

TOWN OF APPLE VALLEY

MULTI-FAMILY RESIDENTIAL DEVELOPMENT PROJECT TRAFFIC IMPACT ANALYSIS

OCTOBER 2020

Prepared for:

BM Investments Company

606 S. Riverside Avenue

Rialto, CA 92376-7030

(909) 990-0562

Prepared By:



2141 W. Orangewood Avenue

Orange, CA 92868

T: 714.573.0317 | F: 714.573.9584

www.koacorp.com

JC03099



October 29, 2020

Ms. Barbara Monroy
BM Investments Company
606 S. Riverside Avenue
Rialto, CA 92376-7030

Subject: Traffic Impact Analysis Report for the Proposed Multi-family Residential Development Project in the Town of Apple Valley

Dear Ms. Monroy:

KOA Corporation is pleased to present this focused traffic impact analysis report for the proposed multi-family residential development project in the Town of Apple Valley. This report documents the existing traffic conditions and demands within the study area along with project-related traffic analysis and findings.

The traffic analysis has been prepared to meet the traffic impact analysis requirements from the Town of Apple Valley. The report is being submitted to you for review and submittal. Please contact our office if you have any questions or comments about the report, or if you need additional information. If there are any comments that require response or revisions, please notify our office as soon as possible for prompt revision.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Bise'.

Stephen Bise, PE

Vice President | Operations Manager

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1.0 INTRODUCTION & ANALYSIS METHODOLOGY

PROJECT DESCRIPTION

BM Investments Company is proposing a multi-family residential development project in the Town of Apple Valley. The proposed project is located at the northwest corner of Navajo Road and Sandia Road. The project includes 208 multi-family residential dwelling units on approximate 231,080 square feet. The total square footage of the project site is approximately 32.19 acres. Currently the project site is vacant.

Figure 1.1 shows the project vicinity map and study intersections. Figure 1.2 shows the project site plan.

PROJECT STUDY AREA

Study intersections were identified as those that may potentially be impacted by the proposed project. The intersection analysis of potential project traffic impacts examined weekday conditions during the morning (AM) and afternoon (PM) peak hours for a total of three study intersections.

The study area includes the following three intersections:

1. Navajo Road and Bear Valley Road (signalized)
2. Navajo Road and Sandia Road (unsignalized)
3. Mohawk Road and Sandia Road (unsignalized)

Additionally, the following project driveway locations were evaluated for access, circulation, and potential traffic conflicts with traffic from Apple Valley High School:

4. North Project Driveway and Navajo Road (unsignalized)
5. South Project Driveway and Navajo Road (unsignalized)

STUDY TIMEFRAMES

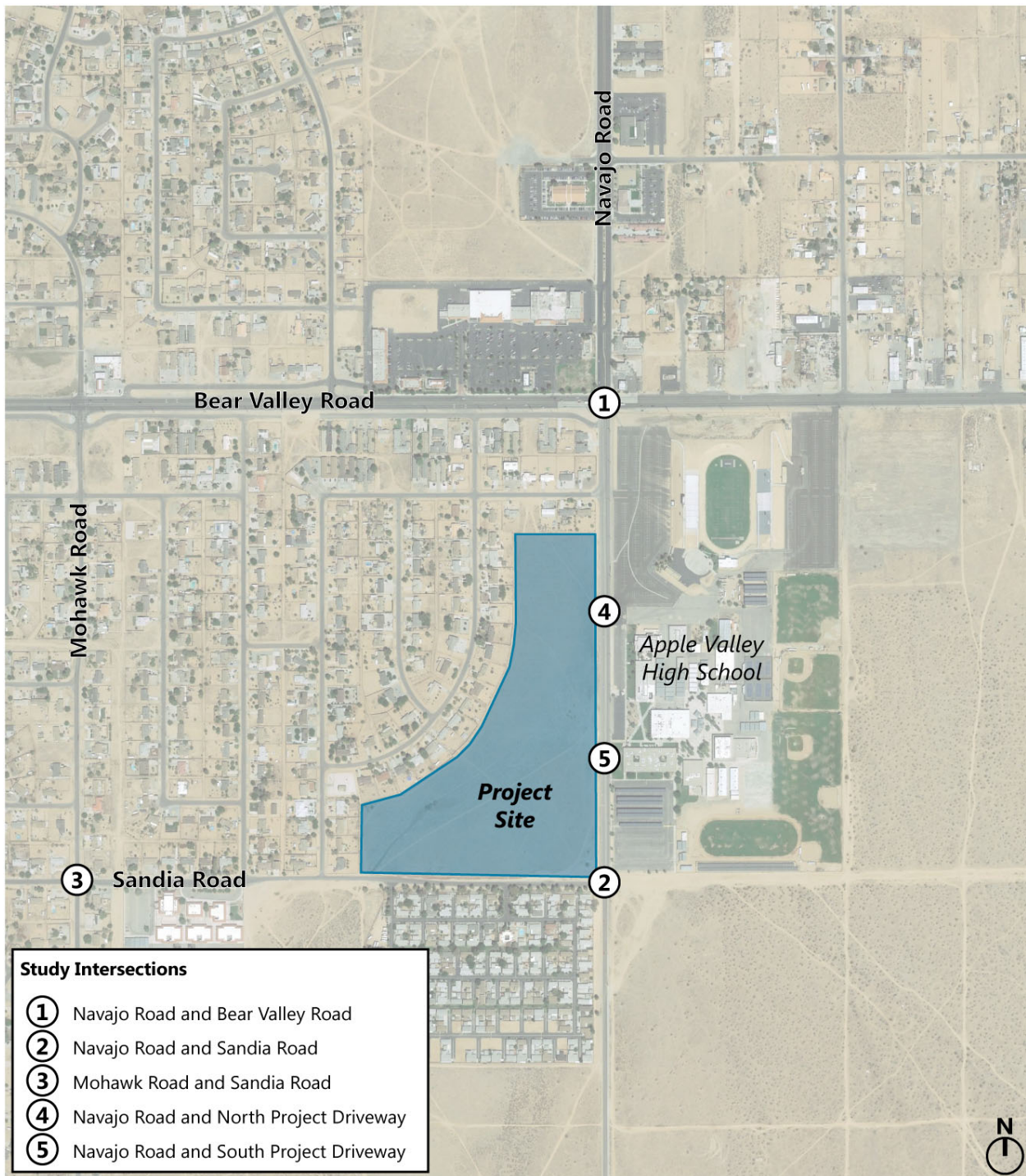
Traffic impacts associated with the proposed project were analyzed at the study intersections for a typical weekday AM and PM peak-hour periods. The study includes the analysis of the following timeframes:

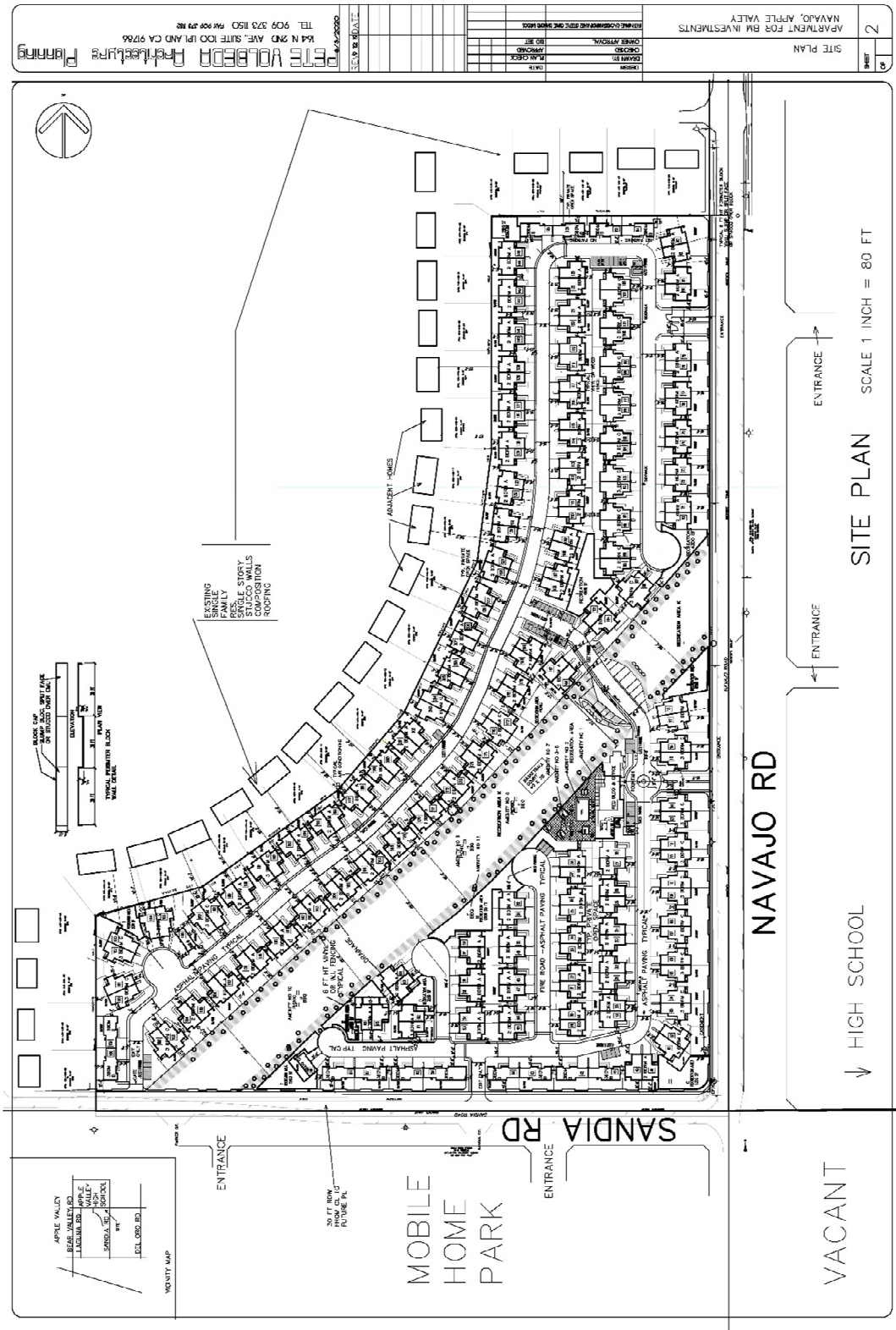
- Existing Year (2019)
- Project Opening Year (2030)

The following scenarios have been evaluated for this project:

- Existing Year (2019) conditions
- Existing Year (2019) Plus Project conditions
- Project Opening Year (2030) conditions
- Project Opening Year (2030) Plus Project conditions

FIGURE 1.1 – PROJECT VICINITY MAP





ANALYSIS METHODOLOGY

This section documents the methodologies and assumptions used to conduct the analysis for the proposed project. Coordination with the Town was the first step in the traffic analysis, in order to define the study area and other major details. For this study the study area intersections were evaluated using the Intersection Capacity Utilization (ICU) methodology for signalized intersections and Highway Capacity Manual (HCM) methodology for unsignalized intersections.

Street system operating conditions are typically described in terms of “level of service”. Level of service is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. Levels of service range from Level of Service (LOS) A (free flow, little congestion) to LOS F (forced flow, extreme congestion).

Table 1.1 shows the relationship between level of service and the performance measures for signalized and unsignalized intersections and lists the ICU volume to capacity (V/C) ratio for signalized intersections and HCM delay criteria for unsignalized intersections.

Table 1.1 – Levels of Service Definitions

Level of Service	Signalized Intersection Control Range of ICU Values	Unsignalized Intersection Control Delay (in sec/veh)
A	0.00 – 0.600	0 – 10
B	0.601 – 0.700	10.1 – 15
C	0.701 – 0.800	15.1 – 25
D	0.801 – 0.900	25.1 – 35
E	0.901 – 1.000	35.1 – 50
F	1.001 and up	50.1 or more*

*When delay becomes excessively high, delay would be shown as >120.0

The analysis of peak hour intersection conditions was conducted using the VISTRO software program developed by the PTV Group.

The list of study intersections were finalized through this process, as are the trip generation and trip distribution assumptions. The following subsections describe the methodology for this report.

The following peak periods during the weekdays were selected for the intersection analysis:

- Weekday AM (peak hour between 6:30 AM and 8:30 PM)
- Weekday PM (peak hour between 2:30 PM and 4:30 PM)

Existing Year (2020) Condition

Review of existing conditions at key study intersections was conducted to identify traffic controls and approach lane configurations at each study intersection and to identify the locations of on-street parking and other existing roadway characteristics.

Project Trip Generation and Distribution

Trip generation is a forecast of the number of trips that will be generated from a project. It is generally equal to the traffic volume expected at the project entrances. Trip generation characteristics for this project were based on rates published in *Trip Generation Manual 10th Edition*, published by the Institute of Transportation Engineers (ITE).

The project trips were then distributed based on existing traffic patterns, geographic location of the site and its proximity to freeways and major travel routes; and the relative distribution of the land uses from which prospective residents and visitors of the project would expect to be drawn.

Existing (2020) with-Project Conditions

Based on the traffic that is projected for the proposed project and the existing traffic volumes, an existing with-project conditions scenario was analyzed per the Sunnyvale and SMART Rail California Environmental Quality Act (CEQA) court case decisions that determined that project impacts should be analyzed against existing conditions.

Project Opening Year (2030) Conditions

The Project Opening Year (2030) was selected for analysis since it corresponds to the projected project completion date. Peak hour intersection volumes under the Project Opening year (2030) conditions were forecast based on existing peak hour intersection volumes and adjusted by growth rate of 1% per year to reflect anticipated background growth in the study area.

Project Opening Year (2030) with-Project Conditions

Based on the traffic that is projected for the proposed project and the Project Opening Year (2030) base traffic volumes, the Project Opening Year (2030) with Project conditions was analyzed to determine if any project impacts are anticipated at the study intersections during project completion year.

2.0 EXISTING YEAR (2020) CONDITIONS

EXISTING ROADWAY SYSTEM

The key roadways within the study area are described below. The discussion presented here is limited to specific roadways that traverse the study intersections and serve the project site. Figure 2.1 illustrates the existing traffic controls and approach lane geometries at the study intersections. The lane geometry used for the intersection of Navajo Road and Bear Valley Road is based on the lane configuration changes planned for this intersection in the near future, as part of the *Bear Valley Road at Navajo Road Intersection Evaluation Technical Memorandum* study.

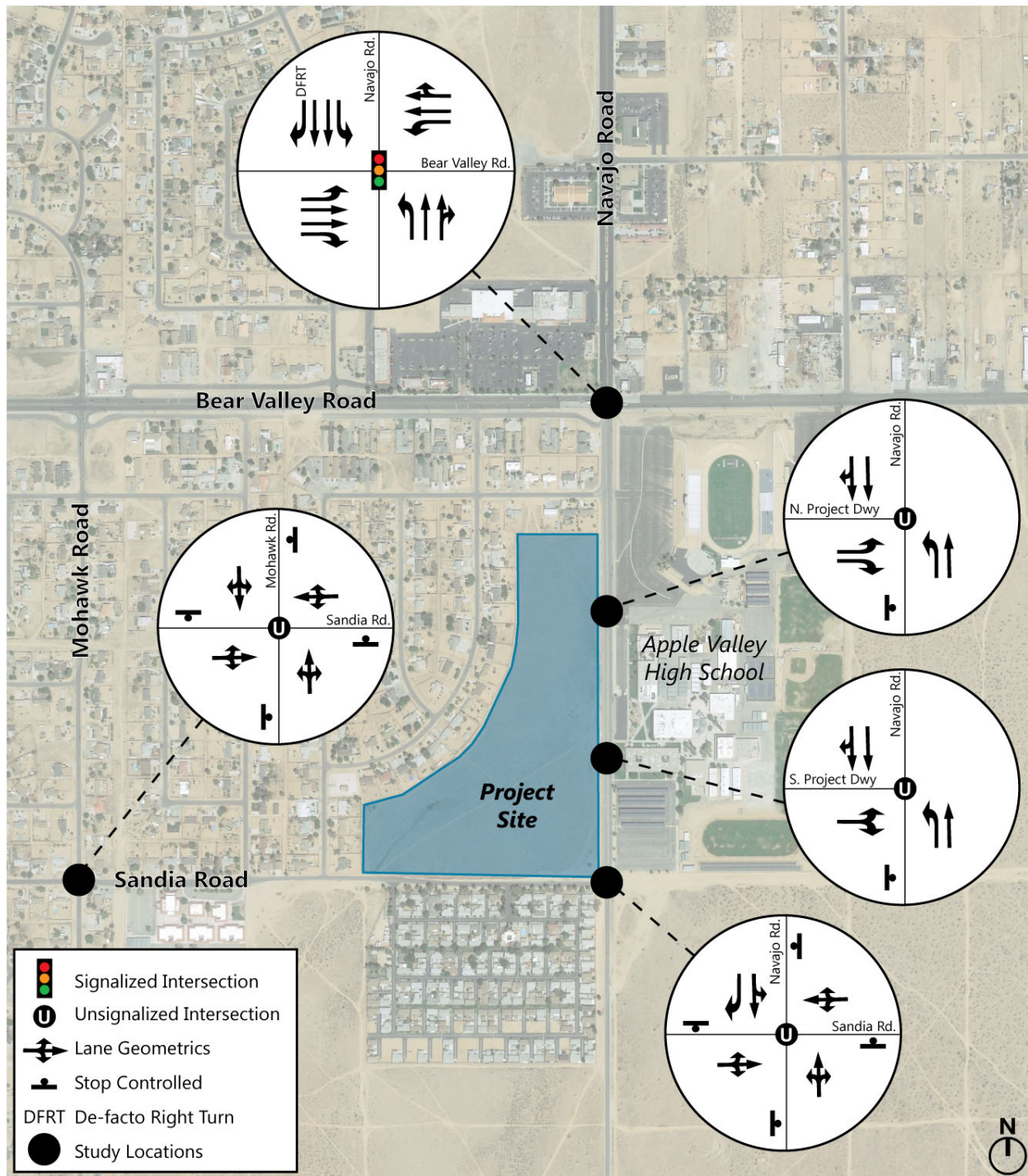
Navajo Road: Classified as a Secondary Road south of Bear Valley Road and a Major Road north of Bear Valley Road, Navajo Road is a north/south aligned roadway adjacent to the project site. Navajo Road consists of two lanes in each direction north of Laguna Road and consists of one northbound lane and two southbound lanes south of Laguna Road. Land uses along the study route include residential and institutional uses. There is no posted speed limit on Navajo Road south of Bear Valley Road but there is a 25 mph When Children Are Present posted sign. On-street parking is prohibited on most segments of Navajo Road between Bear Valley Road and Sandia Road, but some on-street parking is allowed along a portion of the east side of the roadway, adjacent to Apple Valley High School.

Bear Valley Road: Classified as a Major Divided Arterial, Bear Valley Road, is a north-south aligned roadway located north of the project site. This is a four-lane roadway providing two lanes in each direction with a center left turn lane. The posted speed limit along Bear Valley Road is 55 mph and serves as a truck route. No bike lanes are provided along this roadway. Bear Valley Road provides access to I-15 to the west and SR-18 to the east. There are no bike lanes provided on Bear Valley Road.

Sandia Road: Classified as a Collector, Sandia Road is an East/West aligned roadway adjacent to the project site. This roadway provides one lane in each direction with dirt shoulders. There is no posted speed limit on Sandia Road but there is a 25 mph When Children Are Present posted sign. There are no bike lanes provided on Sandia Road.

Mohawk Road: Classified as a local street, Mohawk Road is a North/South aligned roadway located west of the project site. This roadway provides one lane in each direction with dirt shoulders. There is no posted speed limit on Mohawk Road but there is a 25 mph When Children Are Present posted sign approaching Sandia Road. There are no bike lanes provided on Mohawk Road.

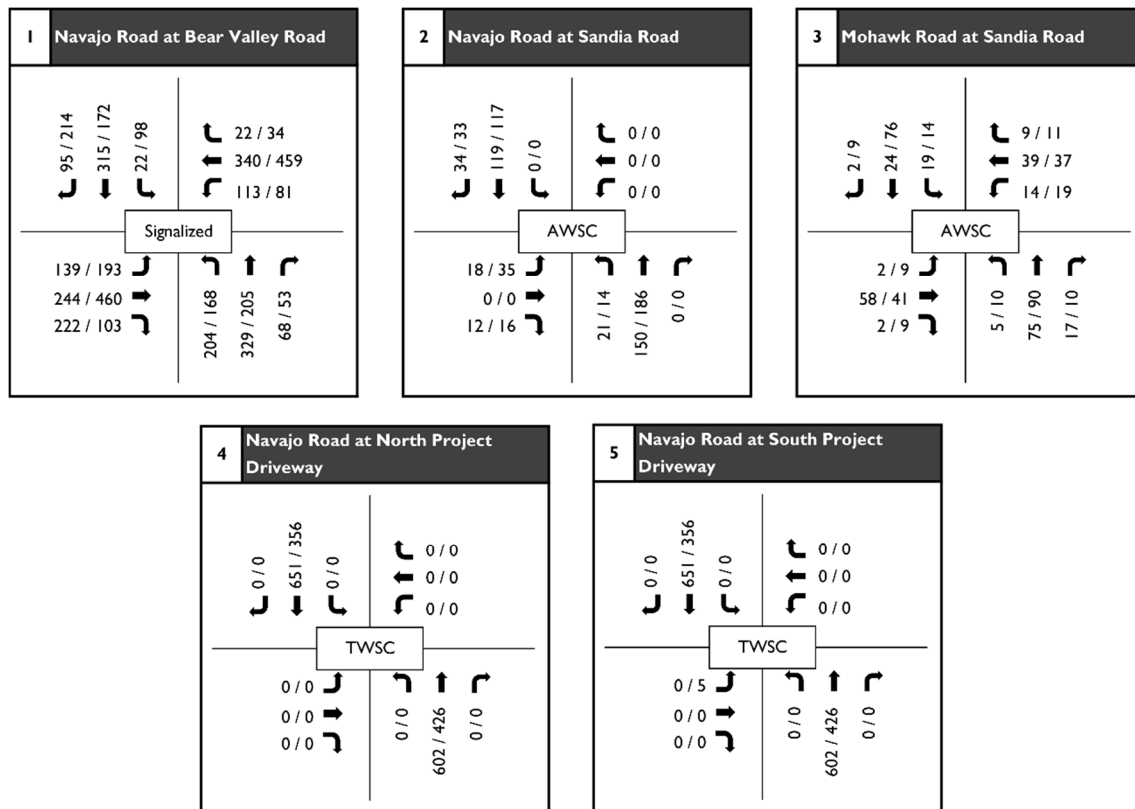
FIGURE 2.1 – EXISTING INTERSECTION GEOMETRIES



EXISTING TRAFFIC VOLUMES

New traffic counts were collected at two study intersections in October 2020; Navajo Road and Sandia Road and at Mohawk Road and Sandia Road. Existing traffic counts from 2018 were used for the intersection of Navajo Road and Bear Valley Road and for the project driveway study locations. The 2018 and new traffic counts were adjusted using available roadway average daily traffic (ADT) data to develop the Existing 2020 volumes, due to the current lower traffic volumes from the current COVID-19 pandemic. Traffic count sheets are included in Appendix A. Figure 2.2 shows the AM/PM peak hour traffic volumes for the existing conditions.

FIGURE 2.2 – EXISTING YEAR (2020) AM/PM PEAK HOUR TRAFFIC VOLUMES



Notes: XX/XX = AM/PM Peak Hour Volumes; AWSC = All-Way Stop Controlled; TWSC = Two-Way Stop Controlled

EXISTING YEAR (2020) INTERSECTION LEVEL OF SERVICE

Table 2.1 summarizes the results of the ICU and HCM analysis for the Existing Year (2020) conditions. As shown on Table 2.1, all of the study intersections are currently operating at acceptable level of service during the AM and PM peak hours. Appendix B contains the Existing Conditions ICU analysis worksheets.

Table 2.1 – Existing Year (2020) Traffic Conditions

Intersection	AM Peak Hour		PM Peak hour	
	V/C / LOS	Delay / LOS	V/C / LOS	Delay / LOS
1. Navajo Road / Bear Valley Road	0.773 / C	-	0.513 / A	-
2. Navajo Road / Sandia Road	-	8.1 / A	-	8.4 / A
3. Mohawk Road / Sandia Road	-	7.6 / A	-	7.9 / A
4. Navajo Road / North Project Driveway	-	N/A	-	N/A
5. Navajo Road / North Project Driveway	-	N/A	-	N/A

Note: ICU = Intersection Capacity Utilization volume-to-capacity (V/C) ratio; LOS = Level of Service

3.0 PROJECT TRAFFIC

This section defines the traffic that would be generated by the proposed Project in a three-step process including trip generation, trip distribution, and trip assignment.

Project-related traffic consists of trips on any portion of the street system that will begin or end on the project as a result of the deployment of the proposed project. Project-related traffic is a function of the intensity and type of development proposed for the site. This information is used to establish traffic generation for the site.

PROJECT TRIP GENERATION

Trip generation is a measure or forecast of the number of trips that will be made to or from the project. It is generally equal to the traffic volume expected at the project entrances. Trip generation characteristics for projects are normally estimated based on rates published in *Trip Generation Manual*, published by the Institute of Transportation Engineers (ITE).

The project consists of a 208 new multi-family residential dwelling units on approximately 231,080 square foot area with a total square footage of approximately 32.19 acres for the entire project site. The project site is currently vacant; therefore, no trip credits are applied to the proposed project trip calculations.

Table 3.1 summarizes the trip generation for the proposed project. As shown in Table 3.1, the proposed project would generate in a trip generation of 1,523 daily trips with 96 AM peak-hour trips (22 inbound trips and 74 outbound trips) and 116 PM peak hour trips (73 inbound trips and 43 outbound trips).

Table 3.1 – Project Trip Generation

Land Use	ITE Code	Intensity	Average Daily	Weekday					
				AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Generation Rates									
Multi-family Housing (Low Rise)	220	Dwelling Unit	7.32	23%	77%	0.46	63%	37%	56%
Project Trip Generation									
Multi-family Housing (Low Rise)	220	208	1,523	22	74	96	73	43	116

Source: ITE Trip Generation, 10th Edition

PROJECT TRIP DISTRIBUTION

Estimation of the geographic distribution of trips for the proposed project uses is the next step in the analytical process. The primary factors affecting the trip distribution for the project are the nature of the uses; existing traffic patterns; the geographic location of the site and its proximity to freeways and major travel routes; and the relative distribution of the land uses and major circulation connections from which prospective residents and visitors of the project would expect to be drawn. Based on these factors, the overall project directional trip distribution was determined and is shown on Figure 3.1 for inbound and outbound directions that were used for the traffic impact analysis.

PROJECT TRIP ASSIGNMENT

Based on the trip generation and distribution assumptions described above, Project traffic was assigned to the roadway system. Figure 3.2 illustrates the project trips for the weekday AM and PM peak hours.

FIGURE 3.1 – PROJECT TRIP DISTRIBUTION

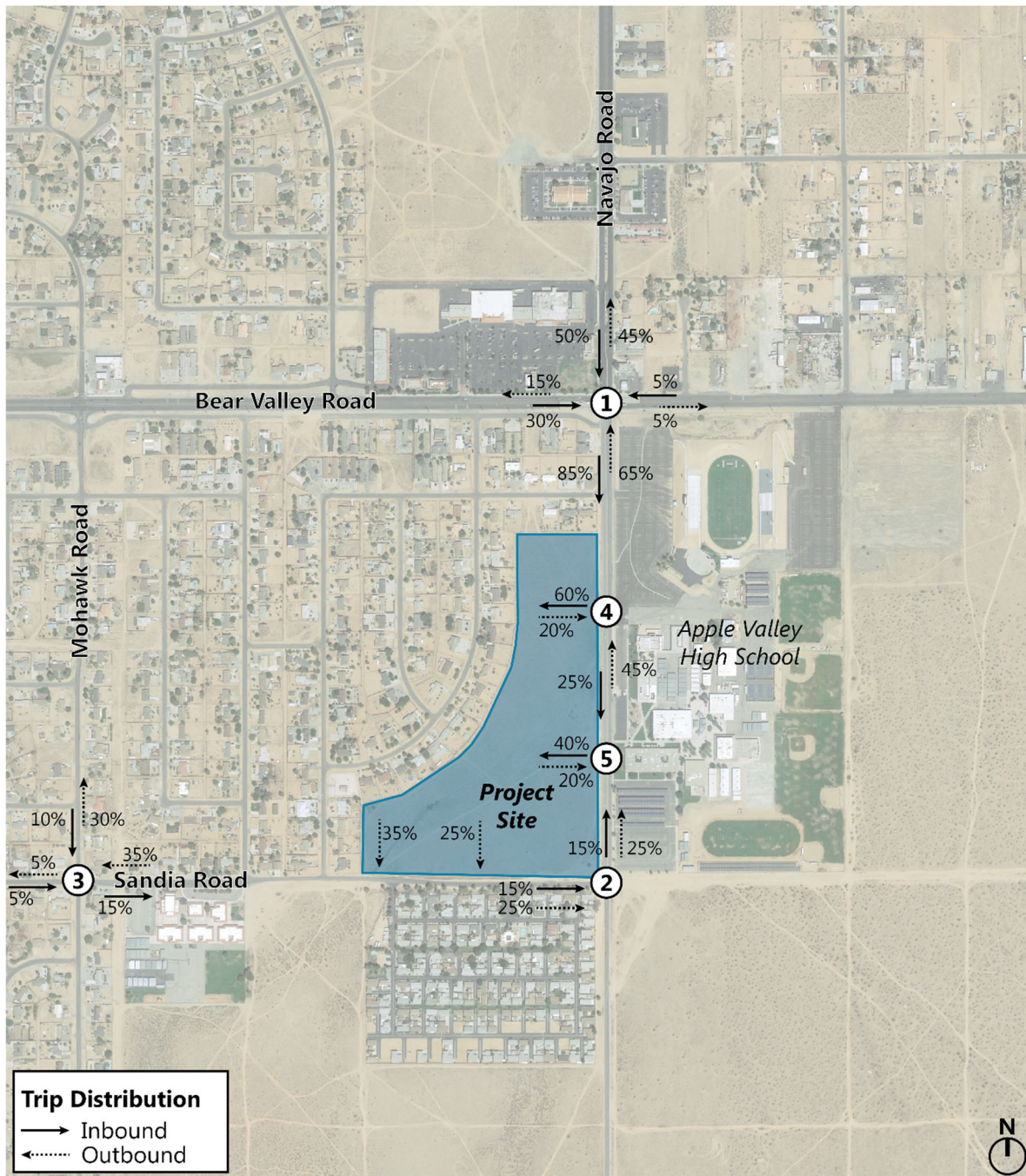
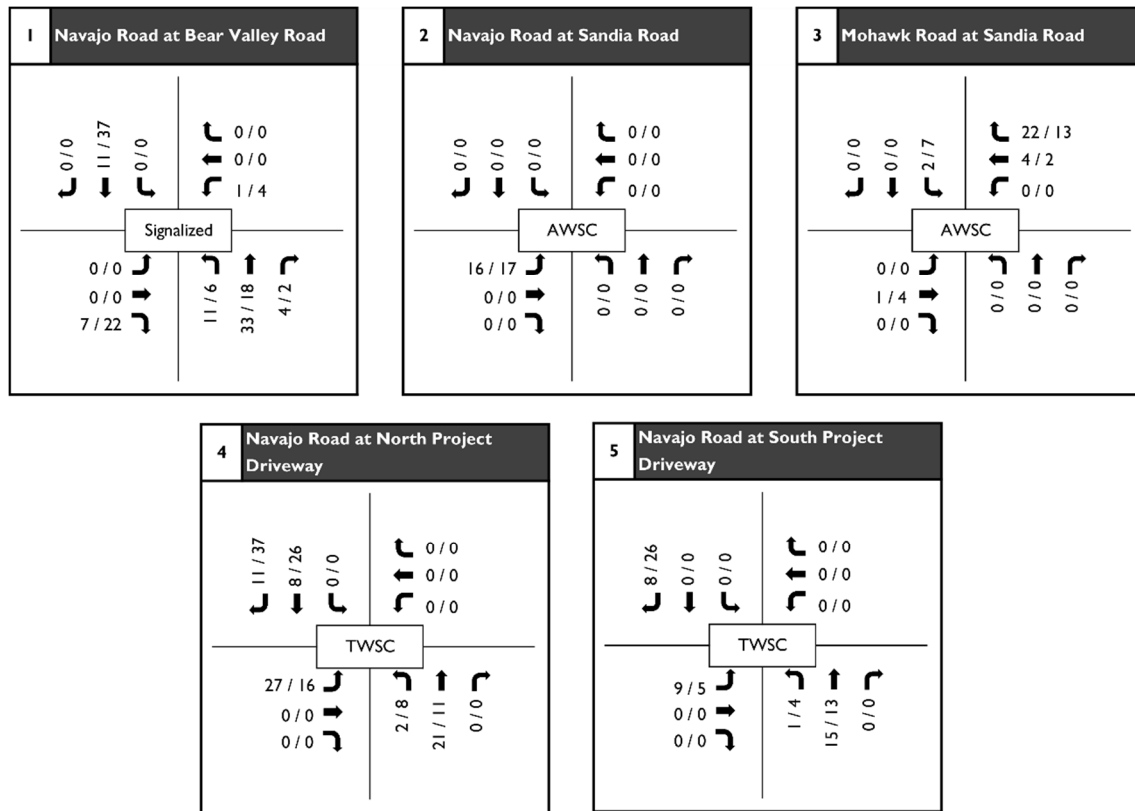


FIGURE 3.2 – PROJECT TRIP ASSIGNMENT



Notes: XX/XX = AM/PM Peak Hour Volumes; AWSC = All-Way Stop Controlled; TWSC = Two-Way Stop Controlled

4.0 EXISTING YEAR (2020) PLUS PROJECT CONDITIONS

This section documents existing traffic conditions at the study intersections with the addition of project-generated traffic. Traffic volumes for these conditions were derived by adding project trips to the existing traffic volumes.

The Existing Plus Project traffic volumes for the weekday AM and PM peak hour are illustrated on Figure 4.1.

EXISTING YEAR (2020) PLUS PROJECT INTERSECTION LEVEL OF SERVICE

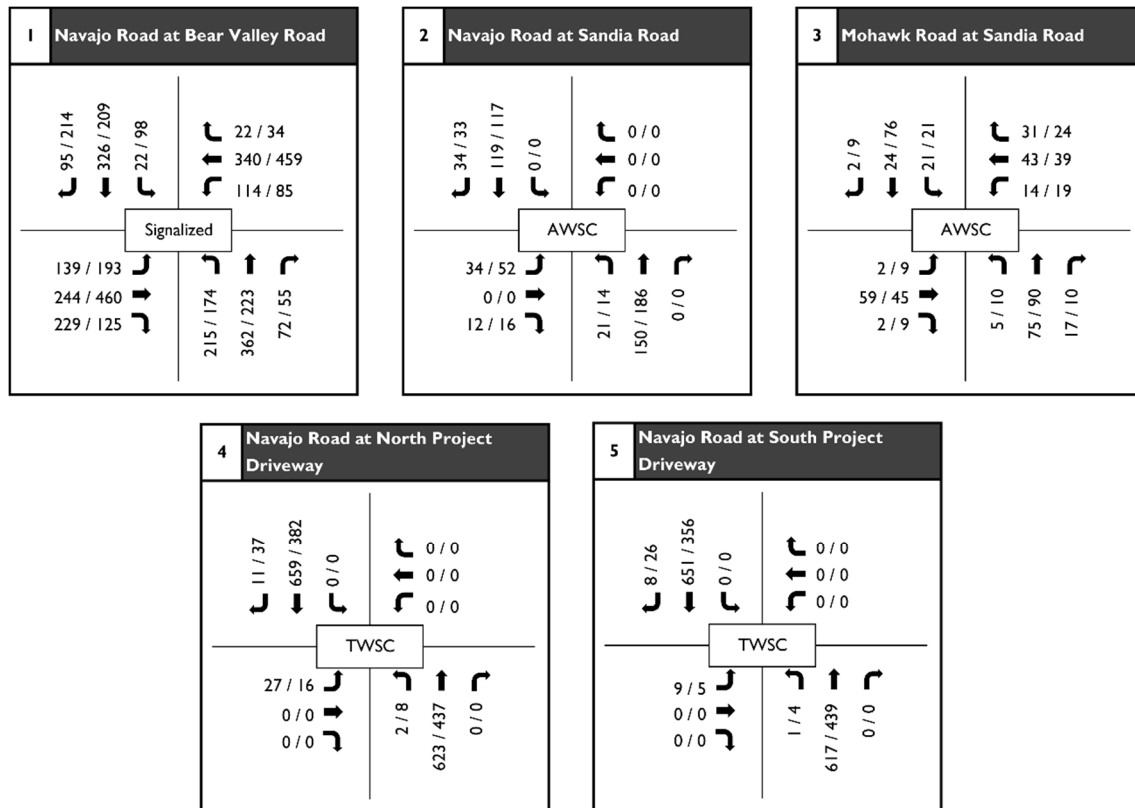
Table 4.1 summarizes the results of the ICU and HCM analysis for the Existing Year (2020) Plus Project conditions. As shown on Table 4.1, all of the study intersections are currently operating at acceptable level of service during the AM and PM peak hours. Appendix E contains the Existing Year (2019) Plus Project Conditions ICU analysis worksheets.

Table 4.1 – Existing Year (2020) Plus Project Traffic Conditions

Intersection	AM Peak Hour		PM Peak hour	
	V/C / LOS	Delay / LOS	V/C / LOS	Delay / LOS
1. Navajo Road / Bear Valley Road	0.800 / C	-	0.517 / A	-
2. Navajo Road / Sandia Road	-	8.2 / A	-	8.5 / A
3. Mohawk Road / Sandia Road	-	7.7 / A	-	8.0 / A
4. Navajo Road / North Project Driveway	-	28.6 / D	-	16.6 / C
5. Navajo Road / South Project Driveway	-	25.5 / D	-	15.6 / C

Note: ICU = Intersection Capacity Utilization volume-to-capacity (V/C) ratio; LOS = Level of Service

FIGURE 4.1 – EXISTING YEAR (2020) PLUS PROJECT AM/PM PEAK HOUR TRAFFIC VOLUMES



Notes: XX/XX = AM/PM Peak Hour Volumes; AWSC = All-Way Stop Controlled; TWSC = Two-Way Stop Controlled

5.0 PROJECT OPENING YEAR (2030) CONDITIONS

This section documents the project opening year traffic conditions at the study intersections with the addition of ambient growth, without the project. The year 2030 was selected for analysis based on the project being schedule for completion before the end of the year 2030.

FUTURE GROWTH

Typical ambient growth is expected over the years with an annual growth rate of 1%. For this study a 1% annual ambient growth rate was utilized. To simulate the future growth conditions for the year 2030, the existing peak hour traffic volumes in Figure 2.2 were increased by 1% per year. Figure 5.1 illustrates the Opening Year traffic volumes at the study locations.

PROJECT OPENING YEAR (2030) INTERSECTION LEVEL OF SERVICE

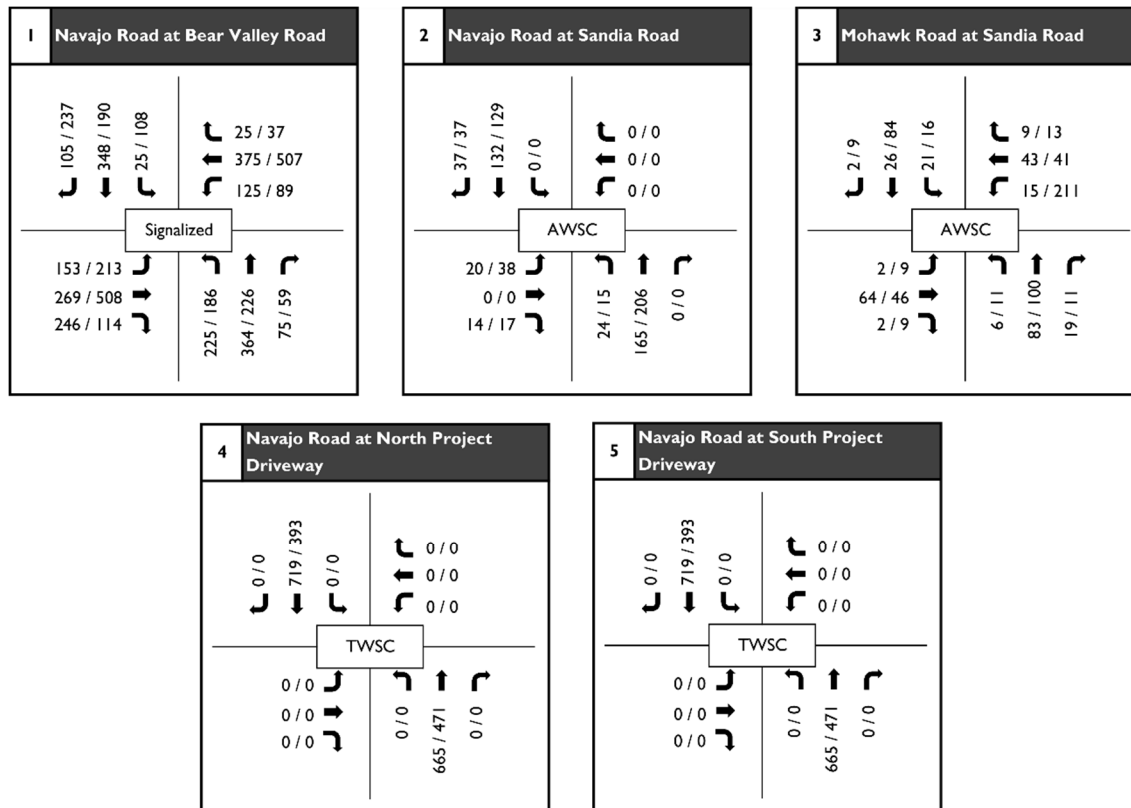
Table 5.1 summarizes the results of the ICU and HCM analysis for the Project Opening Year (2030) conditions. As shown on Table 5.1, all of the study intersections are currently operating at acceptable level of service during the AM and PM peak hours. Appendix E contains the Existing Year (2019) Plus Project Conditions ICU analysis worksheets.

Table 5.1 – Project Opening Year (2030) Traffic Conditions

Intersection	AM Peak Hour		PM Peak hour	
	V/C / LOS	Delay / LOS	V/C / LOS	Delay / LOS
1. Navajo Road / Bear Valley Road	0.481 / A	-	0.568 / A	-
2. Navajo Road / Sandia Road	-	8.3 / A	-	8.6 / A
3. Mohawk Road / Sandia Road	-	7.7 / A	-	9.4 / A
4. Navajo Road / North Project Driveway	-	N/A	-	N/A
5. Navajo Road / South Project Driveway	-	N/A	-	N/A

Note: ICU = Intersection Capacity Utilization volume-to-capacity (V/C) ratio; LOS = Level of Service

FIGURE 5.1 – PROJECT OPENING YEAR (2030) AM/PM PEAK HOUR TRAFFIC VOLUMES



Notes: XX/XX = AM/PM Peak Hour Volumes; AWSC = All-Way Stop Controlled; TWSC = Two-Way Stop Controlled

6.0 PROJECT OPENING YEAR (2030) PLUS PROJECT CONDITIONS

This section documents the project opening year plus project traffic conditions at the study intersections with the addition of ambient growth. The Project Opening Year Plus Project traffic volumes for the weekday AM and PM peak hour are illustrated on Figure 6.1.

PROJECT OPENING YEAR (2030) PLUS PROJECT INTERSECTION LEVEL OF SERVICE

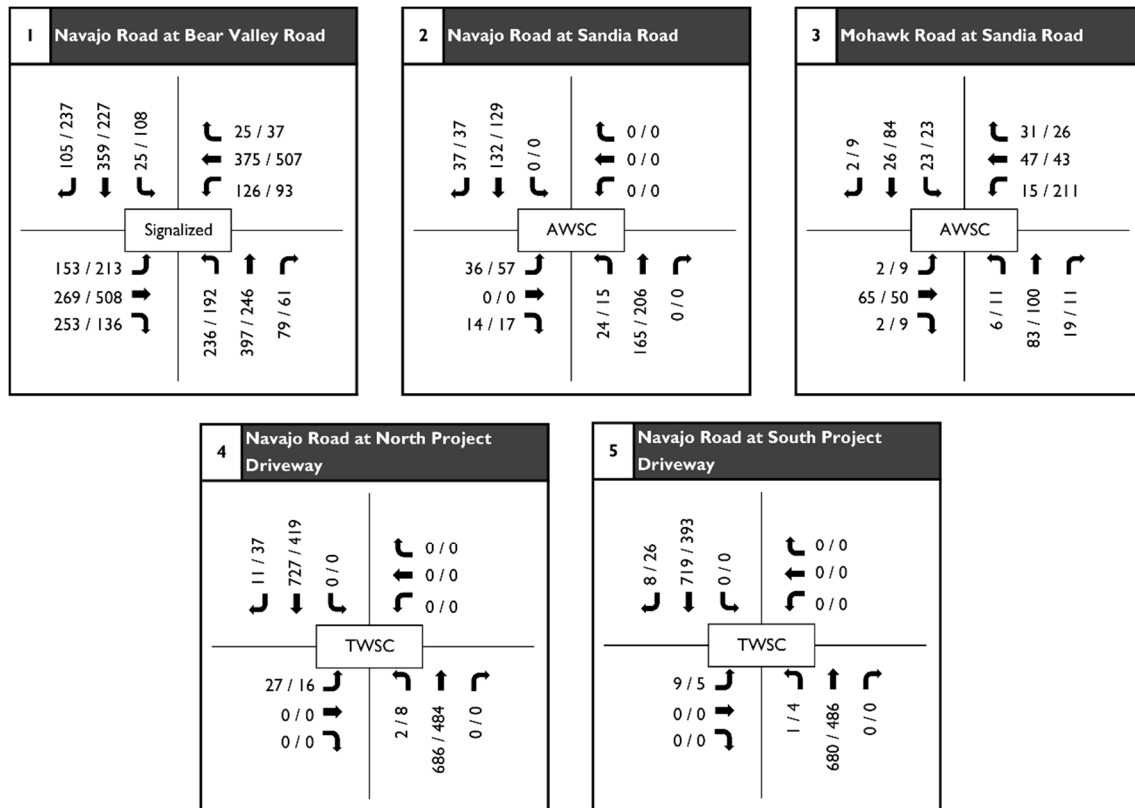
Table 6.1 summarizes the results of the ICU and HCM analysis for the Project Opening Year (2030) Plus Project conditions. As shown on Table 6.1, all of the study intersections are currently operating at acceptable level of service during the AM and PM peak hours. Appendix E contains the Existing Year (2019) Plus Project Conditions ICU analysis worksheets.

Table 6.1 – Project Opening Year (2030) Plus Project Traffic Conditions

Intersection	AM Peak Hour		PM Peak hour	
	V/C / LOS	Delay / LOS	V/C / LOS	Delay / LOS
1. Navajo Road / Bear Valley Road	0.497 / A	-	0.571 / A	-
2. Navajo Road / Sandia Road	-	8.4 / A	-	8.7 / A
3. Mohawk Road / Sandia Road	-	7.8 / A	-	9.6 / A
4. Navajo Road / North Project Driveway	-	34.3 / D	-	18.1 / C
5. Navajo Road / South Project Driveway	-	29.9 / D	-	16.9 / C

Note: ICU = Intersection Capacity Utilization volume-to-capacity (V/C) ratio; LOS = Level of Service

FIGURE 6.1 – OPENING YEAR (2030) PLUS PROJECT AM/PM PEAK HOUR TRAFFIC VOLUMES



Notes: XX/XX = AM/PM Peak Hour Volumes; AWSC = All-Way Stop Controlled; TWSC = Two-Way Stop Controlled

7.0 PROJECT TRAFFIC IMPACTS

PROJECT TRAFFIC IMPACTS: EXISTING PLUS PROJECT CONDITIONS

Table 5.1 provides a summary of the project impacts under Existing Plus Project conditions. Traffic impacts created by the proposed project were determined by comparing the Existing scenario conditions to the Existing Plus Project scenario conditions.

As shown in Table 5.1, the Project would not create any significant traffic impacts at the three study intersections under Existing Plus Project conditions, during either the weekday AM or PM peak hour. Project mitigation measures, therefore, are not required.

Table 5.1 – Determination of Project Impacts: Existing Year (2020) Plus Project Conditions

Study Intersections		Peak Hour	Existing (2020) Conditions		Existing Year (2020) Plus Project		Change in V/C or Delay	Significant Impact?
			V/C or Delay	LOS	V/C or Delay	LOS		
1	Navajo Road / Bear Valley Road	AM	0.773	C	0.800	C	0.027	NO
		PM	0.513	A	0.519	A	0.006	NO
2	Navajo Road / Sandia Road	AM	8.1	A	8.2	A	0.1	NO
		PM	8.4	A	8.5	A	0.1	NO
3	Mohawk Road / Sandia Road	AM	7.6	A	7.7	A	0.1	NO
		PM	7.9	A	8.0	A	0.1	NO
4	Navajo Road / North Project Driveway	AM	0.0	A	28.6	D	28.6	NO
		PM	0.0	A	16.6	C	16.6	NO
5	Navajo Road / South Project Driveway	AM	0.0	A	25.5	D	25.5	NO
		PM	0.0	A	15.6	C	15.6	NO

LOS = Level-of-Service

V/C = Volume-to-Capacity Ratio

PROJECT TRAFFIC IMPACTS: PROJECT OPENING YEAR PLUS PROJECT CONDITIONS

Table 5.2 provides a summary of the project impacts under Project Opening year Plus Project conditions. Traffic impacts created by the proposed project were determined by comparing the Project Opening Year scenario conditions to the Project Opening Year Plus Project scenario conditions.

As shown in Table 5.2, the Project would not create any significant traffic impacts at the three study intersections under Existing Plus Project conditions, during either the weekday AM or PM peak hour. Project mitigation measures, therefore, are not required.

Table 5.2 – Determination of Project Impacts: Project Opening Year (2030) Plus Project Conditions

Study Intersections		Peak Hour	Project Opening Year (2030) Conditions		Project Opening Year (2030) Plus Project		Change in V/C or Delay	Significant Impact?
			V/C or Delay	LOS	V/C or Delay	LOS		
1	Navajo Road / Bear Valley Road	AM	0.481	A	0.497	A	0.016	NO
		PM	0.568	A	0.571	A	0.003	NO
2	Navajo Road / Sandia Road	AM	8.3	A	8.4	A	0.1	NO
		PM	8.6	A	8.7	A	0.1	NO
3	Mohawk Road / Sandia Road	AM	7.7	A	7.8	A	0.1	NO
		PM	9.4	A	9.6	A	0.2	NO
4	Navajo Road / North Project Driveway	AM	0.0	A	34.3	D	34.3	NO
		PM	0.0	A	18.1	C	18.1	NO
5	Navajo Road / South Project Driveway	AM	0.0	A	29.9	D	29.9	NO
		PM	0.0	A	16.9	C	16.9	NO

LOS = Level-of-Service

V/C = Volume-to-Capacity Ratio

8.0 SITE ACCESS AND ON-SITE CIRCULATION

Access to the proposed project would be provided by two stop-controlled driveways along Navajo Road providing full ingress/egress access (right-in, right-out, left-in, and left-out) to and from the project site, and two stop-controlled driveways along Sandia Road providing limited egress access (right-out and left-out). Based on the project site plan, the driveways will provide sufficient drive isle clearance within the project site to allow for any potential temporary queuing of vehicles to occur on-site as they exit the project access points. The two access driveways along Navajo Road will provide adequate access to the project site while also providing two exit driveways along Sandia Road.

Based on the project site plan, the project will provide a 28 foot wide internal roadway providing vehicle travel in both directions. Pedestrian access is provided along the sidewalk and pedestrian crossing throughout the project site.

9.0 ANALYSIS SUMMARY AND CONCLUSIONS

The purpose of this study is to evaluate existing and existing plus project traffic conditions for the selected study intersections to identify any potential impacts the proposed project may have on the surrounding roadway network.

The proposed Project, located at the northwest corner of Navajo Road and Sandia Road, consists of 208 multi-family residential dwelling units on approximately 231,080 square foot area with a total square footage of approximately 32.19 acres for the entire project site. The project will provide four access points, two along Navajo Road and two along Sandia Road. The two access points along Navajo Road will provide full ingress/egress access and the two access points along Sandia Road will provide egress access only.

The project site is currently vacant; therefore, no existing trip credits were applied to the proposed project. The proposed project would generate a trip generation of 96 AM peak-hour trips (22 inbound trips and 74 outbound trips) and 116 PM peak hour trips (73 inbound trips and 43 outbound trips).

The report presents an analysis of the intersection operating conditions during the morning and evening peak hours for the following timeframes:

- Existing Year (2020)
- Project Opening Year (2030)

The following scenarios have been evaluated for this project:

- Existing Year (2020) conditions
- Existing Year (2020) Plus Project conditions
- Project Opening Year (2030) conditions
- Project Opening Year (2030) Plus Project conditions

The study area includes the following study locations:

1. Navajo Road and Bear Valley Road (signalized)
2. Navajo Road and Sandia Road (unsignalized)
3. Mohawk Road and Sandia Road (unsignalized)
4. Navajo Road and North Project Driveway
5. Navajo Road and South Project Driveway

Based on the traffic analysis, the proposed Project would not create any significant traffic impacts at the study intersections under Existing Plus Project conditions or Project Opening Year Plus Project. Therefore, no mitigation measures are required.

It is recommended that the project access points along Navajo Road be revisited once traffic volumes and patterns return to the new “normal” operations after the COVID-19 pandemic. The two driveways along Navajo Road may require restricted vehicle turning movements during the school morning and afternoon peak hours to avoid potential traffic congestion along Navajo Road during these times.

Appendix A – Traffic Counts

City of Apple Valley
N/S: Navajo Road
E/W: Bear Valley Road
Weather: Clear

File Name : 07_APV_Navajo_BV AM
Site Code : 14118039
Start Date : 1/23/2018
Page No : 1

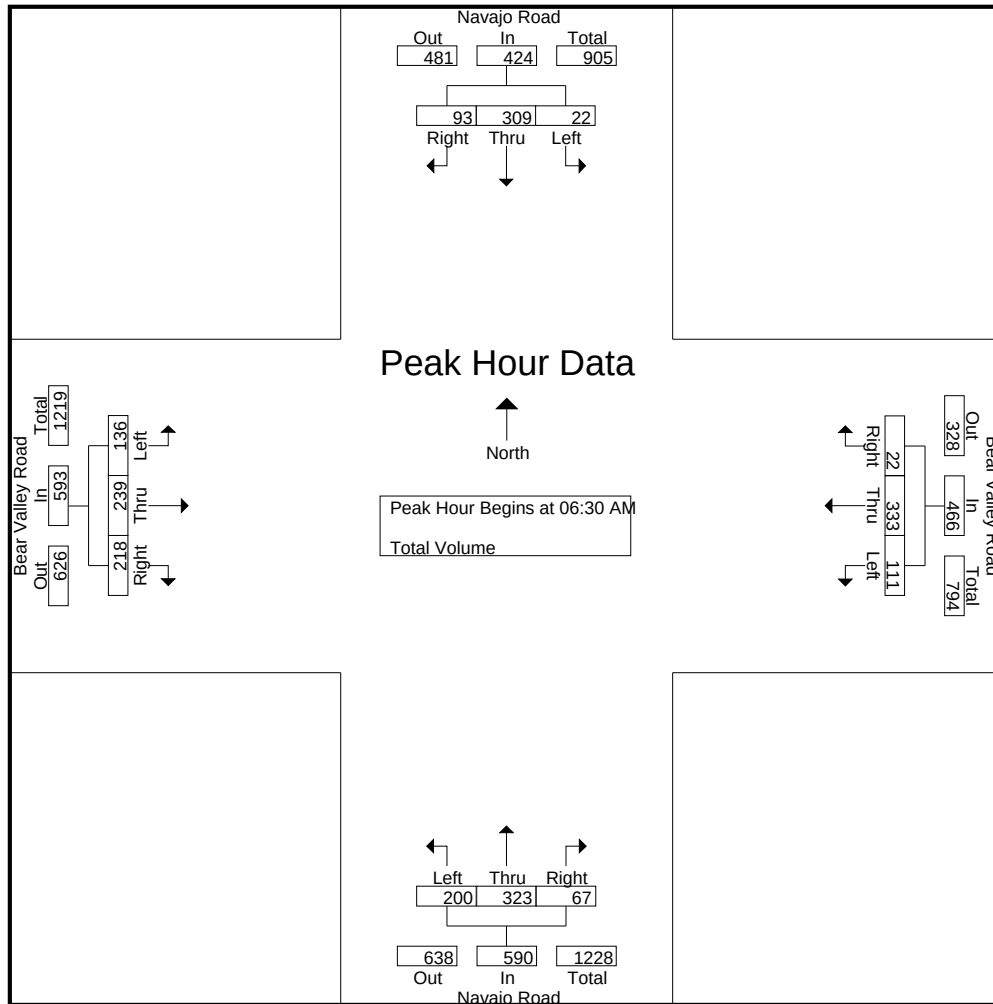
Groups Printed- Total Volume

	Navajo Road Southbound				Bear Valley Road Westbound				Navajo Road Northbound				Bear Valley Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	9	142	21	172	50	81	1	132	64	95	25	184	31	63	109	203	691
06:45 AM	6	117	23	146	48	87	11	146	74	124	22	220	41	63	89	193	705
Total	15	259	44	318	98	168	12	278	138	219	47	404	72	126	198	396	1396
07:00 AM	6	28	30	64	12	72	6	90	48	84	14	146	26	54	15	95	395
07:15 AM	1	22	19	42	1	93	4	98	14	20	6	40	38	59	5	102	282
07:30 AM	8	35	39	82	11	144	8	163	16	28	16	60	26	76	14	116	421
07:45 AM	11	55	48	114	38	142	5	185	27	51	23	101	45	80	16	141	541
Total	26	140	136	302	62	451	23	536	105	183	59	347	135	269	50	454	1639
08:00 AM	7	26	43	76	16	121	4	141	22	58	15	95	28	53	11	92	404
08:15 AM	4	17	29	50	7	114	6	127	9	26	8	43	32	76	9	117	337
Grand Total	52	442	252	746	183	854	45	1082	274	486	129	889	267	524	268	1059	3776
Apprch %	7	59.2	33.8		16.9	78.9	4.2		30.8	54.7	14.5		25.2	49.5	25.3		
Total %	1.4	11.7	6.7	19.8	4.8	22.6	1.2	28.7	7.3	12.9	3.4	23.5	7.1	13.9	7.1	28	

	Navajo Road Southbound				Bear Valley Road Westbound				Navajo Road Northbound				Bear Valley Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:30 AM																	
06:30 AM	9	142	21	172	50	81	1	132	64	95	25	184	31	63	109	203	691
06:45 AM	6	117	23	146	48	87	11	146	74	124	22	220	41	63	89	193	705
07:00 AM	6	28	30	64	12	72	6	90	48	84	14	146	26	54	15	95	395
07:15 AM	1	22	19	42	1	93	4	98	14	20	6	40	38	59	5	102	282
Total Volume	22	309	93	424	111	333	22	466	200	323	67	590	136	239	218	593	2073
% App. Total	5.2	72.9	21.9		23.8	71.5	4.7		33.9	54.7	11.4		22.9	40.3	36.8		
PHF	.611	.544	.775	.616	.555	.895	.500	.798	.676	.651	.670	.670	.829	.948	.500	.730	.735

City of Apple Valley
N/S: Navajo Road
E/W: Bear Valley Road
Weather: Clear

File Name : 07_APV_Navajo_BV AM
Site Code : 14118039
Start Date : 1/23/2018
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:30 AM				07:30 AM				06:30 AM				06:30 AM			
+0 mins.	9	142	21	172	11	144	8	163	64	95	25	184	31	63	109	203
+15 mins.	6	117	23	146	38	142	5	185	74	124	22	220	41	63	89	193
+30 mins.	6	28	30	64	16	121	4	141	48	84	14	146	26	54	15	95
+45 mins.	1	22	19	42	7	114	6	127	14	20	6	40	38	59	5	102
Total Volume	22	309	93	424	72	521	23	616	200	323	67	590	136	239	218	593
% App. Total	5.2	72.9	21.9		11.7	84.6	3.7		33.9	54.7	11.4		22.9	40.3	36.8	
PHF	.611	.544	.775	.616	.474	.905	.719	.832	.676	.651	.670	.670	.829	.948	.500	.730

City of Apple Valley
N/S: Navajo Road
E/W: Bear Valley Road
Weather: Clear

File Name : 07_APV_Navajo_BV PM
Site Code : 14118039
Start Date : 1/23/2018
Page No : 1

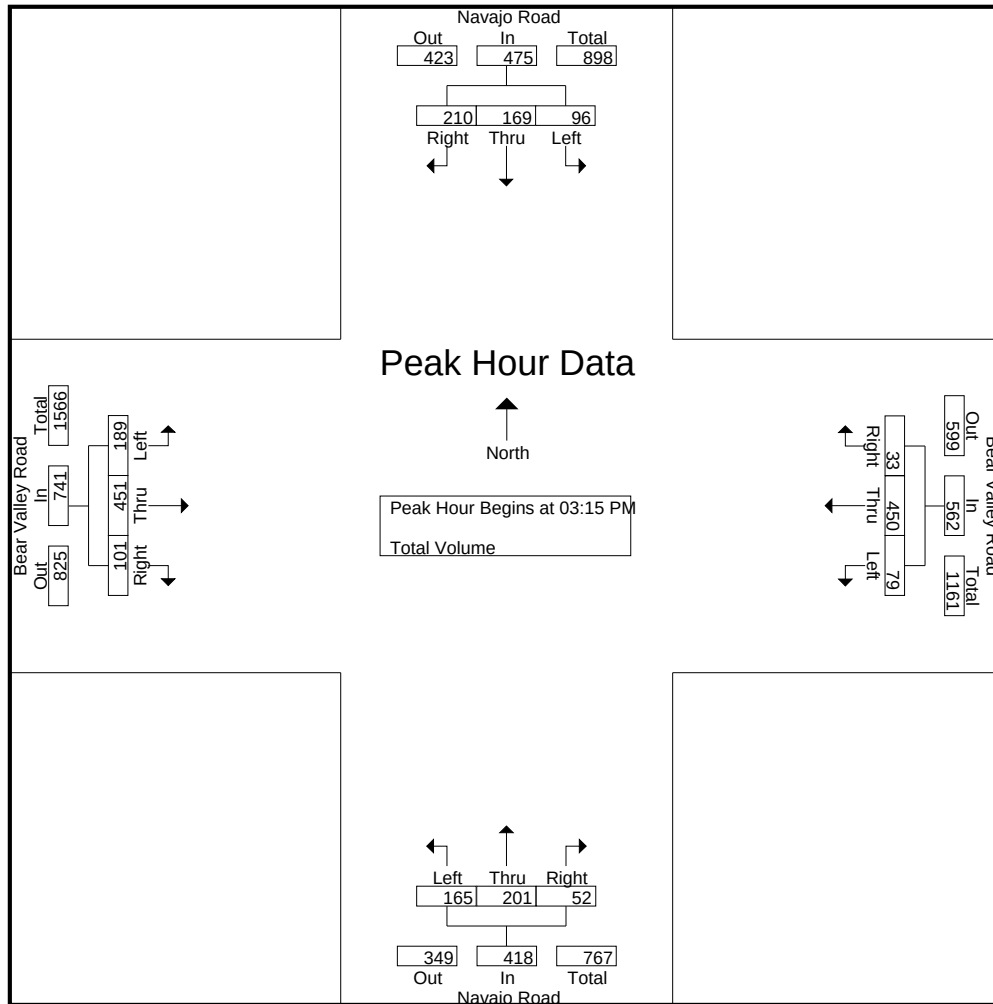
Groups Printed- Total Volume

	Navajo Road Southbound				Bear Valley Road Westbound				Navajo Road Northbound				Bear Valley Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	21	54	63	138	23	121	8	152	20	43	14	77	45	110	16	171	538
02:45 PM	10	34	45	89	20	160	11	191	41	86	22	149	50	99	15	164	593
Total	31	88	108	227	43	281	19	343	61	129	36	226	95	209	31	335	1131
03:00 PM	15	32	40	87	9	107	7	123	33	44	8	85	40	104	22	166	461
03:15 PM	18	39	44	101	14	111	9	134	32	48	12	92	48	105	25	178	505
03:30 PM	27	49	60	136	22	105	4	131	56	65	13	134	46	85	34	165	566
03:45 PM	29	48	55	132	20	120	9	149	36	35	11	82	47	125	19	191	554
Total	89	168	199	456	65	443	29	537	157	192	44	393	181	419	100	700	2086
04:00 PM	22	33	51	106	23	114	11	148	41	53	16	110	48	136	23	207	571
04:15 PM	25	40	59	124	9	94	15	118	29	34	11	74	37	107	12	156	472
Grand Total	167	329	417	913	140	932	74	1146	288	408	107	803	361	871	166	1398	4260
Apprch %	18.3	36	45.7		12.2	81.3	6.5		35.9	50.8	13.3		25.8	62.3	11.9		
Total %	3.9	7.7	9.8	21.4	3.3	21.9	1.7	26.9	6.8	9.6	2.5	18.8	8.5	20.4	3.9	32.8	

	Navajo Road Southbound				Bear Valley Road Westbound				Navajo Road Northbound				Bear Valley Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 04:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	18	39	44	101	14	111	9	134	32	48	12	92	48	105	25	178	505
03:30 PM	27	49	60	136	22	105	4	131	56	65	13	134	46	85	34	165	566
03:45 PM	29	48	55	132	20	120	9	149	36	35	11	82	47	125	19	191	554
04:00 PM	22	33	51	106	23	114	11	148	41	53	16	110	48	136	23	207	571
Total Volume	96	169	210	475	79	450	33	562	165	201	52	418	189	451	101	741	2196
% App. Total	20.2	35.6	44.2		14.1	80.1	5.9		39.5	48.1	12.4		25.5	60.9	13.6		
PHF	.828	.862	.875	.873	.859	.938	.750	.943	.737	.773	.813	.780	.984	.829	.743	.895	.961

City of Apple Valley
N/S: Navajo Road
E/W: Bear Valley Road
Weather: Clear

File Name : 07_APV_Navajo_BV PM
Site Code : 14118039
Start Date : 1/23/2018
Page No : 2



Peak Hour Analysis From 02:30 PM to 04:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:30 PM				02:30 PM				02:45 PM				03:15 PM			
+0 mins.	27	49	60	136	23	121	8	152	41	86	22	149	48	105	25	178
+15 mins.	29	48	55	132	20	160	11	191	33	44	8	85	46	85	34	165
+30 mins.	22	33	51	106	9	107	7	123	32	48	12	92	47	125	19	191
+45 mins.	25	40	59	124	14	111	9	134	56	65	13	134	48	136	23	207
Total Volume	103	170	225	498	66	499	35	600	162	243	55	460	189	451	101	741
% App. Total	20.7	34.1	45.2		11	83.2	5.8		35.2	52.8	12		25.5	60.9	13.6	
PHF	.888	.867	.938	.915	.717	.780	.795	.785	.723	.706	.625	.772	.984	.829	.743	.895

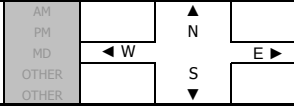
[illegible]

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Oct 20, 20LOCATION:
NORTH & SOUTH:
EAST & WEST:Apple Valley
Mohawk
SandiaPROJECT #: SC2691
LOCATION #: 2
CONTROL: STOP ALL

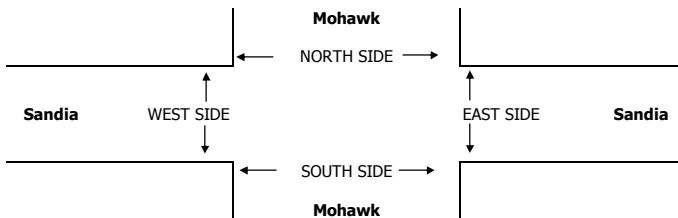
NOTES:

☒ Add U-Turns to Left Turns

	NORTHBOUND Mohawk			SOUTHBOUND Mohawk			EASTBOUND Sandia			WESTBOUND Sandia			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
6:30 AM	1	5	2	1	1	0	0	2	0	1	2	0	15
6:45 AM	0	10	5	1	2	0	1	4	0	1	4	1	29
7:00 AM	1	5	1	1	4	0	0	2	0	0	2	1	17
7:15 AM	1	3	1	4	3	0	0	1	1	3	5	0	22
7:30 AM	1	17	5	2	2	0	0	5	1	1	3	2	39
7:45 AM	1	10	3	1	4	0	0	11	0	1	5	0	36
8:00 AM	1	4	1	7	3	0	0	15	0	2	8	2	43
8:15 AM	0	13	1	1	5	1	1	3	0	4	7	1	37
VOLUMES	6	67	19	18	24	1	2	43	2	13	36	7	238
APPROACH %	7%	73%	21%	42%	56%	2%	4%	91%	4%	23%	64%	13%	
APP/DEPART	92	/	76	43	/	38	47	/	81	56	/	43	0
BEGIN PEAK HR	7:30 AM												
VOLUMES	3	44	10	11	14	1	1	34	1	8	23	5	155
APPROACH %	5%	77%	18%	42%	54%	4%	3%	94%	3%	22%	64%	14%	
PEAK HR FACTOR	0.620			0.650			0.600			0.750			0.901
APP/DEPART	57	/	50	26	/	22	36	/	56	36	/	27	0
2:30 PM	3	10	1	2	11	1	1	4	2	2	5	2	44
2:45 PM	1	13	3	3	12	2	3	3	2	6	8	1	57
3:00 PM	2	11	1	2	9	2	0	5	3	3	10	3	51
3:15 PM	1	14	2	1	11	3	1	2	2	5	6	2	50
3:30 PM	1	12	2	2	14	1	0	8	1	3	5	2	51
3:45 PM	3	16	3	4	12	1	2	8	3	4	8	3	67
4:00 PM	2	20	1	1	15	3	1	6	1	2	4	1	57
4:15 PM	1	15	1	3	12	1	3	7	1	4	9	2	59
VOLUMES	14	111	14	18	96	14	11	43	15	29	55	16	436
APPROACH %	10%	80%	10%	14%	75%	11%	16%	62%	22%	29%	55%	16%	
APP/DEPART	139	/	138	128	/	140	69	/	75	100	/	83	0
BEGIN PEAK HR	3:30 PM												
VOLUMES	7	63	7	10	53	6	6	29	6	13	26	8	234
APPROACH %	9%	82%	9%	14%	77%	9%	15%	71%	15%	28%	55%	17%	
PEAK HR FACTOR	0.837			0.908			0.788			0.783			0.873
APP/DEPART	77	/	77	69	/	72	41	/	46	47	/	39	0

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0



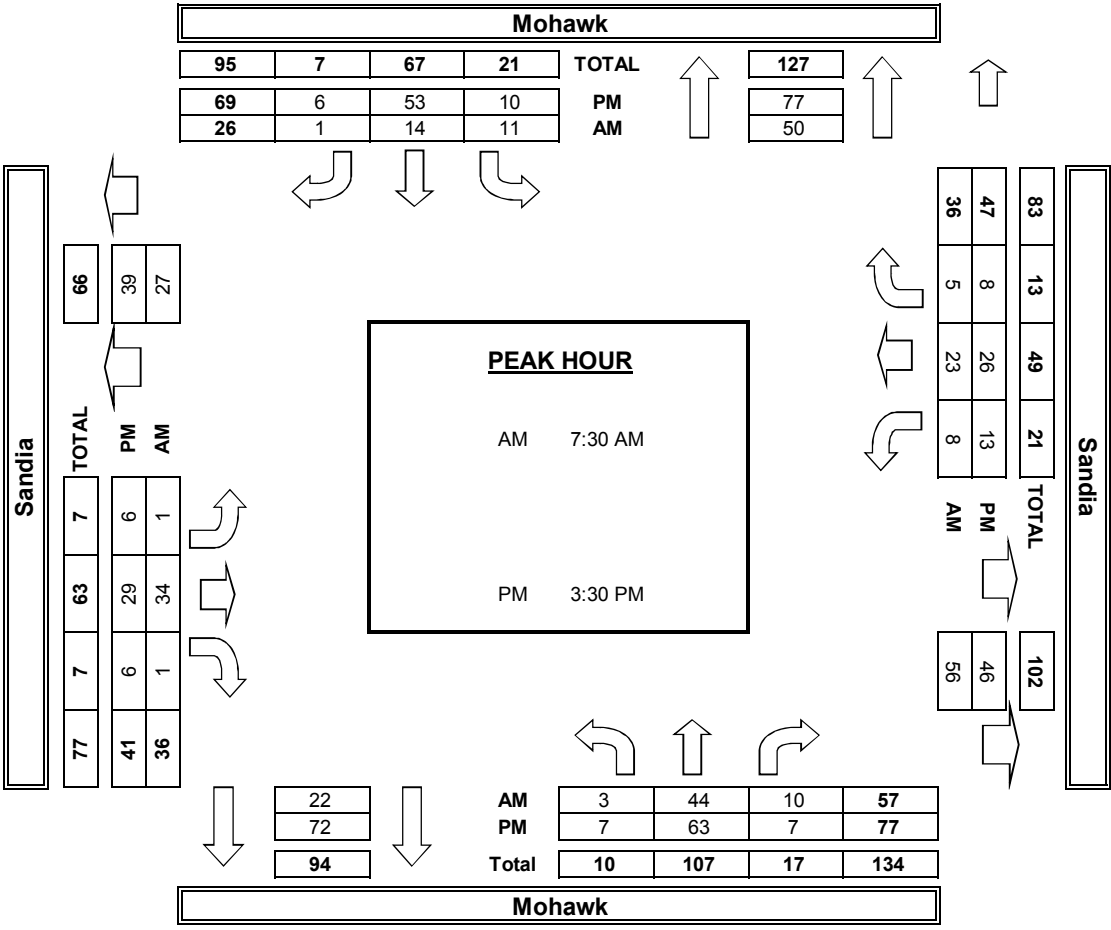
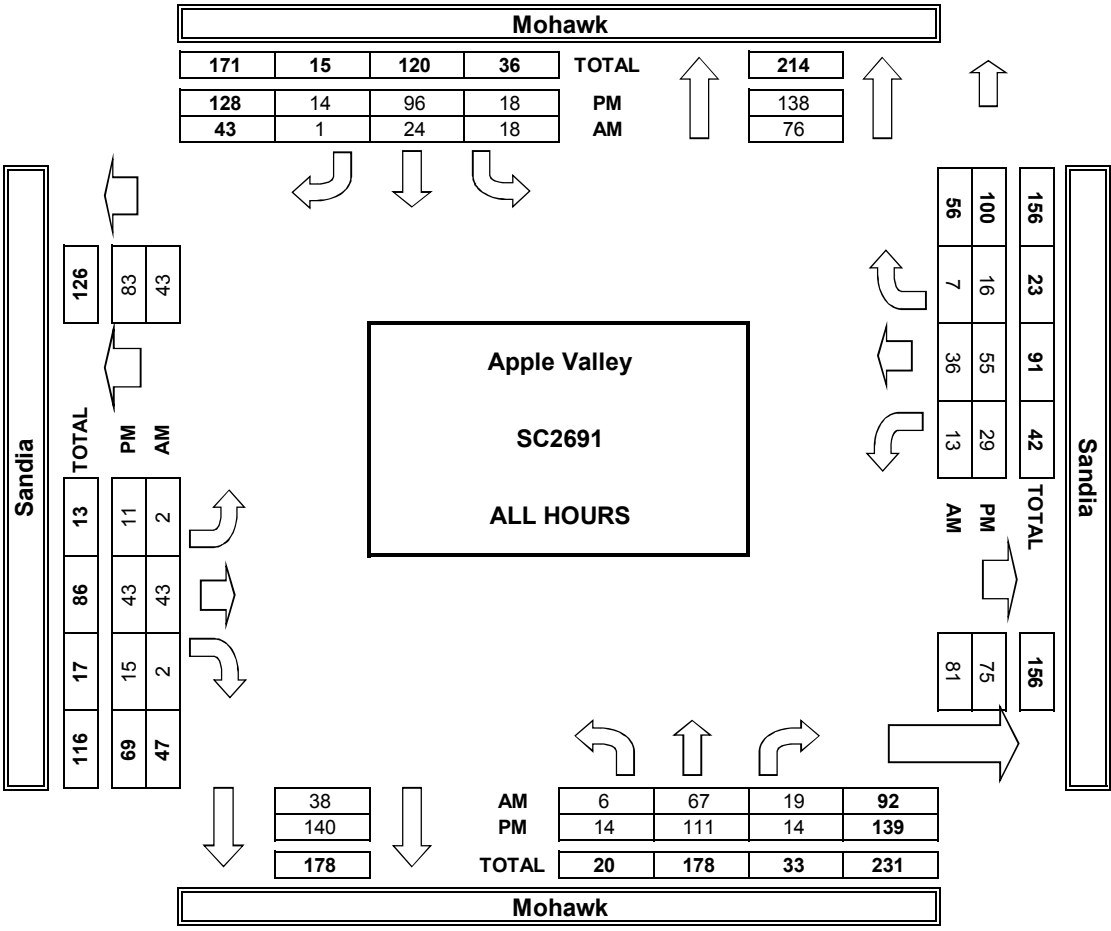
6:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	0	3	3
7:15 AM	0	0	0	0	0
7:30 AM	0	2	0	2	4
7:45 AM	0	0	0	0	0
8:00 AM	1	0	0	0	1
8:15 AM	0	0	0	0	0
TOTAL	1	2	0	5	8
AM BEGIN PEAK HR	7:30 AM				
2:30 PM	0	0	0	0	0
2:45 PM	0	1	0	0	1
3:00 PM	1	0	0	0	1
3:15 PM	0	1	0	1	2
3:30 PM	0	0	0	0	0
3:45 PM	0	1	0	0	1
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	1	1
TOTAL	1	3	0	2	6
PM BEGIN PEAK HR	3:30 PM				

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	3	3
0	0	0	0	0
0	2	0	2	4
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
1	2	0	5	8
7:30 AM				
0	0	0	0	0
0	1	0	0	1
1	0	0	0	1
0	1	0	1	2
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	1	1
1	3	0	2	6
3:30 PM				

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	3	3
0	0	0	0	0
0	2	0	2	4
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
1	2	0	5	8
1	2	0	2	5
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
0	0	0	0	0
0	0	0	1	1
1	1	0	2	4
0	1	0	1	2

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2

AimTD LLC
TURNING MOVEMENT COUNTS



Appendix B – Existing Year (2020) Conditions

Apple Valley Res. Dev. TIA

Vistro File: J:\...\AppleValley_TIA_Analysis_UPDATE2.vistro

Scenario 1 Existing AM

Report File: J:\...\Existing_AM.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	EB Right	0.773	-	C
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.204	8.1	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.112	7.6	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	SB Thru	0.007	0.0	A
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	SB Thru	0.007	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.773

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	204	329	68	22	315	95	139	244	222	113	340	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	204	329	68	22	315	95	139	244	222	113	340	22
Peak Hour Factor	0.6800	0.6500	0.6700	0.6100	0.5400	0.7800	0.8300	0.9500	0.5000	0.5600	0.9000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	75	127	25	9	146	30	42	64	111	50	94	11
Total Analysis Volume [veh/h]	300	506	101	36	583	122	167	257	444	202	378	44
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.19	0.19	0.02	0.18	0.08	0.10	0.08	0.28	0.13	0.13	0.13
Intersection LOS	C											
Intersection V/C	0.773											

Intersection Level Of Service Report Intersection 2: Navajo Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	8.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.204

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	21	150	0	0	119	34	18	0	12	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	150	0	0	119	34	18	0	12	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	38	0	0	30	9	5	0	3	0	0	0
Total Analysis Volume [veh/h]	21	150	0	0	119	34	18	0	12	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	840	762	895	796	768
Degree of Utilization, x	0.20	0.16	0.04	0.04	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.76	0.55	0.12	0.12	0.00
95th-Percentile Queue Length [ft]	19.00	13.78	2.96	2.93	0.00
Approach Delay [s/veh]	8.38	7.98		7.70	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.15				
Intersection LOS	A				

Intersection Level Of Service Report Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	7.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.112

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	5	75	17	19	24	2	2	58	2	14	39	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	75	17	19	24	2	2	58	2	14	39	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	19	4	5	6	1	1	15	1	4	10	2
Total Analysis Volume [veh/h]	5	75	17	19	24	2	2	58	2	14	39	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	865	825	837	843
Degree of Utilization, x	0.11	0.05	0.07	0.07

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.38	0.17	0.24	0.24
95th-Percentile Queue Length [ft]	9.44	4.32	5.98	5.94
Approach Delay [s/veh]	7.69	7.62	7.64	7.61
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.65			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	602	651	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	602	651	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	151	163	0	0	0
Total Analysis Volume [veh/h]	0	602	651	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.85	0.00	0.00	0.00	23.95	12.68
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		18.32	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	602	651	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	602	651	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	151	163	0	0	0
Total Analysis Volume [veh/h]	0	602	651	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.85	0.00	0.00	0.00	23.95	12.68
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		18.32	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Apple Valley Res. Dev. TIA

Vistro File: J:\...\AppleValley_TIA_Analysis_UPDATE2.vistro

Scenario 2 Existing PM

Report File: J:\...\Existing_PM.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	WB Thru	0.513	-	A
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.241	8.4	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.131	7.9	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	NB Thru	0.004	0.0	A
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	NB Thru	0.004	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.513

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	168	205	53	98	172	214	193	460	103	81	459	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	168	205	53	98	172	214	193	460	103	81	459	34
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	51	13	25	43	54	48	115	26	20	115	9
Total Analysis Volume [veh/h]	168	205	53	98	172	214	193	460	103	81	459	34
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.08	0.08	0.06	0.05	0.13	0.12	0.14	0.06	0.05	0.15	0.15
Intersection LOS	A											
Intersection V/C	0.513											

Intersection Level Of Service Report

Intersection 2: Navajo Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.241

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	14	186	0	0	117	33	35	0	16	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	186	0	0	117	33	35	0	16	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	47	0	0	29	8	9	0	4	0	0	0
Total Analysis Volume [veh/h]	14	186	0	0	117	33	35	0	16	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	831	749	878	773	753
Degree of Utilization, x	0.24	0.16	0.04	0.07	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.94	0.55	0.12	0.21	0.00
95th-Percentile Queue Length [ft]	23.51	13.78	2.93	5.28	0.00
Approach Delay [s/veh]	8.70	8.08		7.98	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.38				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.131

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	10	90	10	14	76	9	9	41	9	19	37	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	90	10	14	76	9	9	41	9	19	37	11
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	23	3	4	19	2	2	10	2	5	9	3
Total Analysis Volume [veh/h]	10	90	10	14	76	9	9	41	9	19	37	11
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	838	833	814	811
Degree of Utilization, x	0.13	0.12	0.07	0.08

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.45	0.40	0.23	0.27
95th-Percentile Queue Length [ft]	11.29	10.07	5.85	6.73
Approach Delay [s/veh]	7.95	7.90	7.77	7.83
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.88			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	426	356	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	426	356	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	107	89	0	0	0
Total Analysis Volume [veh/h]	0	426	356	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.99	0.00	0.00	0.00	14.92	10.23
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		12.58	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	426	356	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	426	356	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	107	89	0	0	0
Total Analysis Volume [veh/h]	0	426	356	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.99	0.00	0.00	0.00	14.92	10.23
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		12.58	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Appendix C – Existing Year (2020) Plus Project Conditions

Apple Valley Res. Dev. TIA

Vistro File: J:\...\AppleValley_TIA_Analysis_UPDATE2.vistro

Scenario 1 Existing AM

Report File: J:\...\Existing_AM_Plus_Project.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	EB Right	0.800	-	C
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.206	8.2	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.114	7.7	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.150	28.6	D
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.049	25.5	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.800

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	204	329	68	22	315	95	139	244	222	113	340	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	33	4	0	11	0	0	0	7	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	215	362	72	22	326	95	139	244	229	114	340	22
Peak Hour Factor	0.6800	0.6500	0.6700	0.6100	0.5400	0.7800	0.8300	0.9500	0.5000	0.5600	0.9000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	139	27	9	151	30	42	64	115	51	94	11
Total Analysis Volume [veh/h]	316	557	107	36	604	122	167	257	458	204	378	44
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.21	0.21	0.02	0.19	0.08	0.10	0.08	0.29	0.13	0.13	0.13
Intersection LOS	C											
Intersection V/C	0.800											

Intersection Level Of Service Report

Intersection 2: Navajo Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	8.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.206

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	21	150	0	0	119	34	18	0	12	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	16	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	150	0	0	119	34	34	0	12	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	38	0	0	30	9	9	0	3	0	0	0
Total Analysis Volume [veh/h]	21	150	0	0	119	34	34	0	12	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	831	755	885	776	764
Degree of Utilization, x	0.21	0.16	0.04	0.06	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.77	0.56	0.12	0.19	0.00
95th-Percentile Queue Length [ft]	19.25	13.94	2.99	4.72	0.00
Approach Delay [s/veh]	8.45	8.04		7.93	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.22				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	7.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.114

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	5	75	17	19	24	2	2	58	2	14	39	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	1	0	0	4	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	75	17	21	24	2	2	59	2	14	43	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	19	4	5	6	1	1	15	1	4	11	8
Total Analysis Volume [veh/h]	5	75	17	21	24	2	2	59	2	14	43	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	853	813	831	869
Degree of Utilization, x	0.11	0.06	0.08	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.38	0.18	0.25	0.34
95th-Percentile Queue Length [ft]	9.59	4.59	6.14	8.42
Approach Delay [s/veh]	7.76	7.70	7.69	7.61
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.69			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	28.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.150

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	602	651	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	21	8	11	27	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	623	659	11	27	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	156	165	3	7	0
Total Analysis Volume [veh/h]	2	623	659	11	27	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.15	0.00
d_M, Delay for Movement [s/veh]	8.92	0.00	0.00	0.00	28.55	12.82
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.00	0.52	0.00
95th-Percentile Queue Length [ft/ln]	0.16	0.00	0.00	0.00	12.92	0.00
d_A, Approach Delay [s/veh]	0.03		0.00		28.55	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.60					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	602	651	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	15	0	8	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	617	651	8	9	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	154	163	2	2	0
Total Analysis Volume [veh/h]	1	617	651	8	9	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	8.88	0.00	0.00	0.00	25.54	13.72
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.08	0.00	0.00	0.00	3.82	3.82
d_A, Approach Delay [s/veh]	0.01		0.00		25.54	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	D					

Apple Valley Res. Dev. TIA

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Scenario 2 Existing PM

Report File: J:\...\Existing_PM_Plus_Project.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	WB Thru	0.517	-	A
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.244	8.5	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	SB Thru	0.133	8.0	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.049	16.6	C
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.014	15.6	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	168	205	53	98	172	214	193	460	103	81	459	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	18	2	0	37	0	0	0	22	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	174	223	55	98	209	214	193	460	125	85	459	34
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	56	14	25	52	54	48	115	31	21	115	9
Total Analysis Volume [veh/h]	174	223	55	98	209	214	193	460	125	85	459	34
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.09	0.09	0.06	0.07	0.13	0.12	0.14	0.08	0.05	0.15	0.15
Intersection LOS	A											
Intersection V/C	0.517											

Intersection Level Of Service Report

Intersection 2: Navajo Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.244

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	14	186	0	0	117	33	35	0	16	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	17	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	186	0	0	117	33	52	0	16	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	47	0	0	29	8	13	0	4	0	0	0
Total Analysis Volume [veh/h]	14	186	0	0	117	33	52	0	16	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	821	741	867	762	748
Degree of Utilization, x	0.24	0.16	0.04	0.09	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.95	0.56	0.12	0.29	0.00
95th-Percentile Queue Length [ft]	23.86	13.95	2.96	7.33	0.00
Approach Delay [s/veh]	8.79	8.14		8.19	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.46				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.133

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	10	90	10	14	76	9	9	41	9	19	37	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	4	0	0	2	13
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	90	10	21	76	9	9	45	9	19	39	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	23	3	5	19	2	2	11	2	5	10	6
Total Analysis Volume [veh/h]	10	90	10	21	76	9	9	45	9	19	39	24
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	827	822	806	824
Degree of Utilization, x	0.13	0.13	0.08	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.46	0.44	0.25	0.33
95th-Percentile Queue Length [ft]	11.45	11.05	6.34	8.27
Approach Delay [s/veh]	8.02	8.03	7.84	7.86
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.96			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	426	356	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	11	26	37	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	437	382	37	16	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	109	96	9	4	0
Total Analysis Volume [veh/h]	8	437	382	37	16	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	8.18	0.00	0.00	0.00	16.58	10.54
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.15	0.00
95th-Percentile Queue Length [ft/ln]	0.53	0.00	0.00	0.00	3.84	0.00
d_A, Approach Delay [s/veh]	0.15		0.00		16.58	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	426	356	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	13	0	26	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	439	356	26	5	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	110	89	7	1	0
Total Analysis Volume [veh/h]	4	439	356	26	5	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	8.07	0.00	0.00	0.00	15.58	10.47
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	0.26	0.00	0.00	0.00	1.10	1.10
d_A, Approach Delay [s/veh]	0.07		0.00		15.58	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.13					
Intersection LOS	C					

Appendix D – Opening Year (2030) Conditions

Apple Valley Res. Dev. TIA

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Scenario 3 Opening Year AM

Report File: J:\...\Opening_Year_AM.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	EB Right	0.481	-	A
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.227	8.3	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.126	7.7	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	SB Thru	0.007	0.0	A
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	SB Thru	0.007	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	225	364	75	25	348	105	153	269	246	125	375	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	225	364	75	25	348	105	153	269	246	125	375	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	91	19	6	87	26	38	67	62	31	94	6
Total Analysis Volume [veh/h]	225	364	75	25	348	105	153	269	246	125	375	25
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.14	0.14	0.02	0.11	0.07	0.10	0.08	0.15	0.08	0.13	0.13
Intersection LOS	A											
Intersection V/C	0.481											

Intersection Level Of Service Report

Intersection 2: Navajo Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.227

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	24	165	0	0	132	37	20	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	165	0	0	132	37	20	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	41	0	0	33	9	5	0	4	0	0	0
Total Analysis Volume [veh/h]	24	165	0	0	132	37	20	0	14	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	834	759	890	785	755
Degree of Utilization, x	0.23	0.17	0.04	0.04	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.87	0.63	0.13	0.14	0.00
95th-Percentile Queue Length [ft]	21.73	15.68	3.25	3.39	0.00
Approach Delay [s/veh]	8.57	8.11		7.80	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.31				
Intersection LOS	A				

Intersection Level Of Service Report Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	7.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.126

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	6	83	19	21	26	2	2	64	2	15	43	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	83	19	21	26	2	2	64	2	15	43	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	21	5	5	7	1	1	16	1	4	11	2
Total Analysis Volume [veh/h]	6	83	19	21	26	2	2	64	2	15	43	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	858	816	830	834
Degree of Utilization, x	0.13	0.06	0.08	0.08

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.43	0.19	0.27	0.26
95th-Percentile Queue Length [ft]	10.75	4.78	6.68	6.54
Approach Delay [s/veh]	7.80	7.69	7.73	7.70
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.74			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	665	719	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	665	719	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	166	180	0	0	0
Total Analysis Volume [veh/h]	0	665	719	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.08	0.00	0.00	0.00	27.76	13.40
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		20.58	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	665	719	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	665	719	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	166	180	0	0	0
Total Analysis Volume [veh/h]	0	665	719	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.08	0.00	0.00	0.00	27.76	13.40
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		20.58	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

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Scenario 4 Opening Year PM

Report File: J:\...\Opening_Year_PM.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	WB Right	0.568	-	A
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.268	8.6	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	WB Left	0.348	9.4	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	NB Thru	0.005	0.0	A
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	NB Thru	0.005	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.568

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	186	226	59	108	190	237	213	508	114	89	507	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	226	59	108	190	237	213	508	114	89	507	37
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	57	15	27	48	59	53	127	29	22	127	9
Total Analysis Volume [veh/h]	186	226	59	108	190	237	213	508	114	89	507	37
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.09	0.09	0.07	0.06	0.15	0.13	0.16	0.07	0.06	0.17	0.17
Intersection LOS	A											
Intersection V/C	0.568											

Intersection Level Of Service Report Intersection 2: Navajo Road & Sandia Road

Control Type: All-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 8.6
Level Of Service: A
Volume to Capacity (v/c): 0.268

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	15	206	0	0	129	37	38	0	17	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	206	0	0	129	37	38	0	17	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	52	0	0	32	9	10	0	4	0	0	0
Total Analysis Volume [veh/h]	15	206	0	0	129	37	38	0	17	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	825	745	872	759	739
Degree of Utilization, x	0.27	0.17	0.04	0.07	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.08	0.62	0.13	0.23	0.00
95th-Percentile Queue Length [ft]	27.06	15.58	3.32	5.84	0.00
Approach Delay [s/veh]	8.95	8.20		8.11	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.57				
Intersection LOS	A				

Intersection Level Of Service Report Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	11	100	11	16	84	9	9	46	9	211	41	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	100	11	16	84	9	9	46	9	211	41	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	25	3	4	21	2	2	12	2	53	10	3
Total Analysis Volume [veh/h]	11	100	11	16	84	9	9	46	9	211	41	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	740	735	749	761
Degree of Utilization, x	0.16	0.15	0.09	0.35

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.59	0.52	0.28	1.56
95th-Percentile Queue Length [ft]	14.70	12.98	6.98	39.12
Approach Delay [s/veh]	8.82	8.75	8.25	10.24
Approach LOS	A	A	A	B
Intersection Delay [s/veh]	9.42			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	471	393	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	471	393	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	118	98	0	0	0
Total Analysis Volume [veh/h]	0	471	393	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.09	0.00	0.00	0.00	16.09	10.49
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		13.29	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	471	393	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	471	393	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	118	98	0	0	0
Total Analysis Volume [veh/h]	0	471	393	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.09	0.00	0.00	0.00	16.09	10.49
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		13.29	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Appendix E – Opening Year (2030) Plus Project Conditions

Apple Valley Res. Dev. TIA

Vistro File: J:\...\AppleValley_TIA_Analysis_UPDATE2.vistro

Scenario 3 Opening Year AM

Report File: J:\...\Opening_Year_AM_Plus_Project.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	EB Right	0.497	-	A
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.229	8.4	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.128	7.8	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.181	34.3	D
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.059	29.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	225	364	75	25	348	105	153	269	246	125	375	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	33	4	0	11	0	0	0	7	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	397	79	25	359	105	153	269	253	126	375	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	99	20	6	90	26	38	67	63	32	94	6
Total Analysis Volume [veh/h]	236	397	79	25	359	105	153	269	253	126	375	25
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.15	0.15	0.02	0.11	0.07	0.10	0.08	0.16	0.08	0.13	0.13
Intersection LOS	A											
Intersection V/C	0.497											

Intersection Level Of Service Report

Intersection 2: Navajo Road & Sandia Road

Control Type: All-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.4
 Level Of Service: A
 Volume to Capacity (v/c): 0.229

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	24	165	0	0	132	37	20	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	16	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	165	0	0	132	37	36	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	41	0	0	33	9	9	0	4	0	0	0
Total Analysis Volume [veh/h]	24	165	0	0	132	37	36	0	14	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	825	751	880	766	750
Degree of Utilization, x	0.23	0.18	0.04	0.07	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.88	0.63	0.13	0.21	0.00
95th-Percentile Queue Length [ft]	22.04	15.87	3.29	5.23	0.00
Approach Delay [s/veh]	8.65	8.18		8.03	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.38				
Intersection LOS	A				

Intersection Level Of Service Report Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	7.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.128

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	6	83	19	21	26	2	2	64	2	15	43	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	0	0	1	0	0	4	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	83	19	23	26	2	2	65	2	15	47	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	21	5	6	7	1	1	16	1	4	12	8
Total Analysis Volume [veh/h]	6	83	19	23	26	2	2	65	2	15	47	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	845	803	820	856
Degree of Utilization, x	0.13	0.06	0.08	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.44	0.20	0.27	0.36
95th-Percentile Queue Length [ft]	10.95	5.08	6.86	9.11
Approach Delay [s/veh]	7.89	7.79	7.79	7.72
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.80			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.181

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	665	719	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	21	8	11	27	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	686	727	11	27	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	172	182	3	7	0
Total Analysis Volume [veh/h]	2	686	727	11	27	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.18	0.00
d_M, Delay for Movement [s/veh]	9.16	0.00	0.00	0.00	34.31	13.55
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.00	0.63	0.00
95th-Percentile Queue Length [ft/ln]	0.17	0.00	0.00	0.00	15.87	0.00
d_A, Approach Delay [s/veh]	0.03		0.00		34.31	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.65					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	29.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.059

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	665	719	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	15	0	8	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	680	719	8	9	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	170	180	2	2	0
Total Analysis Volume [veh/h]	1	680	719	8	9	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	9.11	0.00	0.00	0.00	29.92	14.90
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.19	0.19
95th-Percentile Queue Length [ft/ln]	0.09	0.00	0.00	0.00	4.63	4.63
d_A, Approach Delay [s/veh]	0.01		0.00		29.92	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	D					

Apple Valley Res. Dev. TIA

Vistro File: J:\...\AppleValley_TIA_Analysis_UPDATE2.vistro

Scenario 4 Opening Year PM

Report File: J:\...\Opening_Year_PM_Plus_Project.pdf

10/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Navajo Road & Bear Valley Road	Signalized	ICU 1	WB Right	0.571	-	A
2	Navajo Road & Sandia Road	All-way stop	HCM 6th Edition	NB Thru	0.271	8.7	A
3	Mohawk Road & Sandia Road	All-way stop	HCM 6th Edition	WB Left	0.368	9.6	A
4	Navajo Road & North Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.055	18.1	C
5	Navajo Road & South Project Driveway	Two-way stop	HCM 6th Edition	EB Left	0.016	16.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Navajo Road & Bear Valley Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.571

Intersection Setup

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	150.00	100.00	100.00	170.00	100.00	100.00	200.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Navajo Road			Navajo Road			Bear Valley Road			Bear Valley Road		
Base Volume Input [veh/h]	186	226	59	108	190	237	213	508	114	89	507	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	20	2	0	37	0	0	0	22	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	246	61	108	227	237	213	508	136	93	507	37
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	62	15	27	57	59	53	127	34	23	127	9
Total Analysis Volume [veh/h]	192	246	61	108	227	237	213	508	136	93	507	37
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	240
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	4	0	7	8	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.10	0.10	0.07	0.07	0.15	0.13	0.16	0.09	0.06	0.17	0.17
Intersection LOS	A											
Intersection V/C	0.571											

Intersection Level Of Service Report

Intersection 2: Navajo Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.271

Intersection Setup

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Navajo Road			Navajo Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	15	206	0	0	129	37	38	0	17	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	19	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	206	0	0	129	37	57	0	17	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	52	0	0	32	9	14	0	4	0	0	0
Total Analysis Volume [veh/h]	15	206	0	0	129	37	57	0	17	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	815	736	860	748	733
Degree of Utilization, x	0.27	0.18	0.04	0.10	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.10	0.63	0.13	0.33	0.00
95th-Percentile Queue Length [ft]	27.53	15.81	3.37	8.21	0.00
Approach Delay [s/veh]	9.06	8.28		8.34	0.00
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.67				
Intersection LOS	A				

Intersection Level Of Service Report Intersection 3: Mohawk Road & Sandia Road

Control Type:	All-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.368

Intersection Setup

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Mohawk Road			Mohawk Road			Sandia Road			Sandia Road		
Base Volume Input [veh/h]	11	100	11	16	84	9	9	46	9	211	41	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	4	0	0	2	13
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	100	11	23	84	9	9	50	9	211	43	26
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	25	3	6	21	2	2	13	2	53	11	7
Total Analysis Volume [veh/h]	11	100	11	23	84	9	9	50	9	211	43	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	730	725	742	761
Degree of Utilization, x	0.17	0.16	0.09	0.37

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.60	0.57	0.30	1.70
95th-Percentile Queue Length [ft]	14.91	14.17	7.54	42.44
Approach Delay [s/veh]	8.91	8.91	8.34	10.46
Approach LOS	A	A	A	B
Intersection Delay [s/veh]	9.58			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Navajo Road & North Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.055

Intersection Setup

Name	Navajo Road		Navajo Road		North Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	20.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		North Project Driveway	
Base Volume Input [veh/h]	0	471	393	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	13	26	37	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	484	419	37	16	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	121	105	9	4	0
Total Analysis Volume [veh/h]	8	484	419	37	16	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	8.28	0.00	0.00	0.00	18.07	10.81
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.17	0.00
95th-Percentile Queue Length [ft/ln]	0.55	0.00	0.00	0.00	4.33	0.00
d_A, Approach Delay [s/veh]	0.13		0.00		18.07	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.37					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 5: Navajo Road & South Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Navajo Road		Navajo Road		South Project Driveway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Navajo Road		Navajo Road		South Project Driveway	
Base Volume Input [veh/h]	0	471	393	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	15	0	26	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	486	393	26	5	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	122	98	7	1	0
Total Analysis Volume [veh/h]	4	486	393	26	5	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	8.17	0.00	0.00	0.00	16.88	10.77
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.26	0.00	0.00	0.00	1.24	1.24
d_A, Approach Delay [s/veh]	0.07		0.00		16.88	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.13					
Intersection LOS	C					