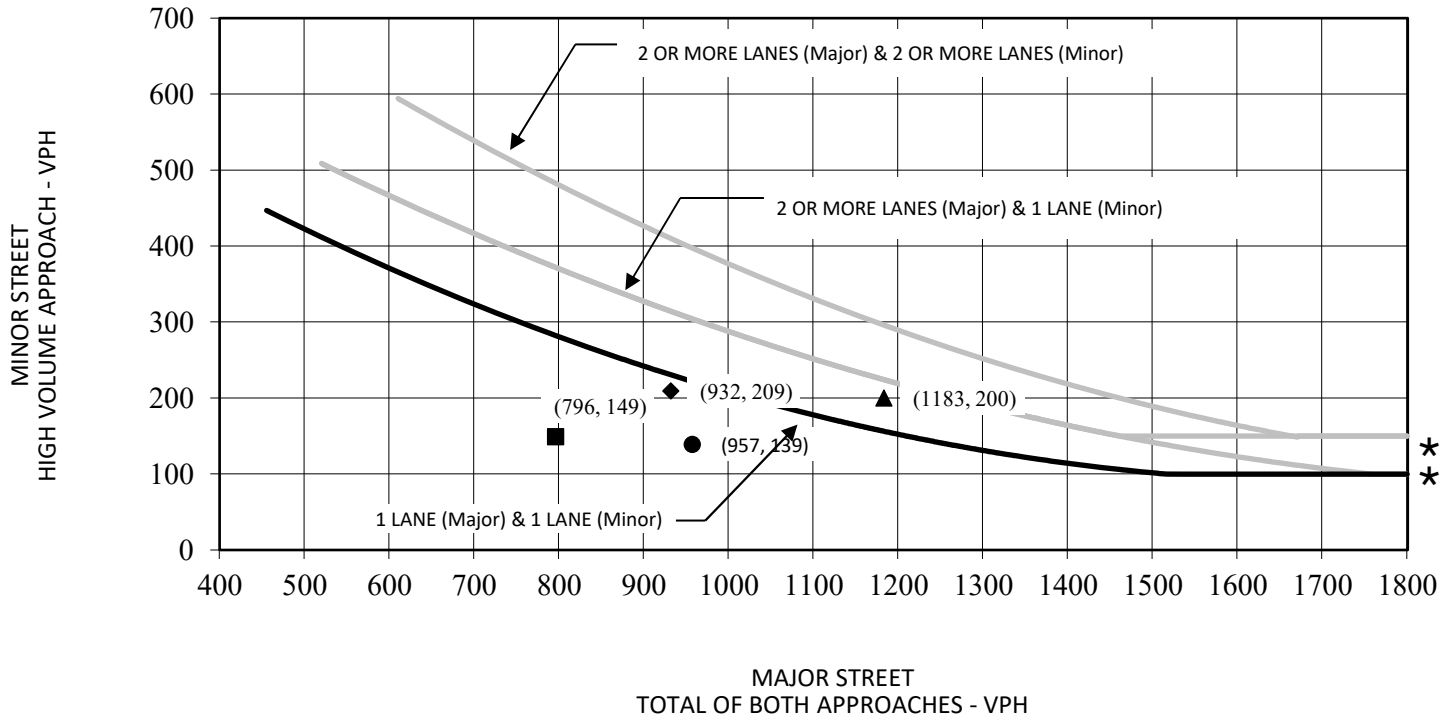
# WARRANT 3, PEAK HOUR




* 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

LSA

FIGURE 8-3

● Without Project AM Peak Hour
▲ With Project AM Peak Hour
■ Without Project Afternoon Peak Hour
◆ With Project Afternoon Peak Hour

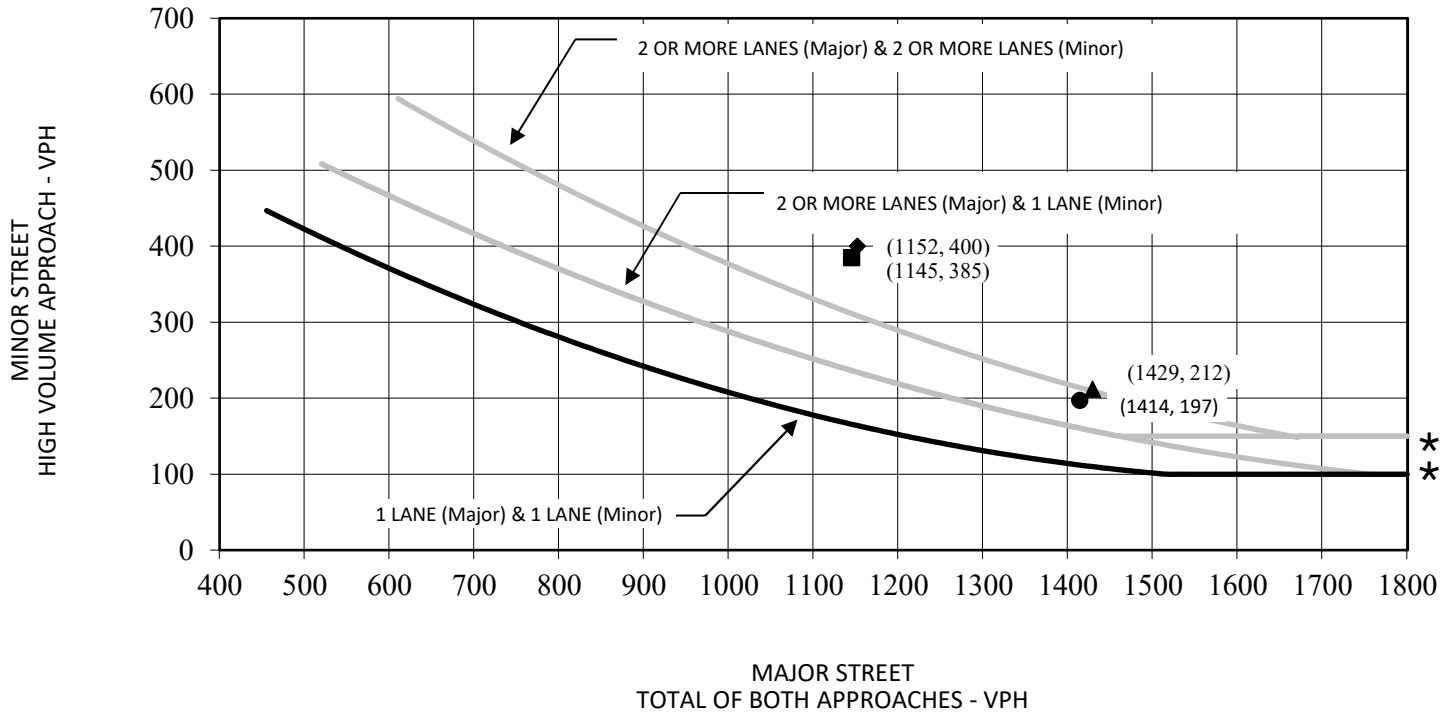
*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*

SOURCE: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, FIGURE 4C-3

Cumulative (2045) Peak Hour Warrant - Dauchy Avenue/Project Driveway 2-Ardenwood Lane

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\Signal Warrant Analysis\SW_INT 7_Cumul.xlsx (11/15/2023)

# WARRANT 3, PEAK HOUR




* 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

LSA

FIGURE 8-4

● Without Project AM Peak Hour
▲ With Project AM Peak Hour
■ Without Project Afternoon Peak Hour
◆ With Project Afternoon Peak Hour

*Woodcrest Christian School Expansion Project*
*Traffic Operational Analysis*

SOURCE: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, FIGURE 4C-3

Cumulative (2045) Peak Hour Warrant - Dauchy Avenue/Krameria Avenue

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# 9.0 SITE ACCESS ANALYSIS

## 9.1 EVALUATION OF PROJECT DRIVEWAYS

The project design features listed in section 6.2 has been proposed to minimize the potential effects on traffic operations as a result of the school expansion. The following improvements has been identified as a project design features to address potential improvements to site access:

- Realignment of Project Driveway 2 to remove the existing offset with Ardenwood Lane.
- Addition of a second receiving lane at Project Driveway 2 to improve ingress maneuvers.
- Restripe existing lane geometry for the eastbound direction at Project Driveway 2 from a shared left-through-right approach to a shared through-left lane.
- Addition of a right-turn lane for the eastbound direction at Project Driveway 2.
- Relocation of bus parking at rear parking lot to extend vehicle storage for student drop-off and pick-up.

The realignment of Project Driveway 2 to remove the existing offset with Ardenwood Lane is anticipated to improve ingress and egress operations by reducing the potential vehicle conflicts, sight distance, and other safety issues related to project traffic.

The addition of a second receiving lane at Project Driveway 2 is anticipated to improve ingress movements into the project and minimize driveway impacts on Dauchy Avenue.

The addition of a right turn lane for the eastbound direction at Project Driveway 2 is anticipated to improve egress movements out of Project Driveway 2. The separation of the left-turn/through movements from the right turning movements is anticipated to reduce queuing on the Project Driveway 2, as right turning egress movements only require traffic gaps in the southbound direction of Dauchy Avenue.

The relocation of bus parking at the rear parking lot will increase the vehicle storage length for student drop-off and pick-up. This extended storage length is anticipated to allow vehicles to enter the project site without causing subsequent vehicles to back out onto Dauchy Avenue (see Section 15.0 for Drop-off/Pick-up Circulation).

## 9.2 BICYCLE, PEDESTRIAN, AND TRANSIT ACCESSIBILITY

### 9.2.1 Bicycle Accessibility

As part of the City's Bikeway, Class II bike lanes exist along the westbound and eastbound directions of Van Buren Boulevard in front of the project site. Project Driveway 1 connects the project site to bike lanes in the eastbound direction of Van Buren Boulevard. However, access into the school is restricted due to the gate at Project Driveway 1, and will remain restricted in the future. Bicyclists arriving north and south of the campus can access the school via Dauchy Avenue through Project Driveway 2, Project Driveway 3, and Project Driveway 4.

### 9.2.2 Pedestrian Accessibility

Although there are no current or proposed trails near the project site, paved sidewalks are provided on both sides of Dauchy Avenue between Van Buren Boulevard and Krameria Avenue, and along most sections of the eastbound direction of Van Buren Boulevard between Dauchy Avenue and Wood Road. Sidewalks are present on both sides of Dauchy Avenue near the project site providing direct and convenient access for students, parents, and faculty arriving on foot. Paved sidewalks and paths are also provided within the project site along drop-off/pick-up zones, enhancing pedestrian safety.

### 9.2.3 Transit Accessibility

RTA local bus route 27 serves the project site with stops along Van Buren Avenue. This bus route connects the project to neighboring communities of La Sierra and Perris. The bus stop for route 27 in the southbound direction is adjacent to the project site, located along the project frontage on Van Buren Boulevard. The closest bus stop in the westbound direction for route 27 is located north of Van Buren Boulevard between Dauchy Avenue and Winchester Way.

# 10.0 SPEED SURVEY ANALYSIS

During the scoping agreement process, City staff requested a speed survey analysis near the project frontage on Dauchy Avenue. Speed surveys were conducted along Dauchy Avenue between Hawksbury Drive and Krameria Avenue to determine the average and 85$^{th}$ percentile speed within near the project frontage.

## 10.1 TRAFFIC AND SPEED ANALYSIS

The posted speed limit on Dauchy Avenue is 25 mph. The operating speeds within the segments were obtained based on speed surveys conducted by Counts Unlimited on November 2021. Detailed speed survey sheets are included in Appendix B.

The average speed observed is 29 mph in the northbound direction and 29 mph in the southbound direction. The 85$^{th}$ 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. As such, the project will add approximately 33 a.m. peak hour trips, 24 afternoon peak hour trips, and 90 daily trips at this segment. Most of these trips will be local trips from the nearby residences, which will be absorbed within the neighborhood. Therefore, the project trips are not expected to significantly alter the existing speed characteristics of this roadway segment.

The speed surveys are summarized in Table 10-A.

## 10.2 CONCLUSION

Based on the estimated project traffic distribution and assignment, roadway capacity analysis and speed survey, it is estimated that the project traffic will not significantly affect the neighborhood traffic flow and traffic speed pattern. As discussed previously, only 11 percent of project traffic is estimated to use the adjacent neighborhood streets. 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.

## 10.3 LIST OF CHAPTER 10.0 FIGURES

- Table 10-A: Speed Analysis

LSA

## Table 10-A - Speed Analysis

| Roadway | Segment | Direction | Posted Speed Limit (mph) | Average Speed (mph) | 85th Percentile Speed (mph) |
|---|---|---|---|---|---|
| Dauchy Avenue | between Hawksbury Drive and Krameria Avenue | Northbound | 25 | 30 | 35 |
| | | Southbound | 25 | 29 | 33 |

**Notes:**
Source: Speed surveys conducted by Counts Unlimited

# 11.0 ACTIVE TRANSPORTATION AND PUBLIC TRANSIT ANALYSIS

According to the City's TIA Guidelines, a significant impact occurs when a project conflicts with adopted plans, policies, or programs regarding active transportation or public transit facilities, or otherwise decreases the performance or safety of such facilities. The following sections examines the effect of the proposed project on the existing and planned active transportation and public transit facilities.

## 11.1 BICLYCLIST INFRASTRUCTURE

Based on the City's PACT (adopted December 2021) at present, 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.

Bicyclists arriving north and south of the campus can access the school via Dauchy Avenue through Project Driveway 2, Project Driveway 3, and Project Driveway 4. 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.

## 11.2 PEDESTRIAN INFRASTRUCTURE

Paved trails and non-standard unpaved trails are frequently used by bicyclists and pedestrians in the City. According to the City's PACT, the current trails within the study area are located along Wood Road between Krameria Avenue and John F Kennedy Drive, along Bountiful Street, along John F Kennedy Drive, and along Grove Community Drive. The City's PACT also proposes to extend the current southern terminus of the Wood Road multipurpose trail to Krameria Avenue between Dauchy Avenue-Taft Street and Taft Street south of Krameria Avenue.

According to the City of Riverside *General Plan Circulation Element*, sidewalks are generally provided on both sides of the streets throughout the City. Sidewalks are present within the study area along the developed project frontages. However, gaps in sidewalks on undeveloped sites on Van Buren Boulevard are still present, but these gaps are anticipated to be filled in as the vacant sites gradually become developed. In addition to sidewalk improvements, the City's PACT has identified pedestrian spot improvements. 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.

The intersection of Dauchy Avenue and Van Buren Boulevard has not been identified for spot improvements under the City's PACT, but improvements have been identified to further improve safety for students and people accessing the school. During the scoping agreement process, the following improvements were recommended at the intersection of Dauchy Avenue and Van Buren Boulevard:

- 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 at this location.

## 11.3 PUBLIC TRANSIT

RTA local bus routes 20, 22, and 27 operate within the study area. Route 20 provides stops on Mission Grove Parkway within the study area, offering connections to Magnolia Town Center and Moreno Valley College. Route 22 provides stops along Mission Grove Parkway, Trautwein Road, Van Buren Boulevard, and Wood Road within the study area while offering connections to Downtown Riverside and Perris Station Transit Center. Route 27 provides a stop directly located on the project frontage on Van Buren Boulevard, and other stops located on Orange Terrace Parkway within the study area while offering connections to Magnolia Tyler Center and Perris Station Transit Center. 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.

## 11.4 SCHOOL BUS

The project currently provides a school bus service for morning pick-up and afternoon drop-off. Under the with project scenario, there will be a bus loading zone in the main parking lot and the rear parking lot.

Access to the main parking lot bus loading zone is provided via Project Driveway 2. Once on campus, the bus follows an internal roadway to the main lot adjacent to Van Buren Boulevard with designated bus drop-off/pick-up zones. The bus drop-off zone will be adjacent to the parking lot sidewalk in a dedicated bus pullout. The bus drop-off zone will allow students to unload and load directly from the sidewalk, minimizing exposure to parking lot traffic. The dedicated bus pullout may improve vehicular circulation by minimizing conflict with vehicles exiting the parking lot.

Access to the rear parking lot bus loading zone is provided via Project Driveway 3. Under existing conditions, the bus drop-off zone is located on the west side of the rear parking lot. There is currently no bus pullout. Under the with project scenario, the bus drop-off zone will be relocated to the north side of the rear parking lot. The bus drop-off zone will be adjacent to the parking lot sidewalk in a dedicated bus pullout. The bus drop-off zone will allow students to unload and load directly from the sidewalk, minimizing exposure to parking lot traffic. The dedicated bus pullout will improve vehicular circulation by minimizing conflict with vehicles exiting the parking lot.

# 12.0 QUEUING ANALYSIS

An intersection and driveway queuing analysis was requested by City staff during the scoping agreement process to examine the project's effect on queuing at project driveways and adjacent intersections. In case queuing deficiencies are identified, the project would need to identify feasible circulation improvements to alleviate potential queuing issues. As such, the queuing analysis was performed at the following five intersections/driveways:

6. Dauchy Avenue/Van Buren Boulevard;
7. Dauchy Avenue/Project Driveway 2 – Ardenwood Lane;
8. Dauchy Avenue – Taft Street/Krameria Avenue;
20. Dauchy Avenue/Project Driveway 3; and
21. Dauchy Avenue/Project Driveway 4.

## 12.1 OPENING YEAR (2029) SCENARIO

Table 12-A lists the available turn-pocket storage lengths and summarizes the 95$^{th}$ percentile back-of-queue lengths at the five study intersections under opening year with project and opening year with project with improvement conditions. Intersection queues at signalized intersections were reported from Synchro while intersection queues at stop-controlled intersections were reported from SimTraffic.

As shown in Table 12-A, queues for some of the movements are exceeding the existing available turn-pocket storage length under opening year with project scenarios. The movements and 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).

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 feasible storage length extensions are feasible.

As summarized in Table 12-A, 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 improvements due to the prioritization of reducing traffic delay from the eastbound/westbound traffic along Van Buren Boulevard.

As shown in Table 12-A, queues for the northbound left-through-right movement at Dauchy Avenue/Project Driveway 2 – Ardenwood Lane is forecast to further increase after improvements due to the installation of a traffic signal. However, the traffic signal is anticipated to improve intersection delay and reduce queuing along Ardenwood Lane. A shown in Table 12-A, 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.

## 12.2 CUMULATIVE (2045) SCENARIO

As shown in Table 12-B, queues for some of the movements are exceeding the existing available turn-pocket storage length under cumulative with project and cumulative with project with improvement 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 feasible storage length extensions are feasible.

As summarized in Table 12-B, 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 storage needed 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 improvements due to the prioritization of reducing traffic delay from the eastbound/westbound traffic on Van Buren Boulevard.

As shown in Table 12-B, queues for the northbound left-through-right movement at Dauchy Avenue/Project Driveway 2 – Ardenwood Lane is forecast to further increase after improvements due to the installation of a recommended traffic signal. However, the traffic signal is anticipated to improve intersection delay and reduce queuing along Ardenwood Lane. A shown in Table 12-B, 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.

## 12.3 LIST OF CHAPTER 12.0 TABLES AND TABLES

- Table 12-A: Opening Year (2029) Intersection Queueing Analysis
- Table 12-B: Cumulative (2045) Intersection Queueing Analysis

LSA

## Table 12-A - Opening Year (2029) Intersection Queuing Analysis

| Intersection | Movement | Existing Storage Length[1] (ft/ln) | Recommended Storage Length (ft/ln) | Opening Year (2029) With Project[2] | | Opening Year (2029) With Project With Imp.[2] | |
|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 6 . Dauchy Avenue/Van Buren Boulevard | **NBL** | 65 | 200 | **445** | **345** | **390** | **415** |
| Signal | **SBL** | 75 | 75 | **105** | **125** | **105** | **120** |
| | **SBR** | 55 | 55 | 0 | 10 | 0 | 0 |
| | **EBL** | 305 | 305 | 35 | 85 | 55 | 150 |
| | **WBL** | 420 | 420 | 250 | 155 | 260 | 155 |
| 7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane | **NBLTR** | 90 | 90 | 85 | **105** | **155** | **95** |
| TWSC/Signal[3] | **SBR** | 90 | 90 | 0 | 0 | 30 | 20 |
| | **WBLTR** | 460 | 460 | **710** | 95 | 20 | 15 |
| 8 . Dauchy Avenue - Taft Street/Krameria Avenue | **NBLTR** | 1240 | 1240 | 45 | 55 | 40 | 25 |
| Signal | **SBLTR** | 420 | 420 | 65 | 100 | 90 | 100 |
| | **EBLTR** | 1130 | 1130 | 160 | 155 | 170 | 175 |
| | **WBLTR** | 940 | 940 | 195 | 125 | 220 | 140 |
| 20 . Dauchy Avenue/Project Driveway 3 | **NBTL**[4] | 200 | - | 195 | 195 | - | - |
| OWSC | **SBTR** | 90 | 90 | 0 | 0 | 0 | 20 |
| | **NBL**[5] | - | 200 | - | - | 45 | 35 |
| | **NBT**[5] | - | 200 | - | - | 170 | 60 |
| 21 . Dauchy Avenue/Project Driveway 4 | **NBTL**[4] | 400 | - | 125 | 70 | - | - |
| OWSC | **SBTR** | 200 | 200 | 0 | 0 | 15 | 0 |
| | **NBL**[5] | - | 100 | - | - | 45 | 25 |
| | **NBT**[5] | - | 400 | - | - | 40 | 0 |

Notes:

ft/ln = feet per lane

TWSC = Two-Way Stop Control; OWSC = One-Way Stop Control; AWSC = All-Way Stop Control

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound

L = Left; T= Through; R = Right

**Bold** = Queue exceeds available storage.

1 Storage length for all movements obtained from Google Earth measurements.

2 All queues reported are 95th percentile queues. Queues for signalized intersections have been reported from Synchro and queues for stop controlled intersections have been taken from SimTraffic.

3 This intersection is controlled by a TWSC under the opening year with project secenario and a signal under the opening year with project with improvement scenario.

4 This movement is the existing condition under the opening year with project scenario.

5 This movement is added as result of the installation of a two-way left-turn (TWLTL) lane under the opening year with project with improvement scenario.

LSA

## Table 12-B - Cumulative (2045) Intersection Queuing Analysis

| Intersection | Movement | Existing Storage Length[1] (ft/ln) | Recommended Storage Length (ft/ln) | Cumulative (2045) With Project[2] | | Cumulative (2045) With Project With Imp.[2] | |
|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| 6 . Dauchy Avenue/Van Buren Boulevard | **NBL** | 65 | 200 | **540** | **360** | **585** | **400** |
| Signal | **SBL** | 75 | 75 | **110** | **125** | **110** | **125** |
| | **SBR** | 55 | 55 | 0 | 20 | 0 | 0 |
| | **EBL** | 305 | 305 | 35 | 95 | 60 | 120 |
| | **WBL** | 420 | 420 | 305 | 145 | 250 | 140 |
| 7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane | **NBLTR** | 90 | 90 | 85 | **95** | **180** | **120** |
| TWSC/Signal[3] | **SBR** | 90 | 90 | 0 | 0 | 30 | 20 |
| | **WBLTR** | 460 | 460 | **525** | 120 | 20 | 15 |
| 8 . Dauchy Avenue - Taft Street/Krameria Avenue | **NBLTR** | 1240 | 1240 | 50 | 55 | 45 | 35 |
| Signal | **SBLTR** | 420 | 420 | 70 | 130 | 115 | 220 |
| | **EBLTR** | 1130 | 1130 | 365 | 295 | 295 | 355 |
| | **WBLTR** | 940 | 940 | 790 | 210 | 450 | 220 |
| 20 . Dauchy Avenue/Project Driveway 3 | **NBTL**[4] | 200 | - | **215** | **235** | - | - |
| OWSC | **SBTR** | 90 | 90 | 0 | 0 | 0 | 20 |
| | **NBL**[5] | - | 200 | - | - | 50 | 25 |
| | **NBT**[5] | - | 200 | - | - | **215** | 95 |
| 21 . Dauchy Avenue/Project Driveway 4 | **NBTL**[4] | 400 | - | 140 | 85 | - | - |
| OWSC | **SBTR** | 200 | 200 | 0 | 0 | 10 | 0 |
| | **NBL**[5] | - | 100 | - | - | 70 | 30 |
| | **NBT**[5] | - | 400 | - | - | 130 | 30 |

Notes:

ft/ln = feet per lane

TWSC = Two-Way Stop Control; OWSC = One-Way Stop Control; AWSC = All-Way Stop Control

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound

L = Left; T= Through; R = Right

**Bold** = Queue exceeds available storage.

1 Storage length for all movements obtained from Google Earth measurements.

2 All queues reported are 95th percentile queues. Queues for signalized intersections have been reported from Synchro and queues for stop controlled intersections have been taken from SimTraffic.

3 This intersection is controlled by a TWSC under the cumulative with project secenario and a signal under the cumulative with project with improvement scenario.

4 This movement is the existing condition under the cumulative with project scenario.

5 This movement is added as result of the installation of a two-way left-turn (TWLTL) lane under the cumulative with project with improvement scenario.

# 13.0 CIRCULATION IMPROVEMENTS AND FUNDING SOURCES

## 13.1 RECOMMENDED IMPROVEMENTS

Based on the results of the LOS analysis, improvements have been recommended at study intersections where the project is forecast to create a project related operational deficiency under opening year and cumulative conditions where feasible improvements could be identified. Table 13-A summarizes the recommended improvements for study intersections under all scenarios. Figure 13-1 illustrates the opening year/cumulative with project with improvements study intersection geometrics. Figure 13-2 illustrates the conceptual striping for the TWLTL median and subsequent parking restrictions between Project Driveway 2 and Project Driveway 5. Tables 13-B and 13-C summarize the post-improvement intersection levels of service under opening year and cumulative conditions, respectively. As shown in Tables 13-B and 13-C, with the implementation of the proposed improvements and design features, the following intersections are forecast to operate at a satisfactory LOS under opening year and cumulative conditions:

1. Washington Street/Van Buren Boulevard;
2. Chicago Avenue – Alta Cresta Avenue/Van Buren Boulevard;
4. Little Court/Van Buren Boulevard;
5. Ridgeway Avenue/Van Buren Boulevard;
6. Dauchy Avenue/Van Buren Boulevard;
7. Dauchy Avenue/Project Driveway – Ardenwood Lane;
8. Dauchy Avenue – Taft Street/Krameria Avenue;
19. Project Driveway 1/Van Buren Boulevard;
21. Dauchy Avenue/Project Driveway 4.

The following intersections are forecast to continue to operate at a deficient LOS due to right-of-way constraints for improvements under opening year and cumulative conditions:

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.

It should be noted for the intersection of Trautwein Road/Van Buren Boulevard under opening year conditions, the with project with improvement delay is lower than without project conditions. For the intersection of Barton Street/Van Buren Boulevard, the improvements will improve the delay

under with project conditions to better than the corresponding opening year and cumulative delay under without project conditions for the afternoon peak hour.

Roadway segment widening have been recommended based on the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) program. While the roadway study segment on Van Buren Boulevard is not a project related deficiency, intersection improvements were recommended based on the corresponding roadway widening included in the TUMF. As such, the recommended roadway segment improvements for Van Buren Boulevard have been included in Table 13-D.

Tables 13-E and 13-F summarize the post-improvement roadway segment levels of service under opening year and cumulative conditions, respectively. All roadway segments are forecast to continue to operate at a deficient LOS. It should be noted that with the implementation of roadway widening, the V/C ratio for the study roadway segment on Van Buren Boulevard under the with project conditions will improve the V/C ratio to better than the corresponding opening year and cumulative V/C ratio under without project conditions.

## 13.2 FUNDING SOURCES AND MECHANISMS

Where there is a funding mechanism (fee program) for the recommended improvements, payment into the fee program would be considered sufficient project obligation to alleviate project-related operational deficiencies. At study intersections located in the City where the project adds to or creates a forecast deficiency, the project is responsible to coordinate improvements with the City of Riverside.

For study intersections located in the County where the project adds to or creates a forecast deficiency and there is no funding mechanism in place, the project is responsible for its fair-share payment toward the implementation of the improvements.

### 13.2.1 TUMF Program

The underlying purpose of the TUMF program is “the need to establish a comprehensive funding source to mitigate the cumulative regional transportation impacts of new development on regional arterial highways.” As new development occurs in western Riverside County, the cumulative transportation impacts of this new development are reflected in increased demand for transportation infrastructure leading to decreased levels of service, increased delay and increased congestion on regional transportation facilities, and an overall decline in regional mobility. Therefore, the need to invest in additional transportation infrastructure to meet the increased travel demand and to sustain pre-development traffic conditions to “keep traffic flowing” represents the fundamental premise of the TUMF program. Table 13-A summarizes the improvements included under the TUMF program.

### 13.2.2 Improvements in Coordination with the City of Riverside

In the absence of a fee program and/or a fair share program, the project shall coordinate with the City to identify improvements the project will need to implement to offset operational deficiencies not covered by the TUMF program or any other programs. For operational deficiencies at intersections directly related to the project, including the installation of a traffic signal at Dauchy

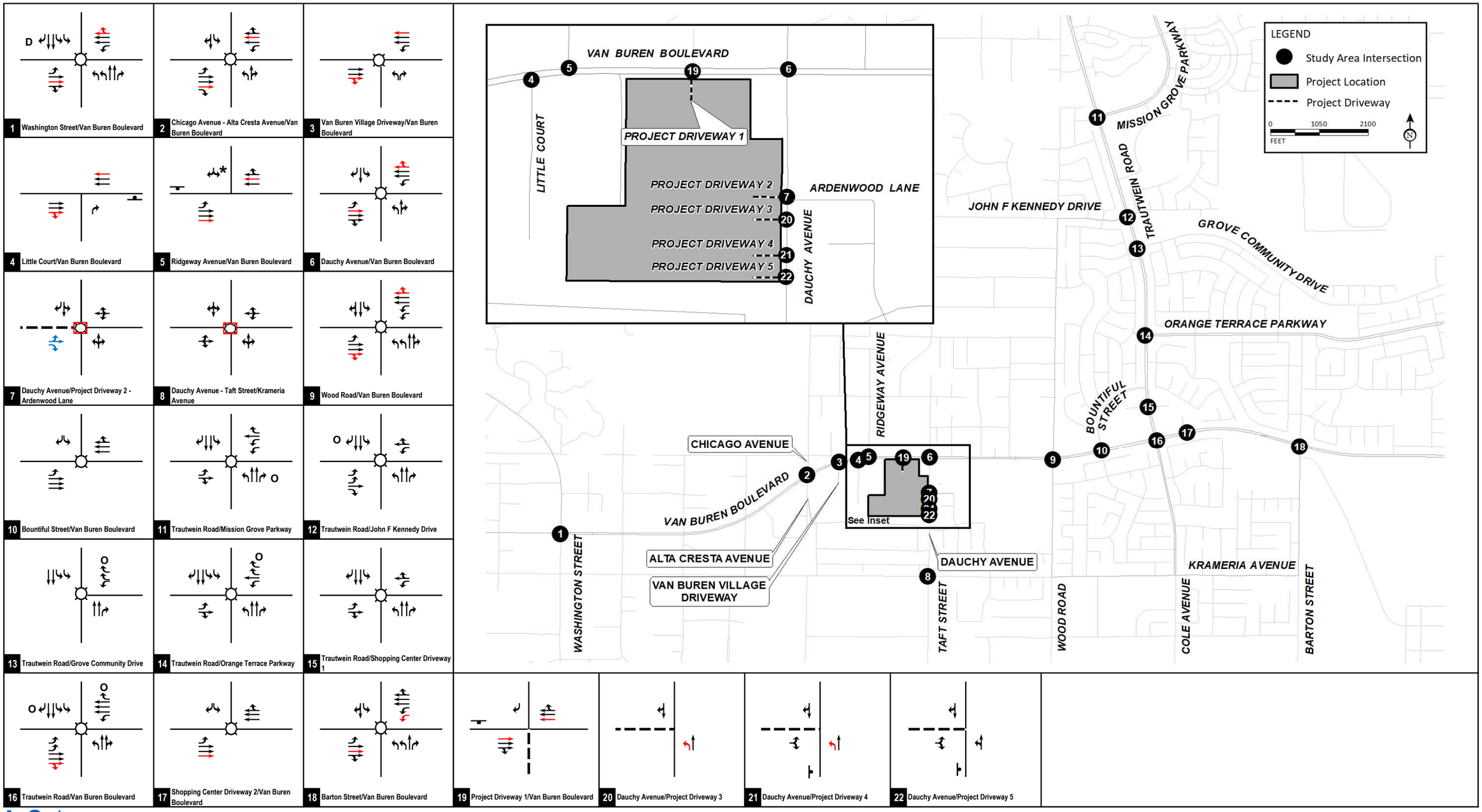
Avenue/Project Driveway 2 – Ardenwood Lane, and the addition of a two-way-left-turn-lane (TWLTL) median between Project Driveway 3 and Project Driveway 4, the project will be responsible for implementation of these improvements. Table 13-A summarizes the improvements that require coordination with the City.

### 13.2.3 Project Fair Share (County of Riverside)

In the absence of a fee program, the project shall pay its fair share of the cost required to offset operational deficiencies located in the County of Riverside. Table 13-A summarizes the project's fair share at Washington Street/Van Buren Boulevard.

## 13.3 LIST OF CHAPTER 13.0 TABLES AND TABLES

- Figure 13-1: Opening Year (2029) and Cumulative (2045) with project with Improvements Study Intersection Geometrics and Traffic Control
- Figure 13-2: Conceptual Striping and Parking Restriction
- Table 13-A: Recommended Improvements for Intersections, Funding Mechanism, and Fair Share
- Table 13-B: Opening Year (2029) with Project with Improvements Intersection Levels of Service
- Table 13-C: Cumulative (2045) with Project with Improvements Intersection Levels of Service
- Table 13-D: Recommended Improvements for Roadway Segments, Funding Mechanism, and Fair Share
- Table 13-E: Opening Year (2029) with Project with Improvements Roadway Segment Levels of Service
- Table 13-F: Cumulative (2045) with Project with Improvements Roadway Segment Levels of Service

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Legend
Signal
Stop Sign
D De-Facto Right
O Overlap
Project Design Feature
Improvements
Project Driveway
Add Signal

* Southbound left turns on Ridgeway Avenue will be restricted between 7:00AM - 9:00AM and 2:00PM - 6:00PM.

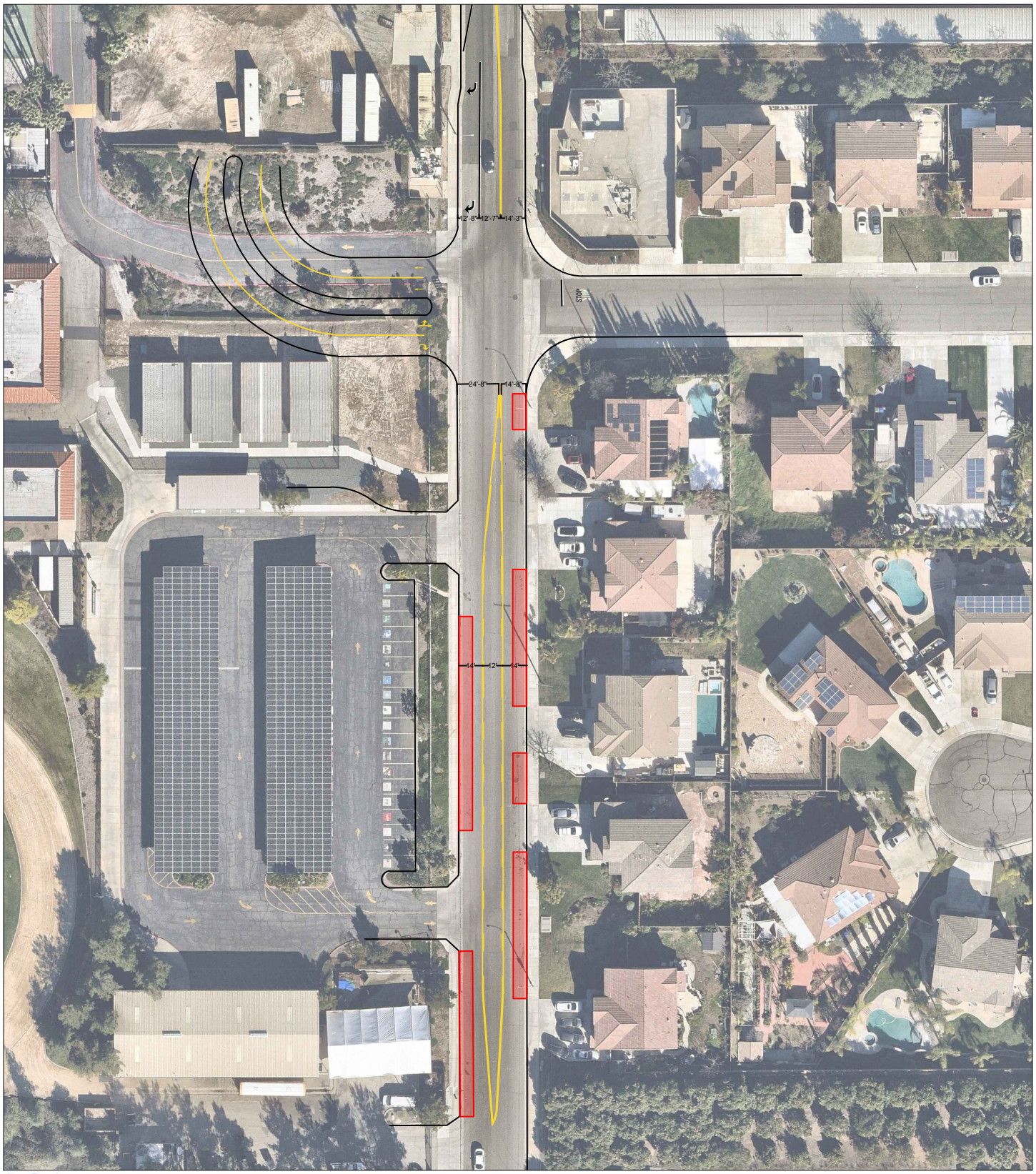
FIGURE 13-1

*Woodcrest Christian School Expansion Project*

*Traffic Operational Analysis*

Opening Year (2029) and Cumulative (2045) with Project with Improvements Study Intersection Geometrics and Traffic Control

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\g60_Geo_OY_Cumul + MIT.xlsx 3/13/2024

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LEGEND

- Parking Restriction

FIGURE 13-2

0 40 80

FEET

*Woodcrest Christian School*
*Traffic Operational Analysis*

Conceptual Striping and Parking Restriction

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**Table 13-A - Recommended Improvements for Intersections, Funding Mechanism, and Fair Share**

| 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) | Fair Share Percentage |
|---|---|---|---|---|---|---|
| 1 . Washington Street/Van Buren Boulevard | Add EBT. Restripe WBR to WBTR. | No additonal improvements required. | Add EBT. | | Restripe WBR to WBTR. | 3.27% |
| 2 . Chicago Avenue - Alta Cresta Avenue/Van Buren Boulevard | Add EBT. Add WBT. | No additonal improvements required. | Add EBT. Add WBT. | | | N/A |
| 4 . Little Court/Van Buren Boulevard | Restripe EBR to EBTR. | No additonal improvements required. | Restripe EBR to EBTR. | | | N/A |
| 5 . Ridgeway Avenue/Van Buren Boulevard | Restrict SBL movement during peak hours. Add EBT. Add WBT. | No additonal improvements required. | Add EBT. Add WBT. | Restrict SBL movement during peak hours. | | N/A |
| 6 . Dauchy Avenue/Van Buren Boulevard | Add EBT. Restripe WBR to WBTR. Extend NBL storage to 200'. | No additonal improvements required. | Add EBT. | Restripe WBR to WBTR. Extend NBL storage to 200'. Add contential corsswalks, audible pedestrian push buttons, and pedestrian restriction signs. | | N/A |
| 7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane | Add signal. | No additonal improvements required. | | Add signal. (Project Responsibility) | | N/A |
| 8 . Dauchy Avenue - Taft Street/Krameria Avenue | Add signal. | No additonal improvements required. | | Add signal. | | N/A |
| 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. | | | | N/A |
| 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. | | | | N/A |
| 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. | | | | N/A |
| 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. | | N/A |
| 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. | | N/A |
| 19 . Project Driveway 1/Van Buren Boulevard | Add EBT and WBT. | No additonal improvements required. | Add EBT and WBT. | | | N/A |
| 20 . Dauchy Avenue/Project Driveway 3 | Add TWLTL on Dauchy Ave. | | | Add TWLTL on Dauchy Ave. (Project Responsibility) | | N/A |
| 21 . Dauchy Avenue/Project Driveway 4 | Add TWLTL on Dauchy Ave. | | | Add TWLTL on Dauchy Ave. (Project Responsibility) | | N/A |

**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.

Project Fair Share Percentage is the highest fair share value of the a.m. and afternoon peak hour when both peak hours require improvements, or only in the peak hour that require improvements.

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## Table 13-B - Opening Year (2029) with Project Recommended Improvements Intersection Levels of Service

| Intersection | Jurisdiction | Without Project Without Improvements | | | | | With Project Without Improvements | | | | | With Project With Improvements | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A.M. Peak Hour | | Afternoon Peak Hour | | | A.M. Peak Hour | | Afternoon Peak Hour | | | A.M. Peak Hour | | Afternoon Peak Hour | |
| | | Control | Delay (sec.) | LOS | Delay (sec.) | LOS | Control | Delay (sec.) | LOS | Delay (sec.) | LOS | Control | Delay (sec.) | LOS | Delay (sec.) | LOS |
| 1 . Washington Street/Van Buren Boulevard | County of Riverside | Signal | 41.2 | D | 67.6 | E * | Signal | 42.9 | D | 67.9 | E * | Signal | 37.1 | D | 46.1 | D |
| 2 . Chicago Avenue - Alta Cresta Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | Signal | 76.5 | E * | 71.6 | E * | Signal | 82.3 | F * | 76.4 | E * | Signal | 33.1 | C | 17.7 | B |
| 4 . Little Court/Van Buren Boulevard | County of Riverside/City of Riverside | OWSC | 26.1 | D | 68.4 | F * | OWSC | 29.6 | D | >100 | F * | OWSC | 13.9 | B | 15.9 | C |
| 5 . Ridgeway Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | OWSC | - | F * | - | F * | OWSC | >100 | F * | - | F * | OWSC | 25.3 | D | 22.1 | C |
| 6 . Dauchy Avenue/Van Buren Boulevard | County of Riverside/City of Riverside | Signal | 79.8 | E * | >100 | F * | Signal | >100 | F * | >100 | F * | Signal | 51.8 | D | 39.1 | D |
| 7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane | City of Riverside | TWSC | 49.2 | E * | 44.2 | E * | TWSC | >100 | F * | 97.9 | F * | Signal | 6.8 | A | 6.7 | A |
| 8 . Dauchy Avenue - Taft Street/Krameria Avenue | City of Riverside | AWSC | 63.7 | F * | 40.8 | E * | AWSC | 75.2 | F * | 45.7 | E * | Signal | 16.4 | B | 15.2 | B |
| 11 . Trautwein Road/Mission Grove Parkway | City of Riverside | Signal | 88.4 | F * | 69.3 | E * | Signal | 88.6 | F * | 70.7 | E * | Signal | 88.6 | F * | 70.7 | E * |
| 12 . Trautwein Road/John F Kennedy Drive | City of Riverside | Signal | 85.3 | F * | 45.7 | D | Signal | 88.3 | F * | 45.8 | D | Signal | 93.4 | F * | 45.8 | D |
| 14 . Trautwein Road/Orange Terrace Parkway | City of Riverside | Signal | 66.2 | E * | 13.8 | B | Signal | 73.0 | E * | 19.0 | B | Signal | 73.0 | E * | 19.0 | B |
| 16 . Trautwein Road/Van Buren Boulevard | City of Riverside | Signal | 45.8 | D | 61.5 | E * | Signal | 46.9 | D | 73.4 | E * | Signal | 44.9 | D | 58.0 | E * |
| 18 . Barton Street/Van Buren Boulevard | County of Riverside/City of Riverside | Signal | 55.7 | E * | >100 | F * | Signal | 57.3 | E * | >100 | F * | Signal | 55.8 | E * | 65.5 | E * |
| 19 . Project Driveway 1/Van Buren Boulevard | County of Riverside/City of Riverside | TWSC | 0.0 | A | - | F * | TWSC | 0.0 | A | - | F * | TWSC | 0.0 | A | 17.4 | C |
| 21 . Dauchy Avenue/Project Driveway 4 | City of Riverside | OWSC | 19.1 | C | 16.2 | C | OWSC | 25.6 | D * | 19.1 | C | OWSC | 16.9 | C | 15.2 | C |

**Notes:**

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC/TWSC intersections, reported delay is for worst-case movement).

* Exceeds LOS Standard

[1] From without project without improvements conditions to with project with improvements conditions.

Based on Synchro results, intersections where the delay is represented with a dash ( - ) has through volumes that block the turn movements throughout the peak hour. As such, Synchro does not report a delay at these intersections for the blocked turn movements. Therefore, the worst-case movements at these intersections operate at LOS F.