

Table 13-C - Cumulative (2045) with Project Recommended Improvements Intersection Levels of Service

Intersection	Jurisdiction	Without Project						Without Improvements						With Project					
		Without		Without		With		Without		With		With		Without		With		With	
		Control	Delay (sec.)	LOS	Control	Delay (sec.)	LOS	Control	Delay (sec.)	LOS	Control	Delay (sec.)	LOS	Control	Delay (sec.)	LOS	Control	Delay (sec.)	LOS
1 . Washington Street/Van Buren Boulevard	County of Riverside	Signal	68.8	E *	68.1	E *	Signal	70.6	E *	70.6	E *	Signal	41.9	D	48.6	D			
2 . Chicago Avenue - Alta Cresta Avenue/Van Buren Boulevard	County of Riverside/City of Riverside	Signal	76.9	E *	81.4	F *	Signal	82.1	F *	86.3	F *	Signal	27.2	C	22.4	C			
4 . Little Court/Van Buren Boulevard	County of Riverside/City of Riverside	OWSC	34.4	D	>100	F *	OWSC	41.5	E *	-	F *	OWSC	14.9	B	16.6	C			
5 . Ridgeway Avenue/Van Buren Boulevard	County of Riverside/City of Riverside	OWSC	-	F *	-	F *	OWSC	-	F *	-	F *	OWSC	31.7	D	24.1	C			
6 . Dauchy Avenue/Van Buren Boulevard	County of Riverside/City of Riverside	Signal	>100	F *	>100	F *	Signal	>100	F *	>100	F *	Signal	41.0	D	49.2	D			
7 . Dauchy Avenue/Project Driveway 2 - Ardenwood Lane	City of Riverside	TWSC	58.1	F *	75.4	F *	TWSC	>100	F *	>100	F *	Signal	6.8	A	6.8	A			
8 . Dauchy Avenue - Taft Street/Krameria Avenue	City of Riverside	AWSC	>100	F *	>100	F *	AWSC	>100	F *	>100	F *	Signal	17.9	B	17.1	B			
11 . Trautwein Road/Mission Grove Parkway	City of Riverside	Signal	>100	F *	85.9	F *	Signal	>100	F *	88.0	F *	Signal	>100	F *	88.0	F *			
12 . Trautwein Road/John F Kennedy Drive	City of Riverside	Signal	95.2	F *	50.2	D	Signal	99.9	F *	50.4	D	Signal	99.8	F *	50.4	D			
14 . Trautwein Road/Orange Terrace Parkway	City of Riverside	Signal	69.0	E *	13.8	B	Signal	73.7	E *	19.5	B	Signal	73.7	E *	19.5	B			
16 . Trautwein Road/Van Buren Boulevard	City of Riverside	Signal	46.5	D	77.9	E *	Signal	47.7	D	82.5	F *	Signal	46.7	D	81.6	F *			
18 . Barton Street/Van Buren Boulevard	County of Riverside/City of Riverside	Signal	59.1	E *	>100	F *	Signal	60.9	E *	>100	F *	Signal	59.2	E *	62.7	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	19.4	C			
21 . Dauchy Avenue/Project Driveway 4	City of Riverside	OWSC	21.2	C	20.2	C	OWSC	29.9	D *	25.8	D *	OWSC	18.3	C	17.7	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

† 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.

Table 13-D - Recommended Improvements for Roadway Segments, Funding Mechanism, and Fair Share

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

Notes:

TUMF refers to the Transportation Uniform Mitigation Fee Program.

TWLTL = Two-Way-Left-Turn-Lane

Table 13-E - Opening Year (2029) with Project with Improvements Roadway Segment Levels of Service

Roadway Segment	Jurisdiction	LOS Standard	Without Project Without Improvements						With Project Without Improvements						With Project With Improvements						V/C Ratio Difference ³
			Classification ¹	Number of Lanes	Roadway Capacity ²	Daily Volume	V/C Ratio	LOS	Classification ¹	Number of Lanes	Roadway Capacity ²	Daily Volume	V/C Ratio	LOS	Classification ¹	Number of Lanes	Roadway Capacity ²	Daily Volume	V/C Ratio	LOS	
Segments on Van Buren Boulevard⁴																					
1 . Between Little Court and Dauchy Avenue	County of Riverside/City of Riverside	D	Arterial (120')	4	36,400	58,290	1.60	F *	Arterial (120')	4	36,400	58,550	1.61	F *	Arterial (120')	6	54,900	58,550	1.07	F *	-0.53
Segments on Dauchy Avenue																					
2 . Between Van Buren Boulevard and Ardenwood Lane	City of Riverside	D	Local	2	3,400	7,630	2.24	F *	Local	2	3,400	8,350	2.46	F *	Local	2	3,400	8,350	2.46	F *	0.21
3 . Between Ardenwood Lane and Hawksbury Drive	City of Riverside	D	Local	2	3,400	4,970	1.46	F *	Local	2	3,400	5,400	1.59	F *	Local	2	3,400	5,400	1.59	F *	0.13

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 From without project without improvements conditions to with project with improvements conditions.⁴ As part of the intersection operations improvements, segments on Van Buren Boulevard will be widened to 6 lanes from Washington Street to Barton Street.

Table 13-F - Cumulative (2045) with Project with Improvements Roadway Segment Levels of Service

Roadway Segment	Jurisdiction	LOS Standard	Without Project Without Improvements					With Project Without Improvements					With Project With Improvements					V/C Ratio Difference ³			
			Classification ¹	Number of Lanes	Roadway Capacity ²	Daily Volume	V/C Ratio	LOS	Classification ¹	Number of Lanes	Roadway Capacity ²	Daily Volume	V/C Ratio	LOS	Classification ¹	Number of Lanes	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	D	Arterial (120')	4	36,400	61,200	1.68	F *	Arterial (120')	4	36,400	61,460	1.69	F *	Arterial (120')	6	54,900	61,460	1.12	F *	-0.56
Segments on Dauchy Avenue																					
2 . Between Van Buren Boulevard and Ardenwood Lane	City of Riverside	D	Local	2	3,400	7,880	2.32	F *	Local	2	3,400	8,600	2.53	F *	Local	2	3,400	8,600	2.53	F *	0.21
3 . Between Ardenwood Lane and Hawksbury Drive	City of Riverside	D	Local	2	3,400	5,590	1.64	F *	Local	2	3,400	6,020	1.77	F *	Local	2	3,400	6,020	1.77	F *	0.13

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 From without project without improvements conditions to with project with improvements conditions.⁴ As part of the intersection operations improvements, segments on Van Buren Boulevard will be widened to 6 lanes from Washington Street to Barton Street.

14.0 PROJECT DRIVEWAY SIGNAL IMPLEMENTATION SENSITIVITY ANALYSIS

A signal warrant sensitivity analysis was conducted to determine the timeframe when a traffic signal is warranted for the intersection of Dauchy Avenue/Project Driveway 2 – Ardenwood Lane. Based on the traffic signal warrant analysis in Section 8.1, a traffic signal warrant was met under the Opening Year (2029) with Project conditions in the a.m. peak hour. As part of the signal warrant sensitivity analysis, a signal warrant analysis was conducted for the interim years between the time frame from Existing (2021) conditions to Opening Year (2029) conditions to determine when a traffic signal is warranted during the a.m. peak hour.

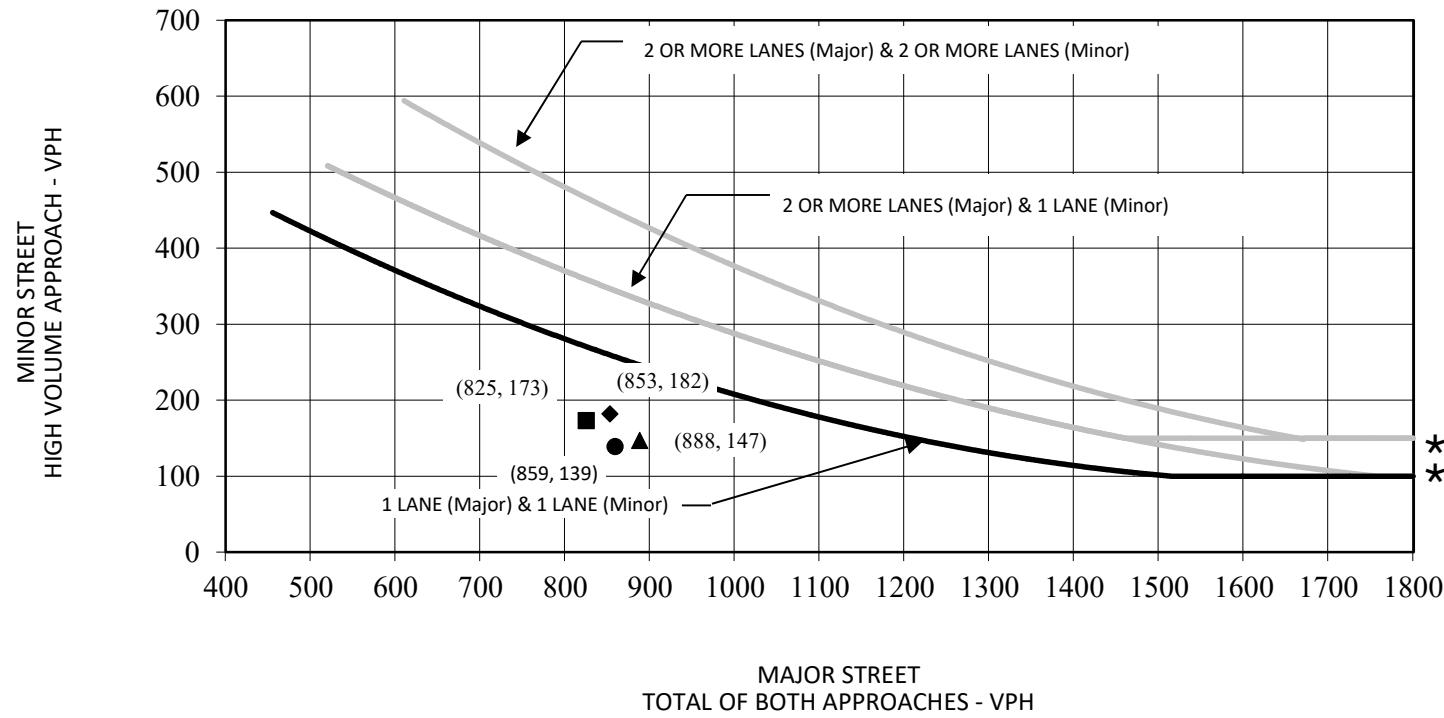
The signal warrant sensitivity analysis was conducted using traffic volumes from the interim years and project traffic. Background traffic volumes for interim analysis years between the Existing (2021) and Opening Year (2029) was developed using a 2% per annum growth. Additionally, the total cumulative project traffic trips were added to all interim year scenarios as a conservative approach starting with Year 2023. The project trip generation traffic was interpolated using student enrollment projections provided by the project applicant and then added to the corresponding interim year no project traffic volumes.

Figure 13-1, Figure 13-2, Figure 13-3, Figure 13-4, Figure 13-5, illustrates the corresponding Year 2023 to Year 2027 Peak Hour Warrants at Dauchy Avenue/Project Driveway 2 – Ardenwood Lane. As illustrated in Figure 13-1, Figure 13-2, and Figure 13-3, a traffic signal is not warranted for Year 2023, Year 2024, and Year 2025. As illustrated in Figure 13-4 and Figure 13-5, a traffic signal is warranted beginning in Year 2026 and onwards. However, as per the LOS analysis for this intersection, the intersection is forecasted to operate at a deficient LOS without implementation of any new traffic control mechanism. A potential short-term interim improvement could be converting the traffic control at this intersection to an all-way stop control until a signal warrant is met.

14.1 LIST OF CHAPTER 14.0 FIGURES

- Figure 14-1: Year 2023 Peak Hour Warrant – Dauchy Avenue/Project Driveway 2 - Ardenwood Lane
- Figure 14-2: Year 2024 Peak Hour Warrant – Dauchy Avenue/Project Driveway 2 - Ardenwood Lane
- Figure 14-3: Year 2025 Peak Hour Warrant – Dauchy Avenue/Project Driveway 2 - Ardenwood Lane
- Figure 14-4: Year 2026 Peak Hour Warrant – Dauchy Avenue/Project Driveway 2 - Ardenwood Lane
- Figure 14-5: Year 2027 Peak Hour Warrant – Dauchy Avenue/Project Driveway 2 - Ardenwood Lane

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.

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 Without Project AM Peak Hour	 With Project AM Peak Hour
 Without Project AM Peak Hour - CA Left Alt	 With Project AM Peak Hour - CA Left Alt

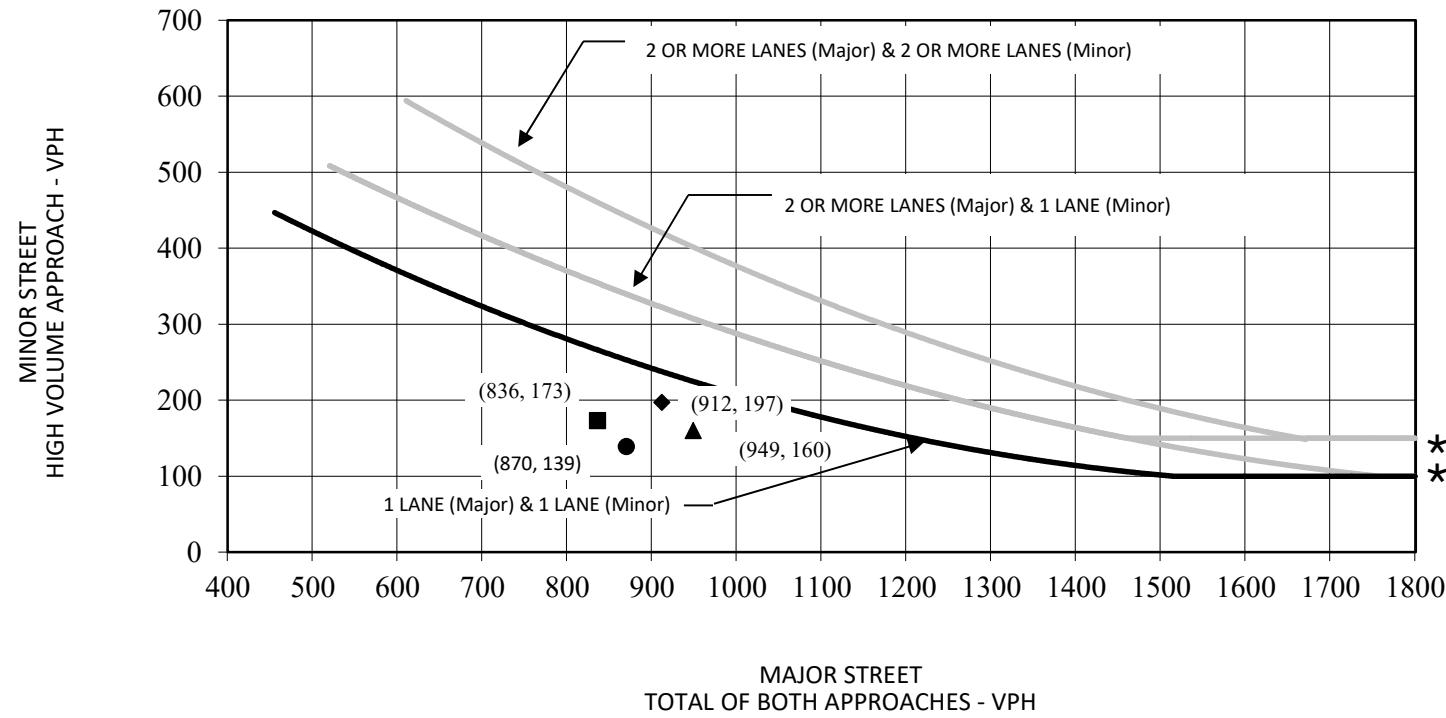
FIGURE 14-1

Woodcrest Christian School Expansion Project
Traffic Operational Analysis

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

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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

 Without Project AM Peak Hour Without Project AM Peak Hour - CA Left Alt	 With Project AM Peak Hour With Project AM Peak Hour - CA Left Alt
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FIGURE 14-2

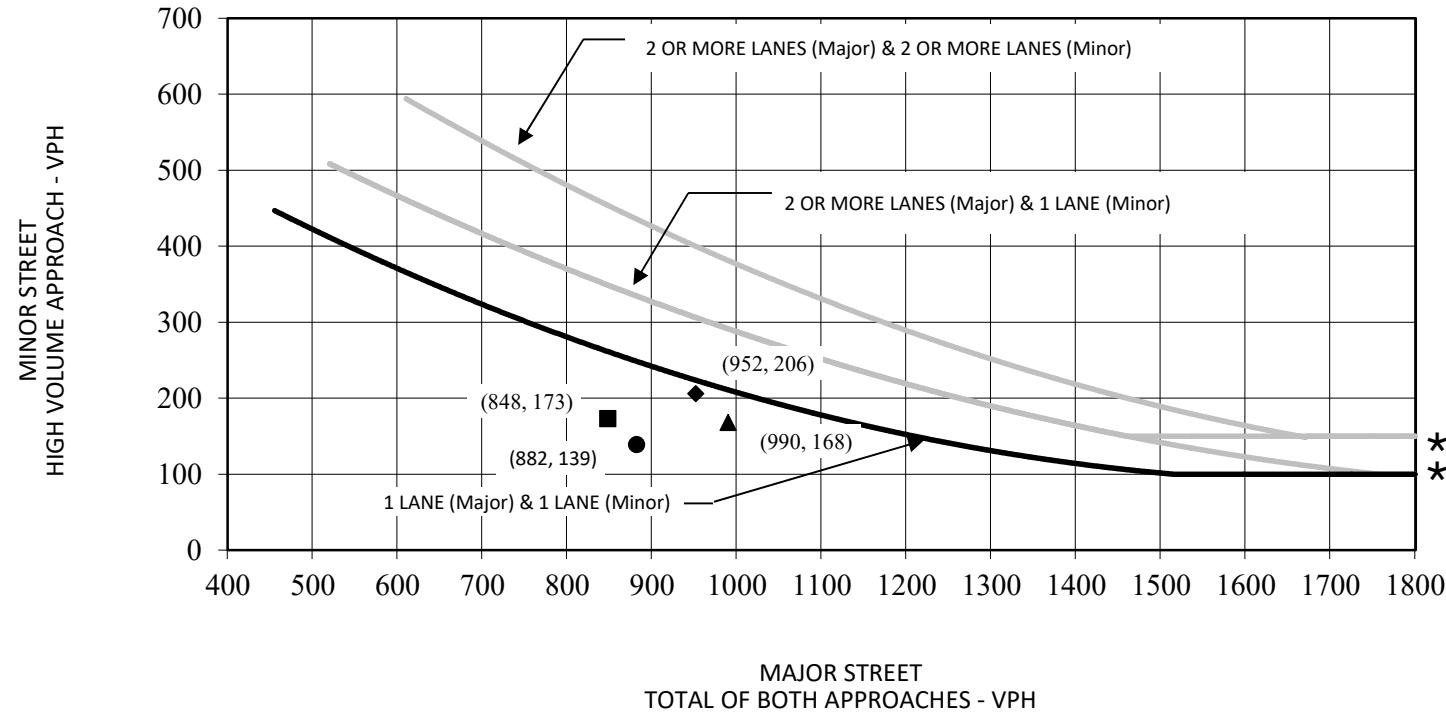
Woodcrest Christian School Expansion Project
Traffic Operational Analysis

Year 2024 Peak Hour Warrant - Dauchy Avenue/Project Driveway 2-Ardenwood Lane

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

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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

	Without Project AM Peak Hour		With Project AM Peak Hour
	Without Project AM Peak Hour - CA Left Alt		With Project AM Peak Hour - CA Left Alt

FIGURE 14-3

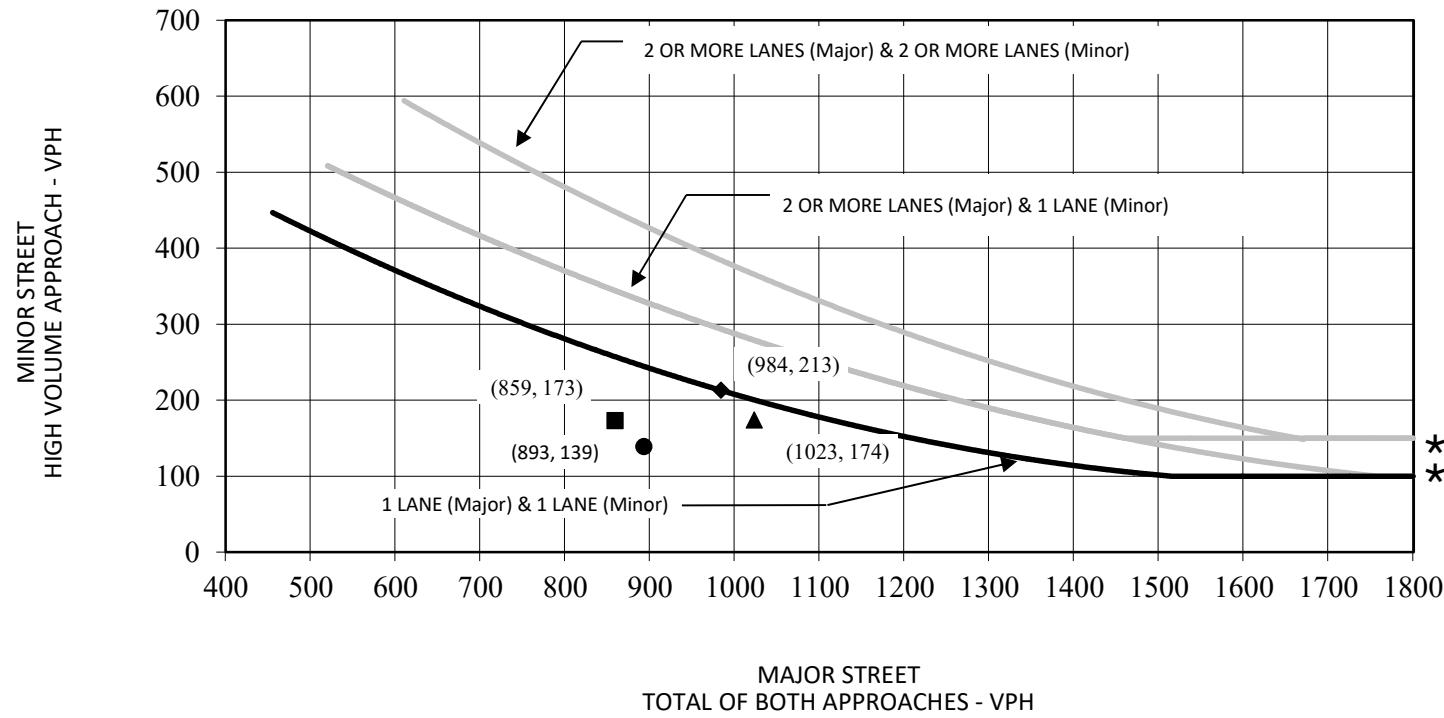
Woodcrest Christian School Expansion Project
Traffic Operational Analysis

Year 2025 Peak Hour Warrant - Dauchy Avenue/Project Driveway 2-Ardenwood Lane

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

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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

 Without Project AM Peak Hour	 With Project AM Peak Hour
 Without Project AM Peak Hour - CA Left Alt	 With Project AM Peak Hour - CA Left Alt

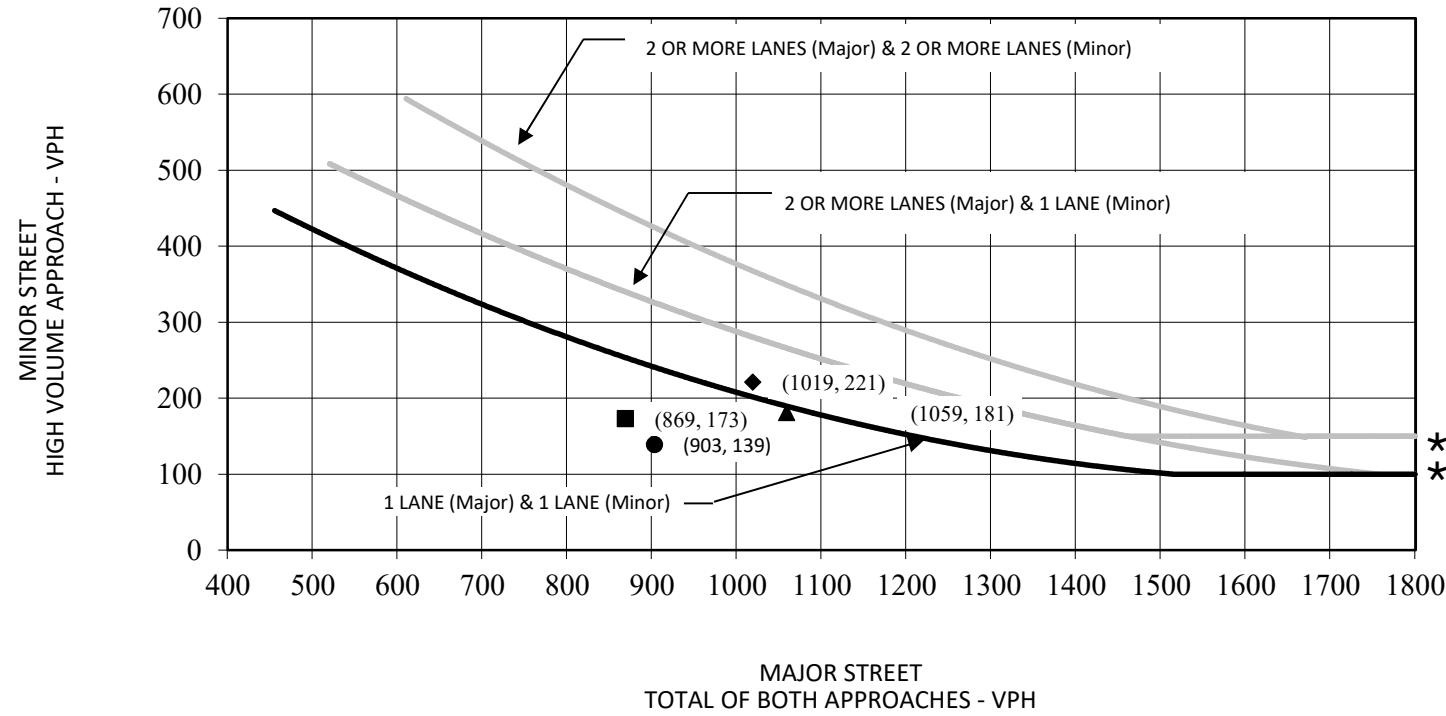
FIGURE 14-4

Woodcrest Christian School Expansion Project
Traffic Operational Analysis

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

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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

 Without Project AM Peak Hour	 With Project AM Peak Hour
 Without Project AM Peak Hour - CA Left Alt	 With Project AM Peak Hour - CA Left Alt

FIGURE 14-5

*Woodcrest Christian School Expansion Project
Traffic Operational Analysis*

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

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15.0 DROP-OFF/PICK-UP CIRCULATION

At the request of City staff, morning and afternoon student drop-off/pick-up procedures were evaluated to determine potential circulation effects associated with on-site queuing. Specifically, the queues formed by student unloading and loading activities were examined to determine if on-site queuing would spill onto Dauchy Avenue and create potential vehicular conflicts.

15.1 ON-SITE CIRCULATION

Drop-off and pick-up access to the main lot is provided via Project Driveway 2. Once on campus, vehicles follow an internal circulation roadway to the main lot adjacent to Van Buren Boulevard with designated drop-off/pick-up zones. The drop-off/pick-up zone at the main lot is approximately 300 feet long. After students had been dropped off or picked up, vehicles continue through an internal circulation roadway and exit the school via eastbound left-turn or right-turn on Dauchy Avenue using Project Driveway 2. Figure 14-1 provides detailed illustration outlining the drop-off/pick-up circulation and loading zones for the main lot.

Drop-off and pick-up access is also provided at the rear lot which can be accessed via Project Driveway 3 and Project Driveway 4. It should be noted that Project Driveway 3 is an ingress only driveway. Once on campus, vehicles follow a designated route to designated drop-off/pick-up zones. The drop-off/pick-up zone at the rear lot is located along the sidewalk adjacent to the track and field, measuring approximately 250 feet under future conditions. After students had been dropped off or picked up, vehicles continue through a designated route and exit the school via eastbound left-turn or right-turn onto Dauchy Avenue at Project Driveway 4. Figure 14-2 provides a detailed illustration outlining the drop-off/pick-up circulation and loading zones for the rear lot.

15.2 ON-SITE QUEING ANALYSIS (EXISTING CONDITIONS)

Counts Unlimited observed and recorded existing queues associated with student drop-off and pick-up activities during on-site surveys conducted on Tuesday April 26, 2022. The survey was conducted to determine if adequate storage space is available on site to accommodate queues resulting from student pick-up and drop-off activities.

15.2.1 Main Lot

As Figure 14-3 and Figure 14-4 shows, there are approximately 300 feet of available storage on site for drop-off activities, which can accommodate 12 vehicles. The storage area begins at the front of the student unloading zone and extends to the beginning of the loop around the parking lot. There is over 400 feet of storage space available in the parking lot for vehicles waiting to drop-off/pick-up students.

Morning drop-off activities were observed between 7:30 and 8:30 a.m. Between 7:30 and 7:45 a.m., nominal queues were observed on the site due to low arrival rate of drop-off vehicles during this period. Beginning at 7:50 a.m., the arrival rate of drop-off vehicles was observed to increase significantly. A maximum queue length of 350 feet (15 vehicles) was observed at 8:15 a.m. as shown in Figure 14-3. No queuing issues was observed as the onsite vehicles queuing zone is adequate.

During the afternoon student pick-up period, it was observed that vehicle arrival was extended over a longer period (2:15 to 4:40 p.m.) compared to the morning drop-off period. Beginning at 2:30

p.m., the arrival rate of pick-up vehicles was observed to increase significantly. A maximum queue length of 400 feet (19 vehicles) was observed at 2:40 p.m., as shown in Figure 14-4. No queuing issues was observed as the onsite vehicles queuing zone has adequate room.

15.2.2 Rear Lot

As Figure 14-5 and Figure 14-6 shows, there is approximately 225 feet of available storage length on site for drop-off activities, which can accommodate 12 vehicles. The storage area begins at the front of the student unloading zone and extends around the parking lot. There is about 200 feet of storage space available in the parking lot for vehicles waiting to drop-off/pick-up students.

Morning drop-off activities were observed between 7:30 and 8:30 a.m. Between 7:30 and 7:45 a.m., nominal queues were observed on the site due to low arrival rate of drop-off vehicles during this period. Beginning at 7:50 a.m., the arrival rate of drop-off vehicles was observed to increase significantly. A maximum queue length of 250 feet (12 vehicles) was observed at 8:10 a.m., as shown in Figure 14-5. No queuing issues was observed as the onsite vehicles queuing zone is adequate.

During the afternoon student pick-up period, it was observed that vehicle arrival was extended over a longer period (2:15 to 4:15 p.m.) compared to the morning drop-off period. Beginning at 2:20 p.m., the arrival rate of pick-up vehicles was observed to increase significantly. A maximum queue length of 450 feet (20 vehicles) was observed 2:45 p.m., as shown in Figure 14-6. No queuing issues was observed as the onsite vehicles queuing zone is adequate.

15.3 ON-SITE QUEING ANLAYSIS (WITH PROJECT CONDITIONS)

Once the expansion is complete, the school will have capacity to accommodate a maximum net increase of 280 students. Because vehicle queue is a function of the number of students enrolled, the worst-case vehicle queue is expected to increase with expansion of the school during the morning drop-off period. As previously mentioned, the relocation of bus parking at rear parking lot to extend vehicle storage for student drop-off and pick-up, will improve circulation and minimize potential queuing issues as a result of the expansion.

15.3.1 Main Lot

As previously discussed, a worst-case queue length 350 feet was observed during the morning drop-off period. Currently, 644 students are enrolled in the school. Therefore, queues on site form at a rate of 0.54 feet per student (350 feet/644 students). As such, the addition of 280 students would increase the existing queue by an additional 152 feet; and a 502-foot queue could occur when the school is at full capacity (924 student). No queuing issues nor conflicts is anticipated as the storage is adequate, as shown in Figure 14-3.

During the afternoon pick-up period, a worst-case queue length of 400 feet (19 vehicles) was observed during the afternoon pick-up period. Currently, 644 students are enrolled in the school. Therefore, queues on site form at a rate of 0.62 feet per student (400 feet/644 students). As such, the addition of 280 students would increase the existing queue by an additional 174 feet; and a 574-foot queue could occur when the school is at full capacity (924 students). No queuing issues nor conflicts is anticipated as the storage is adequate, as shown in Figure 14-4.

15.3.2 Rear Lot

As previously discussed, a worst-case queue length 250 feet was observed during the morning drop-off period. Currently, 644 students are enrolled in the school. Therefore, queues on site form at a rate of 0.39 feet per student (250 feet/644 students). As such, the addition of 280 students would increase the existing queue by an additional 109 feet; and a 359-foot queue could occur when the school is at full capacity (924 students). No queuing issues nor conflicts is anticipated as the storage is adequate, as shown in Figure 14-7.

During the afternoon pick-up period, a worst-case queue length of 450 feet was observed during the afternoon pick-up period. Currently, 644 students are enrolled in the school. Therefore, queues on site form at a rate of 0.70 feet per student (450 feet/644 students). As such, the addition of 280 students would increase the existing queue by an additional 196 feet; and a 646-foot queue could occur when the school is at full capacity (924 students). No queuing issues nor conflicts is anticipated as the storage is adequate, as shown in Figure 14-8.

15.4 LIST OF CHAPTER 15.0 FIGURES

- Figure 15-1: Main Lot Circulation
- Figure 15-2: Rear Lot Circulation
- Figure 15-3: Main Lot Drop-Off Queue
- Figure 15-4: Main Lot Pick-Up Queue
- Figure 15-5: Existing Rear Lot Drop-Off Queue
- Figure 15-6: Existing Rear Lot Pick-Up Queue
- Figure 15-7: Future Rear Lot Drop-Off Queue
- Figure 15-8: Future Rear Lot Pick-Up Queue

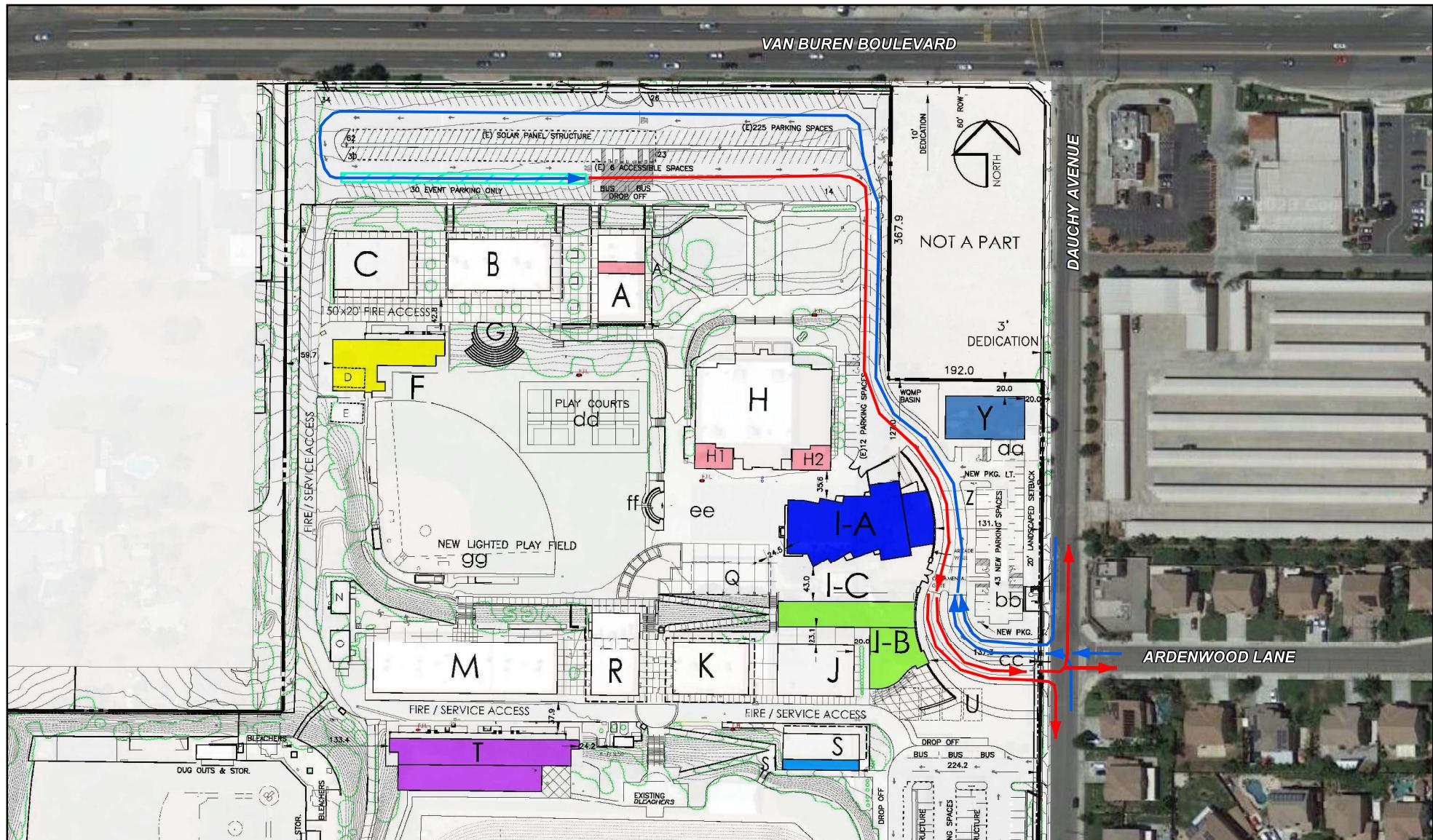


FIGURE 15-1

Woodcrest Christian School Expansion
Traffic Operational Analysis
Main Lot Circulation

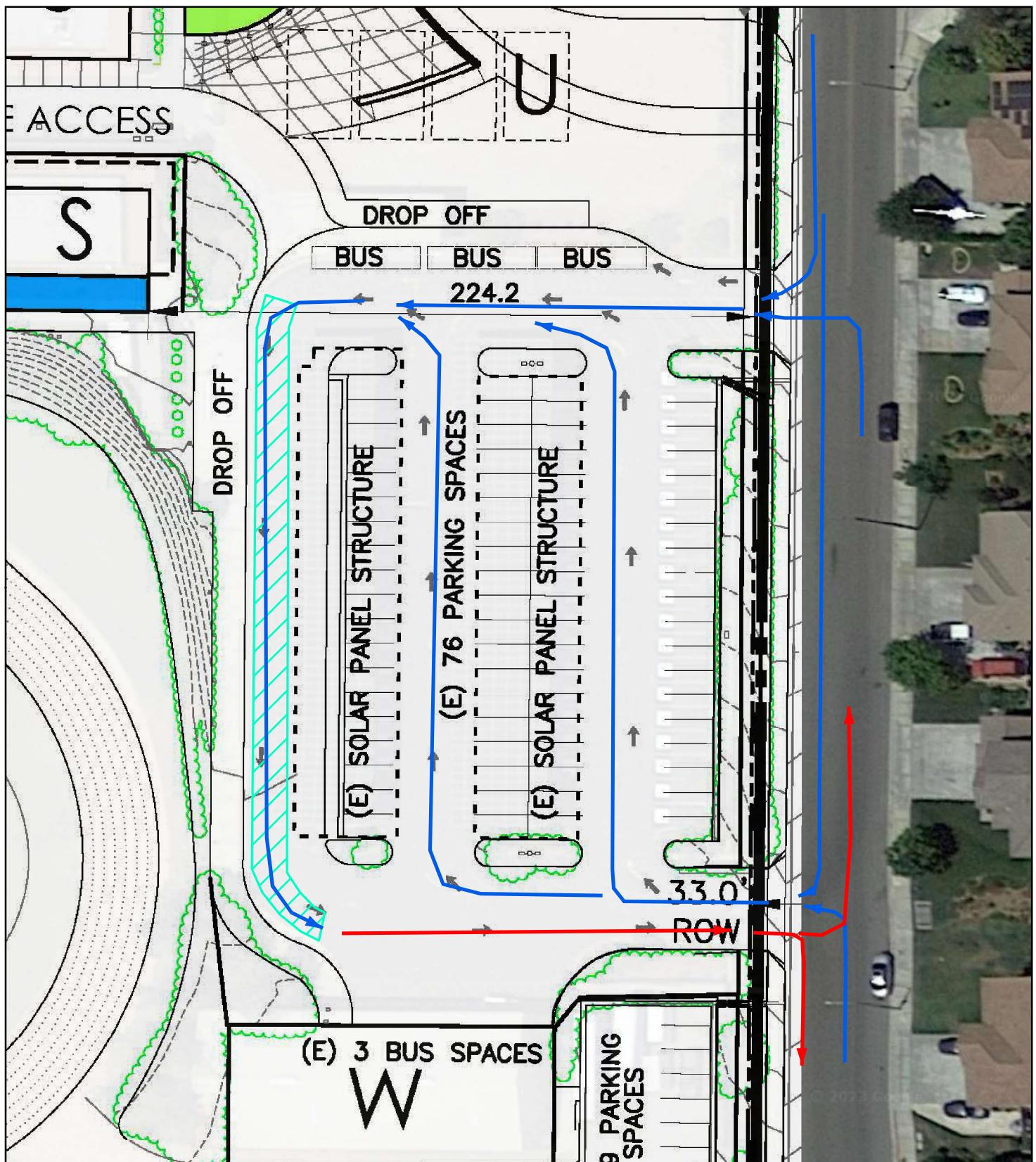
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FEET

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



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0 25 50
FEET

SOURCE: Google Earth, 2021.

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

FIGURE 15-2

Woodcrest Christian School Expansion

Traffic Operational Analysis

Rear Lot Circulation



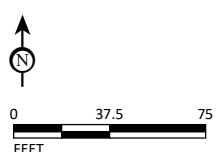
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LEGEND

Drop-off Zone

Existing Observed Queue

Future Additional Queue Due to Expansion



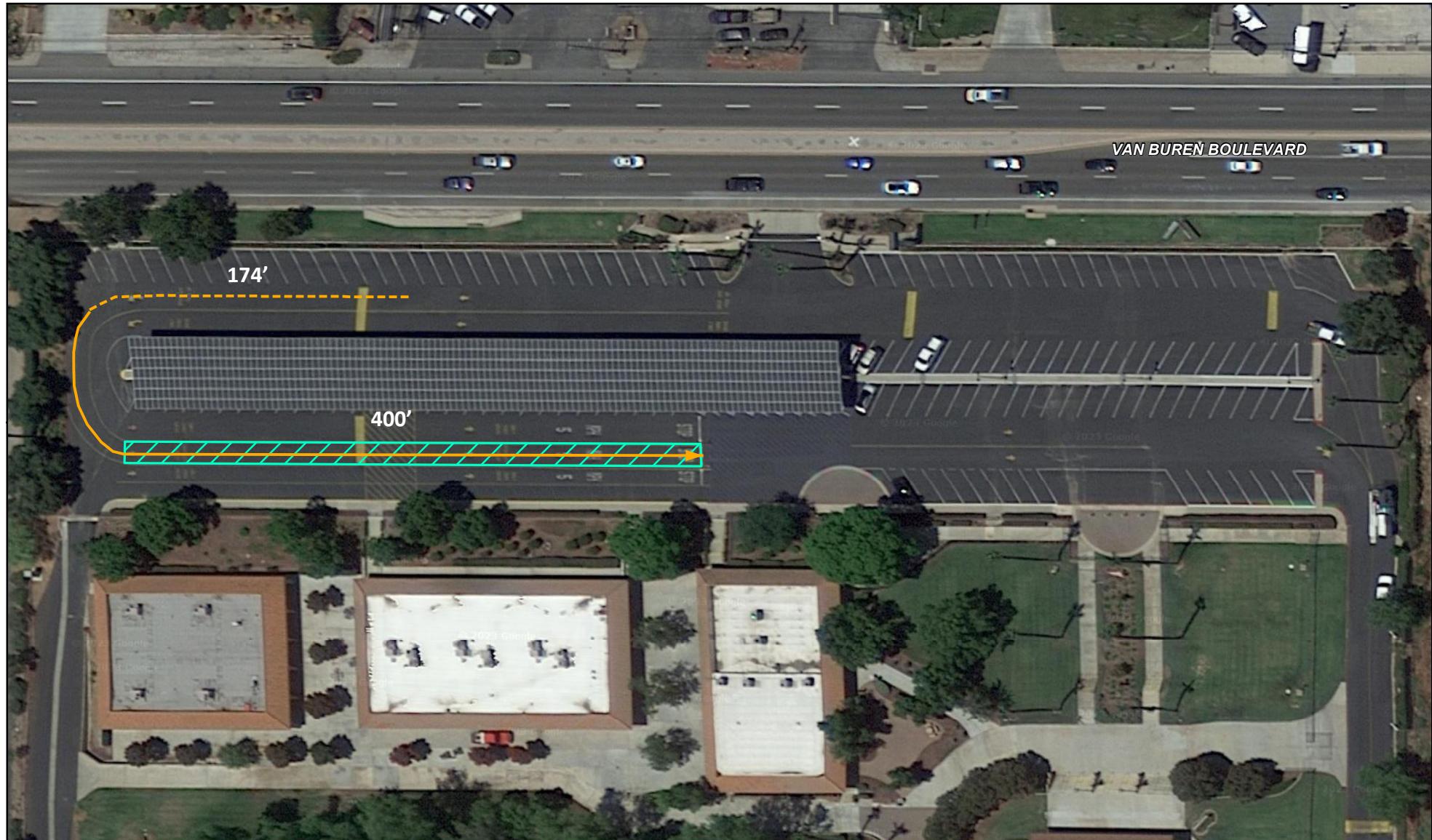
SOURCE: Google Earth, 2021.

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

FIGURE 15-3

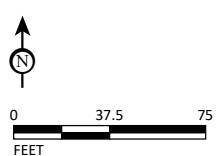
Woodcrest Christian School Expansion
Traffic Operational Analysis
Main Lot Drop-Off Queue



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LEGEND

- Drop-off Zone
- Existing Observed Queue
- Future Additional Queue Due to Expansion



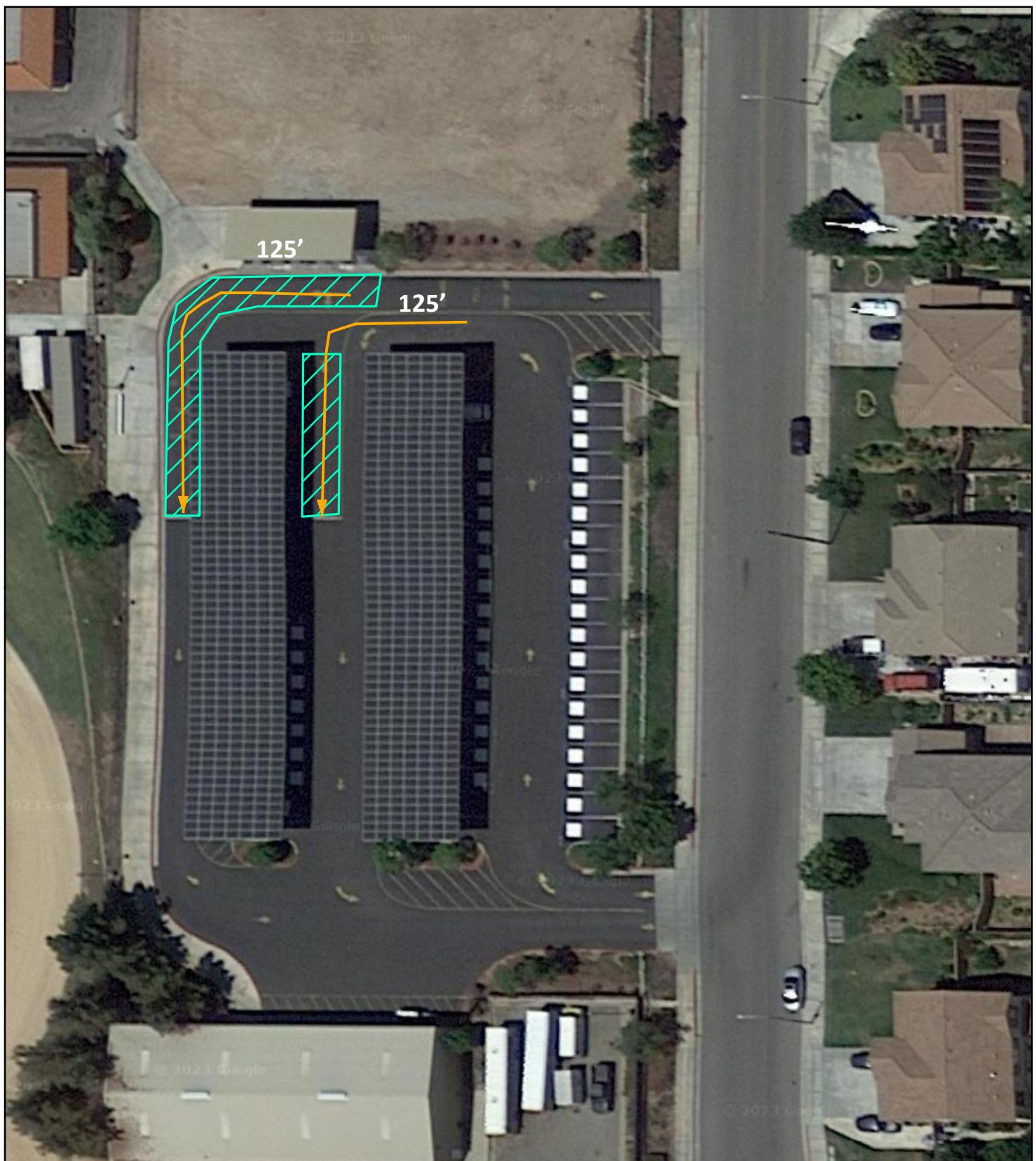
SOURCE: Google Earth, 2021.

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

FIGURE 15-4

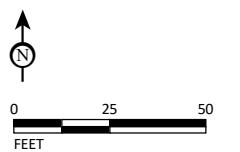
Woodcrest Christian School Expansion
Traffic Operational Analysis
Main Lot Pick-Up Queue



LSA

LEGEND

- Existing Observed Queue
- ▨ Existing Loading Zone



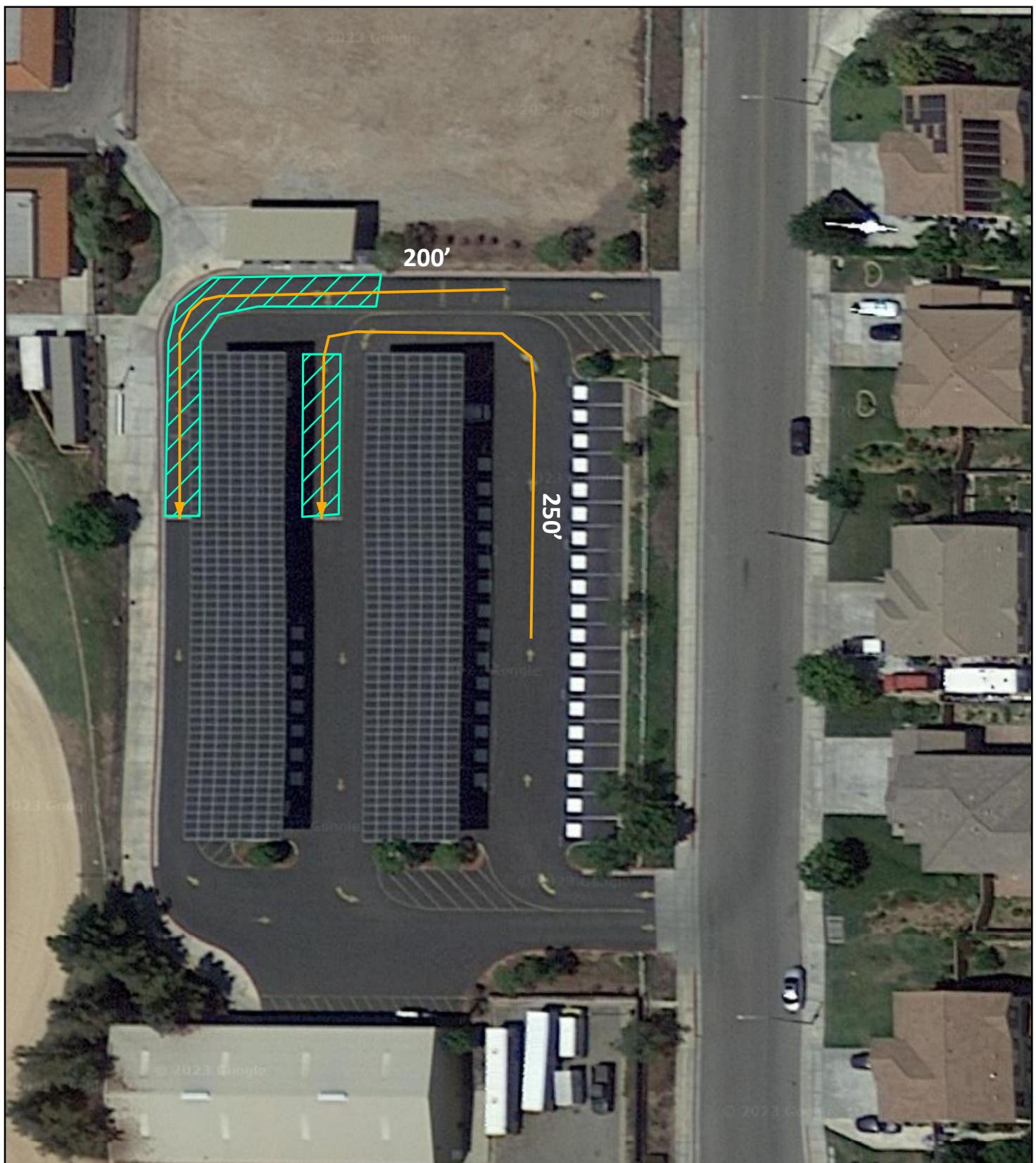
SOURCE: Google Earth, 2021.

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

FIGURE 15-5

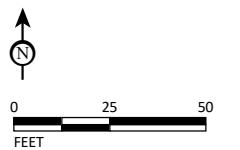
*Woodcrest Christian School Expansion
Traffic Operational Analysis
Existing Rear Lot Drop-Off Queue*



LSA

LEGEND

- Existing Loading Zone
- Existing Observed Queue



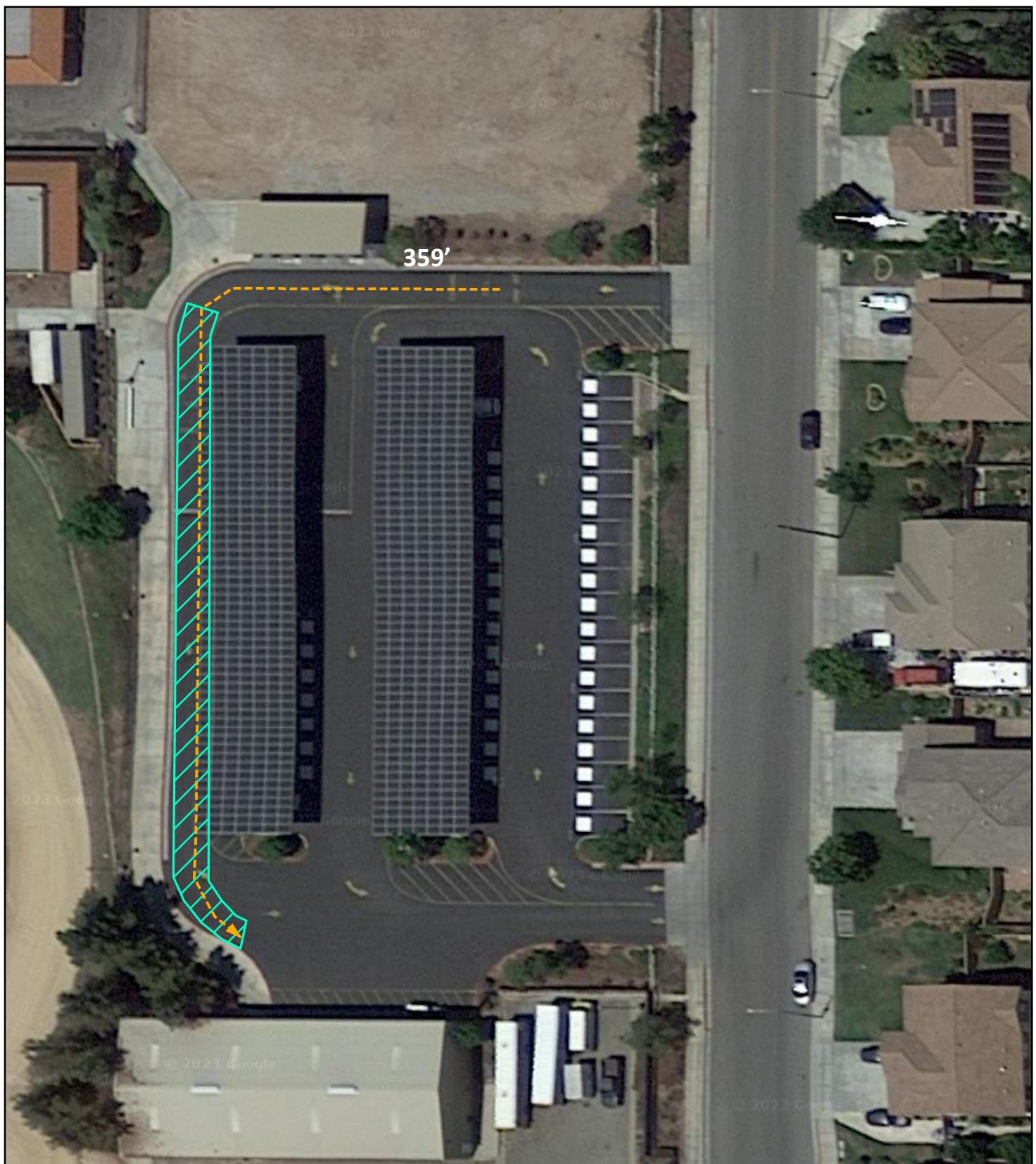
SOURCE: Google Earth, 2021.

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\GIS\Reports\fig15-6_Existing_Pickup_Rear.mxd (11/16/2023)

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

FIGURE 15-6

*Woodcrest Christian School Expansion
Traffic Operational Analysis
Existing Rear Lot Pick-Up Queue*



LSA

LEGEND

 Loading Zone

 Anticipated Future Queue with Expansion



0 25 50
FEET

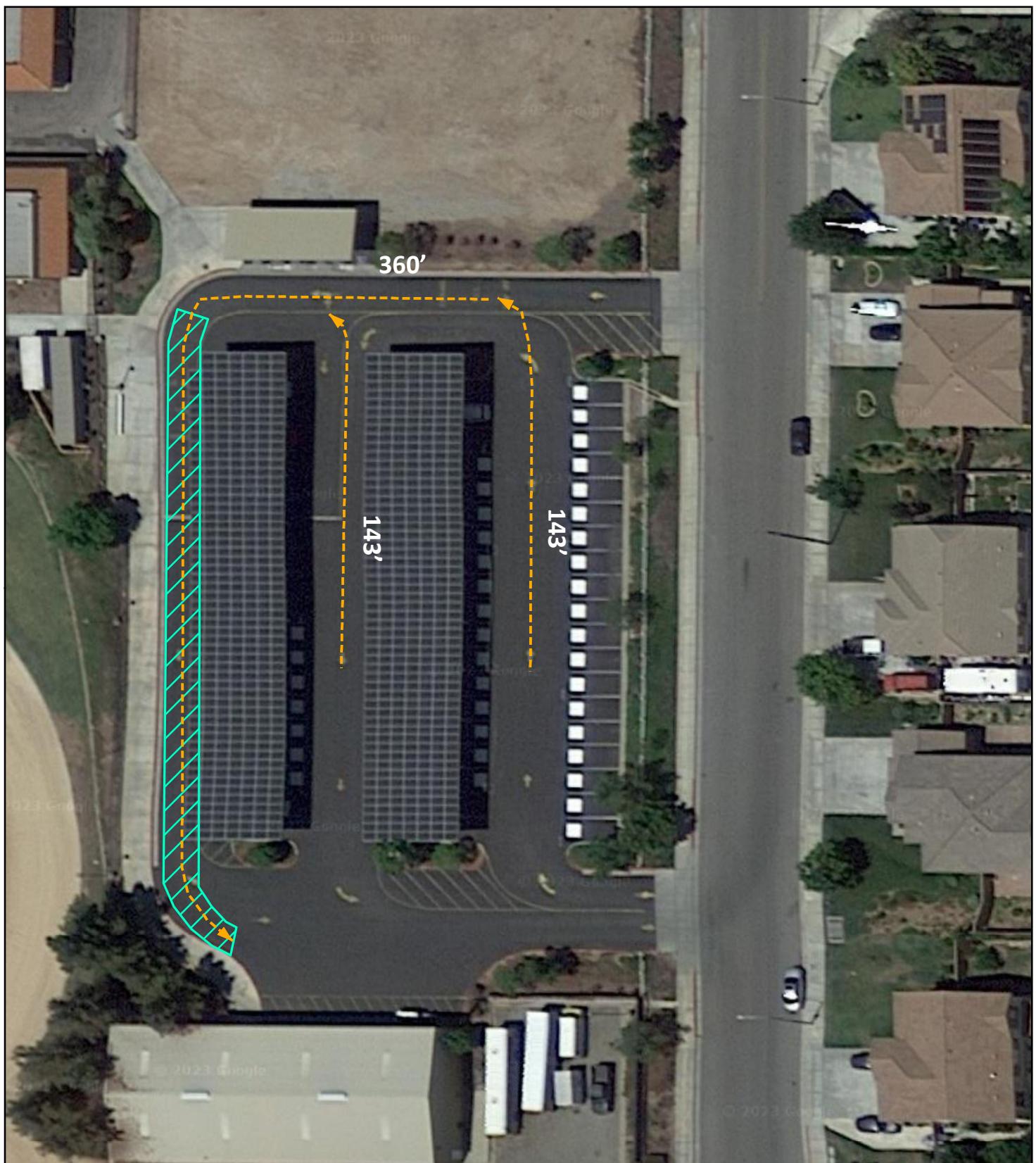
SOURCE: Google Earth, 2021.

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\GIS\Reports\fig15-7_Future_Dropoff_Rear.mxd (11/15/2023)

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

FIGURE 15-7

*Woodcrest Christian School Expansion
Traffic Operational Analysis
Future Rear Lot Drop-Off Queue*



LSA

LEGEND



Loading Zone



Anticipated Future Queue with Expansion



0 25 50
FEET

SOURCE: Google Earth, 2021.

P:\WCS2101_Woodcrest Christian School Expansion\Traffic\July 2023\GIS\Reports\fig15-8_Future_Pickup_Rear.mxd (11/16/2023)

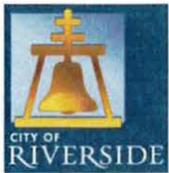
PR-2023-001080 (CUP, DR) - Exhibit 9g-ISMND - Appendix F

FIGURE 15-8

Woodcrest Christian School Expansion
Traffic Operational Analysis
Future Rear Lot Pick-Up Queue

APPENDIX A

SCOPING AGREEMENT



Public Works Department

City of Arts & Innovation

Traffic Analysis Scoping Form

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

Project Identification:

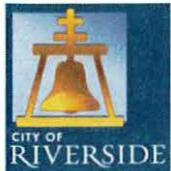
Case Number:	PR-2021-001080 (CUP, DR)
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Woodcrest Christian School Expansion
Project Address:	18401 Van Buren Boulevard
Project Opening Year:	2029
Project Description:	Expansion of the existing Woodcrest Christian private school (Grades 7-12) capacity by 280 students up to a total capacity of 1000 students.

Consultant:	Developer:
Name: LSA Associates, Inc.	Jeff White
Address: 1500 Iowa Avenue, Suite 200	18401 Van Buren Boulevard
	Riverside, CA 92508
Telephone: 951-781-9310	
Fax/Email:	mr.jeffwhite@wcss.org

Scoping & Study Fees:

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

- 1) Scoping Agreement Fee (For all projects not screened from analysis): **\$271.00**
- 2) TIA Review (For projects with both LOS & VMT analysis of any scale, or standalone LOS analyses with over 100 vehicle trips per hour): **\$2671.02**
- 3) TIA Review (For standalone VMT analysis, or standalone LOS analyses with under 100 vehicle trips per hour): **\$1288.20**



Public Works Department

City of Arts & Innovation

Trip Generation Information:

Trip Generation Data Source: Survey Counts

Current General Plan Land Use:

PF- Public Facilities and
MU-V - Mixed Use-Village

Proposed General Plan Land Use:

N/A

Current Zoning:

PF - SP Public Facilities/Specific Plan
(Orangecrest)
MU-V-S-2-X-15-SP Mixed Use-Village

Proposed Zoning:

N/A

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	396	302	698	172	131	303
PM Trips	172	131	303	79	130	209

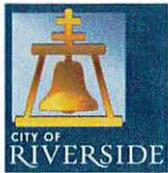
Trip Internalization: Yes No (% Trip Discount)

Pass-By Allowance: Yes No (% Trip Discount)

Potential Screening Checks

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

Is the project screened from LOS assessment? Yes No



Public Works Department

City of Arts & Innovation

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

Is the project screened from VMT assessment? Yes No

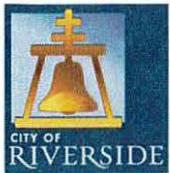
VMT screening justification (see Pages 23-25 of the guidelines): _____

Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution):

North	South	East	West
28 %	25 %	17 %	30 %

- Attach list of Approved and Pending Projects that need to be considered (provided by the lead agency and adjacent agencies)
- Attach list of study intersections/roadway segments
- Attach legible site plan
- Note other specific items to be addressed:
 - Site access
 - On-site circulation
 - Parking
 - ✓ Consistency with Plans supporting Bikes/Peds/Transit
 - ✓ Other Drop-off/Pick-up Circulation, Drop-off/Pick-up Zones. Speed Survey (Dauchy Avenue). Queuing Analysis for Dauchy Ave/Van Buren Blvd, Dauchy Ave/Krameria Ave, Dauchy/Project Driveways. Traffic signal warrant analysis at Dauchy Avenue-Ardenwood Ln/Project Driveway and Dauchy Ave/Krameria Avenue.
- Date of Traffic Counts See Attached Table D
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)



VMT Scoping

For projects that are not screened, identify the following:

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

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

1. Traffic signal sensitivity analysis along Dauchy Avenue for the intersection of Dauchy Avenue/Project Driveway 2-Ardenwood Lane.
2. Design details for each Project Driveways including turn restrictions and recommended improvements will be provided if necessary.
3. Discussion of all modes of transportation to school including walking, biking, bus, etc.
4. Identification of improvements at Van Buren Blvd/Dauchy Ave traffic signal to include continental crosswalks, audible pedestrian push buttons, pedestrian crossing restriction signs where appropriate, etc.

Analysis Scenarios

The LOS analysis for the proposed project will be prepared to meet the requirements of the City. The LOS analysis will address existing traffic conditions, future traffic forecasts, circulation deficiencies (if any), and circulation improvements. Therefore, LSA proposes to analyze a.m. and afternoon peak hour traffic operations at the study intersections for the following five scenarios:

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

The existing conditions volumes will be developed by comparing historical counts with recent counts collected during the ongoing COVID-19 pandemic and adjusted accordingly. A growth rate will be applied to the historical counts. Per discussion with City staff, a growth rate of 2% per annum will be applied to the historical counts. The higher of the adjusted historical counts and existing counts will be used as the existing conditions volumes.

Existing Conditions Volume Development

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

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

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

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

For the afternoon peak hour historical counts were not available due to the operations of the school requiring an analysis of 2:00 a.m. – 4:00 p.m., COVID adjustments were made based on the volumes at the roadway segment on Van Buren Boulevard between Little Court and Dauchy Avenue.

A similar growth rate of 2 percent per annum was applied to the historical counts at the Van Buren Boulevard between Little Court and Dauchy Avenue roadway segment was applied to develop 2021 traffic volumes. As conservative approach, the higher of the two daily traffic volumes was considered as the traffic volumes under existing conditions.

WRCOG Screening VMT Assessment Tool

As per the City's *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*, projects can be screened out using the Western Riverside Council of Governments' (WRCOG's) VMT Screening Tool and by applying appropriate thresholds for the different land uses. Results from the VMT Screening Tool are included in Appendix A. As shown in Appendix A, the project does not lie within a Transit Priority Area. Additionally, the Traffic Analysis Zone (TAZ) in which the project is located has a higher VMT per capita and VMT per service population than the jurisdictional average. Though the TAZ has a lower VMT per employee compared to the jurisdictional average, it has a higher VMT per employee compared to the threshold stated in the City's TIA Guidelines, i.e. 15 percent below the current jurisdictional baseline VMT per employee. Therefore, the project cannot be screened out and will require a full VMT analysis.

TABLES

Table A - Project Trip Generation

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

Notes:

STU = Students

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

Table B - Cumulative Projects

Project No.	Project Name	Address	Project Description	Building Total Square Feet/Dwelling Units/Other
R1	P18-0255	17815 Van Buren Blvd	Commercial Building and Drive Thru	4.4 TSF
R2	P20-0372	18233 Van Buren Blvd	Commercial and Drive Thru	3.7 TSF Retail, 2.4 TSF Drive-Thru Restaurant
R3	P13-0263	18171 Van Buren Blvd	Van Buren Village	11 TSF Daycare, 10 TSF Office, 8 TSF MOB, 10.7 TSF Retail, 2.4 TSF Fast Food Drive Thru, 2.6 TSF Coffee Shop, 3.8 TSF Fast Casual Restaurant
R4	P19-0042	18451 Van Buren Blvd	Denny's Restaurant and Office Building	4.3 TSF High Turn Over Restaurant, 9.9 TSF Office
R5	P17-0688	18806 Van Buren Blvd	Automated Car Wash	5.4 TSF
R6	P20-0385	18875 Lurin Ave	Tentative Tract Map 37733 - Single Family Residential	40 DU
R7	PR-2021-001053	Wood Rd/Krameria Ave	Tentative Tract Map 38094 - Single Family Residential	72 DU
R8	P20-0018	19331 Lurin Ave	Tract Map - Residential	138 DU
R9	R19-0151	8719 Trautwein Rd	Health and Fitness Center	21.7 TSF
R10	P19-0022	19260 Van Buren Blvd	Panera Bread with Drive Thru	4.3 TSF
C1	PAR210018	16261 Washington St	Market, Retail Shop, and Two Fast Food Restaurant with Drive Thru	45.4 TSF Market, 5 TSF Shop, 3.0 TSF Shop, 2.5 TSF Fast Food, 3.5 TSF Fast Food
C2	PAR200001	16935 Van Buren Blvd	Pre-Application Review - Fast Food Drive Thru	2.1 TSF Fast Food, 2.6 TSF Fast Food
C3	PM37101	17220 Washington St	Tentative Parcel Map - Residential	4 DU
C4	CUP180016	South of Van Buren Blvd between Washington St and Gardner Ave	Retail Commercial Building	18.8 TSF
C5	PAR200047	17010 Washington St	Pre-Application Review - Residential	140 DU
C6	CUP03766	16270 Gardner Ave	Car Wash with Office	4.8 TSF
C7	CUP170002	17333 Van Buren Blvd	Storage Yard with Office	4.4 TSF Storage Garage, 0.6 TSF Office
C8	TR36763	Northwest Corner of Roberts Rd and Kross Rd	Tract Map - Residential	24 DU
C9	PPT180002	Northeast Corner of Gamble Ave and Van Buren Blvd	Drive Thru Restaurant	2.1 TSF
C10	PM37340	15600 Chicago Ave	Tentative Parcel Map - Residential	2 DU
C11	PAR210156 PM37402	15701 Chicago Ave	Pre-Application Review - Residential	273 DU
C12	CUP190021	Northeast Corner of Chicago Ave and Van Buren Blvd	Gas Station with Convenience Store and Car Wash	16 FP, 3.8 TSF Convenience Store, and 1.7 TSF Car Wash
C13	PP26337	Northeast Corner of Eastern Terminus of Iris Ave	Child Day Care Center with Classrooms and Office	6.5 TSF/48 Children Daycare
C14	PPT210010	18494 Van Buren Rd	Drive Thru Restaurant	3 TSF
C15	TPM38026	17140 Parsons Rd	Tentative Parcel Map Division	2 DU
C16	TTM37594	Northeast Corner of Parsons Rd and Nandina Ave	Tentative Tract Map - Residential Division	5 DU
C17	PP25382	Southeast Corner of Barton St and Van Buren Blvd	Commercial Office	10.3 TSF
J1	March Business Center	Southeast of Barton St and Van Buren Blvd	Meridian South Campus: March JPA SP-1	Office 388 TSF, Commercial 221 TSF, Grocery Store 61 TSF, Business Park 1,764 TSF, High Cube Warehouse 800 TSF, High Cube Cold Storage Warehouse 700 TSF, Warehouse 274 TSF, Amazon 1,000 TSF, Parcel Delivery 1,000 TSF, Warehousing 500 TSF, Commercial 13.9 TSF

Notes:

DU = Dwelling Units; TSF = Thousand Square Feet

Table C - Roadway Segments

Roadway	#	Segment	Jurisdiction
Van Buren Boulevard	1	Between Little Court and Dauchy Avenue	Riverside
Dauchy Avenue	2	Between Van Buren Boulevard and Ardenwood Lane	Riverside
	3	Between Ardenwood Lane and Hawksbury Drive	Riverside

Table D - Traffic Count Dates

Intersections	Date of Historical Counts	Date of Current Counts
1. Washington St/Van Buren Blvd	2/15/2018	11/18/2021
2. Chicago Ave – Alta Cresta Ave/Van Buren Blvd	2/15/2018	11/18/2021
3. Van Buren Village Driveway/Van Buren Blvd (Future Intersection)	N/A	N/A
4. Little Ct/Van Buren Blvd	N/A	11/18/2021
5. Ridgeway Ave/Van Buren Blvd	N/A	11/18/2021
6. Dauchy Ave/Van Buren Blvd	2/15/2018	11/18/2021
7. Dauchy Ave/School Driveway 2 – Ardenwood Ln	Not Available	10/14/2021, 10/19/2021
8. Dauchy Ave – Taft St/Krameria Ave	Not Available	11/18/2021
9. Wood Rd/Van Buren Blvd	2/15/2018, 8/20/2019	11/18/2021
10. Bountiful St/Van Buren Blvd	Not Available	11/18/2021
11. Trautwein Rd/Mission Grove Pkwy	8/20/2019	11/18/2021
12. Trautwein Rd/John F Kennedy Dr	8/20/2019	11/18/2021
13. Trautwein Rd/Grove Community Dr	Not Available	11/18/2021
14. Trautwein Rd/Orange Terrace Pkwy	8/20/2019	11/18/2021
15. Trautwein Rd/Shopping Center Driveway	Not Available	11/18/2021
16. Trautwein Rd/Van Buren Blvd	2/15/2018, 8/20/2019	11/18/2021
17. Shopping Center Driveway/Van Buren Blvd	Not Available	11/18/2021
18. Barton St/Van Buren Blvd	8/20/2019	11/18/2021
19. School Driveway 1/Van Buren Blvd	Not Available	10/14/2021, 10/19/2021
20. Dauchy Ave/School Driveway 3	Not Available	10/14/2021, 10/19/2021
21. Dauchy Ave/School Driveway 4	Not Available	10/14/2021, 10/19/2021
22. Dauchy Ave/School Driveway 5	Not Available	10/14/2021, 10/19/2021

Segments	Date of Historical Counts	Date of Current Counts
1 - Van Buren Blvd – between Little Ct and Dauchy Ave	3/27/2019	11/18/2021
2 - Dauchy Ave – between Van Buren Blvd and Ardenwood Ln	Not Available	11/18/2021
3 - Dauchy Ave – between Ardenwood Ln and Hawksbury Dr	Not Available	11/18/2021

FIGURES