Received
4/24/2025

TRAFFIC IMPACT

Transportation approves this TIA contingent on the following assumptions

- School staffing numbers remain as stated in this submittal
-Staggered student arrivals will occur as stated
-School will not increase enrollment beyond 100 students

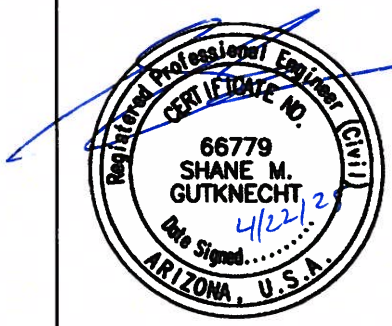
SOUTHWEST TRAFFIC ENGINEERING, LLC

TRAFFIC IMPACT ANALYSIS

SAHUARO GLEN ACADEMY

65TH AVENUE/ALICE AVENUE

REVISED 22 APRIL 2025
REVISED 31 MARCH 2025
REVISED 13 JANUARY 2025
5 APRIL 2024



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Capacity Calculations
Crash Analysis
Comment Resolution

Prepared By:
Andrew Smigielski, PE, PTOE, PTP
Shane Gutknecht, PE

SAHUARO GLEN ACADEMY
65TH AVENUE/ALICE AVENUE
REVISED TRAFFIC IMPACT ANALYSIS

Executive Summary

The purpose of this traffic study is to evaluate the current and future transportation system within the project study area surrounding the site without and with the proposed.

Existing Traffic Operations

All of the study intersections currently operate at an adequate Level of Service (LOS) during the weekday AM and PM peak hours.

Future Traffic Operations Without Project

The study intersections are all expected to continue to operate at an adequate LOS in 2026 without traffic from the project during the weekday AM and PM peak hours.

Future Traffic Operations With Project

All of the study intersections are expected to continue to operate at an adequate LOS in 2026 without and with traffic from the project during the weekday AM and PM peak hours.

Turn Lane Analysis

Inbound turn lanes are not expected to be warranted at GSL East Driveway or GSL South Driveway.

Crash Analysis

Crash history for the existing study intersections was obtained from ADOT from 1 January 2019 to 31 December 2023.

Thirty (30) crashes (six with injury) were reported at the intersection of Alice Avenue/67th Avenue within the five-year study period. Collisions involving left turns accounted for 50% of the total crashes, this is likely due to left turning vehicles misjudging the speed of oncoming traffic on 67th Avenue and accepting gaps in traffic too small to make the maneuver. Notably, a significant number (43%) of the vehicle incidents occurred in the year 2020. In the years 2023, 2022, 2021, and 2019 there were crashes per year at this intersection. The spike in crashes in 2020 may be attributed to irregular traffic patterns during the COVID-19 pandemic.

Four (4) crashes were reported at the intersection of Alice Avenue/65th Avenue.

No crashes were reported at the intersections of GSL East Driveway/Alice Avenue, GSL North Driveway/65th Avenue, GSL South Driveway/65th Avenue.

Due to the limited number of crashes at the study intersections within the study period, there is no observable crash pattern for the area.

SAHUARO GLEN ACADEMY
65TH AVENUE/ALICE AVENUE
REVISED TRAFFIC IMPACT ANALYSIS

Project Description

Bezos Academy is proposing a new Pre-School on the southwest corner of 65th Avenue/Alice Avenue in Glendale, Arizona. The vicinity of the project is shown in **Figure 1**. The site will be located as shown in **Figure 2**. The proposed development will be a 100 student Pre-School, served by five existing intersections.

The purpose of this traffic impact analysis is to:

- Evaluate the current and future operational characteristics of the adjacent roadway network surrounding the project site.
- Estimate the traffic generation associated with the project and assign that traffic to the existing roadway system.
- Analyze future traffic operations at five existing intersections.
- Determine the need for auxiliary (left and right turn) lanes at the driveways that will serve the project site.
- Perform a crash analysis to identify any specific crash trends within the study area.

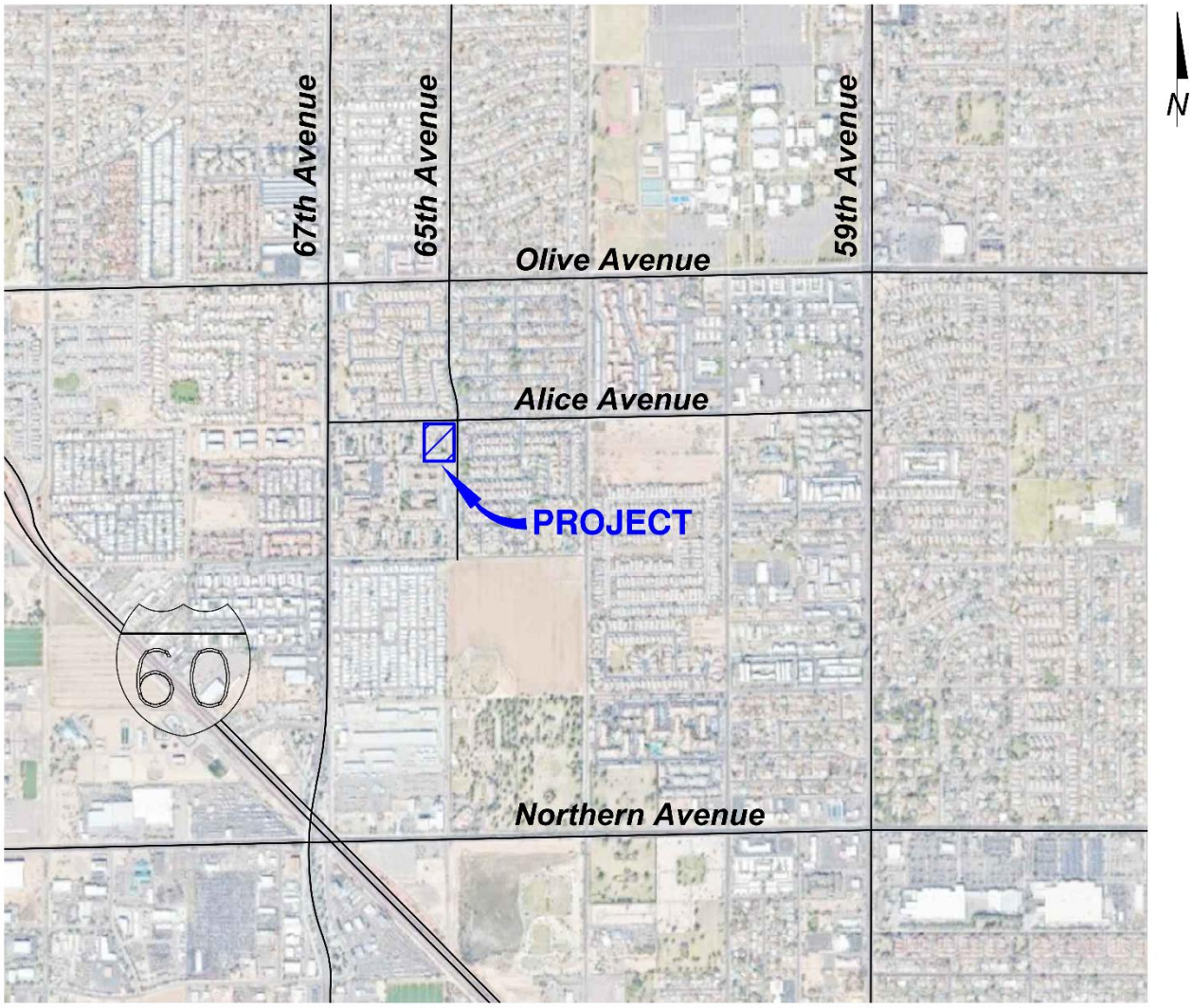
The author of this report is a registered Professional Engineer (Civil) in the State of Arizona having specific expertise and experience in the preparation of traffic impact analyses.

Study Methodology

In order to analyze and evaluate the potential traffic impacts of the proposed development, the following tasks were undertaken:

- Field observation of the proposed site and surrounding area was conducted to evaluate the existing physical and operational characteristics of the adjacent roadway network.
- Traffic volumes generated by the proposed site were estimated based site specific information provided by the operator of the site.
- Calculated site traffic was distributed based on existing traffic patterns and assigned to the primary roadways within the project study limits.
- Capacity analyses were performed for the existing conditions and future conditions without and with the project based on an opening year of 2026 a using methodology presented in the 2022 Highway Capacity Manual (HCM 7).
- The need for auxiliary turn lanes at the study driveways were evaluated based on Maricopa County Department of Transportation (MCDOT) guidelines.
- Crash records were obtained from the Arizona Department of Transportation (ADOT) database to identify any specific crash trends within the study area.

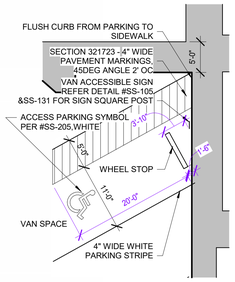
Figure 1 – Vicinity Map



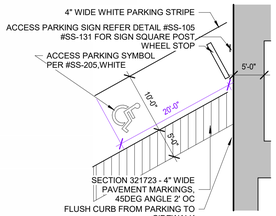
LEGEND:

= Existing Road

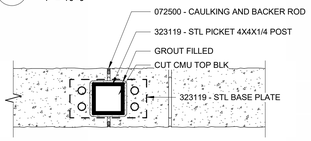
= Project Site



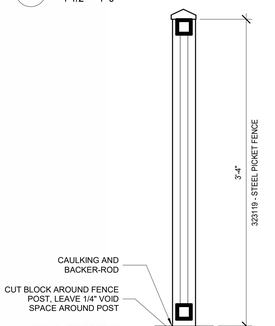
7 ADA PARKING -VAN ACCESSIBLE
1" = 10'-0"



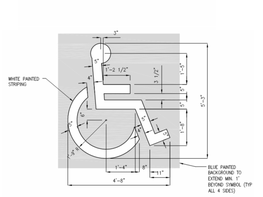
8 ADA PARKING
1" = 10'-0"



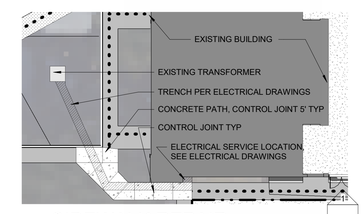
9 SITE WALL CONTROL JOINT (CJ) - TYP
1 1/2" = 1'-0"



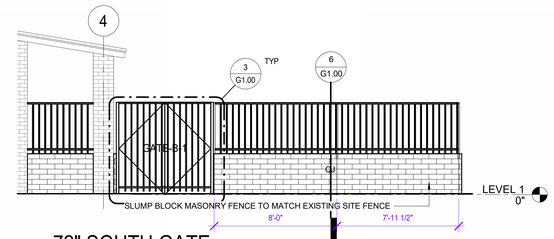
6 SITE WALL SECTION (TYP)
1 1/2" = 1'-0"



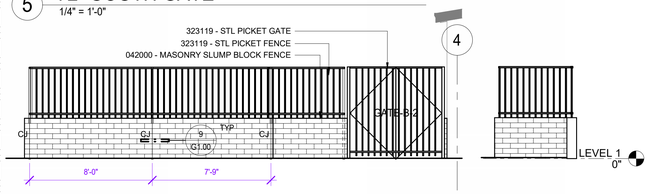
ACCESS PARKING SYMBOL



10 SIDEWALK REPAIR
1/16" = 1'-0"

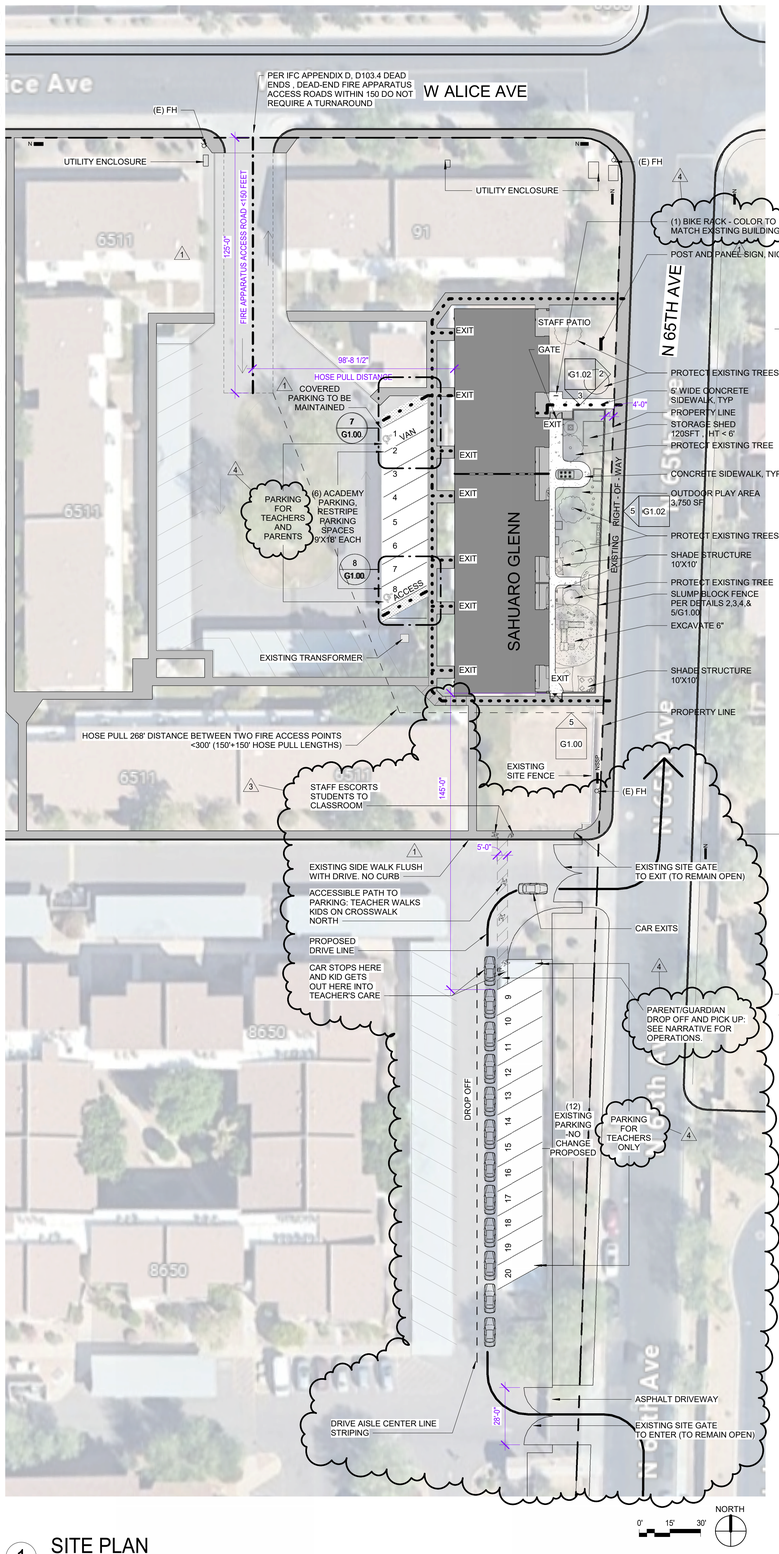


5 72" SOUTH GATE
1/4" = 1'-0"



3 72" NORTH GATE
1/4" = 1'-0"

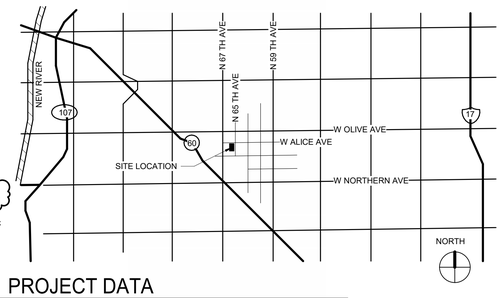
2 FENCE NORTH
1/4" = 1'-0"



1 SITE PLAN
1" = 30'-0"

4 FENCE EAST ELEVATION
1/4" = 1'-0"

VICINITY MAP



PROJECT DATA

PROJECT ADDRESS:	SAHUARO GLENN 6511 WEST ALICE AVENUE GLENDALE, AZ 85302
OWNER:	DAY 1 ACADEMIES 3040 78TH AVENUE SOUTHEAST, SUITE 1042 MERCER ISLAND, WA 98040 CONTACT: WOLFGANG HORN, PHONE 925-922-2268
PROPERTY OWNER:	GLENCROFT CENTER FOR MODERN AGING 8611 N 67TH AVE, GLENDALE, AZ 85302 GLENDALE, AZ 85302 CONTACT: JOHN THORNHAUER, PHONE 623-939-9475
ARCHITECT OF RECORD:	BASSETTI ARCHITECTS 71 COLUMBIA ST., #501 SEATTLE, WA 98104 CONTACT: SUSAN CONWAY, 206-340-9500
TAX PARCEL NO:	143-19-001M; 143-19-003A; 143-19-001L
LEGAL DESCRIPTION:	143-19-003A W 50F SE4 NW4 EX S 40F & EX RD P/D 15171-148 & EX ANY PT LY SLY OF FOL DESC LN COM W4 COR SEC 31 TH N 88D 32M E 1220.8F N 384F S 88D 9M W 543F TH N 1D 8M W 281.60F TO TPOB SD LN TH N 88D 51M E 549.87F TO TERM SD LN 143-19-001M SE4 NW4 SEC 31 DAF FR NW COR SE4 NW4 SD SEC E 50F TPOB TH E 65. 96F TH S 1320F M/L TH W 63.32F TH N 1320F TPOB EX S 40F & EX S 5X5 TRI IN SE COR & EX RD P/D 15171-148 & EX PT LY SLY OF FOL DESC LN COM W4 COR SEC 31 TH N 88D 32M E 1220.8F N 384F S 88D 9M W 543F N 1D 8M W 281.60F TO TPOB SD LN TH N 88D 51M E 549.87F TO TERM SD LN 143-19-001L N2 SW4 NW4 SEC 31 AKA N2 LOT 2 EX W 45F & EX N 30F & EX 10F X 10F TRI IN NW COR TH/OF & EX COM W4 COR SEC TH N ALG W LN SEC 935.08F TH N 88D 51M E 142.34F TH N 88D 37M E 384.19F TO TPOB TH CONT N 88D 37M E 142F TH S 1D 12M E 213.58F TH S 88D 51M W 142F TH N 1D 12M W 213.01F TO TPOB & EX P/D 15491-0629
JURISDICTION:	CITY OF GLENDALE, AZ
FIRE DISTRICT:	GLENDALE FIRE DEPARTMENT
SEWER DISTRICT:	GLENDALE SEWER SERVICES DEPARTMENT
WATER DISTRICT:	GLENDALE WATER SERVICES DEPARTMENT
CODES:	2018 IBC (International Building Code) 2018 IEBC (International Existing Building Code) 2018 IRC (International Residential Code) 2018 IMC (International Mechanical Code) 2018 IPC (International Plumbing Code) 2018 IECC (International Energy Code) 2018 IFGC (International Fuel Code) 2018 IFC (International Fire Code) 2017 NEC (National Electric Code) Americans With Disability Act Accessibility Guidelines Arizonans with Disabilities Act 2018 Americans with Disabilities Act Standards for Accessible Design 2018 IPMC (International Property Maintenance Code) City of Glendale Revised Sound Attenuation Standards Fair Housing Accessibility Guidelines
PROPOSED USE:	PRIVATE SCHOOL WITHOUT DORMITORIES
ZONING:	R-4, MULTIPLE RESIDENCE
OCCUPANCY GROUP:	E - EDUCATIONAL - PERMITED CONDITIONAL USE
BUILDING AREA :	7,719 SF

SITE PLAN LEGEND

- PROPERTY LINE
- EXISTING ACCESSIBLE PATH
- ACCESSIBLE PATH
- FIRE APPARATUS ACCESS ROAD
- CONCRETE SIDEWALK, TYP BROOM FINISH, TOOLED CONTROL JOINT EVERY 5'-0"
- (E) WATER LINE
- (E) SEWER LINE
- (E) LUMINAR
- (E) FIRE HYDRANT (FH)
- NSSP — NO STANDING/STOPPING/PARKING SIGN PER CITY OF GLENDALE TRANSPORTATION REFER DETAIL #SS-109 R7-101, R7-101L OR R7-101R

GENERAL SITE PLAN NOTES

a. Fire Department access and water supply requirements shall be in place prior to combustible materials being brought on site
b. Pursuant to Chapter 32.5 of the Glendale City Code, all new and existing utilities within or contiguous to this site shall be placed underground.
c. All utility boxes, vaults and backflow prevention devices shall be painted to match the building and screened from public view by a masonry wall or a round-topped wire mesh enclosure, painted to match the adjacent wall.
d. Sight distance requirements of COG detail G-447 (Local Streets) or G-448 (Arterial and Collector Streets) are met for all driveways and streets.
e. Streetlights installed by the developer may be required for construction plan approval.
f. On-site lighting will be placed so as to direct the light away from adjacent residential uses and must not exceed one-foot candle at the property line. The height of the parking lot lights within 150' of residential use to be 15'. High Pressure Sodium (HPS) lighting required adjacent to residence.
g. On-site lighting shall meet outdoor Light Control Ordinance.
h. Maximum noise level 55 decibels (normal speaking voice) at property line.
i. Convenience uses shall be subject to a separate Citizen Participation and Conditional Use Permit Process.
j. The property owner is responsible for maintaining landscaping in all public rights-of-way adjacent to the project.

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MECHANICAL ENGINEER
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1201 3rd Avenue, Suite 600
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T (206) 448 3376

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1201 3rd Avenue, Suite 600
Seattle, WA 98101
T (206) 448 3376

ONE INCH
AT FULL SIZE

#	REVISIONS	DATE
4	CUP RESPONSES	4/21/25
3	CUP RESPONSES	4/11/25
2	CUP RESPONSES	2/21/25
1	CUP RESPONSES	12/16/24

BEZOS ACADEMY

GLENDALE - SAHUARO GLENN

6511 WEST ALICE AVENUE
GLENDALE, AZ 85302

JOB NO: 2314
ISSUE DATE: APRIL 21, 2025

Jurisdiction Stamp Area

SR24-0217 CUP

ARCHITECTURAL SITE PLAN

G1.00

4/21/2025 3:46:32 PM

Existing Conditions

The proposed project involves the redevelopment of an existing building at the Glencroft Senior Living (GSL) facility on the southwest corner of 65th Avenue/Alice Avenue in Glendale, Arizona.

67th Avenue is a north/south aligned arterial roadway that provides two lanes in each direction of travel separated by a two-way center left turn lane. Curb, gutter, and sidewalk facilities are available on both sides of the roadway. The posted speed limit on 67th Avenue is 40 miles per hour (mph).

Alice Avenue is an east/west aligned collector street and 65th Avenue is a north/south aligned collector street. Both roads provide a single lane in each direction of travel. Curb, gutter, and sidewalk facilities are present on both sides of the roadway. The posted speed limit is 25 mph.

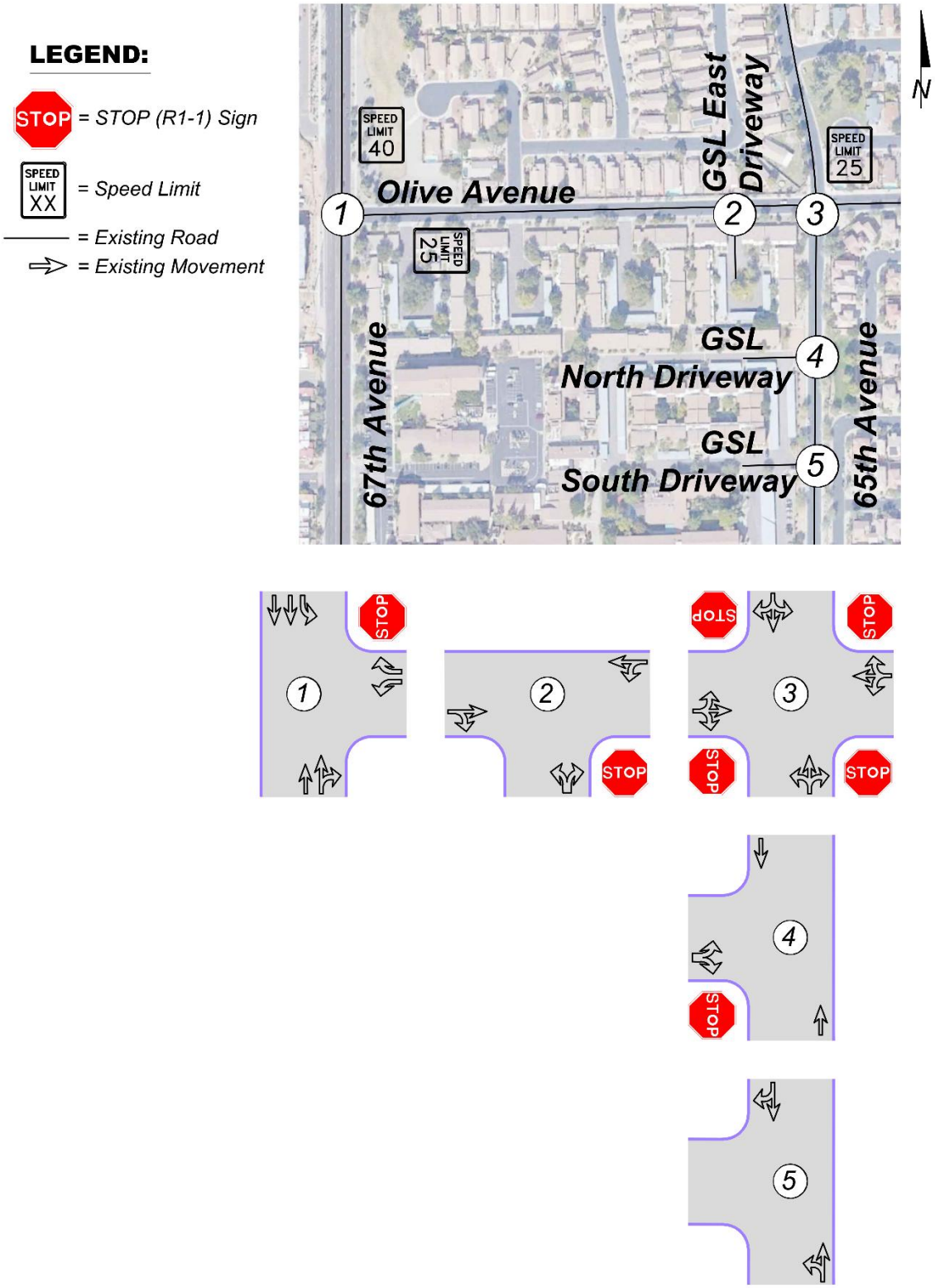
The intersection of Alice Avenue/67th Avenue is a three-leg unsignalized intersection. Westbound traffic approaching the intersection is STOP controlled. While pavement markings do not exist to delineate separate westbound left and westbound right turn lanes at the intersection, operationally it behaves in the same way. The east leg of the intersection is roughly 40 feet wide and when provided with that much pavement vehicles attempting to turn left and right tend to naturally separate into two queues. A separate westbound left and westbound right turn lane were modeled in analyses of this report. Northbound traffic is provided with a through lane and a shared through/right turn lane while southbound traffic makes use of a two-way center left turn lane and two through lanes.

Alice Avenue/65th Avenue forms a four-leg ALL WAY STOP controlled intersection. All approaches to the intersection are provided with a shared left/through/right turn lane.

The Glencroft Senior Living (GSL) community is accessed by multiple driveways on the south side of Alice Avenue and west side of 65th Avenue within the study area. This report will focus on three primary driveways that will facilitate access to the proposed project. The easternmost driveway on Alice Avenue, GSL East Driveway, is a full-access driveway located approximately 175 feet west of 65th Avenue. An exit only driveway (GSL North Driveway) and an entrance only driveway (GSL South Driveway) are located on the west side of 65th Avenue, approximately 325 feet and 650 feet south of Alice Avenue, respectively. Both GLS North Driveway and GSL South Driveway are gated.

The study intersection locations, lane configurations, and intersection control are shown in **Figure 3.**

Figure 3 – Existing Lane Configurations and Traffic Control



Existing Traffic Data

In order to form a basis for analysis of the project impacts, weekday AM and PM peak hour turning movement counts were conducted at the intersections of Alice Avenue/67th Avenue, Alice Avenue/65th Avenue, GSL East Driveway, GSL North Driveway, GSL South Driveway.

The weekday turning movement counts were conducted from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. All traffic counts were collected in March 2024 while school was in session. The results of the traffic counts are shown in **Figure 4**. Complete traffic count data can be found in the Appendix.

Access

The proposed project does not include the construction of new access points. Instead, it will utilize GSL East Driveway as the primary entrance to the proposed project, with the GSL North Driveway and GSL South Driveway designated as the main child drop-off and pick-up accesses.

GSL East Driveway will provide access to a parking area utilized by teachers, deliveries, and other non-student pick-up/drop-off traffic. Vehicles that enter at GSL East Driveway must also exit at GSL East Driveway as there will be no onsite connectivity to other driveways.

Vehicles entering the site to drop-off or pick-up a student will do so via GSL South Driveway. From there, parents will take an immediate right turn, and continue northbound, where teachers, or other traffic monitors, will be waiting to help children unload and escort them to their classroom. Drivers will remain in their vehicles and then exit the site after their children have been unloaded. Exiting vehicles will continue north and exit via GSL North Driveway. GSL North Driveway will be exit only and GSL South Driveway will be enter only during the peak hours and child drop-off and pick-up times.

Figure 5 shows the locations, geometry and spacing for the study intersections that will also serve as a baseline of analysis in 2026 with Sahuaro Glen Academy.

Figure 4 – Existing Weekday Peak Hour Traffic Volumes

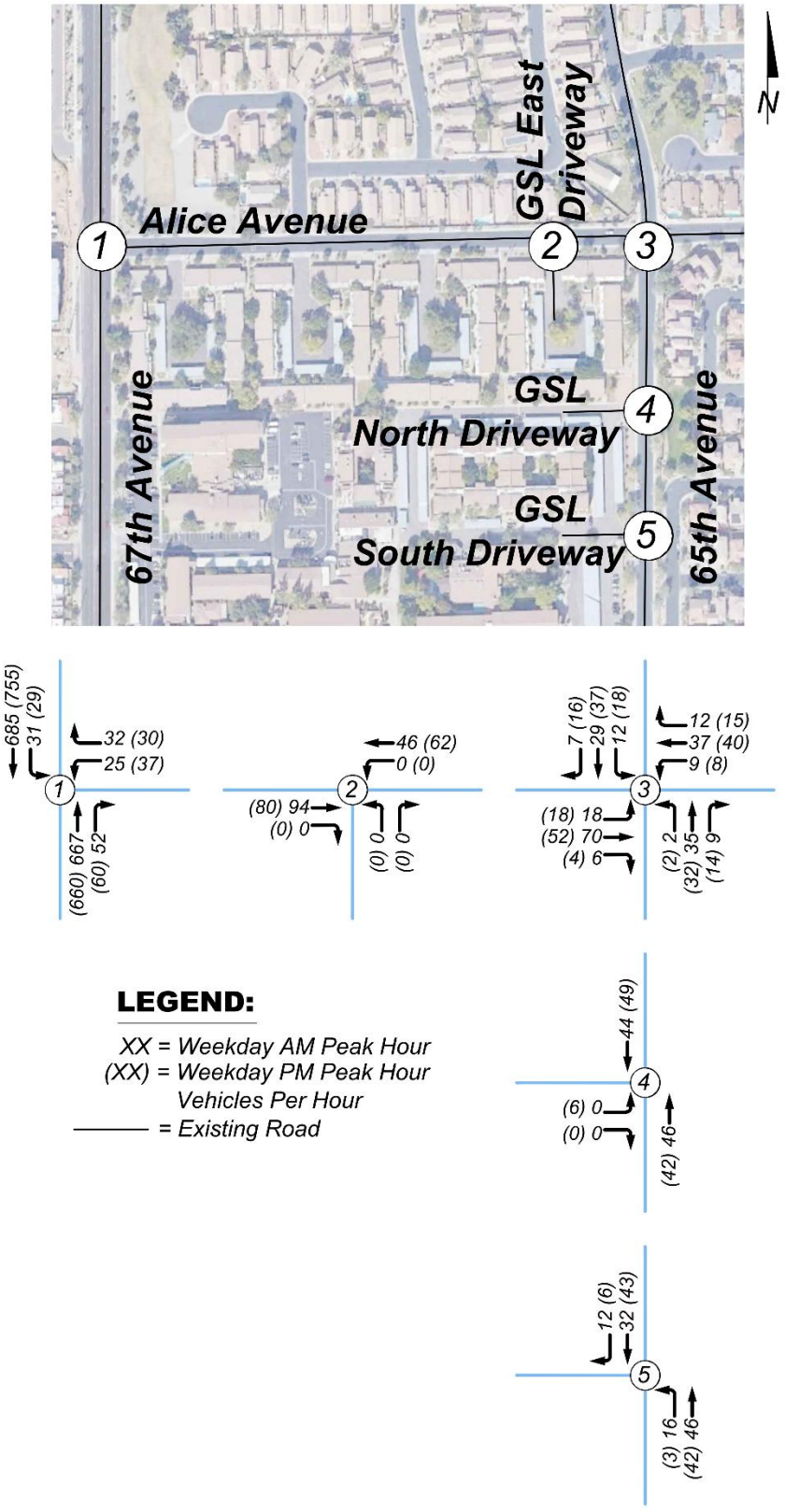
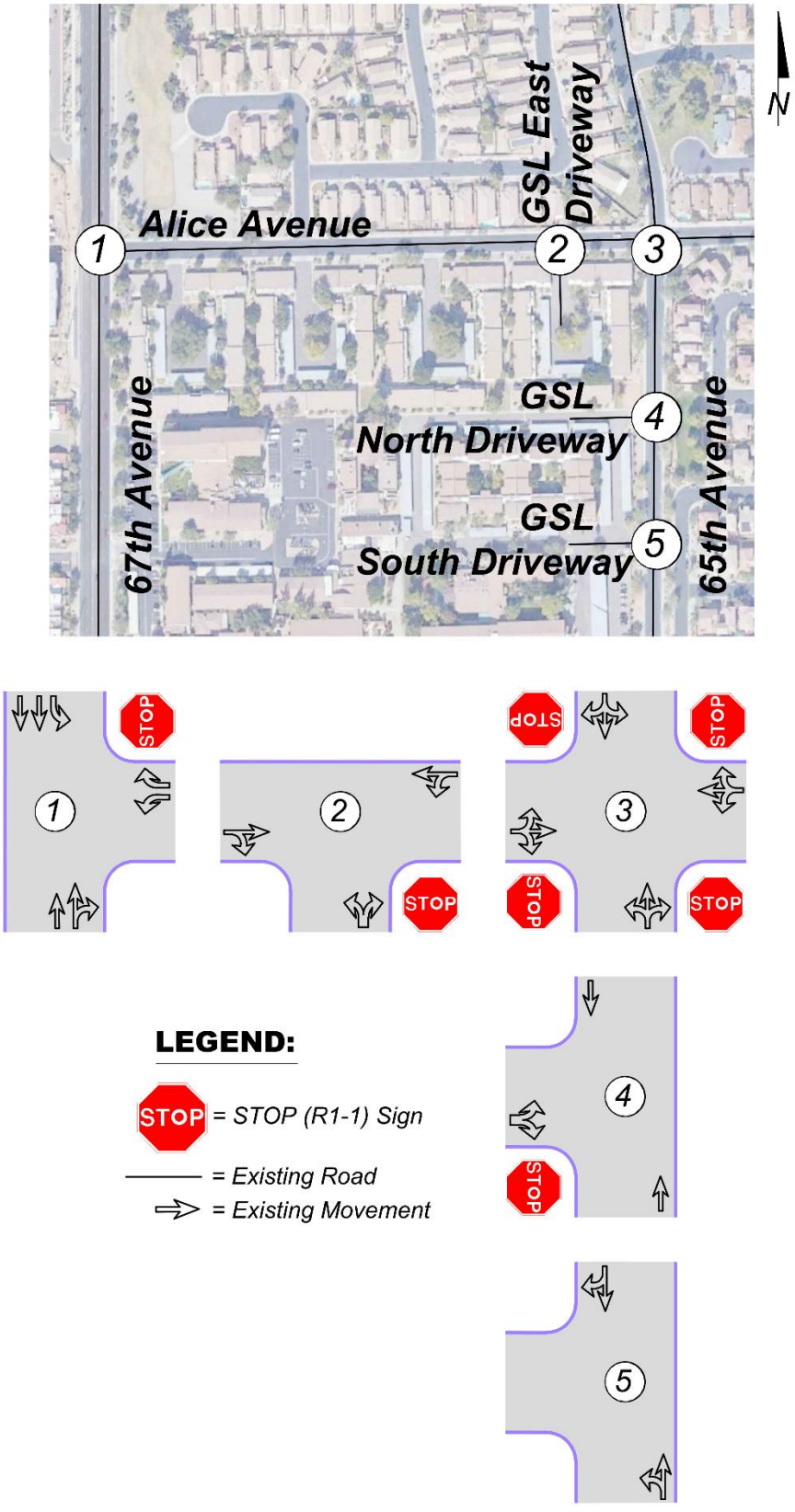


Figure 5 – Baseline Access Point and Intersection Configuration Assumptions



Trip Generation

Traffic volumes generated by the proposed site were estimated based site specific information provided by the operator of the site. The following data and assumptions were utilized:

- 100 students will be dropped off during the weekday AM peak hour. All of the vehicles associated with drop-off also exit during the weekday AM peak hour.
- 50 students will be picked up from aftercare during the weekday PM peak hour. All of the vehicles associated with aftercare pick-up also exit during the weekday PM peak hour.
- A carpool factor of 0.85 was utilized to account for siblings and students that do not arrive in separate vehicles.
- In order to provide a conservative analysis it was assumed that the school's 16 staff members would all arrive during the weekday AM peak hour and would all exit during the weekday PM peak hour. However, it is expected that most or all staff members will arrive/depart before and after the open hours of the academy (i.e. outside of the weekday AM/PM peak hours).
- 5 miscellaneous vehicles (vendors, maintenance, etc.) enter and exit during both the weekday AM and PM peak hours.

The result is the expected weekday trip generation for the project as shown in **Table 1**.

Table 1 – Site Generated Trips

Time Period	Day Care Center (LUC 565)
Average Daily, Inbound (vtpd)	392
Average Daily, Outbound (vtpd)	392
Total Daily	**784**
AM Peak Hour, Inbound (vtph)	106
AM Peak Hour, Outbound (vtph)	90
Total AM Peak	**196**
PM Peak Hour, Inbound (vtph)	48
PM Peak Hour, Outbound (vtph)	64
Total PM Peak	**112**

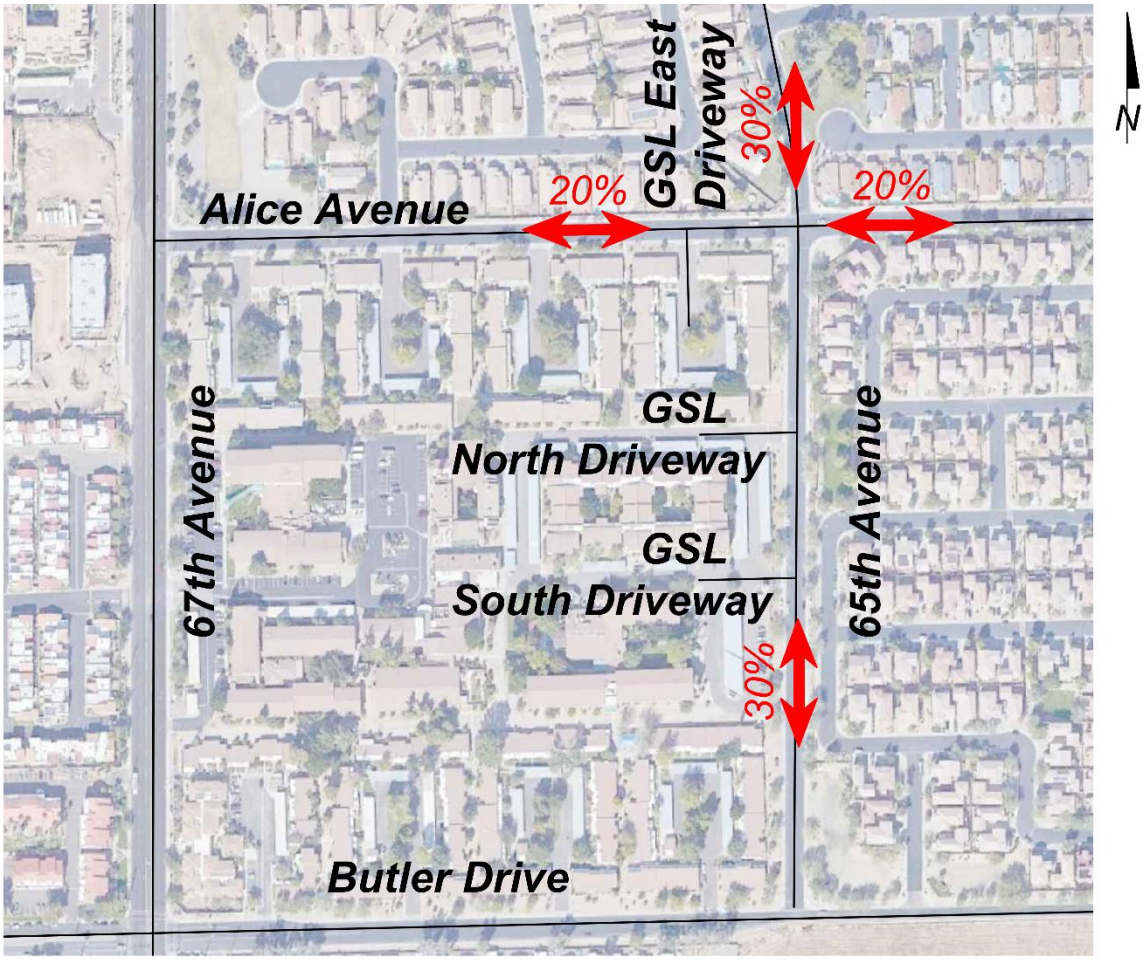
vtpd - vehicle trips per day, vtph - vehicle trips per hour

Trip Distribution & Assignment

Trip distribution for the project was based on existing traffic volume patterns near the proposed site. **Figure 6** shows the weekday trip distribution for the project as a percentage of net new primary trips.

Figure 7 shows the assignment of the new site generated trips to the project intersections within the study area.

Figure 6 – Weekday Peak Hour Trip Distribution

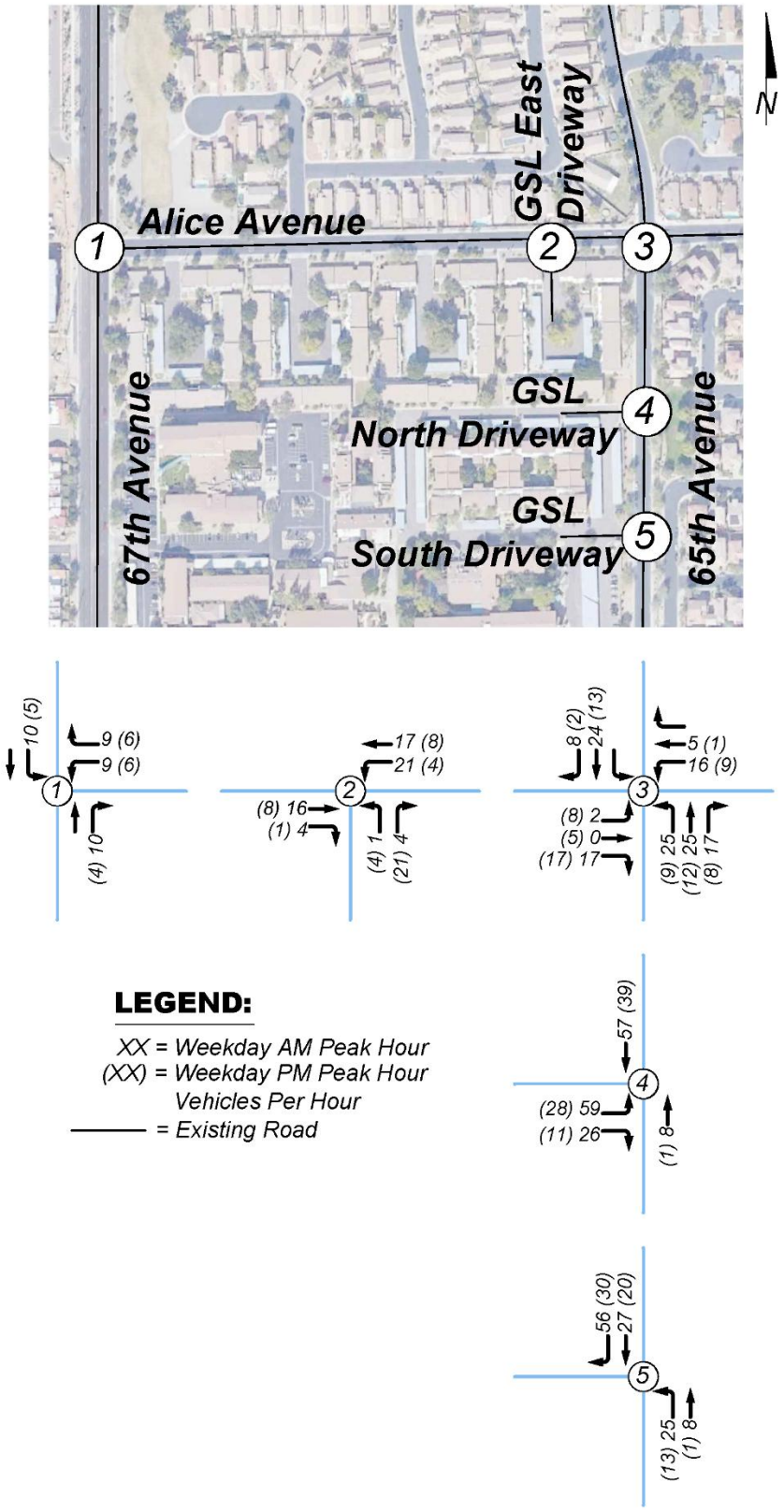


LEGEND:

= *Existing Road*

XX% = *Distribution of Vehicle Trips*

Figure 7 –Weekday Peak Hour Trip Assignment



Existing Traffic Operations

Analysis of current intersection operations was conducted for the weekday AM and PM peak hours using the nationally accepted methodology set forth in the *Highway Capacity Manual*, Transportation Research Board, 2022 (HCM 7). The computer software Synchro 12 was utilized to calculate the levels of service for individual movements and approaches.

LOS is a qualitative measure of the traffic operations at an intersection or on a roadway segment. Level of service is ranked from LOS A, which signifies little or no congestion and is the highest rank, to LOS F, which signifies congestion and jam conditions. LOS D is typically considered adequate operation at signalized and un-signalized intersections in developed areas.

At un-signalized intersections, level of service is predicted/calculated for those movements, which must either stop for or yield to oncoming traffic and is based on average control delay for the particular movement. Control delay is the portion of total delay attributed to traffic control measures such as stop signs and traffic signals. The criteria for level of service at un-signalized intersections are shown in **Table 2.**

Table 2 – Level of Service Criteria – Un-signalized Intersections

Level-of-Service	Delay
A	< 10 seconds/vehicle
B	> 10 and < 15 seconds/vehicle
C	> 15 and < 25 seconds/vehicle
D	> 25 and < 35 seconds/vehicle
E	> 35 and < 50 seconds/vehicle
F	> 50 seconds/vehicle

Table 3 shows the existing levels of service that were calculated for the study intersections. Complete capacity calculations are included in the Appendix.

As shown in **Table 3**, all the study intersections currently operate at an adequate LOS during the weekday AM and PM peak hours.

Table 3 – Existing Weekday Peak Hour Levels of Service

Intersection	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
Unsignalized Intersections				
Alice Avenue/67th Avenue				
Westbound Left	C	18.8	C	20.0
Westbound Right	B	11.4	B	11.4
Southbound Left	A	9.6	A	9.6
GSL East Driveway/Alice Avenue				
Westbound Left/Through	A	0.0	A	0.0
Northbound Left/Right	A	0.0	A	0.0
Alice Avenue/65th Avenue				
Eastbound Left/Through/Right	A	8.0	A	7.9
Westbound Left/Through/Right	A	7.6	A	7.7
Northbound Left/Through/Right	A	7.6	A	7.6
Southbound Left/Through/Right	A	7.7	A	7.8
GSL North Driveway/65th Avenue				
Eastbound Left/Right	A	0.0	A	9.1
GSL South Driveway/65th Avenue				
Northbound Left/Through	A	7.4	A	7.3

Delay - seconds per vehicle

Future Traffic Operations Without Project

In order to assess the impacts of the project on future traffic operations, traffic projections were made for the opening year of 2026. A review of Maricopa County historical traffic data in the vicinity of the project showed increasing and decreasing traffic volumes in the area. A 2% annual compounded traffic growth rate was used to estimate the future 2026 weekday peak hour traffic volumes without the project, as shown in **Figure 8**.

As with the current volumes, levels of service were calculated for each of the intersections in the study area for 2026 without the project. Intersection levels of service for 2026 without the project are shown in **Tables 4**. Complete capacity calculations are included in the Appendix.

As shown in **Table 4**, all the study intersections are expected to continue to operate at an adequate LOS in 2026 without traffic from the project during the weekday AM and PM peak hours.

Figure 8 – 2026 Weekday Peak Hour Traffic Volumes Without Project

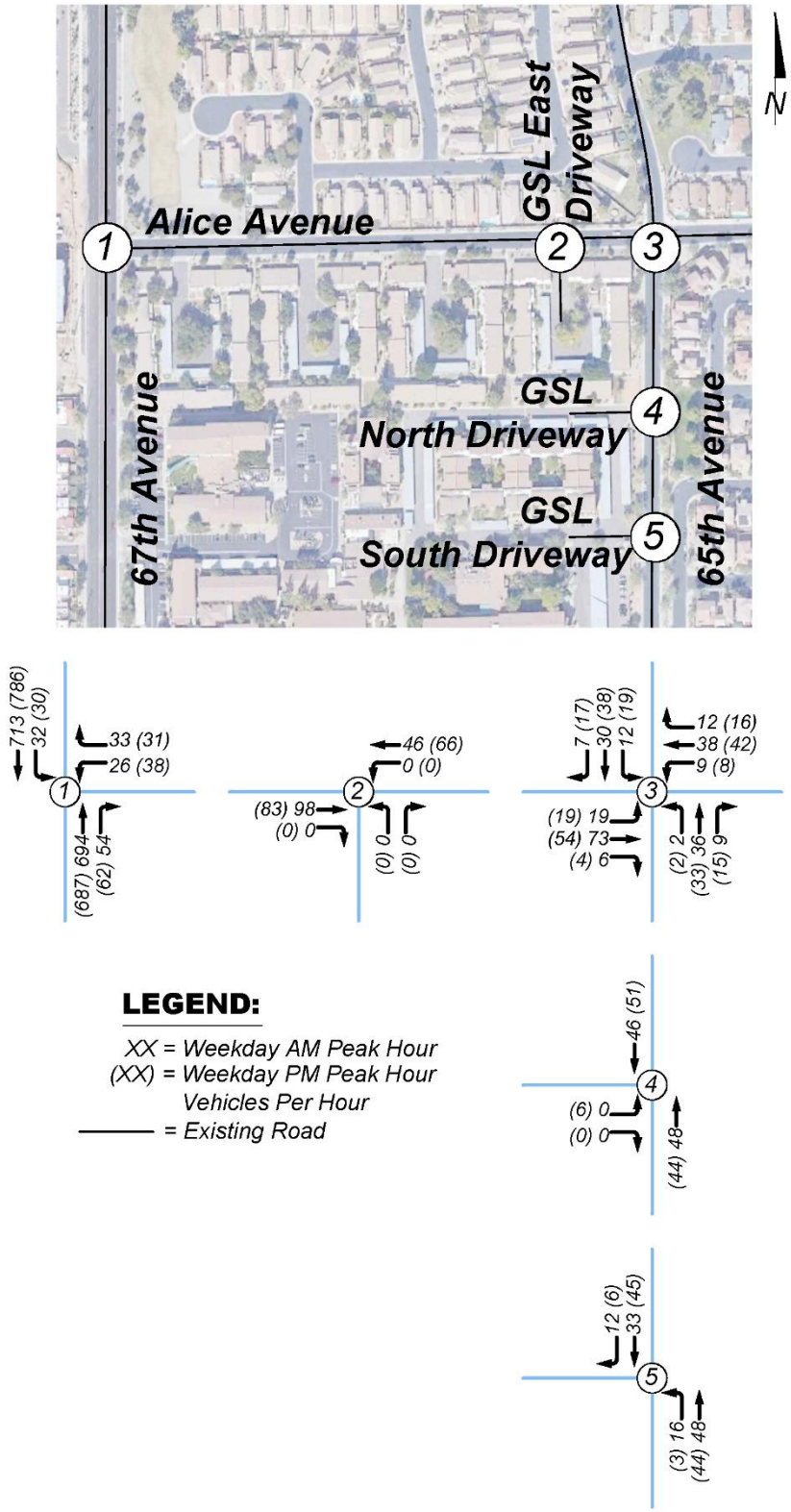


Table 4 – 2026 Weekday Peak Hour Levels of Service Without Project

Intersection	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
Unsignalized Intersections				
Alice Avenue/67th Avenue				
Westbound Left	C	19.2	C	20.3
Westbound Right	B	11.6	B	11.5
Southbound Left	A	9.7	A	9.7
GSL East Driveway/Alice Avenue				
Westbound Left/Through	A	0.0	A	0.0
Northbound Left/Right	A	0.0	A	0.0
Alice Avenue/65th Avenue				
Eastbound Left/Through/Right	A	7.9	A	7.8
Westbound Left/Through/Right	A	7.5	A	7.6
Northbound Left/Through/Right	A	7.6	A	7.5
Southbound Left/Through/Right	A	7.6	A	7.7
GSL North Driveway/65th Avenue				
Eastbound Left/Right	A	0.0	A	9.1
GSL South Driveway/65th Avenue				
Northbound Left/Through	A	7.3	A	7.3

Delay - seconds per vehicle

Future Traffic Operations With Project

In order to assess the impacts of the project on future traffic operations, levels of service were calculated for each project intersection in 2026 with the project. Weekday peak hour traffic volumes for 2026 without the project were combined with the estimated trips generated by the project to yield weekday peak hour traffic volumes with the project as shown in **Figure 9**. Weekday intersection levels of service for 2026 with the project were then calculated as shown in **Table 5**. Complete capacity calculations are included in the Appendix.

As shown in **Table 5**, all the study intersections are expected to continue to operate at an acceptable LOS in 2026 without and with traffic from the project during the weekday AM and PM peak hours.

Figure 9 - 2026 Weekday Peak Hour Traffic Volumes With Project

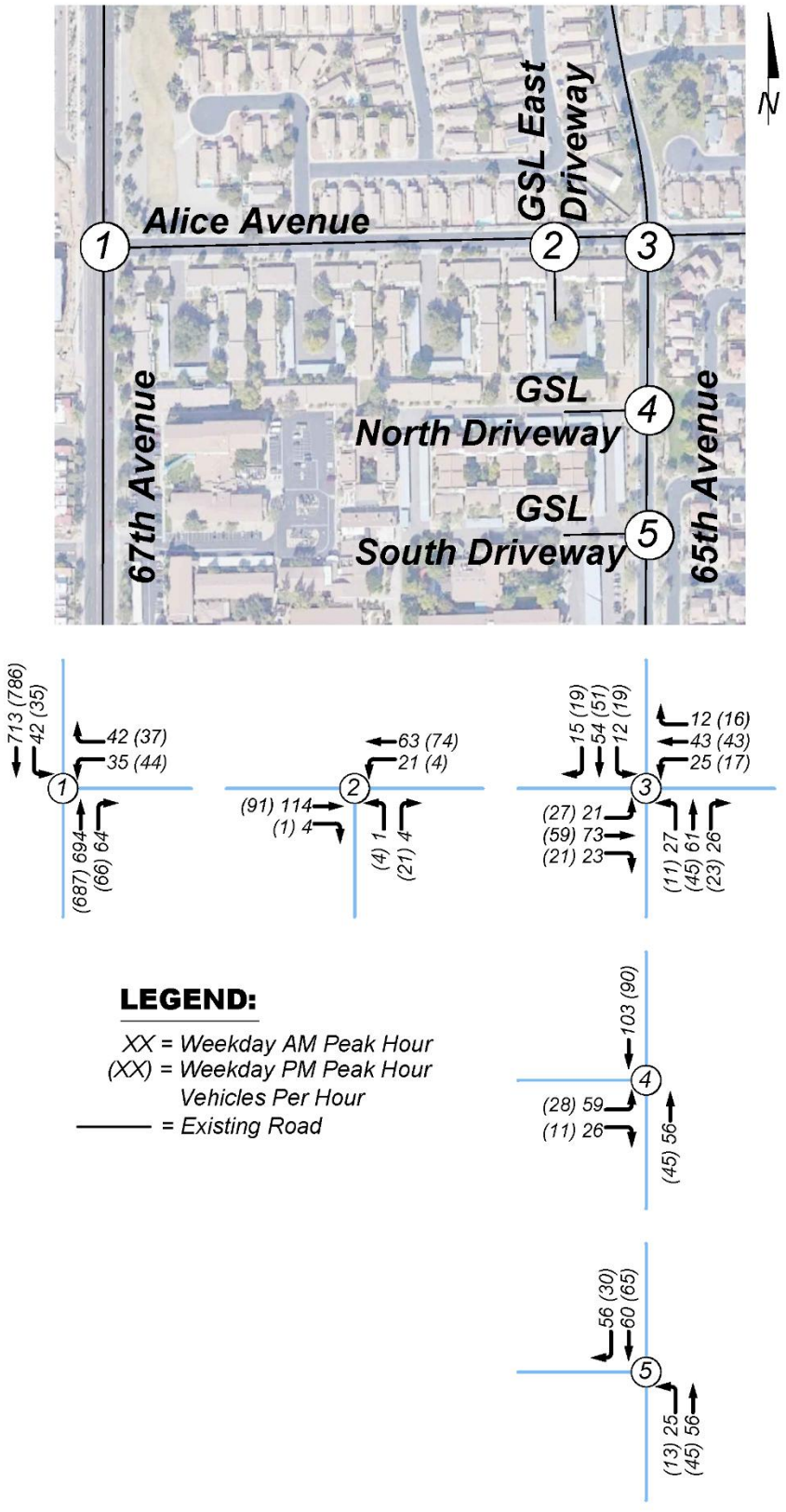


Table 5 – 2026 Weekday Peak Hour Levels of Service With Project

Intersection	2025 Without Project				2025 With Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Unsignalized Intersections								
Alice Avenue/67th Avenue								
Westbound Left	C	19.2	C	20.3	C	20.3	C	21.0
Westbound Right	B	11.6	B	11.5	B	11.7	B	11.6
Southbound Left	A	9.7	A	9.7	A	9.8	A	9.8
GSL East Driveway/Alice Avenue								
Westbound Left/Through	A	0.0	A	0.0	A	7.6	A	7.4
Northbound Left/Right	A	0.0	A	0.0	A	9.2	A	9.0
Alice Avenue/65th Avenue								
Eastbound Left/Through/Right	A	7.9	A	7.8	A	8.3	A	8.1
Westbound Left/Through/Right	A	7.5	A	7.6	A	8.2	A	7.9
Northbound Left/Through/Right	A	7.6	A	7.5	A	8.3	A	7.9
Southbound Left/Through/Right	A	7.6	A	7.7	A	8.1	A	8.0
GSL North Driveway/65th Avenue								
Eastbound Left/Right	A	0.0	A	9.1	B	10.3	A	9.5
GSL South Driveway/65th Avenue								
Northbound Left/Through	A	7.3	A	7.3	A	7.7	A	7.5

Delay - seconds per vehicle

Turn Lane Analysis

A key element of this analysis is to determine if left and right turn lanes are required at the driveways providing access to the proposed project site. The City of Glendale utilizes Maricopa County Department of Transportation turn lane warrant criteria. Turn lane warrant criteria from the *MCDOT Roadway Design Manual updated March 2024* (MCDOT RDM) are shown in **Tables 6** and **7**.

Tables 8 and **9** show the locations that were evaluated for left and right turn lanes based on MCDOT guidelines and traffic volumes in 2026 with the project.

As shown in **Table 8** and **9**, inbound turn lanes at GSL East Driveway and GSL South Driveway are not warranted.

Table 6 – MCDOT Left Turn Lane Warrant at Driveways

Peak Hour Traffic Volume on the Roadway in Advancing Direction	Minimum Peak Hour Left-Turn Traffic Volume			
	# of thru lanes per direction			
	1		2	
	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed
≤ 200	30	15	-	-
201 -300	12	12	40	30
301 – 400	12	12	30	25
401 – 500	12	12	25	18
501 – 600	12	12	15	12
601 – 1000	12	12	10	8
1000 +	12	8	10	8

Table 7 – MCDOT Right Turn Lane Warrant at Driveways

Peak Hour Traffic Volume on the Highway in Advancing Direction	Minimum Peak Hour Right-turn Traffic Volume				
	# of thru lanes per direction				
	1		2		3
	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	All Speeds
≤ 200	-	-	-	-	-
201 -300	-	30	-	-	-
301 – 400	-	19	-	55	-
401 – 500	85	14	-	30	-
501 – 600	58	12	140	25	-
601 – 700	27	9	80	18	-
701 – 800	20	8	53	15	-
801 – 900	12	7	40	12	-
901 – 1000	9	6	30	11	-
1001 – 1100	8	5	23	9	18
1101 - 1200	7	5	18	8	16
1201 – 1300	6	4	14	8	15
1301 – 1400	6	4	11	6	12
1400 +	5	3	8	6	10

Table 8 – Left Turn Lane Warrant Evaluation at Driveways

Intersection	Direction	# of Through Lanes per Direction	Posted Speed (mph)	Peak Hour	Advancing Traffic Volume (vph)	Left-Turn Volume (vph)	Minimum Left-Turn Volume Criteria (vph)	Left Turn Treatment Warranted?
GSL East Driveway/Alice Avenue	Westbound	1	25	AM	63	21	30	No
				PM	74	4	30	
GSL South Driveway/65th Avenue	Northbound	1	25	AM	56	25	30	No
				PM	45	13	30	

vph - vehicles per hour, mph - miles per hour

Table 9 – Right Turn Lane Warrant Evaluation at Driveways

Intersection	Direction	# of Through Lanes per	Posted Speed (mph)	Peak Hour	Advancing Traffic Volume	Right-Turn Volume	Minimum Right-Turn Volume	Right Turn Treatment Warranted?
GSL East Driveway/Alice Avenue	Eastbound	1	25	AM	114	4	N/A*	**No**
				PM	91	1	N/A*	
GSL South Driveway/65th Avenue	Southbound	1	25	AM	60	56	N/A*	**No**
				PM	65	30	N/A*	

vph - vehicles per hour, mph - miles per hour

*Advancing through traffic volumes are not high enough to warrant a turn lane.

Crash Analysis

Crash history for the existing study intersections was obtained from ADOT from 1 January 2019 to 31 December 2023. The results of the crash analysis at the intersections of Alice Avenue/67th Avenue, Alice Avenue/65th Avenue, GSL East Driveway, GSL North Driveway, GSL South Driveway are shown in **Tables 10** and **11**. A summary of the crash data can be found in the Appendix.

Table 10 – Crash Analysis at Alice Avenue/67th Avenue

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2019	1	2	0	1	0	0	0	0	0	4
2020	1	6	4	2	0	0	0	0	1	13
2021	1	2	0	0	0	0	0	0	1	3
2022	0	1	1	0	0	0	0	0	1	2
2023	1	4	1	1	1	0	0	0	3	8
5-Year Total	**4**	**15**	**6**	**4**	**1**	**0**	**0**	**0**	**6**	**30**

Table 11 – Crash Analysis at Alice Avenue/65th Avenue

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2019	1	2	0	0	0	0	0	0	0	3
2020	0	1	0	0	0	0	0	0	0	1
2021	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0
5-Year Total	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**

As shown in **Table 10**, thirty (30) crashes (six with injury) were reported at the intersection of Alice Avenue/67th Avenue within the five-year study period. Collisions involving left turns accounted for 50% of the total crashes, this is likely due to left turning vehicles misjudging the speed of oncoming traffic on 67th Avenue and accepting gaps in traffic too small to make the maneuver. Notably, a significant number (43%) of the vehicle incidents occurred in the year 2020. In the years 2023, 2022, 2021, and 2019 there were crashes per year at this intersection. The spike in crashes in 2020 may be attributed to irregular traffic patterns during the COVID-19 pandemic.

As shown in **Table 11**, four (4) crashes were reported at the intersection of Alice Avenue/65th Avenue.

Crashes were not reported at the intersections of GSL East Driveway/Alice Avenue, GSL North Driveway/65th Avenue, GSL South Driveway/65th Avenue.

Due to the limited number of crashes at the study intersections within the study period, there is no observable crash pattern for the area.

It should be noted that this crash summary only includes crashes where a police officer was contacted and wrote a report, otherwise, there is no record of the incident. It is possible that other minor crashes occurred in the area where the Police Department was not contacted, and no official record of these crashes exists.

Conclusion

When fully completed, the proposed Sahuaro Glen Academy is predicted to generate an additional 784 vehicle trips per day (vtpd) on weekdays to the adjacent street system from the new project site. Fifty percent of these new trips (392 vehicle trips) will be into the project and fifty percent will be out of the project.

All the study intersections currently operate at an adequate LOS during the weekday AM and PM peak hours and are anticipated to continue operating at an adequate LOS during the weekday AM and PM peak hours in 2026 without and with the proposed project.

Inbound turn lanes are not expected to be warranted at GSL East Driveway or GSL South Driveway.

Thirty (30) crashes (six with injury) were reported at the intersection of Alice Avenue/67th Avenue within the five-year study period. Collisions involving left turns accounted for 50% of the total crashes, this is likely due to left turning vehicles misjudging the speed of oncoming traffic on 67th Avenue and accepting gaps in traffic too small to make the maneuver. Notably, a significant number (43%) of the vehicle incidents occurred in the year 2020. In the years 2023, 2022, 2021, and 2019 there were crashes per year at this intersection. The spike in crashes in 2020 may be attributed to irregular traffic patterns during the COVID-19 pandemic.

Four (4) crashes were reported at the intersection of Alice Avenue/65th Avenue.

No crashes were reported at the intersections of GSL East Driveway/Alice Avenue, GSL North Driveway/65th Avenue, GSL South Driveway/65th Avenue.

Due to the limited number of crashes at the study intersections within the study period, there is no observable crash pattern for the area.

Proposed lane configurations and traffic control are shown in **Figure 10**.