REVIEWED

Glendale TRANSPORTATION

Alan Heathcoat, P.E.
Transportation Engineer
05/25/2022 9:36:59 AM
City of Glendale - Transportation Department

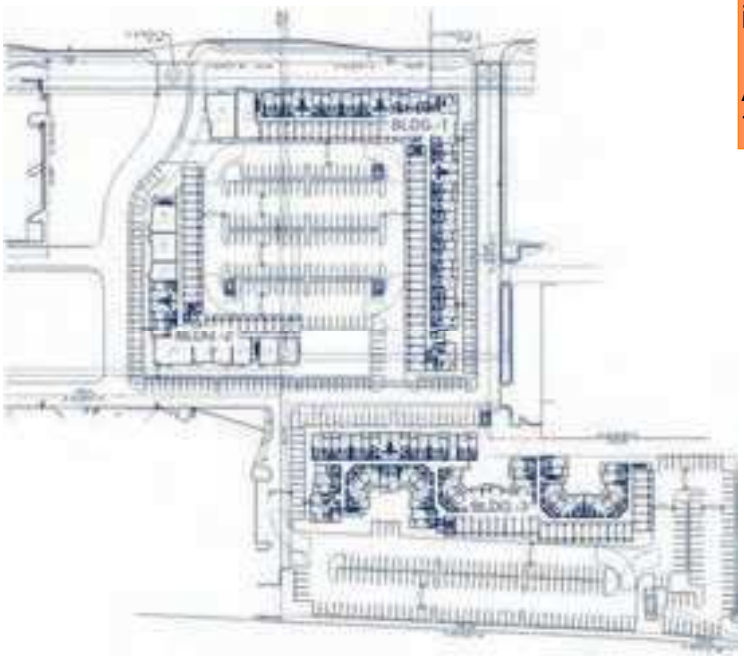
Address Comments and Resubmit
By Alan Heathcoat 05/25/2022 9:56:26 AM

N 99th Ave Apartments

Traffic Impact Analysis – Category I

TIS is conditionally approved with the agreement that the north driveway is to be Right in Right out with a turn restricting median installed.

Alan Heathcoat
7/18/2022



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Project Number: 22.5341
April 14, 2022

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1. INTRODUCTION AND EXECUTIVE SUMMARY

1.1. PURPOSE OF REPORT AND STUDY OBJECTIVES

Lōkahi, LLC (Lōkahi) was retained by Anton DevCo, Inc. to complete a Traffic Impact Analysis (TIA) – Category I for the proposed N 99th Ave Apartments development, located near the northeast corner of 99th Avenue and Camelback Road, in Glendale, Arizona. The proposed development will be comprised of 310 multifamily dwelling units with 7,070 square feet of retail space, located on the site's southwest corner. First tenant move-ins are anticipated to occur during the year 2025. For the purposes of this analysis, it was assumed that the proposed development will be opened and fully occupied in a single phase during the opening year of 2025.

The objective of this TIA is to analyze the traffic related impacts of the proposed development to the adjacent roadway network. See **Figure 1** for the vicinity map.

This Traffic Impact Analysis includes:

- Level of service analysis of existing conditions for the weekday AM and PM peak hours
- Trip generation for the proposed development
- Level of service analysis for the opening year (2025) weekday AM and PM peak hours
- Level of service analysis for 3 years after the opening year (2028) weekday AM and PM peak hours

The following are the four (4) intersections included in this study:

- 99th Avenue and Camelback Road (1)
- 99th Avenue and Driveway A (2)
- 99th Avenue and Driveway B (3)
- 99th Avenue and The Villas at Camelback Crossing (4)

1.2. EXECUTIVE SUMMARY

This report presents the analyses and results of a Traffic Impact Analysis – Category I prepared for the proposed N 99th Ave Apartments development, located near the northeast corner of 99th Avenue and Camelback Road in Glendale, Arizona. The proposed development will be comprised of 310 multifamily dwelling units with 7,070 square feet of retail space, located on the site's southwest corner. First tenant move-ins are anticipated to occur during the year 2025. For the purposes of this analysis, it was assumed that the proposed development will be opened and fully occupied in a single phase during the opening year of 2025.

Existing Capacity Analysis

The AM and PM peak hour existing conditions capacity analysis was completed for the four (4) existing study intersections. The results of the existing capacity analysis reveal that all intersections and lane groups operate at an existing level of service (LOS) D or better, with the exception of:

99th Avenue and Camelback Road (1)

- Eastbound through AM peak hour operates at LOS F
- Westbound left AM peak hour operates at LOS F
- Southbound left AM peak hour operates at LOS F
- Northbound through PM peak hour operates at LOS E
- Northbound shared through-right PM peak hour operates at LOS E
- Southbound through PM peak hour operates at LOS E
- Southbound shared through-right PM peak hour operates at LOS E

Trip Generation

The trip generation was calculated utilizing the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation, 11th Edition*. ITE Land Use Code 221 – Multifamily Housing (Mid-Rise) and ITE Land Use Code 822 – Strip Retail Plaza (<40k) were used to calculate the trips generated by the proposed development.

Trip Generation – Proposed Development

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Multifamily Housing (Mid-Rise)	221	310	Dwelling Units	1,432	125	29	96	121	74	47
Strip Retail Plaza (<40k)	822	7.07	1000 SF GLA	385	17	10	7	47	23	24
			Total	**1,817**	**142**	**39**	**103**	**168**	**97**	**71**

The proposed N 99th Ave Apartments development is anticipated to generate a total of 1,817 weekday trips, with 142 trips occurring during the AM peak hour and 168 trips occurring during the PM peak hour.

Future Conditions

Future capacity analyses were completed with the buildout of the proposed N 99th Ave Apartments development for the opening year and 3 years after the opening year. The year 2025 and 2028 background traffic volumes include a 1.5% annual growth rate based on Maricopa Associations of Governments (MAG) socioeconomic projections.

Year 2025 – Opening Year

A capacity analysis was completed for both the AM and PM peak hours for the year 2025, with the buildout of the proposed N 99th Ave Apartments development. The results of the year 2025 build capacity analysis reveal that all intersections and lane groups operate at a LOS D or better, or at the same level of service as the existing conditions, with the exception of:

99th Avenue and Camelback Road (1)

- Eastbound left PM peak hour operates at LOS E
- Southbound left PM peak hour operates at LOS E

The eastbound and southbound dedicated left turning movements were analyzed during the PM peak hour in the year 2025 without the build out of the proposed development. The analysis results in the movement operating at a LOS E. Therefore, the eastbound and southbound left turning movement delays should not be attributed to the developer and are not recommended to be mitigated as a part of this study. See **Appendix I**.

Year 2028 – 3 Years After Opening Year

A capacity analysis was completed for both the AM and PM peak hours for the year 2028, with the buildout of the proposed N 99th Ave Apartments development. The results of the year 2028 build capacity analysis reveal that all intersections and lane groups operate at a LOS D or better, or at the same level of service as the existing conditions, with the exception of:

99th Avenue and Camelback Road (1)

- Eastbound left PM peak hour operates at LOS F
- Southbound left PM peak hour operates at LOS E
- Westbound left PM peak hour operates at LOS E

The eastbound, westbound, and southbound dedicated left turning movements were analyzed during the PM peak hour in the year 2028 without the build out of the proposed development. The analysis results in the movement operating at LOS E or LOS F. Therefore, the eastbound, westbound, and southbound left turning movement delays should not be attributed to the developer and are not recommended to be mitigated as a part of this study. See **Appendix K**.

99th Avenue and Driveway A (2)

- Westbound left AM peak hour operates at LOS E

The westbound left turning movement is anticipated to experience a 37.7 second delay with a queue of approximately 2 vehicles per HCM 95th percentile queue calculations. Delays are typical during peak hours for minor-to-major turning movements as well as for movements

at stop-controlled intersections. Drivers familiar with the area often choose to use alternate routes during peak hours or drive at different times to avoid potential delay. Therefore, improvements to mitigate a LOS E is not recommended as part of this study. In addition, it should be noted that the westbound dedicated left turn movement experiences a 25.3 second delay with a queue of approximately 1 vehicle in the year 2028 without the build out of the proposed development. See **Appendix K**. The build out of the proposed development is anticipated to increase the delay and queue by approximately 12.4 seconds and 1 vehicle, respectively.

99th Avenue and The Villas at Camelback Crossing (4)

- Eastbound left PM peak hour operates at LOS E

The eastbound left turning movement is anticipated to experience a 36.6 second delay with a queue of approximately 1 vehicle per HCM 95th percentile queue calculations. Delays are typical during peak hours for minor-to-major turning movements as well as for movements at stop-controlled intersections. Drivers familiar with the area often choose to use alternate routes during peak hours or drive at different times to avoid potential delay. Therefore, improvements to mitigate a LOS E is not recommended as part of this study. In addition, it should be noted that the eastbound dedicated left turn movement experiences a 34.5 second delay with a queue of approximately 1 vehicle in the year 2028 without the build out of the proposed development. See **Appendix K**. The build out of the proposed development is anticipated to increase the delay by approximately 2.1 seconds. The proposed development is not anticipated to increase the queue length.

Conclusions & Recommendations

The additional traffic generated by the proposed N 99th Ave Apartments development is anticipated to result in minimal traffic related impacts to the existing roadway network and the surrounding area. It is recommended that the agency which maintains and controls the traffic signals in the study area to monitor traffic patterns and if necessary, adjust nearby signal timing.

2. PROPOSED DEVELOPMENT

The proposed development is located near the northeast corner of 99th Avenue and Camelback Road in the City of Glendale, Arizona. See **Figure 1** for a vicinity map.

The proposed N 99th Ave Apartments development will be comprised of 310 multifamily dwelling units with 7,070 square feet of retail space, located on the site's southwest corner.

There are two (2) existing driveways evaluated in this study which provide direct access to the site and are each located along 99th Avenue. These existing joint accesses currently serve developments on the parcels adjacent to the proposed site. Northbound right turn lanes and a two-way left turn lane currently exist along 99th Avenue at each driveway to facilitate right and left turning movements into the site.

99th Avenue and Driveway A (2) is located approximately 670 feet north of Camelback Road and will provide full access movements into and out of the site, as it currently operates.

99th Avenue and Driveway B (3) is located approximately 400 feet north of Driveway A and will provide full access movements into and out of the site, as it currently operates.

See **Figure 2** and **Appendix A** for the proposed site plan.

Due to existing conditions drivway 3 is required to be right in right out only.

FIGURE 1 | VICINITY MAP

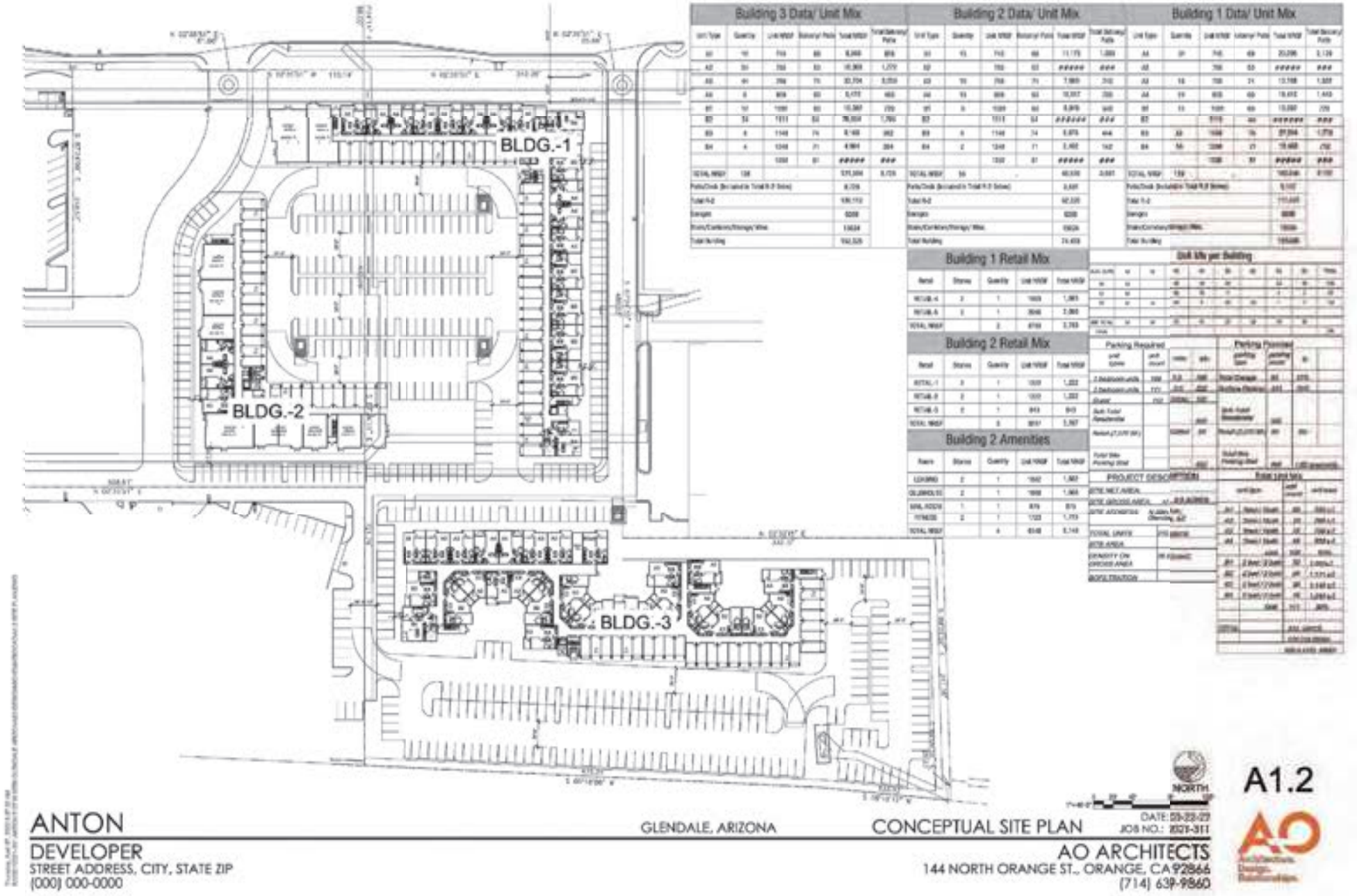


FIGURE 2 | SITE PLAN

3. AREA CONDITIONS

The study area is located in the City of Glendale, Arizona. **Sections 3.1** and **3.2** provide detailed descriptions of the existing study roadway segments and intersections. See **Figure 3** for the study area.

3.1. STUDY ROADWAY SEGMENTS

99th Avenue is a north-south roadway that provides two (2) through lanes in each direction of travel, with a two-way left turn lane (TWLTL). According to the *Envision Glendale 2040 General Plan,* 99th Avenue is classified as an Arterial. All Traffic Data Services, LLC collected traffic counts on Wednesday, March 23, 2022, along 99th Avenue, north of Camelback Road. The recorded counts indicate an average daily traffic (ADT) of 15,121 vehicles per day (vpd). There is a posted speed limit of 50 miles per hour (mph).

Camelback Road is an east-west roadway that provides two (2) through lanes in each direction of travel, with a TWLTL. According to the *Envision Glendale 2040 General Plan,* Camelback Road is classified as a Major Arterial. The *City of Glendale - Arterial Counts 2020* map reports an AADT of 35,000 vpd along Camelback Road, between 99th Avenue and 91st Avenue. There is a posted speed limit of 45 mph.

3.2. STUDY INTERSECTIONS

99th Avenue and Camelback Road (1) operates as a signalizedr intersection. The northbound and southbound approaches provide one (1) dedicated left turn lane, one (1) through lane, and one (1) shared through-right turn lane. The eastbound and westbound approaches each provide one (1) dedicated left turn lane, two (2) through lanes, and one (1) dedicated right turn lane.

99th Avenue and Driveway A (2) operates as a two-way stop-controlled intersection, with stop-control on the eastbound and westbound approaches. The northbound approach provides one (1) dedicated left turn lane (via the existing TWLTL), two (2) through lanes, and one (1) dedicated right turn lane. The southbound approach provides one (1) dedicated left turn lane (via the existing TWLTL), one (1) through lane, and one (1) shared through-right turn lane. The eastbound and westbound approaches each provide an approximate width of 40 feet of unmarked pavement that is assumed to operate as one (1) dedicated left turn lane and one (1) shared through-right turn lane.

99th Avenue and Driveway B (3) operates as a one-way stop-controlled T-intersection, with stop-control on the westbound approach. The northbound approach provides two (2) through lanes and one (1) dedicated right turn lane. The southbound approach provides one

(1) dedicated left turn lane (via the existing TWLTL) and two (2) through lanes. The westbound approach provides one (1) shared left-right turn lane.

99th Avenue and The Villas at Camelback Crossing (4) operates as a two-way stop-controlled intersection, with stop-control on the eastbound and westbound approaches. The northbound approach provides one (1) dedicated left turn lane (via the existing TWLTL), one (1) through lane, and one (1) shared through-right turn lane. The southbound approach provides one (1) dedicated left turn lane (via the existing TWLTL), two (2) through lanes, and one (1) dedicated right turn lane. The eastbound approach provides (1) dedicated left turn lane and one (1) shared through-right turn lane. The westbound approach provides one (1) shared left-through-right turn lane.

3.3. STUDY AREA LAND USE

The approximate 36.5-acre site is located near the northeast corner of 99th Avenue and Camelback Road in Glendale, Arizona. The study area generally consists of residential, lodging, and commercial land uses with vacant land located directly to the east and south of the site.

3.4. SITE ACCESSIBILITY

Roadway System

The study area is located in the City of Glendale, Arizona. Access to Arizona State Route Loop 101 (SR 101L) is located approximately three tenths of a mile east of the site. SR 101L connects the City of Glendale to US 60 and Interstate 17 (I-17) to the north and Interstate 10 (I-10) to the south. Access to Northern Parkway, a limited access freeway which currently connects Arizona State Route Loop 303 (SR 303L) to Dysart Road, is located north of the site via Northern Avenue. The Northern Parkway alignment is planned to continue east and include an interchange with SR 101L and terminate at Grand Avenue/ US Route 60 (US 60). These routes provide local connectivity to areas within and surrounding the City of Glendale and regional connectivity to the Phoenix Metropolitan area. The City of Glendale street network is generally built as a one-mile grid system.

Pedestrian Facilities

99th Avenue and Camelback Road provide continuous sidewalks along both sides of the roadway, within the study area. Additionally, the existing local roadways which border the proposed development currently provide sidewalks on the side of the roadway which abut the site.

Bicycle Facilities and Shared-Use Paths

Bike lanes are provided on both sides of Camelback Road, west of 99th Avenue.

Transit Facilities

The City of Glendale Park and Ride facility is located on the northeast corner of 99th Avenue and Glendale Avenue, approximately 1.75 miles north of the proposed site. The Park and Ride serves as the departure point for Valley Metro Route 70 and West Glendale Express Route 573.

Legend

X Intersection

FIGURE 3 | STUDY AREA

4. EXISTING CONDITIONS

4.1. EXISTING LAND USE

According to Maricopa County Assessor Parcel Viewer, the proposed site will occupy two (2) parcels, which includes portions of Assessor Parcel Number (APN) 102-14-648 and APN 102-14-279, for a total of 36.5 acres. The existing site is currently vacant land zoned for Planned Area Development (PAD). See **Appendix B** for detailed parcel information.

4.2. EXISTING TRAFFIC COUNTS

A local data collection firm, All Traffic Data Services, LLC, was utilized to collect traffic counts. On Wednesday, March 23, 2022, 4 hours of typical weekday turning movement counts were obtained during the AM (7:00 to 9:00 am) and PM (4:00 to 6:00 pm) peak hours at the following intersections:

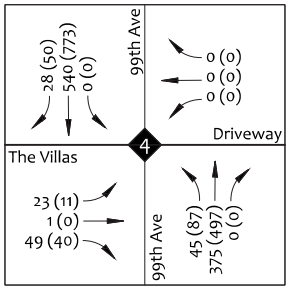
- 99th Avenue and Camelback Road (1)
- 99th Avenue and Driveway A (2)
- 99th Avenue and Driveway B (3)
- 99th Avenue and The Villas at Camelback Crossing (4)

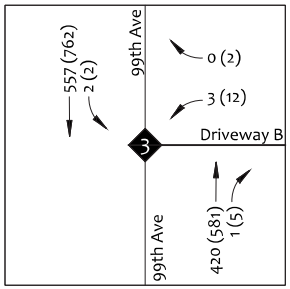
The turning movement counts were then analyzed for the highest 1-hour within each time period. The following peak hours were analyzed throughout this study.

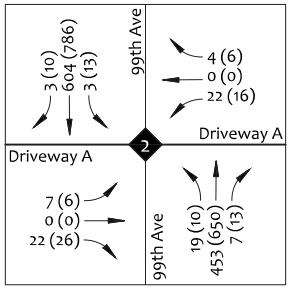
AM Peak Hour	7:15 am – 8:15 am
PM Peak Hour	4:00 pm – 5:00 pm

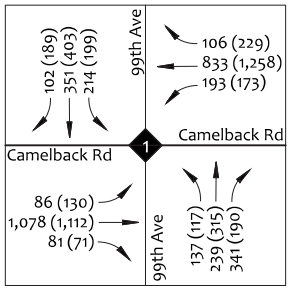
Additionally, on Wednesday, March 23, 2022, weekday bi-directional tube counts for 24-hours in 15-minute intervals were collected along 99th Avenue, approximately 685 feet north of Camelback Road.

See **Figure 4** for the existing AM and PM peak hour traffic volumes. See **Appendix C** for detailed traffic count data.









Legend

AM(PM)	Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic

FIGURE 4 | EXISTING TRAFFIC VOLUMES

4.3.EXISTING CAPACITY ANALYSIS

The existing conditions capacity analysis was completed for the existing study intersections. The capacity and level of service for the study area intersections, were evaluated using the methodology presented in the 6th *Edition of the Highway Capacity Manual (HCM)*. Traffic analysis software, Synchro Version 11, was used to perform the analyses using the existing peak hour factor (PHF) obtained from the traffic counts. See **Appendix D** for the existing signal timing obtained from the City of Glendale.

Table 1 is from the 6th *Edition of the Highway Capacity Manual* Exhibit 19-8 and 20-2, which lists the Level of Service (LOS) thresholds for signalized and stop-controlled intersections.

Table 1 – Level of Service Criteria

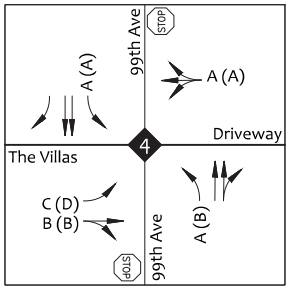
Level of Service	Control Delay per Vehicle (s/veh)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	0 - 10
B	> 10-20	> 10–15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

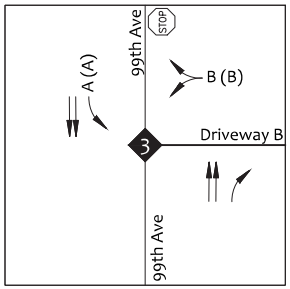
The results of the existing capacity analysis reveal that all intersections and lane groups operate at an existing level of service (LOS) D or better, with the exception of:

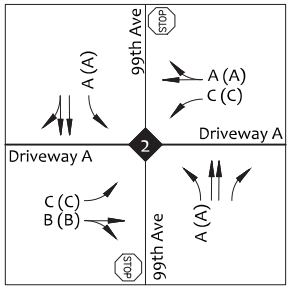
99th Avenue and Camelback Road (1)

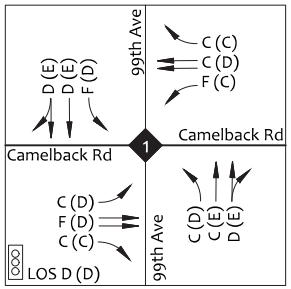
- Eastbound through AM peak hour operates at LOS F
- Westbound left AM peak hour operates at LOS F
- Northbound through PM peak hour operates at LOS E
- Northbound shared through-right PM peak hour operates at LOS E
- Southbound left AM peak hour operates at LOS F
- Southbound through PM peak hour operates at LOS E
- Southbound shared through-right PM peak hour operates at LOS E

See **Figure 5** for the existing AM and PM peak hour capacity analysis. The detailed capacity analysis sheets can be found in **Appendix E**.









Legend

AM(PM)	Peak Hour Traffic Volumes
X	Intersection
	Lane Configuration

FIGURE 5 | EXISTING CAPACITY ANALYSIS

5. PROJECTED TRAFFIC

5.1. TRIP GENERATION

The trip generation for the proposed development was calculated utilizing the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation, 11th Edition*. The ITE rates are based on studies that measured the trip generation characteristics for various types of land uses. The rates are expressed in terms of trips per unit of land use type. This publication is considered to be the standard for the transportation engineering profession.

The trip generation for the proposed development was calculated utilizing ITE Land Use Code 221 – Multifamily Housing (Mid-Rise) which includes apartments and condominiums located in a building that has between four and ten floors (levels) of living space), and ITE Land Use Code 822 – Strip Retail Plaza (<40k). The total trip generation for the proposed development is shown in **Table 2**.

Table 2 – Trip Generation – Proposed Development

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Multifamily Housing (Mid-Rise)	221	310	Dwelling Units	1,432	125	29	96	121	74	47
Strip Retail Plaza (<40k)	822	7.07	1000 SF GLA	385	17	10	7	47	23	24
			Total	**1,817**	**142**	**39**	**103**	**168**	**97**	**71**

The proposed N 99th Ave Apartments development is anticipated to generate a total of 1,817 weekday trips, with 142 trips occurring during the AM peak hour and 168 trips occurring during the PM peak hour.

Detailed trip generation calculations are provided in **Appendix F**.

5.2. TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution procedure determines the general pattern of travel for vehicles entering and exiting the proposed development. The trip distribution for the proposed N 99th Ave Apartments development is based on the distribution of the existing traffic along the surrounding roadway network, permitted movements at the proposed site driveways, and probable routes. The trip distribution is shown in **Figure 6.**

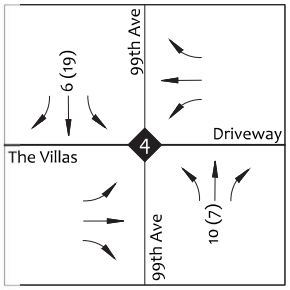
The trip assignment was generally based on proximity of the driveways, permitted turn movements, as well as ease and probability of use. The site generated traffic volumes are shown in **Figure 7**.

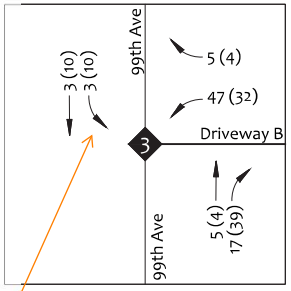
LEGEND

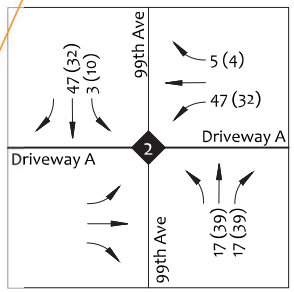
AM (PM) Inbound Trip Distribution Percentages

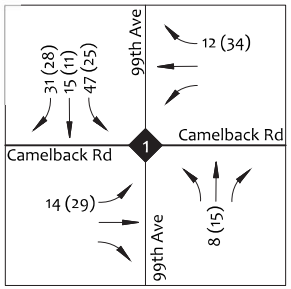
AM (PM) Outbound Trip Distribution Percentages

FIGURE 6 | TRIP DISTRIBUTION









Right in right out only

Legend

AM(PM)	Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic

FIGURE 7 | SITE TRAFFIC VOLUMES

6. FUTURE CONDITIONS (YEAR 2025 – OPENING YEAR)

The N 99th Ave Apartments development is anticipated to be constructed as a single phase and it is assumed for the purposes of this study to be completed and fully occupied during the year 2025, the anticipated opening year. This section analyzes the effects the proposed development will have on the surrounding roadway network during the year of 2025.

6.1. YEAR 2025 BACKGROUND TRAFFIC VOLUMES

According to the 2019 Maricopa Associations of Governments (MAG) socioeconomic projections for the City of Glendale within the study area Regional Analysis Zone 254 (RAZ 257), it is estimated that in the year 2018 the population of the study area was approximately 51,024. MAG estimates that the 2030 population of the surrounding area will be approximately 58,164. This results in an approximate annual growth rate of 1.1%. As a conservative approach, a 1.5% annual growth rate was utilized. See **Appendix G** for the MAG socioeconomic projections.

The year 2025 background traffic volumes are shown in **Figure 8**, which includes the 1.5% annual growth rate.

6.2. YEAR 2025 BUILD TRAFFIC VOLUMES

To determine the year 2025 build traffic volumes, the site traffic volumes (**Figure 7**) were added to the year 2025 background traffic volumes (**Figure 8**). This represents the year 2025 traffic volumes with the buildout of the proposed N 99th Ave Apartments development. The year 2025 build traffic volumes are shown in **Figure 9**.

6.3. YEAR 2025 BUILD CAPACITY ANALYSIS

The year 2025 build capacity analysis was completed for the four (4) study intersections during the AM and PM peak hour. The capacity analysis for the study area intersections were evaluated using the methodology described in **Section 4.3**. Signal timing splits were optimized for the future traffic volumes, and a peak hour factor (PHF) of 0.92 was used for future conditions.

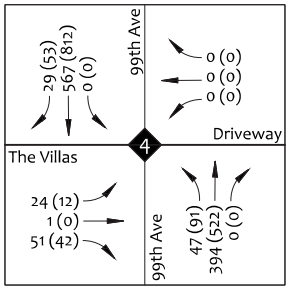
The 2025 build capacity analysis results in all intersections and lane groups operating at a LOS D or better during the AM and PM peak hours, or at the same level of service as the existing conditions, with the exception of:

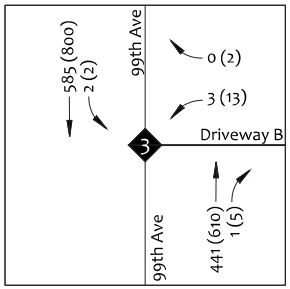
99th Avenue and Camelback Road (1)

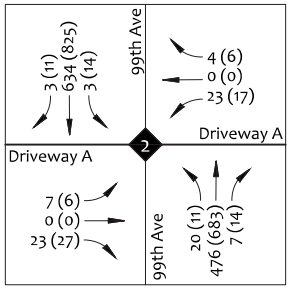
- Eastbound left PM peak hour operates at LOS E
- Southbound left PM peak hour operates at LOS E

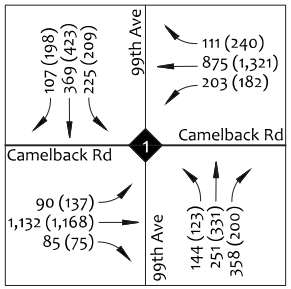
The eastbound and southbound dedicated left turning movements were analyzed during the PM peak hour in the year 2025 without the build out of the proposed development. The analysis results in the movement operating at a LOS E. Therefore, the eastbound and southbound left turning movement delays should not be attributed to the developer and are not recommended to be mitigated as a part of this study. See **Appendix I**.

The results of the 2025 build capacity analysis level of are shown in **Figure 10**. The detailed capacity analysis sheets can be found in **Appendix H**.





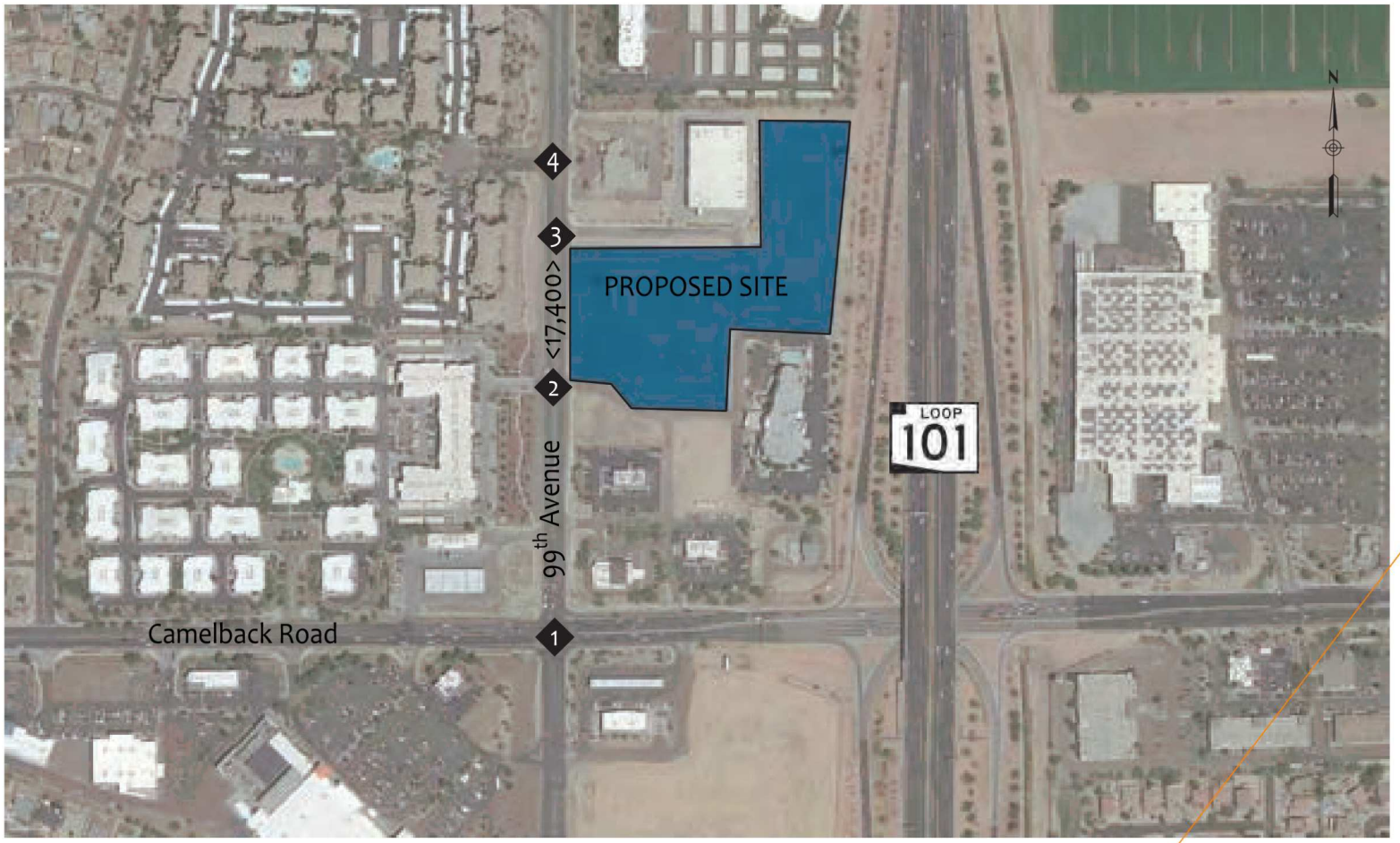


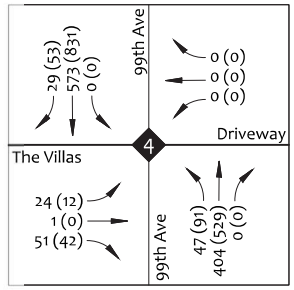


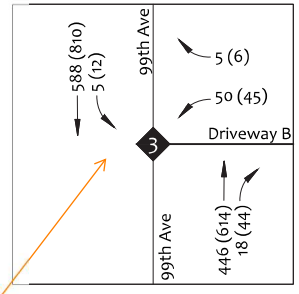
Legend

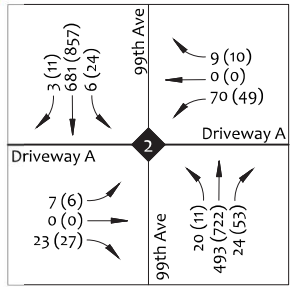
AM(PM)	Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic

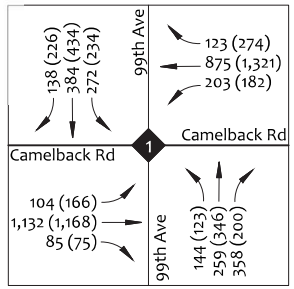
FIGURE 8 | YEAR 2025 BACKGROUND TRAFFIC VOLUMES









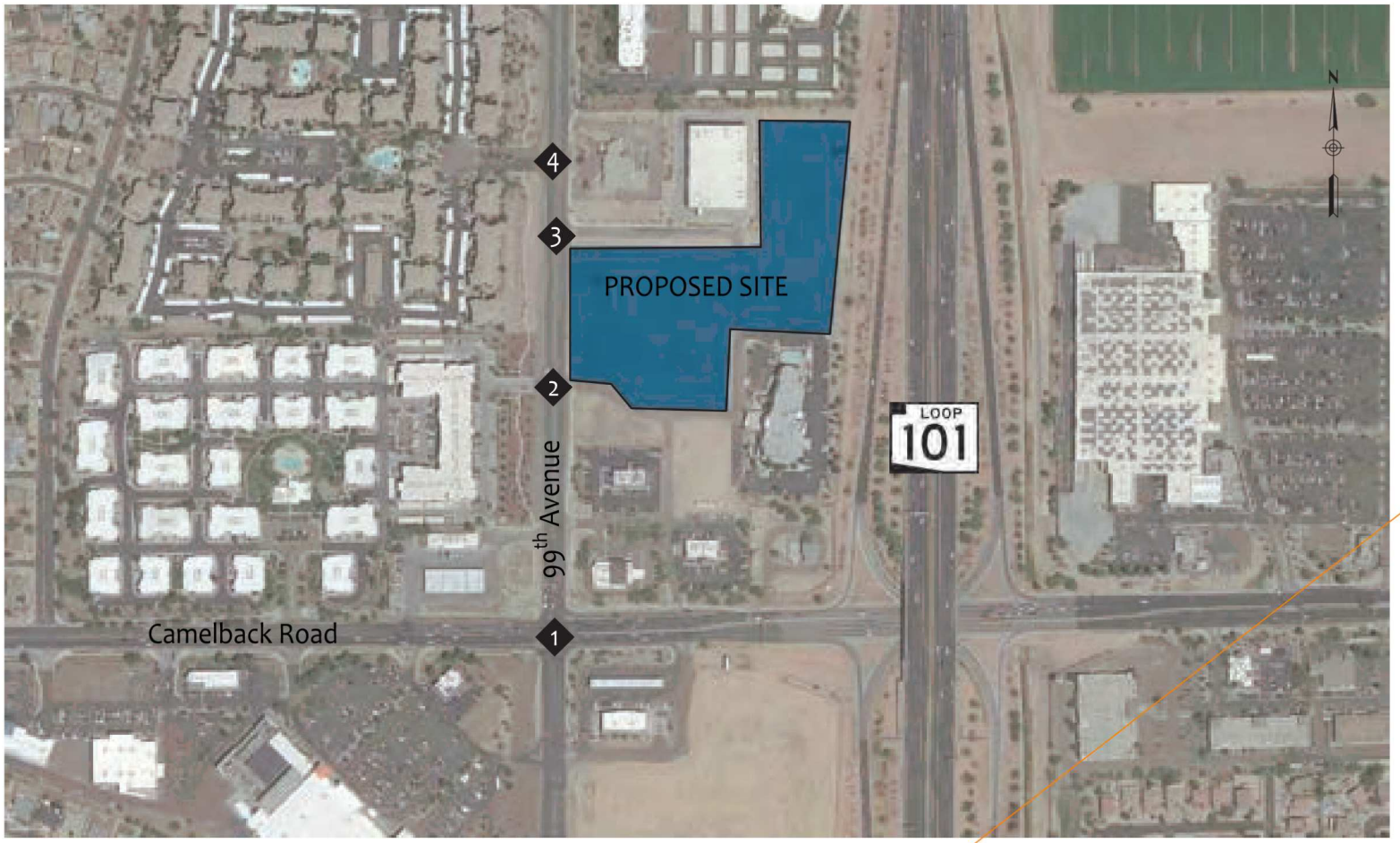


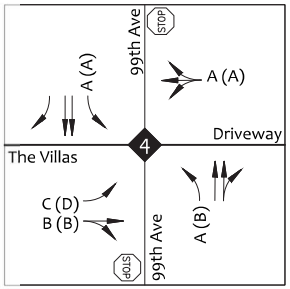
right in right out only

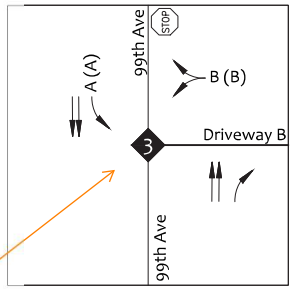
Legend

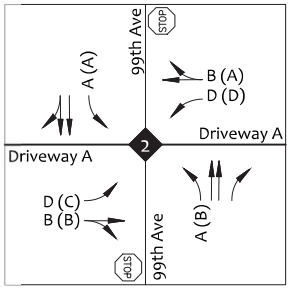
AM(PM)	Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic

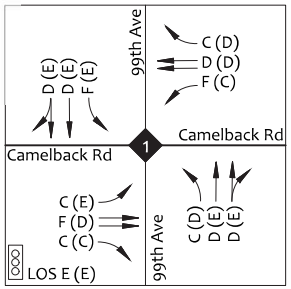
FIGURE 9 | YEAR 2025 BUILD TRAFFIC VOLUMES











Legend

AM(PM)	Peak Hour Traffic Volumes
X	Intersection
	Lane Configuration

right in right out only

FIGURE 10 | YEAR 2025 BUILD CAPACITY ANALYSIS

7. FUTURE CONDITIONS (YEAR 2028)

This section analyzes the effects the proposed development will have on the surrounding roadway network during the year of 2028, 3 years after the opening year.

7.1. YEAR 2028 BACKGROUND TRAFFIC VOLUMES

Similar to the year 2025 background traffic volumes described in detail in **Section 6.1**, the year 2028 background traffic volumes (**Figure 11**) include the 1.5% annual growth rate through the year 2028.

7.2. YEAR 2028 BUILD TRAFFIC VOLUMES

To determine the year 2028 build traffic volumes, the site traffic volumes (**Figure 7**) were added to the year 2028 background traffic volumes (**Figure 11**). This represents the year 2028 traffic volumes with the build out of the proposed N 99th Ave Apartments development. The year 2028 build traffic volumes are shown in **Figure 12**.

7.3. YEAR 2028 BUILD CAPACITY ANALYSIS

The year 2028 build capacity analysis was completed for the four (4) study intersections during the AM and PM peak hour. The capacity analysis for the study area intersections were evaluated using the methodology described in **Section 4.3**. Signal timing splits were optimized for the future traffic volumes, and a peak hour factor (PHF) of 0.92 was used for future conditions.

The 2028 build capacity analysis results in all intersections and lane groups operating at a LOS D or better during the AM and PM peak hours or at the same level of service as the existing conditions, with the exception of:

99th Avenue and Camelback Road (1)

- Eastbound left PM peak hour operates at LOS F
- Westbound left PM peak hour operates at LOS E
- Southbound left PM peak hour operates at LOS E

The eastbound, westbound, and southbound dedicated left turning movements were analyzed during the PM peak hour in the year 2028 without the build out of the proposed development. The analysis results in the movement operating at LOS E or LOS F. Therefore, the eastbound, westbound, and southbound left turning movement delays should not be attributed to the developer and are not recommended to be mitigated as a part of this study. See **Appendix K**.

99th Avenue and Driveway A (2)

- Westbound left AM peak hour operates at LOS E

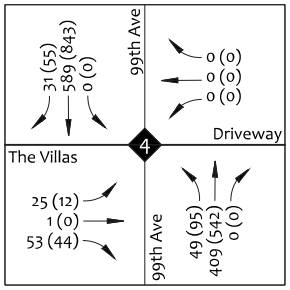
The westbound left turning movement is anticipated to experience a 37.7 second delay with a queue of approximately 2 vehicles per HCM 95th percentile queue calculations. Delays are typical during peak hours for minor-to-major turning movements as well as for movements at stop-controlled intersections. Drivers familiar with the area often choose to use alternate routes during peak hours or drive at different times to avoid potential delay. Therefore, improvements to mitigate a LOS E is not recommended as part of this study. In addition, it should be noted that the westbound dedicated left turn movement experiences a 25.3 second delay with a queue of approximately 1 vehicle in the year 2028 without the build out of the proposed development. See **Appendix K**. The build out of the proposed development is anticipated to increase the delay and queue by approximately 12.4 seconds and 1 vehicle, respectively.

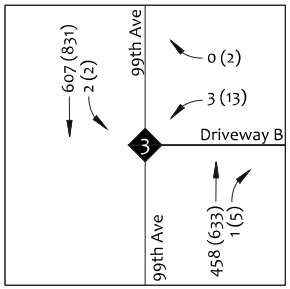
99th Avenue and The Villas at Camelback Crossing (4)

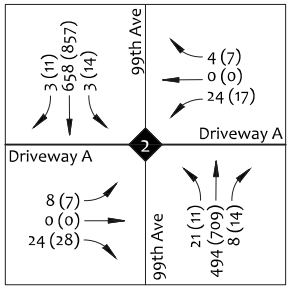
- Eastbound left PM peak hour operates at LOS E

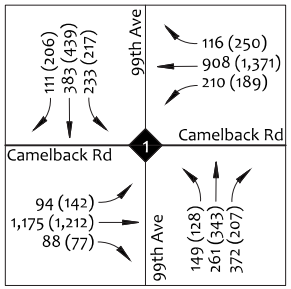
The eastbound left turning movement is anticipated to experience a 36.6 second delay with a queue of approximately 1 vehicle per HCM 95th percentile queue calculations. Delays are typical during peak hours for minor-to-major turning movements as well as for movements at stop-controlled intersections. Drivers familiar with the area often choose to use alternate routes during peak hours or drive at different times to avoid potential delay. Therefore, improvements to mitigate a LOS E is not recommended as part of this study. In addition, it should be noted that the eastbound dedicated left turn movement experiences a 34.5 second delay with a queue of approximately 1 vehicle in the year 2028 without the build out of the proposed development. See **Appendix K**. The build out of the proposed development is anticipated to increase the delay by approximately 2.1 seconds. The proposed development is not anticipated to increase the queue length.

The results of the 2028 build capacity analysis level of are shown in **Figure 13**. The detailed capacity analysis sheets can be found in **Appendix J**.





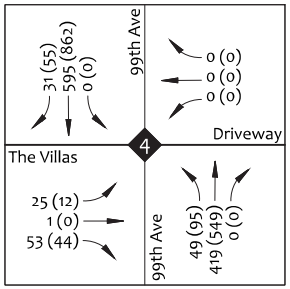


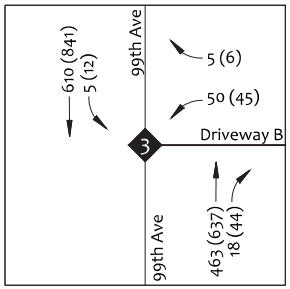


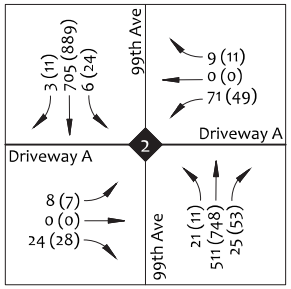
Legend

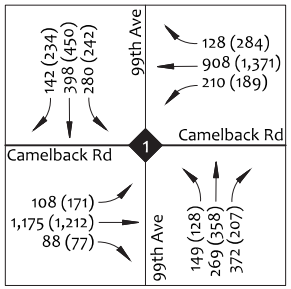
AM(PM)	Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic

FIGURE 11 | YEAR 2028 BACKGROUND TRAFFIC VOLUMES





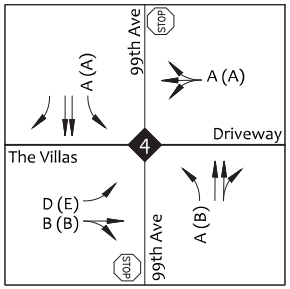


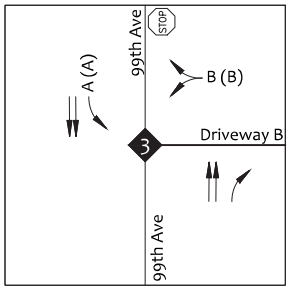


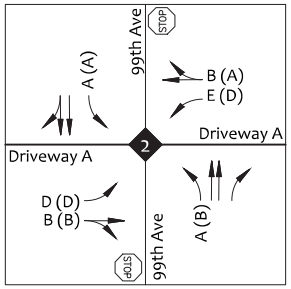
Legend

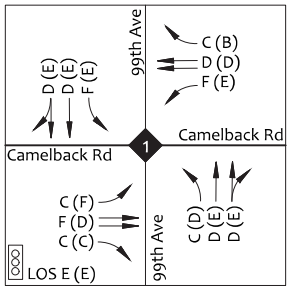
AM(PM)	Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic

FIGURE 12 | YEAR 2028 BUILD TRAFFIC VOLUMES









Legend

AM(PM)	Peak Hour Traffic Volumes
X	Intersection
	Lane Configuration

FIGURE 13 | YEAR 2028 BUILD CAPACITY ANALYSIS

8. QUEUING ANALYSIS

A queueing analysis was performed to determine if the existing right and left turn lanes at Driveway A and Driveway B will provide adequate storage to accommodate the year 2028 traffic volumes with the buildout of the proposed development. The *MCDOT Traffic Impact Study Manual*, dated May 2017, was utilized to conduct the queuing analysis per City of Glendale guidelines. The method shown below was used for computing queue lengths for stop-controlled intersections.

For stop-controlled intersections:

Vehicles/2 min period = (vehicles/hour)/(30 periods/hour)
Storage length = vehicles/2 min period x 25 feet

All results should be rounded up to the nearest 25-foot interval.

Table 3 –Queuing Analysis

Intersection	Movement	Max Vehicles/Peak Hour	Existing Storage Length (ft)	AASHTO Queue Length (ft)
99th Ave and Driveway A (2)	NB Right	53	120'	50'
	SB Left (TWLTL)	24	350'	25'
99th Ave and Driveway B (3)	NB Right	44	110'	50'
	SB Left (TWLTL)	12	150'	25'

The anticipated queue for each turn lane is calculated to be 50 feet or less, therefore the existing storage provided at each turn lane is expected to provide more than sufficient storage for turning vehicles into Driveway A and Driveway B.

9. RECOMMENDATIONS AND CONCLUSIONS

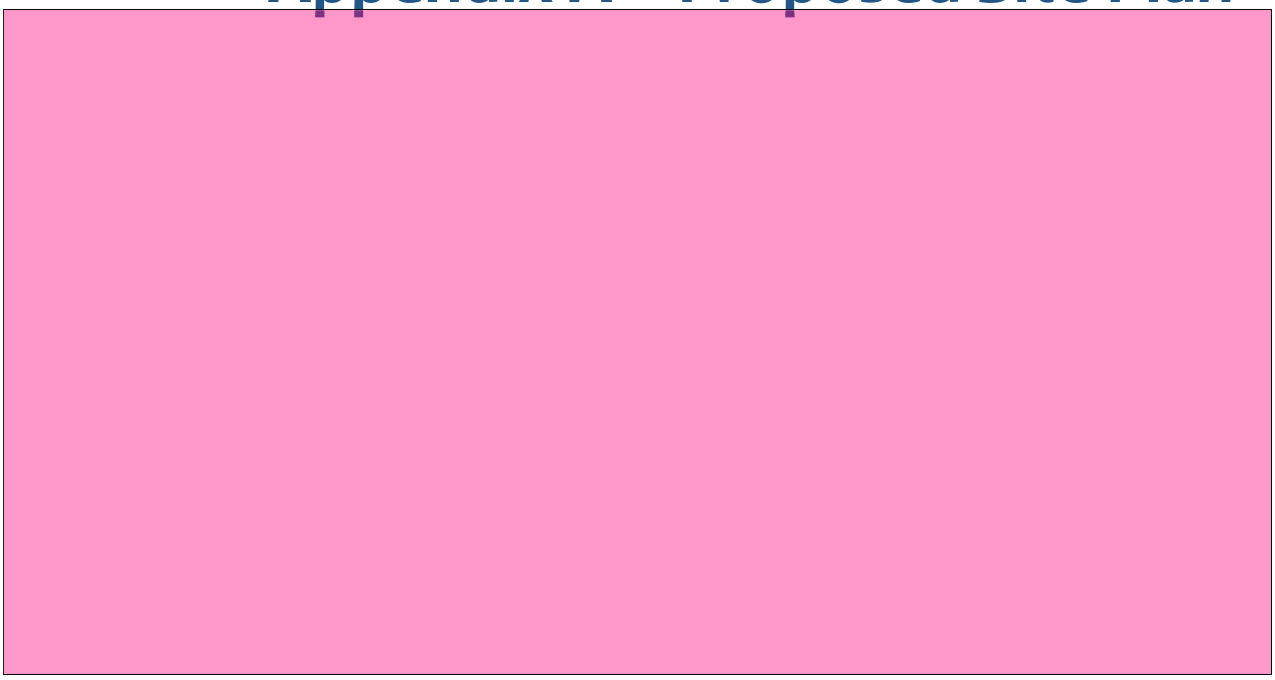
The proposed N 99th Ave Apartments development is located near the northeast corner of 99th Avenue and Camelback Road in Glendale, Arizona. The proposed development will be comprised of 310 multifamily dwelling units with 7,070 square feet of retail space, located on the site's southwest corner. First tenant move-ins are anticipated to occur during the year 2025. For the purposes of this analysis, it was assumed that the proposed development will be opened and fully occupied in a single phase during the opening year of 2025.

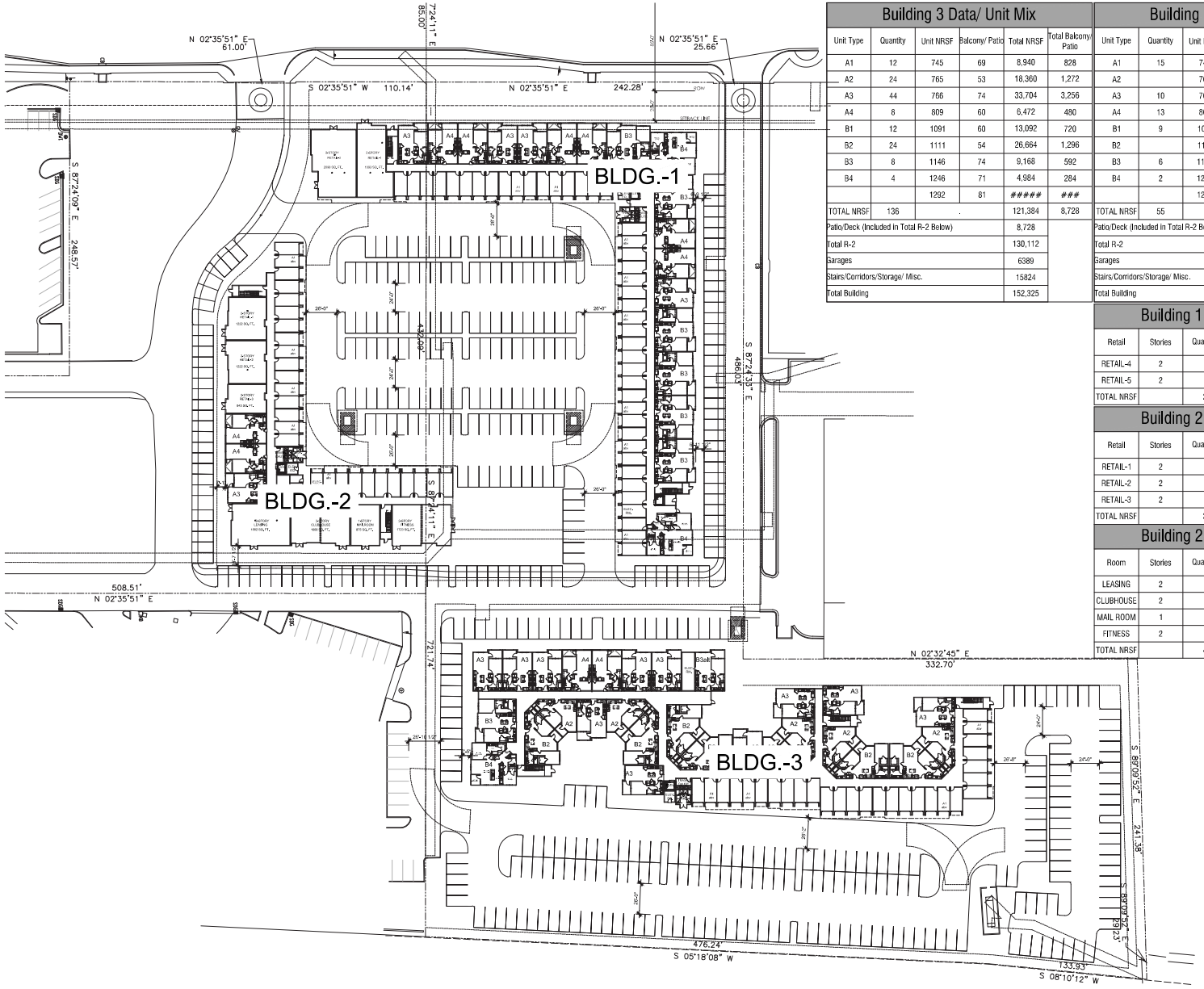
In conclusion, the additional traffic generated by the proposed N 99th Ave Apartments development is anticipated to result in minimal traffic related impacts to the existing roadway network and the surrounding area. It is recommended that the agency which maintains and controls the traffic signals in the study area to monitor traffic patterns and if necessary, adjust nearby signal timing.

The north access (access 3) is required to be right in right out only.

City of Phoenix and ADOT will need to review this TIS as well.

Appendix A – Proposed Site Plan





Building 3 Data/ Unit Mix

Unit Type	Quantity	Unit NRSF	Balcony/ Patio	Total NRSF	Total Balcony/ Patio
A1	12	745	69	8,940	828
A2	24	765	53	18,360	1,272
A3	44	766	74	33,704	3,256
A4	8	809	60	6,472	480
B1	12	1091	60	13,092	720
B2	24	1111	54	26,664	1,296
B3	8	1146	74	9,168	592
B4	4	1246	71	4,984	284
		1292	81	#####	###
TOTAL NRSF	136			121,384	8,728
Patio/Deck (Included in Total R-2 Below)				8,728	
Total R-2				130,112	
Garages				6389	
Stairs/Corridors/Storage/ Misc.				15824	
Total Building				152,325	

Building 2 Data/ Unit Mix

Unit Type	Quantity	Unit NRSF	Balcony/ Patio	Total NRSF	Total Balcony/ Patio
A1	15	745	69	11,175	1,035
A2		765	53	#####	###
A3	10	766	74	7,660	740
A4	13	809	60	10,517	780
B1	9	1091	60	9,819	540
B2		1111	54	######	###
B3	6	1146	74	6,876	444
B4	2	1246	71	2,492	142
		1292	81	#####	###
TOTAL NRSF	55			48,539	3,681
Patio/Deck (Included in Total R-2 Below)				3,681	
Total R-2				52,220	
Garages				6389	
Stairs/Corridors/Storage/ Misc.				15824	
Total Building				74,433	

Building 1 Data/ Unit Mix

Unit Type	Quantity	Unit NRSF	Balcony/ Patio	Total NRSF	Total Balcony/ Patio
A1	31	745	69	23,095	2,139
A2		765	53	#####	###
A3	18	766	74	13,788	1,332
A4	24	809	60	19,416	1,440
B1	12	1091	60	13,092	720
B2		1111	54	######	###
B3	24	1146	74	27,504	1,776
B4	10	1246	71	12,460	710
		1292	81	#####	###
TOTAL NRSF	119			109,355	8,117
Patio/Deck (Included in Total R-2 Below)				8,117	
Total R-2				117,472	
Garages				6389	
Stairs/Corridors/Storage/ Misc.				15824	
Total Building				139,685	

Building 1 Retail Mix

Retail	Stories	Quantity	Unit NRSF	Total NRSF
RETAIL-4	2	1	1693	1,693
RETAIL-5	2	1	2090	2,090
TOTAL NRSF		2	3783	3,783

Building 2 Retail Mix

Retail	Stories	Quantity	Unit NRSF	Total NRSF
RETAIL-1	2	1	1222	1,222
RETAIL-2	2	1	1222	1,222
RETAIL-3	2	1	843	843
TOTAL NRSF		3	3287	3,287

Building 2 Amenities

Room	Stories	Quantity	Unit NRSF	Total NRSF
LEASING	2	1	1882	1,882
CLUBHOUSE	2	1	1668	1,668
MAIL ROOM	1	1	875	875
FITNESS	2	1	1723	1,723
TOTAL NRSF		4	6148	6,148

Unit Mix per Building

BLDG (ELW)	A1	A2	A3	A4	B1	B2	B3	B4	TOTAL
B1	31		18	24	12		24	10	119
B2	15		10	13	9		6	2	55
B3	12	24	44	8	12	24	8	4	136
UNIT TOTAL	58	24	72	45	33	24	38	16	
TOTAL									310

Parking Required				Parking Provided			
unit types	unit count	ratio	qty.	parking type	parking count	%	
1 bedroom units	199	1.0	199	Total Garage	94	17%	
2 bedroom units	111	2.0	222	Surface Parking	441	78%	
Guest	102	.33/DU	102				
Sub-Total Residential			523	Sub-Total Residential	535		
Retail (7,070 SF)		1/250sf	29	Retail (7,070 SF)	30	5%	
Total Site Parking Stall			552	Total Site Parking Stall	565	1.82 spaces/du	

PROJECT DESCRIPTION

SITE NET AREA:	
SITE GROSS AREA:	+/- 8.5 ACRES
SITE ADDRESS:	N 99th Ave., Glendale, AZ.
TOTAL UNITS	310 UNITS
SITE AREA	
DENSITY ON GROSS AREA	36.5 DU/AC
BOFILTRATION	

Total Unit Mix

unit type		unit count	unit area
A1	1bed / 1bath	58	745 s.f.
A2	1bed / 1bath	24	765 s.f.
A3	1bed / 1bath	72	766 s.f.
A4	1bed / 1bath	45	809 s.f.
	total	199	64%
B1	2 bed / 2 bath	33	1,091s.f.
B2	2 bed / 2 bath	24	1,111 s.f.
B3	2 bed / 2 bath	38	1,146 s.f.
B4	2 bed / 2 bath	16	1,246 s.f.
	total	111	36%
TOTAL		310 UNITS	
		279,278 NRSF	
		900.9 AVG. NRSF	

NORTH

1"=40'-0" 0 20' 40' 80' 120'

A1.2

ANTON

GLENDALE, ARIZONA

CONCEPTUAL SITE PLAN

DATE: 03-22-22
JOB NO.: 2021-311

DEVELOPER
STREET ADDRESS, CITY, STATE ZIP
(000) 000-0000

AO ARCHITECTS
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

Appendix B – Parcel Information

102-14-279 **Land Parcel**

This is a Land parcel located at 5149 N 99TH AVE GLENDALE 85305. The current owner is MGCP LLC. It is located in the CORNERSTONE AT CAMELBACK LOT 3A MINOR LAND DIVISION subdivision, and MCR 106524. Its current current year year full cash value is $1,753,700.

This parcel's appeal deadline date is: Apr 26th, 2022

MAPS | PICTOMETRY | $ VIEW/PAY TAX BILL | DEED

OWNER | VALUATIONS | MAP FERRET | SIMILAR PARCELS

REGISTER RENTAL | PRINT DETAILS

PROPERTY INFORMATION

5149 N 99TH AVE GLENDALE 85305

MCR #	106524
Description	CORNERSTONE AT CAMELBACK LOT 3A MLD MCR 1065-24
Lat/Long	33.509932 | -112.271496
Lot Size	168,102 sq ft.
Zoning	PAD
Lot #	3E
High School District	TOLLESON UNION #214
Elementary School District	PENDERGAST ELEMENTARY SCHOOL DISTRICT
Local Jurisdiction	GLENDALE
S/T/R	16 2N 1E
Market Area/Neighborhood	00/
Subdivision (2 Parcels)	CORNERSTONE AT CAMELBACK LOT 3A MINOR LAND DIVISION

OWNER INFORMATION

MGCP LLC

Mailing Address	2920 E CAMELBACK RD STE 200, PHOENIX, AZ 85016
Deed Number	100803207
Last Deed Date	09/16/2010
Sale Date	n/a
Sale Price	n/a

VALUATION INFORMATION

We provide valuation information for the past 5 years. For mobile display, we only show 1 year of valuation information. Should you need more data, please look at our data sales.

The Valuation Information displayed below may not reflect the taxable value used on the tax bill due to any special valuation relief program. CLICK HERE TO PAY YOUR TAXES OR VIEW YOUR TAX BILL

Tax Year	2023	2022	2021	2020	2019
Full Cash Value	$1,753,700	$1,361,100	$1,361,100	$867,600	$871,700
Limited Value	$767,721	$731,163	$696,346	$663,187	$631,607
Legal Class	2.R	2.R	2.R	2.R	2.R
Description	AG / VACANT LAND / NON-PROFIT R/P	AG / VACANT LAND / NON-PROFIT R/P	AG / VACANT LAND / NON-PROFIT R/P	AG / VACANT LAND / NON-PROFIT R/P	AG / VACANT LAND / NON-PROFIT R/P
Assessment Ratio	15.0%	15.0%	15.0%	15.0%	15.0%
Assessed LPV	$115,158	$109,674	$104,452	$99,478	$94,741
Property Use Code	0021	0021	0021	0021	0021
PU Description	Vacant Commercial Land	Vacant Commercial Land	Vacant Commercial Land	Vacant Commercial Land	Vacant Commercial Land
Tax Area Code	920700	920700	920700	920700	920700
Valuation Source	Notice	Notice	Notice	Notice	Notice

MAP FERRET MAPS

Mapferret maps, also known as MapId maps, pdf maps, or output maps are now available here without having to search.

- Parcel Maps (1)
- Subdivision Maps (1)
- MCR Maps (1)
- Book/Map Maps (8)

102-14-648 — Land Parcel

This is a Land parcel located at 5205 N 99TH AVE GLENDALE 85305. The current owner is MGCP LLC. It is located in the MGCP LLC MLD subdivision, and MCR 145516. Its current current year year full cash value is $2,709,800.

This parcel's appeal deadline date is: Apr 26th, 2022

MAPS | PICTOMETRY | $ VIEW/PAY TAX BILL | DEED
OWNER | VALUATIONS | MAP FERRET | SIMILAR PARCELS
REGISTER RENTAL | PRINT DETAILS

PROPERTY INFORMATION

5205 N 99TH AVE GLENDALE 85305

MCR #	145516
Description	MINOR LAND DIVISION LOT SPLIT MCR 1455-16
Lat/Long	33.511122 | -112.270835
Lot Size	279,901 sq ft.
Zoning	PAD
Lot #	1
High School District	TOLLESON UNION #214
Elementary School District	PENDERGAST ELEMENTARY SCHOOL DISTRICT
Local Jurisdiction	GLENDALE
S/T/R ⓘ	16 2N 1E
Market Area/Neighborhood	00/
Subdivision (2 Parcels)	MGCP LLC MLD

OWNER INFORMATION

MGCP LLC

Mailing Address	2920 E CAMELBACK RD STE 200, PHOENIX, AZ 85016

Deed Number	200652120
Last Deed Date	07/21/2020
Sale Date	n/a
Sale Price	n/a

VALUATION INFORMATION

We provide valuation information for the past 5 years. For mobile display, we only show 1 year of valuation information. Should you need more data, please look at our data sales.

The Valuation Information displayed below may not reflect the taxable value used on the tax bill due to any special valuation relief program. CLICK HERE TO PAY YOUR TAXES OR VIEW YOUR TAX BILL

Tax Year	2023	2022	2021	2020
Full Cash Value	$2,709,800	$2,084,200	$1,807,500	$1,282,100
Limited Value	$845,989	$805,704	$767,337	$730,797
Legal Class	2.R	2.R	2.R	2.R
Description	AG / VACANT LAND / NON-PROFIT R/P	AG / VACANT LAND / NON-PROFIT R/P	AG / VACANT LAND / NON-PROFIT R/P	AG / VACANT LAND / NON-PROFIT R/P
Assessment Ratio	15.0%	15.0%	15.0%	15.0%
Assessed LPV	$126,898	$120,856	$115,101	$109,620
Property Use Code	0021	0021	0021	0021
PU Description	Vacant Commercial Land	Vacant Commercial Land	Vacant Commercial Land	Vacant Commercial Land
Tax Area Code	920700	920700	920700	920700
Valuation Source	Notice	Notice	Notice	Notice

MAP FERRET MAPS

Mapferret maps, also known as MapId maps, pdf maps, or output maps are now available here without having to search.

- Parcel Maps (1)
- Subdivision Maps (1)
- MCR Maps (1)
- Book/Map Maps (8)

Appendix C – Traffic Count Data

All Traffic Data Services, LLC

www.alltrafficdata.net

Site Code: 5
99TH AVE N.O DWY 2

Start Time	23-Mar-22 Wed	NB	SB							Total
12:00 AM		53	48							101
01:00		36	20							56
02:00		38	35							73
03:00		33	45							78
04:00		94	113							207
05:00		171	196							367
06:00		269	315							584
07:00		**422**	**630**							**1052**
08:00		389	375							764
09:00		330	339							669
10:00		354	370							724
11:00		406	398							804
12:00 PM		423	442							865
01:00		425	436							861
02:00		448	610							1058
03:00		**551**	**683**							**1234**
04:00		499	678							1177
05:00		537	628							1165
06:00		504	528							1032
07:00		335	365							700
08:00		276	324							600
09:00		210	245							455
10:00		155	166							321
11:00		99	75							174
Total		7057	8064							15121
Percent		46.7%	53.3%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	422	630	-	-	-	-	-	-	1052
PM Peak	-	15:00	15:00	-	-	-	-	-	-	15:00
Vol.	-	551	683	-	-	-	-	-	-	1234
Grand Total		7057	8064							15121
Percent		46.7%	53.3%							

ADT ADT 15,121 AADT 15,121

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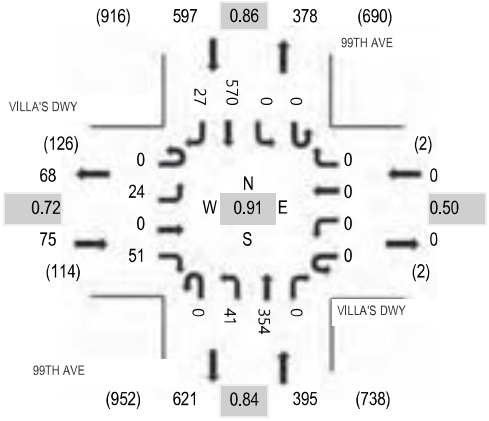
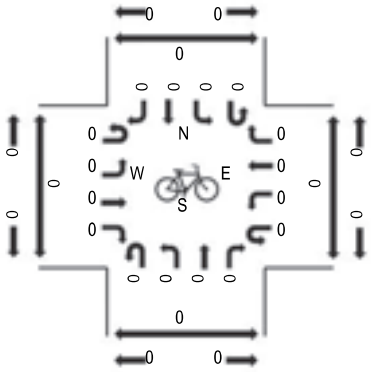
www.alltrafficdata.net

Location: 1 99TH AVE & VILLA'S DWY AM
Date: Wednesday, March 23, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

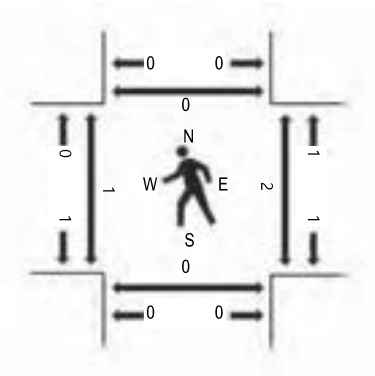
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	VILLA'S DWY Eastbound				VILLA'S DWY Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	6	0	8	0	0	0	0	0	10	79	0	0	0	110	4	217	1,067	0	0	0	0
7:15 AM	0	8	0	18	0	0	0	0	0	7	70	0	0	0	153	14	270	1,061	1	0	0	0
7:30 AM	0	5	0	12	0	0	0	0	0	11	92	0	0	0	167	6	293	955	0	1	0	0
7:45 AM	0	5	0	13	0	0	0	0	0	13	113	0	0	0	140	3	287	840	0	1	0	0
8:00 AM	0	5	1	6	0	0	0	0	0	14	100	0	0	0	80	5	211	703	1	0	0	0
8:15 AM	0	3	0	5	0	0	0	1	0	13	68	0	0	1	72	1	164		1	0	0	0
8:30 AM	0	0	0	10	0	1	0	0	0	7	73	0	0	0	80	7	178		0	1	0	0
8:45 AM	0	3	0	6	0	0	0	0	0	9	59	0	0	0	71	2	150		0	0	0	0
Count Total	0	35	1	78	0	1	0	1	0	84	654	0	0	1	873	42	1,770		3	3	0	0
Peak Hour	0	24	0	51	0	0	0	0	0	41	354	0	0	0	570	27	1,067		1	2	0	0

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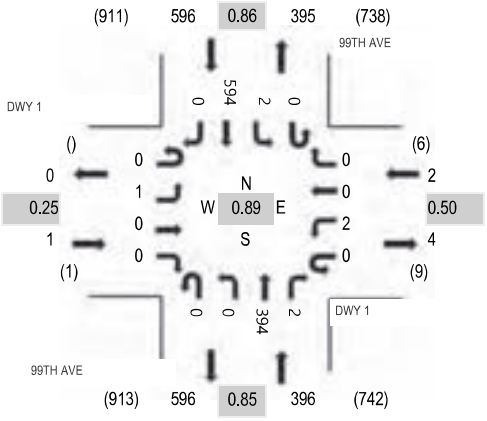
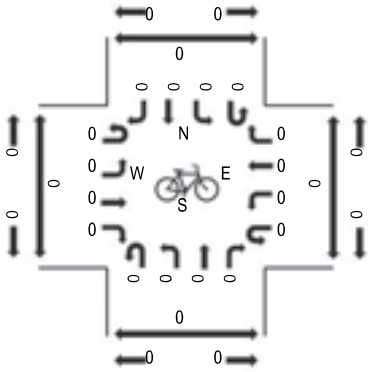
Location: 2 99TH AVE & DWY 1 AM
Date: Wednesday, March 23, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

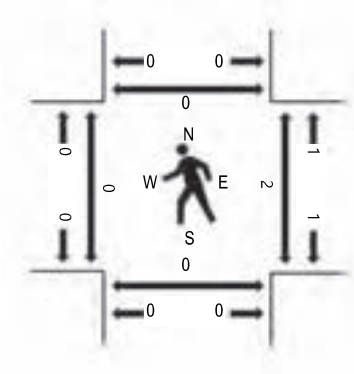
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	DWY 1 Eastbound				DWY 1 Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	0	0	0	0	0	88	1	0	0	117	0	206	995	0	0	0	0
7:15 AM	0	1	0	0	0	1	0	0	0	0	77	1	0	0	156	0	236	984	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	104	0	0	1	172	0	278	907	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	125	0	0	1	149	0	275	795	0	1	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	114	0	0	0	80	0	195	665	0	2	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	81	1	0	1	75	0	159		0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	80	2	0	1	83	0	166		0	1	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	0	68	0	0	0	75	0	145		0	0	0	0
Count Total	0	1	0	0	0	6	0	0	0	0	737	5	0	4	907	0	1,660		0	5	0	1
Peak Hour	0	1	0	0	0	2	0	0	0	0	394	2	0	2	594	0	995		0	2	0	0

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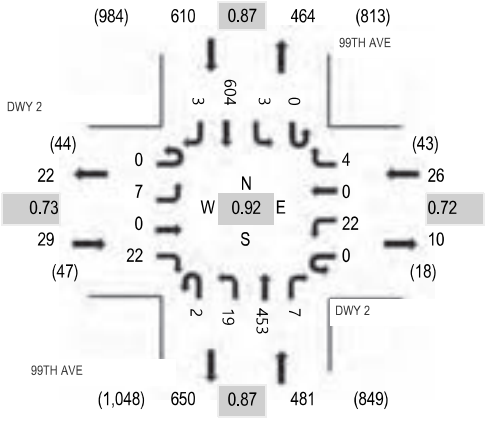
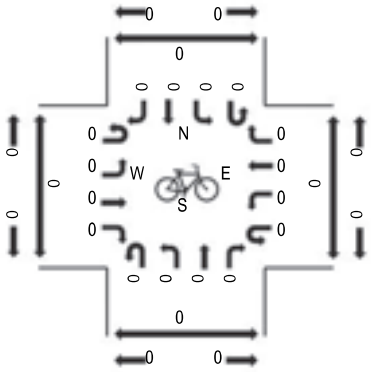
Location: 3 99TH AVE & DWY 2 AM
Date: Wednesday, March 23, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

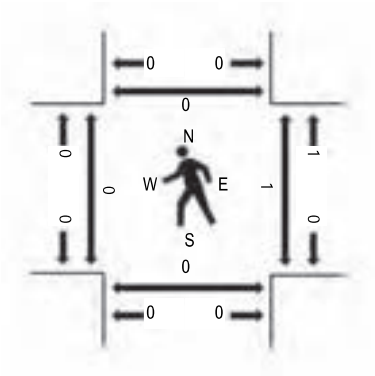
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	DWY 2 Eastbound				DWY 2 Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	2	0	3	0	0	1	0	93	1	0	0	122	0	222	1,138	2	0	0	0
7:15 AM	0	0	0	5	0	9	0	0	0	3	98	0	0	2	173	1	291	1,146	0	0	0	0
7:30 AM	0	2	0	6	0	5	0	1	0	4	107	2	0	1	183	1	312	1,034	0	1	0	0
7:45 AM	0	2	0	4	0	5	0	2	1	7	129	1	0	0	161	1	313	922	0	0	0	0
8:00 AM	0	3	0	7	0	3	0	1	1	5	119	4	0	0	87	0	230	785	0	0	0	0
8:15 AM	0	2	0	2	0	2	0	1	0	2	89	0	0	0	81	0	179		0	2	0	0
8:30 AM	0	2	0	6	0	4	0	0	0	10	87	4	0	1	84	2	200		0	0	0	0
8:45 AM	0	2	0	2	0	7	0	0	1	6	73	1	0	1	81	2	176		0	0	0	0
Count Total	0	13	0	34	0	38	0	5	4	37	795	13	0	5	972	7	1,923		2	3	0	0
Peak Hour	0	7	0	22	0	22	0	4	2	19	453	7	0	3	604	3	1,146		0	1	0	0

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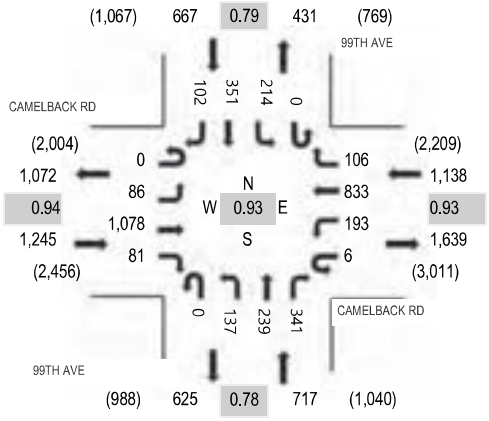
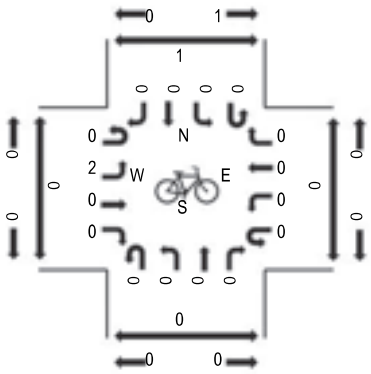
Location: 4 99TH AVE & CAMELBACK RD AM
Date: Wednesday, March 23, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

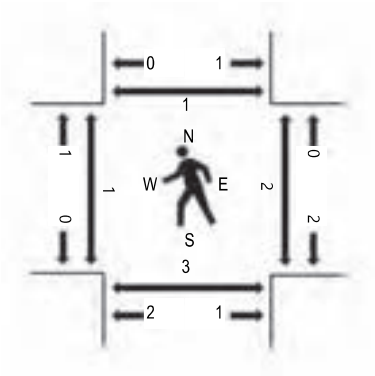
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	CAMELBACK RD Eastbound				CAMELBACK RD Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	26	304	15	1	44	183	24	0	8	32	37	0	49	41	25	789	3,661	0	0	0	0
7:15 AM	0	18	291	18	2	42	209	33	0	17	33	55	0	63	84	24	889	3,767	0	0	2	0
7:30 AM	0	16	263	25	1	61	199	21	0	35	61	80	0	59	119	33	973	3,681	0	1	1	1
7:45 AM	0	25	271	28	0	50	228	32	0	39	66	101	0	41	98	31	1,010	3,428	0	0	0	0
8:00 AM	0	27	253	10	3	40	197	20	0	46	79	105	0	51	50	14	895	3,111	1	1	0	0
8:15 AM	0	26	278	6	3	45	234	29	0	13	40	38	0	36	31	24	803		1	2	0	0
8:30 AM	0	32	224	9	3	44	187	25	0	18	32	39	0	44	48	15	720		1	0	0	0
8:45 AM	0	24	251	16	2	39	195	13	0	9	35	22	0	41	25	21	693		0	1	0	0
Count Total	0	194	2,135	127	15	365	1,632	197	0	185	378	477	0	384	496	187	6,772		3	5	3	1
Peak Hour	0	86	1,078	81	6	193	833	106	0	137	239	341	0	214	351	102	3,767		1	2	3	1

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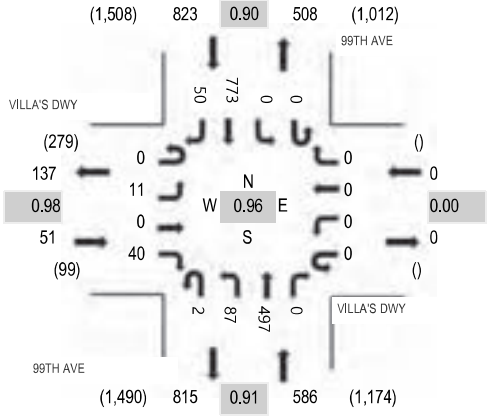
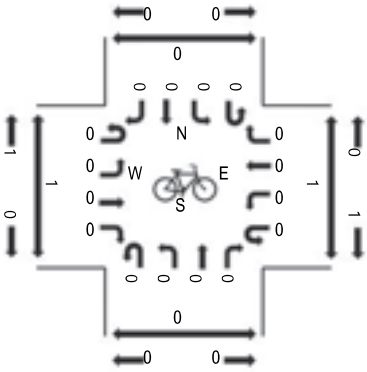
Location: 1 99TH AVE & VILLA'S DWY PM
Date: Wednesday, March 23, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

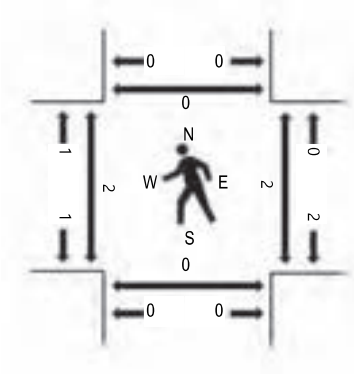
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	VILLA'S DWY Eastbound				VILLA'S DWY Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	1	0	12	0	0	0	0	1	20	119	0	0	0	205	11	369	1,460	0	1	0	0
4:15 PM	0	3	0	8	0	0	0	0	0	27	115	0	0	0	215	14	382	1,436	0	0	0	0
4:30 PM	0	5	0	8	0	0	0	0	1	19	124	0	0	0	186	14	357	1,416	1	1	0	0
4:45 PM	0	2	0	12	0	0	0	0	0	21	139	0	0	0	167	11	352	1,390	1	0	0	0
5:00 PM	0	4	0	10	0	0	0	0	0	23	132	0	0	0	166	10	345	1,321	0	0	0	0
5:15 PM	0	5	0	9	0	0	0	0	0	27	148	0	0	0	163	10	362		0	0	0	0
5:30 PM	0	0	0	6	0	0	0	0	1	29	113	0	0	0	171	11	331		0	0	0	0
5:45 PM	0	4	0	10	0	0	0	0	0	17	98	0	0	0	139	15	283		1	0	0	0
Count Total	0	24	0	75	0	0	0	0	3	183	988	0	0	0	1,412	96	2,781		3	2	0	0
Peak Hour	0	11	0	40	0	0	0	0	2	87	497	0	0	0	773	50	1,460		2	2	0	0

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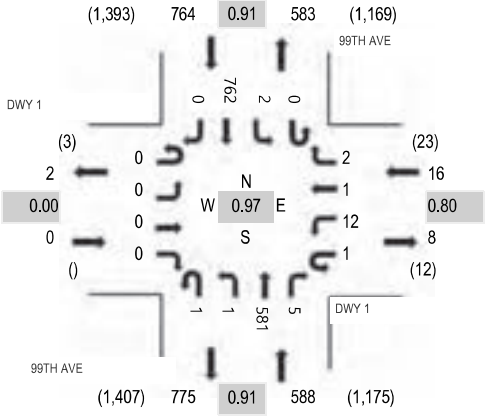
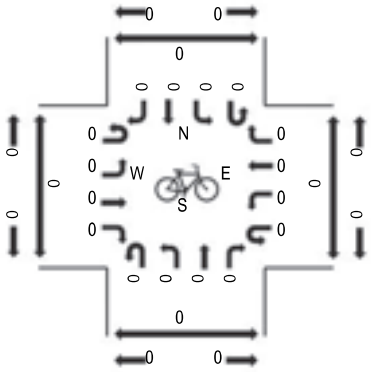
www.alltrafficdata.net

Location: 2 99TH AVE & DWY 1 PM
Date: Wednesday, March 23, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

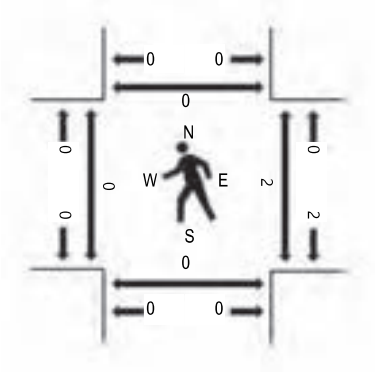
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	DWY 1 Eastbound				DWY 1 Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	3	0	0	0	0	143	1	0	0	206	0	353	1,368	0	1	0	0
4:15 PM	0	0	0	0	0	4	1	0	0	0	137	2	0	1	209	0	354	1,338	0	0	0	0
4:30 PM	0	0	0	0	0	2	0	1	1	0	142	0	0	1	179	0	326	1,323	0	1	0	0
4:45 PM	0	0	0	0	1	3	0	1	0	1	159	2	0	0	168	0	335	1,308	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	155	0	0	0	167	0	323	1,223	0	0	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	174	1	0	0	162	0	339		0	0	1	0
5:30 PM	0	0	0	0	0	1	0	1	0	0	142	1	0	1	165	0	311		0	0	0	0
5:45 PM	0	0	0	0	0	1	1	0	0	0	113	1	0	0	134	0	250		0	0	0	0
Count Total	0	0	0	0	1	16	2	4	1	1	1,165	8	0	3	1,390	0	2,591		0	2	1	0
Peak Hour	0	0	0	0	1	12	1	2	1	1	581	5	0	2	762	0	1,368		0	2	0	0

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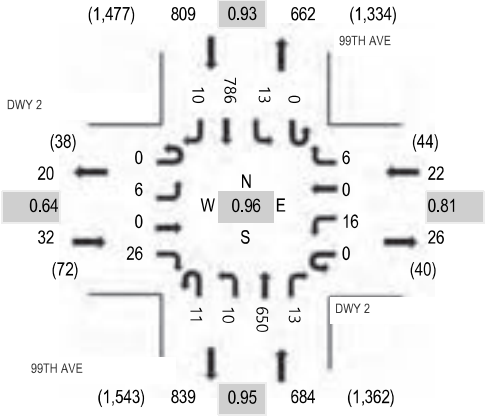
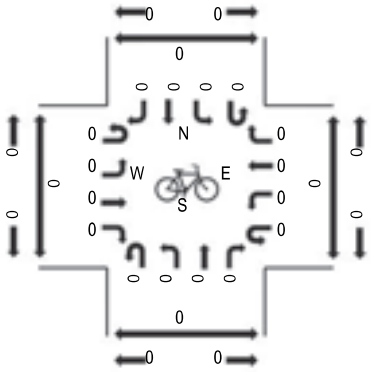
Location: 3 99TH AVE & DWY 2 PM
Date: Wednesday, March 23, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

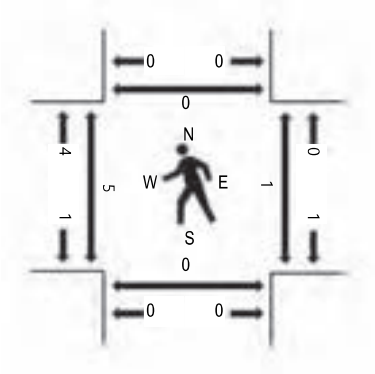
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	DWY 2 Eastbound				DWY 2 Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	6	0	2	0	0	5	4	163	4	0	3	212	2	401	1,547	0	0	0	0
4:15 PM	0	0	0	2	0	5	0	3	3	2	160	4	0	4	212	2	397	1,511	0	0	0	0
4:30 PM	0	3	0	13	0	6	0	2	1	0	151	2	0	1	186	4	369	1,496	4	1	0	0
4:45 PM	0	3	0	5	0	3	0	1	2	4	176	3	0	5	176	2	380	1,498	1	0	0	0
5:00 PM	0	2	0	3	0	4	0	2	0	4	170	3	0	4	171	2	365	1,408	2	0	0	0
5:15 PM	0	4	0	8	0	2	0	3	1	0	191	0	0	2	168	3	382		0	0	1	0
5:30 PM	0	0	0	13	0	7	0	1	1	4	171	1	0	0	172	1	371		0	0	0	0
5:45 PM	0	2	0	8	0	3	0	0	2	2	126	2	0	2	141	2	290		0	0	0	0
Count Total	0	14	0	58	0	32	0	12	15	20	1,308	19	0	21	1,438	18	2,955		7	1	1	0
Peak Hour	0	6	0	26	0	16	0	6	11	10	650	13	0	13	786	10	1,547		5	1	0	0

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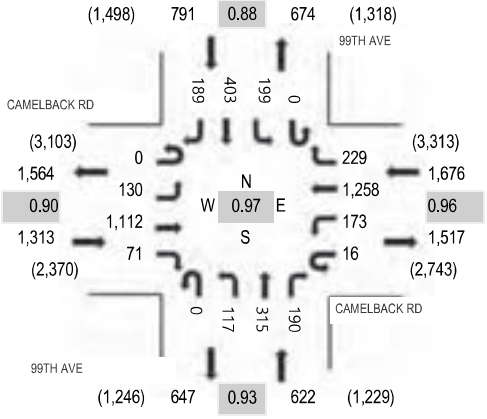
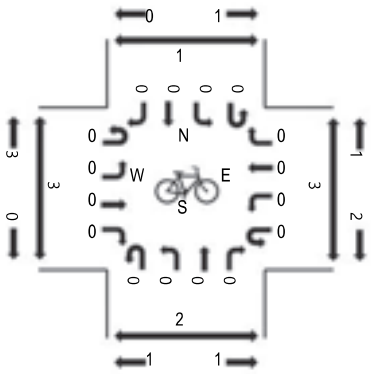
Location: 4 99TH AVE & CAMELBACK RD PM
Date: Wednesday, March 23, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

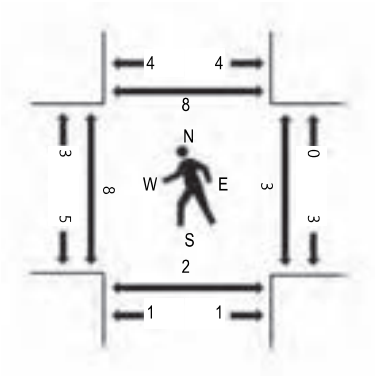
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

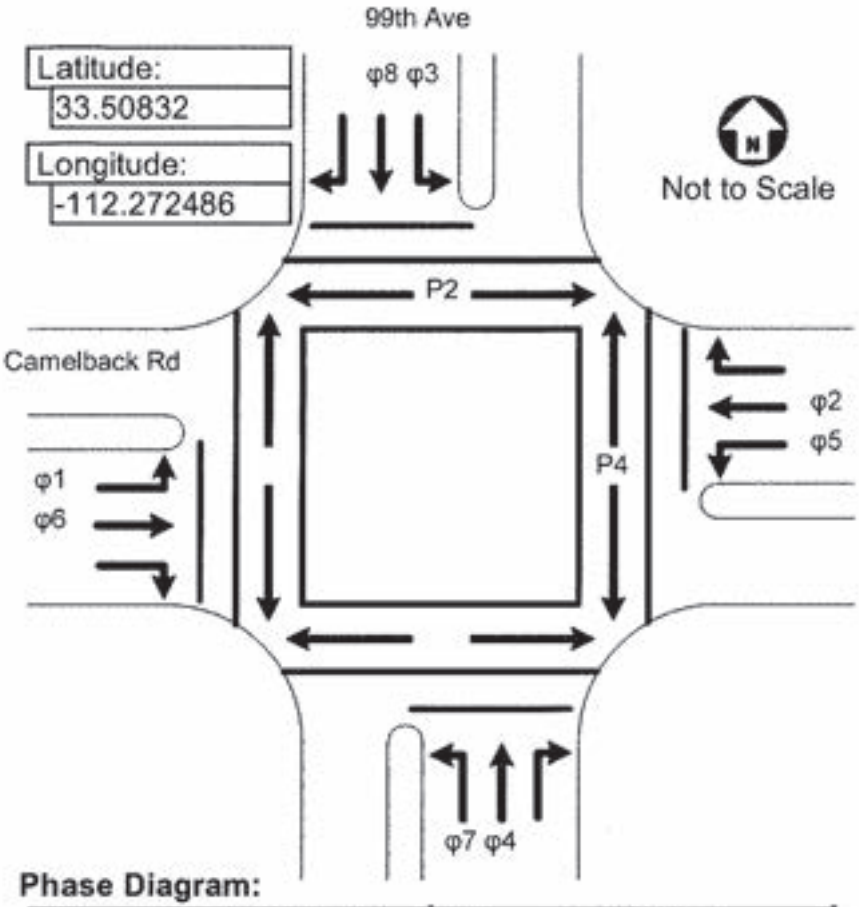
Traffic Counts - Motorized Vehicles

Interval Start Time	CAMELBACK RD Eastbound				CAMELBACK RD Westbound				99TH AVE Northbound				99TH AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	39	296	18	5	43	306	63	0	27	74	54	0	49	93	52	1,119	4,402	2	1	1	3
4:15 PM	0	29	321	14	5	38	329	56	0	29	70	42	0	55	110	38	1,136	4,296	2	0	0	0
4:30 PM	0	24	285	17	4	37	329	45	0	26	82	48	0	57	119	48	1,121	4,274	2	2	1	4
4:45 PM	0	38	210	22	2	55	294	65	0	35	89	46	0	38	81	51	1,026	4,152	2	0	0	1
5:00 PM	0	23	219	14	1	53	292	69	0	32	78	53	0	42	72	65	1,013	4,008	1	1	0	0
5:15 PM	0	32	256	29	1	62	321	54	0	34	98	49	0	44	84	50	1,114		1	1	1	1
5:30 PM	0	31	209	13	2	53	293	56	0	34	76	34	0	48	85	65	999		0	0	0	2
5:45 PM	0	28	192	11	3	51	292	34	0	23	65	31	0	42	72	38	882		3	0	0	0
Count Total	0	244	1,988	138	23	392	2,456	442	0	240	632	357	0	375	716	407	8,410		13	5	3	11
Peak Hour	0	130	1,112	71	16	173	1,258	229	0	117	315	190	0	199	403	189	4,402		8	3	2	8

Appendix D – Existing Signal Timing

4924
99th Ave
Camelback Rd

21-Jul-20



Start-Up:

Start Phases:	2 & 6

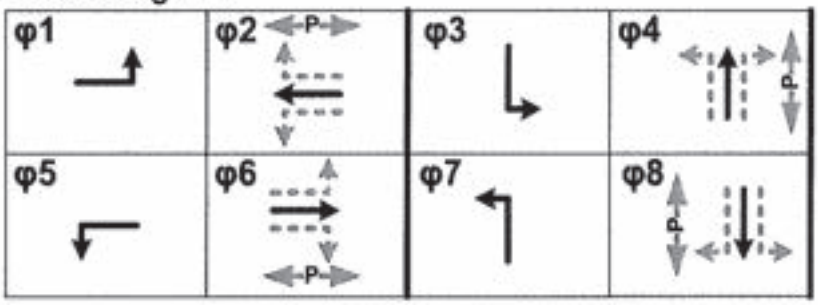
Flash Data:

Auto Flash:	None
Flash Start:	
Flash Stop:	
Enter Phases:	
Yel. Flash Phs	
Exit Phases:	

Overlaps:

Overlap A:	
Overlap B:	
Overlap C:	
Overlap D:	

Phase Diagram:



Date Signalized: 9/8/1987
Previous Update: 3/10/2015

Notes:

4924
99th Ave
Camelback Rd

21-Jul-20

Basic Timing Parameters

	Φ1	Φ2	Φ3	Φ4	Φ5	Φ6	Φ7	Φ8
Min Ini	5	20	5	20	5	20	5	20
Walk		7		7		7		7
Ped Clr		20		26		19		21
Veh Ext	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0
Max I	12	40	12	25	15	40	12	25
Max II	15	40	15	25	20	40	15	25
Yel Clr	4.0	4.5	4.5	5.0	4.0	4.5	4.5	5.0
Red Clr	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Max III								
Max Adj	3	5	3	5	5	5	3	5
Dym Max	15	40	15	25	25	40	15	25
Volume Density								
Sec/Act								
Max Ini.								
TBR								
TTR								
Min. Gap								

Basic Timing Functions

	Φ1	Φ2	Φ3	Φ4	Φ5	Φ6	Φ7	Φ8
Recall	None	Ped-Max	None	Ped-Max	None	Ped-Max	None	Ped-Max
Det. Lock								
Dual Entry		X		X		X		X
Simult Gap		X		X		X		X

Pre-emption

Pre-emptor #	1	2	3	4	5	6
Direction			WB	NB	EB	SB
Hold Phases			2 & 6	4 & 8	2 & 6	4 & 8

Appendix E – Existing Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	1078	81	193	833	106	137	239	341	214	351	102
Future Volume (veh/h)	86	1078	81	193	833	106	137	239	341	214	351	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	1159	87	208	896	114	147	257	367	230	377	110
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	1147	512	211	1262	563	351	533	476	242	772	223
Arrive On Green	0.05	0.32	0.32	0.08	0.36	0.36	0.08	0.30	0.30	0.06	0.28	0.28
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1777	1585	1781	2722	784
Grp Volume(v), veh/h	92	1159	87	208	896	114	147	257	367	230	244	243
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1729
Q Serve(g_s), s	3.8	35.5	4.3	8.8	23.9	5.5	6.3	13.0	23.2	6.5	12.6	12.9
Cycle Q Clear(g_c), s	3.8	35.5	4.3	8.8	23.9	5.5	6.3	13.0	23.2	6.5	12.6	12.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	230	1147	512	211	1262	563	351	533	476	242	504	491
V/C Ratio(X)	0.40	1.01	0.17	0.98	0.71	0.20	0.42	0.48	0.77	0.95	0.48	0.49
Avail Cap(c_a), veh/h	256	1147	512	211	1262	563	371	533	476	242	504	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	37.2	26.7	28.4	30.6	24.6	25.5	31.5	35.1	37.7	32.7	32.8
Incr Delay (d2), s/veh	1.1	29.2	0.7	57.4	3.4	0.8	0.8	3.1	11.5	44.1	3.3	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	19.2	1.7	6.8	10.3	2.1	2.6	5.7	9.9	5.9	5.6	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	66.5	27.4	85.8	34.0	25.5	26.3	34.6	46.6	81.8	36.0	36.3
LnGrp LOS	C	F	C	F	C	C	C	C	D	F	D	D
Approach Vol, veh/h		1338			1218			771			717	
Approach Delay, s/veh		61.1			42.0			38.7			50.8	
Approach LOS		E			D			D			D	

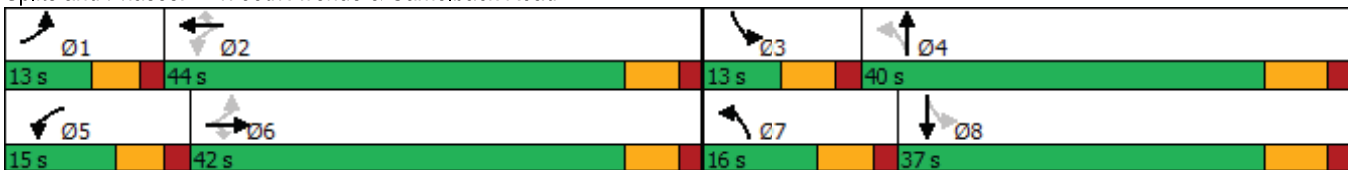
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	45.6	13.0	40.0	15.0	42.0	14.8	38.2
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	7.0	37.5	6.5	33.0	9.0	35.5	9.5	30.0
Max Q Clear Time (g_c+I1), s	5.8	25.9	8.5	25.2	10.8	37.5	8.3	14.9
Green Ext Time (p_c), s	0.0	3.2	0.0	1.5	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	49.3
HCM 6th LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	None	Max	None	Max
Maximum Split (s)	13	44	13	40	15	42	16	37
Maximum Split (%)	11.8%	40.0%	11.8%	36.4%	13.6%	38.2%	14.5%	33.6%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	13	57	70	0	15	57	73
End Time (s)	13	57	70	0	15	57	73	0
Yield/Force Off (s)	7	50.5	63.5	103	9	50.5	66.5	103
Yield/Force Off 170(s)	7	30.5	63.5	77	9	31.5	66.5	82
Local Start Time (s)	95	108	42	55	95	0	42	58
Local Yield (s)	102	35.5	48.5	88	104	35.5	51.5	88
Local Yield 170(s)	102	15.5	48.5	62	104	16.5	51.5	67

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	110

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	22	22	0	4	19	453	7	3	604	3
Future Vol, veh/h	7	0	22	22	0	4	19	453	7	3	604	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	24	24	0	4	21	492	8	3	657	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	953	1207	330	869	1200	246	660	0	0	500	0	0
Stage 1	665	665	-	534	534	-	-	-	-	-	-	-
Stage 2	288	542	-	335	666	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	214	182	666	246	184	754	924	-	-	1060	-	-
Stage 1	416	456	-	498	523	-	-	-	-	-	-	-
Stage 2	695	518	-	653	456	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	209	177	666	232	179	754	924	-	-	1060	-	-
Mov Cap-2 Maneuver	209	177	-	232	179	-	-	-	-	-	-	-
Stage 1	406	455	-	487	511	-	-	-	-	-	-	-
Stage 2	675	506	-	628	455	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	20.4	0.4	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	924	-	-	209	666	232	754	1060	-	-
HCM Lane V/C Ratio	0.022	-	-	0.036	0.036	0.103	0.006	0.003	-	-
HCM Control Delay (s)	9	-	-	22.9	10.6	22.3	9.8	8.4	-	-
HCM Lane LOS	A	-	-	C	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	0	420	1	2	557
Future Vol, veh/h	3	0	420	1	2	557
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	0	477	1	2	633

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	798	239	0	0	478	0
Stage 1	477	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	323	762	-	-	1081	-
Stage 1	590	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	322	762	-	-	1081	-
Mov Cap-2 Maneuver	438	-	-	-	-	-
Stage 1	590	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	438	1081	-
HCM Lane V/C Ratio	-	-	0.008	0.002	-
HCM Control Delay (s)	-	-	13.3	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	1	49	0	0	0	45	375	0	0	540	28
Future Vol, veh/h	23	1	49	0	0	0	45	375	0	0	540	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	1	54	0	0	0	49	412	0	0	593	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	897	1103	297	807	1134	206	624	0	0	412	0	0
Stage 1	593	593	-	510	510	-	-	-	-	-	-	-
Stage 2	304	510	-	297	624	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	235	210	699	273	201	800	953	-	-	1143	-	-
Stage 1	459	492	-	514	536	-	-	-	-	-	-	-
Stage 2	681	536	-	687	476	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	226	199	699	241	191	800	953	-	-	1143	-	-
Mov Cap-2 Maneuver	226	199	-	241	191	-	-	-	-	-	-	-
Stage 1	436	492	-	488	509	-	-	-	-	-	-	-
Stage 2	646	509	-	633	476	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	0	1	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	953	-	-	226	666	-	1143	-	-
HCM Lane V/C Ratio	0.052	-	-	0.112	0.083	-	-	-	-
HCM Control Delay (s)	9	-	-	22.9	10.9	0	0	-	-
HCM Lane LOS	A	-	-	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.3	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	1112	71	173	1258	229	117	315	190	199	403	189
Future Volume (veh/h)	130	1112	71	173	1258	229	117	315	190	199	403	189
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	1146	73	178	1297	236	121	325	196	205	415	195
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	1550	691	248	1654	738	241	473	279	297	603	280
Arrive On Green	0.04	0.44	0.44	0.07	0.47	0.47	0.07	0.22	0.22	0.10	0.26	0.26
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	2150	1269	1781	2356	1095
Grp Volume(v), veh/h	134	1146	73	178	1297	236	121	267	254	205	312	298
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1642	1781	1777	1673
Q Serve(g_s), s	6.0	40.3	4.1	8.2	46.1	14.0	7.8	20.7	21.4	13.1	23.8	24.2
Cycle Q Clear(g_c), s	6.0	40.3	4.1	8.2	46.1	14.0	7.8	20.7	21.4	13.1	23.8	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.77	1.00		0.65
Lane Grp Cap(c), veh/h	173	1550	691	248	1654	738	241	391	361	297	455	428
V/C Ratio(X)	0.78	0.74	0.11	0.72	0.78	0.32	0.50	0.68	0.70	0.69	0.69	0.70
Avail Cap(c_a), veh/h	173	1550	691	315	1654	738	273	391	361	312	455	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	35.2	25.0	29.2	33.8	25.2	42.5	53.7	54.0	40.5	50.4	50.5
Incr Delay (d2), s/veh	19.5	3.2	0.3	5.6	3.8	1.1	1.6	9.3	10.9	6.0	8.2	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	17.5	1.6	3.7	20.0	5.4	3.5	10.1	9.7	6.1	11.3	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.4	38.4	25.3	34.8	37.6	26.3	44.1	63.1	64.8	46.5	58.5	59.6
LnGrp LOS	D	D	C	C	D	C	D	E	E	D	E	E
Approach Vol, veh/h		1353			1711			642			815	
Approach Delay, s/veh		39.2			35.7			60.2			55.9	
Approach LOS		D			D			E			E	

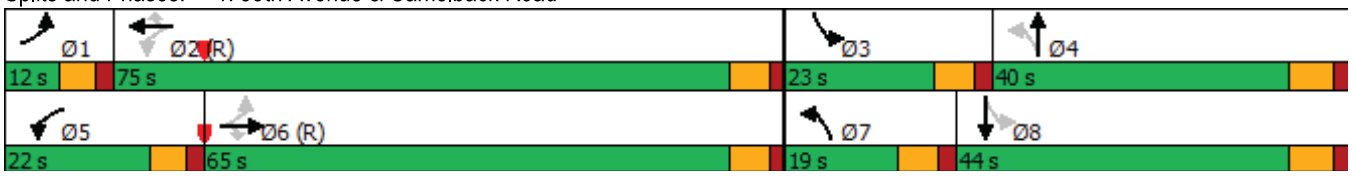
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	76.3	21.7	40.0	16.4	71.9	16.3	45.4
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	6.0	68.5	16.5	33.0	16.0	58.5	12.5	37.0
Max Q Clear Time (g_c+I1), s	8.0	48.1	15.1	23.4	10.2	42.3	9.8	26.2
Green Ext Time (p_c), s	0.0	6.5	0.1	1.3	0.2	4.8	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	12	75	23	40	22	65	19	44
Maximum Split (%)	8.0%	50.0%	15.3%	26.7%	14.7%	43.3%	12.7%	29.3%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	128	140	65	88	128	0	65	84
End Time (s)	140	65	88	128	0	65	84	128
Yield/Force Off (s)	134	58.5	81.5	121	144	58.5	77.5	121
Yield/Force Off 170(s)	134	38.5	81.5	95	144	39.5	77.5	100
Local Start Time (s)	128	140	65	88	128	0	65	84
Local Yield (s)	134	58.5	81.5	121	144	58.5	77.5	121
Local Yield 170(s)	134	38.5	81.5	95	144	39.5	77.5	100

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	26	16	0	6	10	650	13	13	786	10
Future Vol, veh/h	6	0	26	16	0	6	10	650	13	13	786	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	27	17	0	6	10	677	14	14	819	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1211	1563	415	1135	1554	339	829	0	0	691	0	0
Stage 1	852	852	-	697	697	-	-	-	-	-	-	-
Stage 2	359	711	-	438	857	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*282	*162	586	*333	*164	*812	798	-	-	*1215	-	-
Stage 1	*321	*374	-	*766	*671	-	-	-	-	-	-	-
Stage 2	*766	*671	-	*567	*372	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*275	*158	586	*312	*160	*812	798	-	-	*1215	-	-
Mov Cap-2 Maneuver	*275	*158	-	*312	*160	-	-	-	-	-	-	-
Stage 1	*317	*370	-	*756	*662	-	-	-	-	-	-	-
Stage 2	*750	*662	-	*535	*368	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.7	15.1	0.1	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	798	-	-	275	586	312	812	* 1215	-	-
HCM Lane V/C Ratio	0.013	-	-	0.023	0.046	0.053	0.008	0.011	-	-
HCM Control Delay (s)	9.6	-	-	18.4	11.4	17.2	9.5	8	-	-
HCM Lane LOS	A	-	-	C	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.2	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	2	581	5	2	762
Future Vol, veh/h	12	2	581	5	2	762
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	2	599	5	2	786

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	996	300	0	0	604	0
Stage 1	599	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	*420	*853	-	-	*1276	-
Stage 1	*805	-	-	-	-	-
Stage 2	*648	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*419	*853	-	-	*1276	-
Mov Cap-2 Maneuver	*513	-	-	-	-	-
Stage 1	*805	-	-	-	-	-
Stage 2	*647	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	544 *	1276	-
HCM Lane V/C Ratio	-	-	0.027	0.002	-
HCM Control Delay (s)	-	-	11.8	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	0	40	0	0	0	87	497	0	0	773	50
Future Vol, veh/h	11	0	40	0	0	0	87	497	0	0	773	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	42	0	0	0	91	518	0	0	805	52

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1246	1505	403	1103	1557	259	857	0	0	518	0	0
Stage 1	805	805	-	700	700	-	-	-	-	-	-	-
Stage 2	441	700	-	403	857	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*204	155	597	272	142	*889	779	-	-	*1330	-	-
Stage 1	*342	393	-	644	604	-	-	-	-	-	-	-
Stage 2	*838	604	-	595	372	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*185	137	597	230	125	*889	779	-	-	*1330	-	-
Mov Cap-2 Maneuver	*185	137	-	230	125	-	-	-	-	-	-	-
Stage 1	*302	393	-	569	533	-	-	-	-	-	-	-
Stage 2	*741	533	-	553	372	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	0	1.5	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	779	-	-	185	597	-	* 1330	-	-
HCM Lane V/C Ratio	0.116	-	-	0.062	0.07	-	-	-	-
HCM Control Delay (s)	10.2	-	-	25.7	11.5	0	0	-	-
HCM Lane LOS	B	-	-	D	B	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	0.2	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix F – Trip Generation

N 99th Ave Apartments

Completed: SS 3/21/2022

Checked: KS 4/5/2022

Trip Generation, 11th Edition Calculations

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Multifamily Housing (Mid-Rise)	221	310	Dwelling Units	4.54	50%	50%	0.37	23%	77%	0.39	61%	39%	1,407	704	703	115	26	89	121	74	47	Average
Multifamily Housing (Mid-Rise)	221	310	Dwelling Units	3.76	50%	50%	0.15	23%	77%	0.19	61%	39%	1,166	583	583	47	11	36	59	36	23	Minimum
Multifamily Housing (Mid-Rise)	221	310	Dwelling Units	5.40	50%	50%	0.53	23%	77%	0.57	61%	39%	1,674	837	837	164	38	126	177	108	69	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Multifamily Housing (Mid-Rise)	**221**	**310**	**Dwelling Units**	**T=4.77(X)-46.46**	**50%**	**50%**	**T=0.44(X)-11.61**	**23%**	**77%**	**T=0.39(X)+0.34**	**61%**	**39%**	**1,432**	**716**	**716**	**125**	**29**	**96**	**121**	**74**	**47**	**Equation**

Multifamily Housing (Mid-Rise)	Standard Deviation	0.51		0.09		0.08
	Number of Studies	11		30		31
	Average Size	201		173		169
	R^2	0.93		0.91		0.91

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Strip Retail Plaza (<40k)	**822**	**7.07**	**1000 SF GLA**	**54.45**	**50%**	**50%**	**2.36**	**60%**	**40%**	**6.59**	**50%**	**50%**	**385**	**192**	**193**	**17**	**10**	**7**	**47**	**23**	**24**	**Average**
Strip Retail Plaza (<40k)	822	7.07	1000 SF GLA	47.86	50%	50%	1.60	60%	40%	2.81	50%	50%	338	170	168	11	7	4	20	10	10	Minimum
Strip Retail Plaza (<40k)	822	7.07	1000 SF GLA	65.07	50%	50%	3.73	60%	40%	15.2	50%	50%	460	231	229	26	16	10	107	54	53	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Strip Retail Plaza (<40k)	822	7.07	1000 SF GLA	T=42.20(X)+229.68	50%	50%	Ln(T)=0.66Ln(X)+1.84	60%	40%	Ln(T)=0.71Ln(X)+2.72	50%	50%	529	265	264	23	14	9	61	31	30	Equation

Strip Retail Plaza (<40k)	Standard Deviation	7.81		0.94		2.94
	Number of Studies	4		5		25
	Average Size	19		18		21
	R^2	0.96		0.57		0.56

Appendix G – MAG Socioeconomic Projections

G

Socioeconomic Projections

Population and Employment

by Municipal Planning Area, Jurisdiction, and Regional Analysis Zone

June 2019

MARICOPA ASSOCIATION of GOVERNMENTS

302 North 1st Avenue, Suite 300
Phoenix, Arizona 85003
(602) 254-6300

Maricopa Association of Governments
Table 1: Total Population by Municipal Planning Area
July 1, 2018 and Projections July 1, 2020 to July 1, 2055

Municipal Planning Area	Total Population					
	2018	2020	2030	2040	2050	2055
Apache Junction	59,000	60,800	70,000	92,000	117,100	132,600
Avondale	84,200	86,700	101,800	111,900	119,000	122,100
Buckeye	89,000	97,700	186,600	305,400	409,900	459,300
Carefree	3,700	3,800	4,100	4,200	4,200	4,300
Cave Creek	5,900	6,000	6,500	7,000	7,200	7,300
Chandler	270,300	279,500	309,100	321,100	329,000	332,400
El Mirage	34,300	35,100	36,500	36,900	37,200	37,200
Florence	79,400	85,500	120,300	160,500	209,900	231,400
Fort McDowell Yavapai Native Nation	1,000	1,100	1,100	1,100	1,100	1,100
Fountain Hills	24,000	24,700	26,200	26,600	26,900	27,000
Gila Bend	2,500	2,700	3,700	3,700	3,900	4,200
Gila River Indian Native Nation	12,000	12,200	12,300	12,300	12,300	12,300
Gilbert	256,500	265,900	293,500	308,800	318,100	321,400
Glendale	272,200	279,100	306,400	323,400	333,200	338,800
Goodyear	87,300	92,100	140,300	192,200	228,600	247,900
Guadalupe	6,300	6,400	6,700	6,800	6,800	6,800
Litchfield Park	13,300	14,000	15,400	15,700	16,100	16,400
Maricopa	59,800	67,000	90,800	106,400	121,600	128,900
Mesa	533,400	552,800	607,500	649,400	680,000	690,300
Paradise Valley	14,000	14,100	14,700	15,100	15,200	15,300
Peoria	188,500	196,600	232,400	273,700	312,600	329,900
Phoenix	1,653,500	1,697,700	1,881,900	2,019,300	2,117,400	2,155,300
Queen Creek	58,700	65,000	90,900	109,000	120,900	128,500
Salt River Pima-Maricopa Native Nation	6,800	6,100	5,700	5,800	5,800	5,800
Scottsdale	245,500	253,800	281,900	299,400	311,400	316,700
Surprise	144,000	150,300	216,700	307,500	383,300	417,200
Tempe	185,300	190,000	217,100	247,000	272,400	282,200
Tolleson	7,000	7,100	8,600	10,300	11,400	11,800
Unicorporated Pinal County	66,800	68,600	79,100	93,700	110,800	122,700
Unincorporated Maricopa County	97,900	101,200	110,500	116,800	137,000	152,600
Wickenburg	8,200	8,500	9,400	9,500	9,800	10,000
Youngtown	6,600	6,800	7,300	7,700	7,800	7,800

Notes: Numbers rounded to the nearest 100. These projections include both the Maricopa County and Pinal County portions for Apache Junction, Queen Creek, and the Gila River Indian Community. Peoria and Wickenburg include only the Maricopa County portion.

Source: Maricopa Association of Governments (MAG) Socioeconomic Projections of Population and Employment by Municipal Planning Area (MPA) and Regional Analysis Zone (RAZ), June 2019

For explanation of variables and complete notation on this series, please refer to the Notes and Caveats in Appendix A.

Maricopa Association of Governments
Table 2: Total Employment by Municipal Planning Area
July 1, 2018 and Projections July 1, 2020 to July 1, 2055

	Total Employment					
Municipal Planning Area	2018	2020	2030	2040	2050	2055
Apache Junction	7,800	8,800	13,100	17,800	26,400	30,500
Avondale	22,400	23,200	30,400	36,200	42,800	45,400
Buckeye	21,600	26,900	42,900	64,500	98,000	128,900
Carefree	1,600	1,600	2,100	2,400	2,500	2,600
Cave Creek	2,200	2,400	2,700	2,900	3,000	3,200
Chandler	145,500	154,700	182,300	202,100	215,200	222,000
El Mirage	5,000	5,100	6,500	7,200	8,000	8,900
Florence	11,000	12,100	17,000	26,400	40,900	51,100
Fort McDowell Yavapai Native Nation	2,200	2,400	2,400	2,500	2,600	2,600
Fountain Hills	7,100	7,700	9,100	9,800	10,200	10,300
Gila Bend	900	900	1,200	1,300	1,500	1,700
Gila River Indian Native Nation	10,500	10,700	11,500	13,100	14,800	15,500
Gilbert	92,800	98,600	120,200	135,900	146,600	152,200
Glendale	103,800	111,400	134,000	153,100	168,900	175,900
Goodyear	35,900	37,200	50,600	69,000	92,600	102,500
Guadalupe	1,300	1,300	1,500	1,600	1,600	1,600
Litchfield Park	3,800	4,400	5,200	5,900	6,400	6,700
Maricopa	6,200	7,100	11,400	18,200	28,200	33,500
Mesa	197,200	205,900	249,000	296,000	333,700	351,000
Paradise Valley	6,300	6,300	6,800	7,100	7,500	7,700
Peoria	58,200	62,400	73,100	84,800	91,900	96,300
Phoenix	897,700	937,600	1,084,000	1,189,200	1,264,900	1,298,900
Queen Creek	15,500	16,400	19,900	24,000	28,900	31,100
Salt River Pima-Maricopa Native Nation	21,200	22,900	28,200	33,900	35,900	36,400
Scottsdale	197,200	207,400	235,500	252,000	261,700	267,000
Surprise	33,600	36,400	59,500	86,400	113,400	130,500
Tempe	190,000	200,500	231,200	257,700	280,000	290,900
Tolleson	17,700	18,300	21,200	23,900	26,000	26,700
Unicorporated Pinal County	3,500	3,900	6,000	8,900	13,500	17,800
Unincorporated Maricopa County	28,600	31,500	35,500	41,100	51,200	58,400
Wickenburg	4,400	4,600	5,200	5,600	6,000	6,200
Youngtown	1,500	1,800	2,200	2,700	2,800	3,100

Notes: Numbers rounded to the nearest 100. These projections include both the Maricopa County and Pinal County portions for Apache Junction, Queen Creek, and the Gila River Indian Community. Peoria and Wickenburg include only the Maricopa County portion.

Source: Maricopa Association of Governments (MAG) Socioeconomic Projections of Population and Employment by Municipal Planning Area (MPA) and Regional Analysis Zone (RAZ), June 2019

For explanation of variables and complete notation on this series, please refer to the Notes and Caveats in Appendix A.

Maricopa Association of Governments
Table 4: Population by Regional Analysis Zone (RAZ) by MPA
July 1, 2018 and Projections July 1, 2020 to July 1, 2055

		Total Population					
RAZ	County	2018	2020	2030	2040	2050	2055
Gilbert MPA							
311	**Maricopa County**	69,468	71,161	75,414	78,260	80,585	81,594
312	**Maricopa County**	33,647	34,815	38,530	39,308	40,045	40,262
318	**Maricopa County**	45,028	46,189	51,325	53,015	54,158	54,796
319	**Maricopa County**	68,863	71,824	78,215	83,385	85,822	86,425
329	**Maricopa County**	39,481	41,890	50,036	54,841	57,454	58,308
	Total	256,487	265,879	293,520	308,809	318,064	321,385
Glendale MPA							
222	**Maricopa County**	46,910	47,698	48,796	49,206	49,384	49,449
240	**Maricopa County**	42,310	43,162	45,339	45,891	46,063	46,176
254	**Maricopa County**	13,022	13,489	20,216	24,071	26,070	27,026
255	**Maricopa County**	18,063	18,672	24,066	27,041	28,332	28,777
257	**Maricopa County**	51,024	52,020	58,164	63,504	66,976	69,767
258	**Maricopa County**	100,829	104,044	109,853	113,699	116,389	117,596
	Total	272,158	279,085	306,434	323,412	333,214	338,791
Goodyear MPA							
265	**Maricopa County**	34,465	35,839	42,987	46,513	48,289	49,206
280	**Maricopa County**	37,602	39,877	59,146	72,505	80,624	83,806
302	**Maricopa County**	14,773	15,960	34,674	52,531	61,049	64,104
323	**Maricopa County**	303	308	3,388	20,507	38,433	50,299
373	**Maricopa County**	124	124	131	131	243	530
	Total	87,267	92,108	140,326	192,187	228,638	247,945
Guadalupe MPA							
307	**Maricopa County**	6,342	6,422	6,659	6,765	6,779	6,779
	Total	6,342	6,422	6,659	6,765	6,779	6,779
Litchfield Park MPA							
266	**Maricopa County**	13,263	13,965	15,398	15,692	16,141	16,408
	Total	13,263	13,965	15,398	15,692	16,141	16,408
Maricopa MPA							
399	**Pinal County**	52,310	59,346	80,116	88,466	97,145	101,546
400	**Pinal County**	2,485	2,528	2,575	2,575	2,575	2,575
403	**Pinal County**	1,541	1,545	4,219	11,464	18,018	20,896
404	**Pinal County**	3,433	3,537	3,901	3,901	3,906	3,906
	Total	59,769	66,956	90,811	106,406	121,644	128,923

Notes: Numbers rounded to the nearest 100. These projections include both the Maricopa County and Pinal County portions for Apache Junction, Queen Creek, and the Gila River Indian Community. Peoria and Wickenburg include only the Maricopa County portion.

Source: Maricopa Association of Governments (MAG) Socioeconomic Projections of Population and Employment by Municipal Planning Area (MPA) and Regional Analysis Zone (RAZ), May 2019

For explanation of variables and complete notation on this series, please refer to the Notes and Caveats in Appendix A.

Maricopa Association of Governments
Table 5: Employment by Regional Analysis Zone (RAZ) by MPA
July 1, 2018 and Projections July 1, 2020 to July 1, 2055

		Total Employment					
RAZ	County	2018	2020	2030	2040	2050	2055
Gilbert MPA							
311	**Maricopa County**	35,190	37,754	44,986	48,701	51,554	52,795
312	**Maricopa County**	8,736	9,970	12,042	13,171	14,178	14,761
318	**Maricopa County**	28,231	31,209	39,313	46,051	50,312	52,149
319	**Maricopa County**	13,484	13,402	16,611	19,467	21,504	22,510
329	**Maricopa County**	7,127	6,240	7,201	8,542	9,040	9,955
	Total	92,768	98,575	120,153	135,932	146,588	152,170
Glendale MPA							
222	**Maricopa County**	23,182	24,358	27,080	28,920	29,868	30,267
240	**Maricopa County**	21,449	22,663	24,750	25,462	26,269	26,424
254	**Maricopa County**	1,085	1,570	3,495	6,538	9,168	9,708
255	**Maricopa County**	13,743	15,786	18,396	19,683	21,173	22,278
257	**Maricopa County**	16,724	18,078	25,599	33,996	40,928	44,502
258	**Maricopa County**	27,635	28,959	34,725	38,499	41,526	42,736
	Total	103,818	111,414	134,045	153,098	168,932	175,915
Goodyear MPA							
265	**Maricopa County**	16,215	16,286	19,476	22,636	25,120	26,105
280	**Maricopa County**	16,644	17,720	24,268	33,850	42,995	46,929
302	**Maricopa County**	2,983	3,059	5,047	5,326	7,573	10,200
323	**Maricopa County**	10	94	1,751	7,100	16,808	19,039
373	**Maricopa County**	84	84	103	111	123	254
	Total	35,936	37,243	50,645	69,023	92,619	102,527
Guadalupe MPA							
307	**Maricopa County**	1,270	1,281	1,465	1,566	1,622	1,584
	Total	1,270	1,281	1,465	1,566	1,622	1,584
Litchfield Park MPA							
266	**Maricopa County**	3,796	4,379	5,187	5,911	6,352	6,718
	Total	3,796	4,379	5,187	5,911	6,352	6,718
Maricopa MPA							
399	**Pinal County**	5,615	6,421	9,877	13,973	20,017	23,456
400	**Pinal County**	299	318	461	935	2,073	2,712
403	**Pinal County**	141	167	679	2,343	4,539	5,576
404	**Pinal County**	172	189	386	912	1,527	1,717
	Total	6,227	7,095	11,403	18,163	28,156	33,461

Notes: Numbers rounded to the nearest 100. These projections include both the Maricopa County and Pinal County portions for Apache Junction, Queen Creek, and the Gila River Indian Community. Peoria and Wickenburg include only the Maricopa County portion.

Source: Maricopa Association of Governments (MAG) Socioeconomic Projections of Population and Employment by Municipal Planning Area (MPA) and Regional Analysis Zone (RAZ), May 2019

For explanation of variables and complete notation on this series, please refer to the Notes and Caveats in Appendix A.

Appendix H – Year 2025 Build Capacity Analysis

H

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	1132	85	203	875	123	144	259	358	272	384	138
Future Volume (veh/h)	104	1132	85	203	875	123	144	259	358	272	384	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	1230	92	221	951	134	157	282	389	296	417	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1229	673	194	1318	687	321	533	476	227	730	260
Arrive On Green	0.05	0.35	0.35	0.08	0.37	0.37	0.08	0.30	0.30	0.06	0.28	0.28
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1777	1585	1781	2569	914
Grp Volume(v), veh/h	113	1230	92	221	951	134	157	282	389	296	287	280
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1706
Q Serve(g_s), s	4.9	41.5	4.3	9.0	27.6	6.3	7.4	15.8	27.3	7.5	16.6	16.9
Cycle Q Clear(g_c), s	4.9	41.5	4.3	9.0	27.6	6.3	7.4	15.8	27.3	7.5	16.6	16.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	222	1229	673	194	1318	687	321	533	476	227	505	484
V/C Ratio(X)	0.51	1.00	0.14	1.14	0.72	0.20	0.49	0.53	0.82	1.31	0.57	0.58
Avail Cap(c_a), veh/h	222	1229	673	194	1318	687	352	533	476	227	505	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	39.3	21.1	32.6	32.4	21.0	28.2	34.9	39.0	40.4	36.7	36.8
Incr Delay (d2), s/veh	1.9	25.9	0.4	107.9	3.4	0.6	1.2	3.7	14.5	165.5	4.6	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	21.5	1.6	9.2	11.9	2.3	3.1	7.1	12.0	13.4	7.5	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.5	65.1	21.5	140.5	35.9	21.7	29.4	38.7	53.4	205.9	41.3	41.7
LnGrp LOS	C	F	C	F	D	C	C	D	D	F	D	D
Approach Vol, veh/h		1435			1306			828			863	
Approach Delay, s/veh		59.4			52.1			43.8			97.9	
Approach LOS		E			D			D			F	

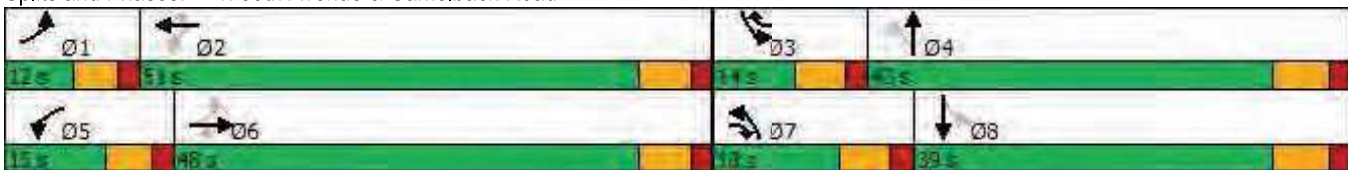
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	51.0	14.0	43.0	15.0	48.0	15.9	41.1
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	6.0	44.5	7.5	36.0	9.0	41.5	11.5	32.0
Max Q Clear Time (g_c+I1), s	6.9	29.6	9.5	29.3	11.0	43.5	9.4	18.9
Green Ext Time (p_c), s	0.0	3.9	0.0	1.5	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	61.9
HCM 6th LOS	E

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	None	Max	None	Max
Maximum Split (s)	12	51	14	43	15	48	18	39
Maximum Split (%)	10.0%	42.5%	11.7%	35.8%	12.5%	40.0%	15.0%	32.5%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	63	77	0	15	63	81
End Time (s)	12	63	77	0	15	63	81	0
Yield/Force Off (s)	6	56.5	70.5	113	9	56.5	74.5	113
Yield/Force Off 170(s)	6	36.5	70.5	87	9	37.5	74.5	92
Local Start Time (s)	105	117	48	62	105	0	48	66
Local Yield (s)	111	41.5	55.5	98	114	41.5	59.5	98
Local Yield 170(s)	111	21.5	55.5	72	114	22.5	59.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Uncoordinated
Natural Cycle	120

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	23	70	0	9	20	493	24	6	681	3
Future Vol, veh/h	7	0	23	70	0	9	20	493	24	6	681	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	25	76	0	10	22	536	26	7	740	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1068	1362	372	964	1337	268	743	0	0	562	0	0
Stage 1	756	756	-	580	580	-	-	-	-	-	-	-
Stage 2	312	606	-	384	757	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	176	147	625	210	152	730	860	-	-	1005	-	-
Stage 1	366	414	-	467	498	-	-	-	-	-	-	-
Stage 2	673	485	-	611	414	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	169	142	625	197	147	730	860	-	-	1005	-	-
Mov Cap-2 Maneuver	169	142	-	197	147	-	-	-	-	-	-	-
Stage 1	356	411	-	455	485	-	-	-	-	-	-	-
Stage 2	647	472	-	582	411	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.8	31.5	0.3	0.1
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	860	-	-	169	625	197	730	1005	-	-
HCM Lane V/C Ratio	0.025	-	-	0.045	0.04	0.386	0.013	0.006	-	-
HCM Control Delay (s)	9.3	-	-	27.3	11	34.3	10	8.6	-	-
HCM Lane LOS	A	-	-	D	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	1.7	0	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	5	446	18	5	588
Future Vol, veh/h	50	5	446	18	5	588
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	5	485	20	5	639

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	815	243	0	0	505	0
Stage 1	485	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	315	758	-	-	1056	-
Stage 1	585	-	-	-	-	-
Stage 2	701	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	313	758	-	-	1056	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	697	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	449	1056	-
HCM Lane V/C Ratio	-	-	0.133	0.005	-
HCM Control Delay (s)	-	-	14.2	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	1	51	0	0	0	47	404	0	0	573	29
Future Vol, veh/h	24	1	51	0	0	0	47	404	0	0	573	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	1	55	0	0	0	51	439	0	0	623	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	945	1164	312	853	1196	220	655	0	0	439	0	0
Stage 1	623	623	-	541	541	-	-	-	-	-	-	-
Stage 2	322	541	-	312	655	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	217	193	684	253	185	784	928	-	-	1117	-	-
Stage 1	440	476	-	493	519	-	-	-	-	-	-	-
Stage 2	664	519	-	673	461	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	208	182	684	222	175	784	928	-	-	1117	-	-
Mov Cap-2 Maneuver	208	182	-	222	175	-	-	-	-	-	-	-
Stage 1	416	476	-	466	490	-	-	-	-	-	-	-
Stage 2	628	490	-	617	461	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.4	0	0.9	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	928	-	-	208	650	-	1117	-	-
HCM Lane V/C Ratio	0.055	-	-	0.125	0.087	-	-	-	-
HCM Control Delay (s)	9.1	-	-	24.8	11.1	0	0	-	-
HCM Lane LOS	A	-	-	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.3	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	1168	75	182	1321	274	123	346	200	234	434	226
Future Volume (veh/h)	166	1168	75	182	1321	274	123	346	200	234	434	226
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	180	1270	82	198	1436	298	134	376	217	254	472	246
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	1542	788	232	1530	857	201	451	256	276	573	297
Arrive On Green	0.08	0.43	0.43	0.08	0.43	0.43	0.06	0.21	0.21	0.11	0.25	0.25
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	2183	1241	1781	2264	1173
Grp Volume(v), veh/h	180	1270	82	198	1436	298	134	305	288	254	370	348
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1647	1781	1777	1659
Q Serve(g_s), s	9.9	47.2	4.1	9.3	57.9	16.0	8.9	24.7	25.2	16.5	29.4	29.7
Cycle Q Clear(g_c), s	9.9	47.2	4.1	9.3	57.9	16.0	8.9	24.7	25.2	16.5	29.4	29.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		0.71
Lane Grp Cap(c), veh/h	202	1542	788	232	1530	857	201	367	340	276	450	420
V/C Ratio(X)	0.89	0.82	0.10	0.85	0.94	0.35	0.67	0.83	0.85	0.92	0.82	0.83
Avail Cap(c_a), veh/h	215	1542	788	274	1530	857	201	367	340	276	450	420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	37.4	20.0	32.3	40.8	19.5	45.3	57.0	57.2	42.8	52.8	52.9
Incr Delay (d2), s/veh	32.8	5.1	0.3	19.8	12.4	1.1	8.1	19.2	22.0	34.1	15.5	16.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	20.9	1.5	5.1	26.9	5.9	4.3	12.7	12.3	9.7	14.7	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.3	42.5	20.3	52.1	53.2	20.6	53.4	76.2	79.3	76.9	68.3	69.8
LnGrp LOS	E	D	C	D	D	C	D	E	E	E	E	E
Approach Vol, veh/h		1532			1932			727			972	
Approach Delay, s/veh		45.1			48.1			73.2			71.1	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	71.1	23.0	38.0	17.4	71.6	16.0	45.0
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	13.0	63.5	16.5	31.0	15.0	61.5	9.5	38.0
Max Q Clear Time (g_c+I1), s	11.9	59.9	18.5	27.2	11.3	49.2	10.9	31.7
Green Ext Time (p_c), s	0.1	2.4	0.0	0.8	0.2	4.8	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	55.0
HCM 6th LOS	E

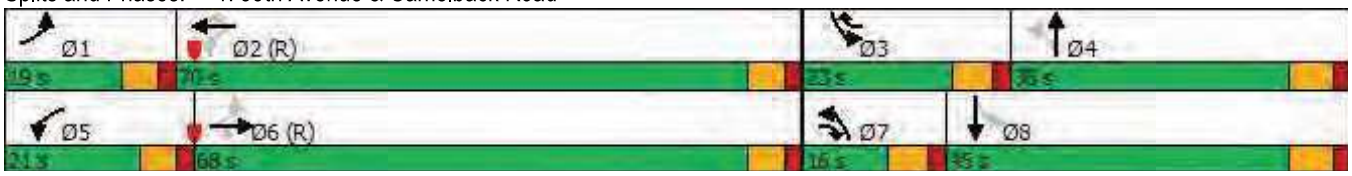
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	19	70	23	38	21	68	16	45
Maximum Split (%)	12.7%	46.7%	15.3%	25.3%	14.0%	45.3%	10.7%	30.0%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	129	148	68	91	129	0	68	84
End Time (s)	148	68	91	129	0	68	84	129
Yield/Force Off (s)	142	61.5	84.5	122	144	61.5	77.5	122
Yield/Force Off 170(s)	142	41.5	84.5	96	144	42.5	77.5	101
Local Start Time (s)	129	148	68	91	129	0	68	84
Local Yield (s)	142	61.5	84.5	122	144	61.5	77.5	122
Local Yield 170(s)	142	41.5	84.5	96	144	42.5	77.5	101

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	27	49	0	10	11	722	53	24	857	11
Future Vol, veh/h	6	0	27	49	0	10	11	722	53	24	857	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	29	53	0	11	12	785	58	26	932	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1407	1857	472	1327	1805	393	944	0	0	843	0	0
Stage 1	990	990	-	809	809	-	-	-	-	-	-	-
Stage 2	417	867	-	518	996	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*195	96	538	234	107	*792	722	-	-	1137	-	-
Stage 1	*264	323	-	745	653	-	-	-	-	-	-	-
Stage 2	*746	604	-	509	320	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*187	93	538	214	102	*792	722	-	-	1137	-	-
Mov Cap-2 Maneuver	*187	93	-	214	102	-	-	-	-	-	-	-
Stage 1	*260	316	-	732	642	-	-	-	-	-	-	-
Stage 2	*724	594	-	470	313	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	24.3	0.1	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	722	-	-	187	538	214	792	1137	-	-
HCM Lane V/C Ratio	0.017	-	-	0.035	0.055	0.249	0.014	0.023	-	-
HCM Control Delay (s)	10.1	-	-	24.9	12.1	27.3	9.6	8.2	-	-
HCM Lane LOS	B	-	-	C	B	D	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0.9	0	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	6	614	44	12	810
Future Vol, veh/h	45	6	614	44	12	810
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	7	667	48	13	880

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1133	334	0	0	715	0
Stage 1	667	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	*346	*833	-	-	1217	-
Stage 1	*786	-	-	-	-	-
Stage 2	*598	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*342	*833	-	-	1217	-
Mov Cap-2 Maneuver	*458	-	-	-	-	-
Stage 1	*786	-	-	-	-	-
Stage 2	*591	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	484	1217	-
HCM Lane V/C Ratio	-	-	0.115	0.011	-
HCM Control Delay (s)	-	-	13.4	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	42	0	0	0	91	529	0	0	831	53
Future Vol, veh/h	12	0	42	0	0	0	91	529	0	0	831	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	46	0	0	0	99	575	0	0	903	58

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1389	1676	452	1225	1734	288	961	0	0	575	0	0
Stage 1	903	903	-	773	773	-	-	-	-	-	-	-
Stage 2	486	773	-	452	961	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*160	119	555	226	108	*869	712	-	-	*1299	-	-
Stage 1	*299	354	-	609	576	-	-	-	-	-	-	-
Stage 2	*819	576	-	557	333	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*143	103	555	185	93	*869	712	-	-	*1299	-	-
Mov Cap-2 Maneuver	*143	103	-	185	93	-	-	-	-	-	-	-
Stage 1	*257	354	-	524	496	-	-	-	-	-	-	-
Stage 2	*705	496	-	511	333	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.7	0	1.6	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	712	-	-	143	555	-	* 1299	-	-
HCM Lane V/C Ratio	0.139	-	-	0.091	0.082	-	-	-	-
HCM Control Delay (s)	10.9	-	-	32.7	12.1	0	0	-	-
HCM Lane LOS	B	-	-	D	B	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.3	0.3	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix I – Year 2025 No Build Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1132	85	203	875	111	144	251	358	225	369	107
Future Volume (veh/h)	90	1132	85	203	875	111	144	251	358	225	369	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	1230	92	221	951	121	157	273	389	245	401	116
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	1147	512	211	1253	559	343	533	476	227	762	218
Arrive On Green	0.05	0.32	0.32	0.08	0.35	0.35	0.08	0.30	0.30	0.06	0.28	0.28
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1777	1585	1781	2727	780
Grp Volume(v), veh/h	98	1230	92	221	951	121	157	273	389	245	260	257
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1730
Q Serve(g_s), s	4.0	35.5	4.6	9.0	26.0	5.9	6.8	14.0	25.0	6.5	13.6	13.8
Cycle Q Clear(g_c), s	4.0	35.5	4.6	9.0	26.0	5.9	6.8	14.0	25.0	6.5	13.6	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	219	1147	512	211	1253	559	343	533	476	227	496	483
V/C Ratio(X)	0.45	1.07	0.18	1.05	0.76	0.22	0.46	0.51	0.82	1.08	0.52	0.53
Avail Cap(c_a), veh/h	224	1147	512	211	1253	559	355	533	476	227	496	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	37.2	26.8	28.8	31.5	25.0	25.8	31.8	35.7	38.2	33.5	33.5
Incr Delay (d2), s/veh	1.4	48.3	0.8	74.6	4.3	0.9	1.0	3.5	14.5	83.0	3.9	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	22.2	1.8	7.9	11.3	2.2	2.8	6.2	11.0	8.1	6.1	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	85.6	27.6	103.5	35.8	25.8	26.8	35.3	50.2	121.3	37.4	37.7
LnGrp LOS	C	F	C	F	D	C	C	D	D	F	D	D
Approach Vol, veh/h		1420			1293			819			762	
Approach Delay, s/veh		77.8			46.4			40.7			64.5	
Approach LOS		E			D			D			E	

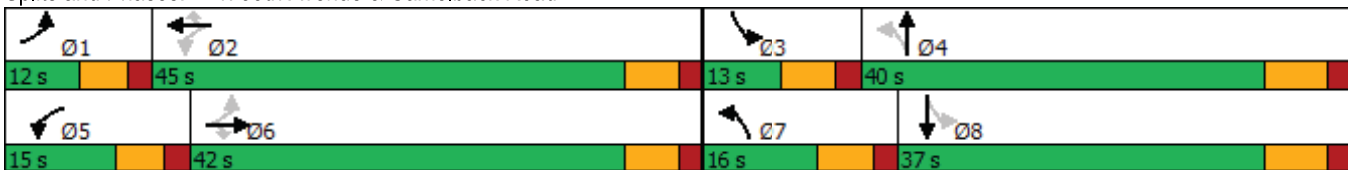
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	45.3	13.0	40.0	15.0	42.0	15.3	37.7
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	6.0	38.5	6.5	33.0	9.0	35.5	9.5	30.0
Max Q Clear Time (g_c+I1), s	6.0	28.0	8.5	27.0	11.0	37.5	8.8	15.8
Green Ext Time (p_c), s	0.0	3.3	0.0	1.4	0.0	0.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	58.9
HCM 6th LOS	E

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	None	Max	None	Max
Maximum Split (s)	12	45	13	40	15	42	16	37
Maximum Split (%)	10.9%	40.9%	11.8%	36.4%	13.6%	38.2%	14.5%	33.6%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	57	70	0	15	57	73
End Time (s)	12	57	70	0	15	57	73	0
Yield/Force Off (s)	6	50.5	63.5	103	9	50.5	66.5	103
Yield/Force Off 170(s)	6	30.5	63.5	77	9	31.5	66.5	82
Local Start Time (s)	95	107	42	55	95	0	42	58
Local Yield (s)	101	35.5	48.5	88	104	35.5	51.5	88
Local Yield 170(s)	101	15.5	48.5	62	104	16.5	51.5	67

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	110

Splits and Phases: 1: 99th Avenue & Camelback Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	1168	75	182	1321	240	123	331	200	209	423	198
Future Volume (veh/h)	137	1168	75	182	1321	240	123	331	200	209	423	198
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	1270	82	198	1436	261	134	360	217	227	460	215
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	179	1570	700	234	1627	726	208	472	280	258	581	270
Arrive On Green	0.06	0.44	0.44	0.07	0.46	0.46	0.06	0.22	0.22	0.09	0.25	0.25
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	2146	1272	1781	2357	1093
Grp Volume(v), veh/h	149	1270	82	198	1436	261	134	297	280	227	346	329
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1641	1781	1777	1674
Q Serve(g_s), s	6.8	46.6	4.6	9.1	55.1	16.0	8.7	23.5	24.1	13.5	27.3	27.7
Cycle Q Clear(g_c), s	6.8	46.6	4.6	9.1	55.1	16.0	8.7	23.5	24.1	13.5	27.3	27.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.77	1.00		0.65
Lane Grp Cap(c), veh/h	179	1570	700	234	1627	726	208	391	361	258	438	413
V/C Ratio(X)	0.83	0.81	0.12	0.84	0.88	0.36	0.64	0.76	0.78	0.88	0.79	0.80
Avail Cap(c_a), veh/h	181	1570	700	279	1627	726	208	391	361	258	438	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	36.4	24.7	31.7	37.0	26.4	43.9	54.8	55.0	45.9	52.9	53.0
Incr Delay (d2), s/veh	26.7	4.6	0.3	18.0	7.3	1.4	6.6	13.0	15.0	27.4	13.5	14.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	20.5	1.7	4.9	24.6	6.2	4.2	11.6	11.2	8.4	13.5	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	41.0	25.0	49.8	44.3	27.8	50.5	67.8	70.0	73.3	66.3	67.7
LnGrp LOS	E	D	C	D	D	C	D	E	E	E	E	E
Approach Vol, veh/h		1501			1895			711			902	
Approach Delay, s/veh		42.1			42.6			65.4			68.6	
Approach LOS		D			D			E			E	

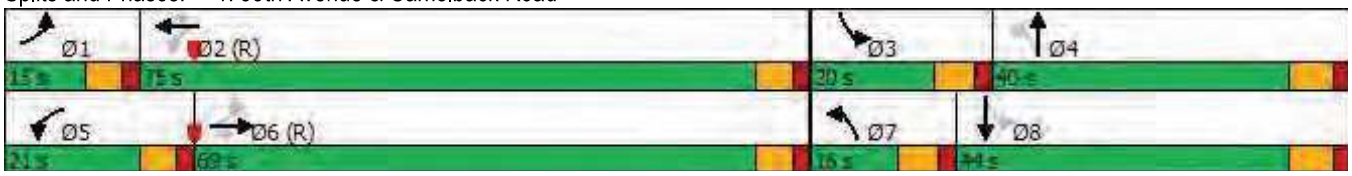
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	75.2	20.0	40.0	17.2	72.8	16.0	44.0
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	9.0	68.5	13.5	33.0	15.0	62.5	9.5	37.0
Max Q Clear Time (g_c+I1), s	8.8	57.1	15.5	26.1	11.1	48.6	10.7	29.7
Green Ext Time (p_c), s	0.0	5.6	0.0	1.2	0.2	5.2	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	50.4
HCM 6th LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	75	20	40	21	69	16	44
Maximum Split (%)	10.0%	50.0%	13.3%	26.7%	14.0%	46.0%	10.7%	29.3%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	129	144	69	89	129	0	69	85
End Time (s)	144	69	89	129	0	69	85	129
Yield/Force Off (s)	138	62.5	82.5	122	144	62.5	78.5	122
Yield/Force Off 170(s)	138	42.5	82.5	96	144	43.5	78.5	101
Local Start Time (s)	129	144	69	89	129	0	69	85
Local Yield (s)	138	62.5	82.5	122	144	62.5	78.5	122
Local Yield 170(s)	138	42.5	82.5	96	144	43.5	78.5	101

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 1: 99th Avenue & Camelback Road



Appendix J – Year 2028 Build Capacity Analysis

J

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	1175	88	210	908	128	149	269	372	280	398	142
Future Volume (veh/h)	108	1175	88	210	908	128	149	269	372	280	398	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	1277	96	228	987	139	162	292	404	304	433	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	1229	676	194	1318	674	316	548	489	210	726	256
Arrive On Green	0.05	0.35	0.35	0.08	0.37	0.37	0.08	0.31	0.31	0.05	0.28	0.28
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1777	1585	1781	2576	908
Grp Volume(v), veh/h	117	1277	96	228	987	139	162	292	404	304	297	290
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1707
Q Serve(g_s), s	5.1	41.5	4.4	9.0	29.0	6.6	7.7	16.3	28.4	6.5	17.3	17.6
Cycle Q Clear(g_c), s	5.1	41.5	4.4	9.0	29.0	6.6	7.7	16.3	28.4	6.5	17.3	17.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	214	1229	676	194	1318	674	316	548	489	210	501	481
V/C Ratio(X)	0.55	1.04	0.14	1.18	0.75	0.21	0.51	0.53	0.83	1.45	0.59	0.60
Avail Cap(c_a), veh/h	214	1229	676	194	1318	674	343	548	489	210	501	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	39.3	21.0	32.6	32.9	21.7	28.4	34.3	38.5	41.9	37.2	37.3
Incr Delay (d2), s/veh	2.9	36.4	0.4	120.8	3.9	0.7	1.3	3.7	14.8	225.5	5.1	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	23.3	1.6	9.9	12.6	2.5	3.2	7.3	12.4	16.2	7.9	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	75.6	21.4	153.3	36.8	22.4	29.7	38.0	53.3	267.4	42.3	42.8
LnGrp LOS	C	F	C	F	D	C	C	D	D	F	D	D
Approach Vol, veh/h		1490			1354			858			891	
Approach Delay, s/veh		68.6			55.0			43.6			119.2	
Approach LOS		E			D			D			F	

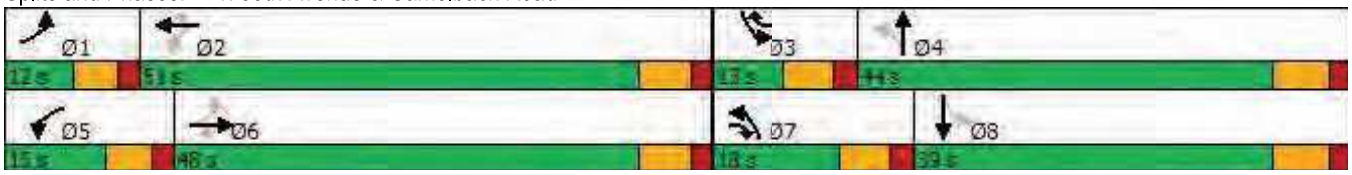
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	51.0	13.0	44.0	15.0	48.0	16.2	40.8
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	6.0	44.5	6.5	37.0	9.0	41.5	11.5	32.0
Max Q Clear Time (g_c+I1), s	7.1	31.0	8.5	30.4	11.0	43.5	9.7	19.6
Green Ext Time (p_c), s	0.0	3.9	0.0	1.5	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	69.7
HCM 6th LOS	E

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	None	Max	None	Max
Maximum Split (s)	12	51	13	44	15	48	18	39
Maximum Split (%)	10.0%	42.5%	10.8%	36.7%	12.5%	40.0%	15.0%	32.5%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	63	76	0	15	63	81
End Time (s)	12	63	76	0	15	63	81	0
Yield/Force Off (s)	6	56.5	69.5	113	9	56.5	74.5	113
Yield/Force Off 170(s)	6	36.5	69.5	87	9	37.5	74.5	92
Local Start Time (s)	105	117	48	61	105	0	48	66
Local Yield (s)	111	41.5	54.5	98	114	41.5	59.5	98
Local Yield 170(s)	111	21.5	54.5	72	114	22.5	59.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Uncoordinated
Natural Cycle	140

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	24	71	0	9	21	511	25	6	705	3
Future Vol, veh/h	8	0	24	71	0	9	21	511	25	6	705	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	26	77	0	10	23	555	27	7	766	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1106	1410	385	998	1384	278	769	0	0	582	0	0
Stage 1	782	782	-	601	601	-	-	-	-	-	-	-
Stage 2	324	628	-	397	783	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	165	137	613	198	142	719	841	-	-	988	-	-
Stage 1	353	403	-	454	488	-	-	-	-	-	-	-
Stage 2	662	474	-	600	403	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	159	132	613	185	137	719	841	-	-	988	-	-
Mov Cap-2 Maneuver	159	132	-	185	137	-	-	-	-	-	-	-
Stage 1	343	400	-	442	475	-	-	-	-	-	-	-
Stage 2	635	461	-	570	400	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.6	34.6	0.4	0.1
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	841	-	-	159	613	185	719	988	-	-
HCM Lane V/C Ratio	0.027	-	-	0.055	0.043	0.417	0.014	0.007	-	-
HCM Control Delay (s)	9.4	-	-	28.9	11.1	37.7	10.1	8.7	-	-
HCM Lane LOS	A	-	-	D	B	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	1.9	0	0	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	5	463	18	5	610
Future Vol, veh/h	50	5	463	18	5	610
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	5	503	20	5	663

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	845	252	0	0	523	0
Stage 1	503	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	302	748	-	-	1040	-
Stage 1	573	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	300	748	-	-	1040	-
Mov Cap-2 Maneuver	420	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	688	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	437	1040	-
HCM Lane V/C Ratio	-	-	0.137	0.005	-
HCM Control Delay (s)	-	-	14.5	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	1	53	0	0	0	49	419	0	0	595	31
Future Vol, veh/h	25	1	53	0	0	0	49	419	0	0	595	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1	58	0	0	0	53	455	0	0	647	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	981	1208	324	885	1242	228	681	0	0	455	0	0
Stage 1	647	647	-	561	561	-	-	-	-	-	-	-
Stage 2	334	561	-	324	681	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	204	182	672	239	173	775	907	-	-	1102	-	-
Stage 1	426	465	-	480	508	-	-	-	-	-	-	-
Stage 2	653	508	-	662	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	195	171	672	208	163	775	907	-	-	1102	-	-
Mov Cap-2 Maneuver	195	171	-	208	163	-	-	-	-	-	-	-
Stage 1	401	465	-	452	479	-	-	-	-	-	-	-
Stage 2	615	479	-	604	448	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	0	1	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	907	-	-	195	637	-	1102	-	-
HCM Lane V/C Ratio	0.059	-	-	0.139	0.092	-	-	-	-
HCM Control Delay (s)	9.2	-	-	26.4	11.2	0	0	-	-
HCM Lane LOS	A	-	-	D	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.3	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	1212	77	189	1371	284	128	358	207	242	450	234
Future Volume (veh/h)	171	1212	77	189	1371	284	128	358	207	242	450	234
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	1317	84	205	1490	309	139	389	225	263	489	254
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	1458	767	226	1575	877	215	479	274	283	582	301
Arrive On Green	0.05	0.41	0.41	0.09	0.44	0.44	0.07	0.22	0.22	0.11	0.26	0.26
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	2179	1244	1781	2265	1171
Grp Volume(v), veh/h	186	1317	84	205	1490	309	139	316	298	263	383	360
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1646	1781	1777	1660
Q Serve(g_s), s	8.0	52.1	4.3	10.9	60.3	16.2	9.0	25.3	25.8	16.5	30.6	30.9
Cycle Q Clear(g_c), s	8.0	52.1	4.3	10.9	60.3	16.2	9.0	25.3	25.8	16.5	30.6	30.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.76	1.00		0.71
Lane Grp Cap(c), veh/h	154	1458	767	226	1575	877	215	391	362	283	456	426
V/C Ratio(X)	1.21	0.90	0.11	0.91	0.95	0.35	0.65	0.81	0.82	0.93	0.84	0.84
Avail Cap(c_a), veh/h	154	1458	767	227	1575	877	233	391	362	283	456	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	41.4	21.1	38.8	40.0	18.6	43.3	55.5	55.7	43.0	52.8	52.9
Incr Delay (d2), s/veh	139.6	9.5	0.3	35.6	13.0	1.1	5.5	16.4	18.6	35.6	16.7	18.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	23.9	1.6	6.8	28.0	6.0	4.2	12.8	12.3	10.1	15.4	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	178.1	50.9	21.4	74.5	53.0	19.7	48.7	71.9	74.3	78.6	69.6	71.1
LnGrp LOS	F	D	C	E	D	B	D	E	E	E	E	E
Approach Vol, veh/h		1587			2004			753			1006	
Approach Delay, s/veh		64.2			50.1			68.6			72.5	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	73.0	23.0	40.0	18.9	68.1	17.5	45.5
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	8.0	66.5	16.5	33.0	13.0	61.5	12.5	37.0
Max Q Clear Time (g_c+I1), s	10.0	62.3	18.5	27.8	12.9	54.1	11.0	32.9
Green Ext Time (p_c), s	0.0	2.8	0.0	1.1	0.0	3.7	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	61.1
HCM 6th LOS	E

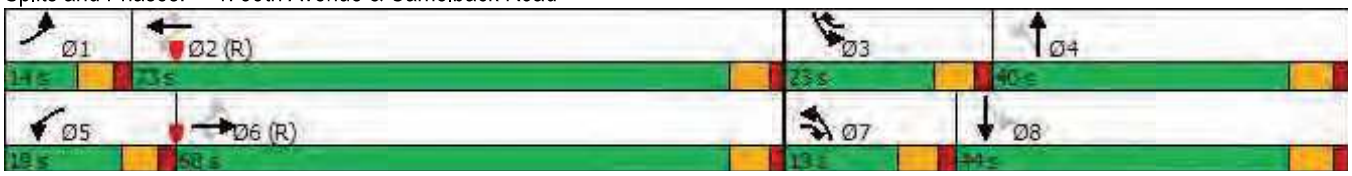
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	14	73	23	40	19	68	19	44
Maximum Split (%)	9.3%	48.7%	15.3%	26.7%	12.7%	45.3%	12.7%	29.3%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	131	145	68	91	131	0	68	87
End Time (s)	145	68	91	131	0	68	87	131
Yield/Force Off (s)	139	61.5	84.5	124	144	61.5	80.5	124
Yield/Force Off 170(s)	139	41.5	84.5	98	144	42.5	80.5	103
Local Start Time (s)	131	145	68	91	131	0	68	87
Local Yield (s)	139	61.5	84.5	124	144	61.5	80.5	124
Local Yield 170(s)	139	41.5	84.5	98	144	42.5	80.5	103

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	28	49	0	11	11	748	53	24	889	11
Future Vol, veh/h	7	0	28	49	0	11	11	748	53	24	889	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	30	53	0	12	12	813	58	26	966	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1455	1919	489	1372	1867	407	978	0	0	871	0	0
Stage 1	1024	1024	-	837	837	-	-	-	-	-	-	-
Stage 2	431	895	-	535	1030	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*187	88	525	*227	*98	*771	701	-	-	1145	-	-
Stage 1	*252	311	-	*727	*637	-	-	-	-	-	-	-
Stage 2	*727	611	-	*497	*309	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*178	85	525	*208	*94	*771	701	-	-	1145	-	-
Mov Cap-2 Maneuver	*178	85	-	*208	*94	-	-	-	-	-	-	-
Stage 1	*248	304	-	*715	*626	-	-	-	-	-	-	-
Stage 2	*703	601	-	*458	*302	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	24.8	0.1	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	701	-	-	178	525	208	771	1145	-	-
HCM Lane V/C Ratio	0.017	-	-	0.043	0.058	0.256	0.016	0.023	-	-
HCM Control Delay (s)	10.2	-	-	26.1	12.3	28.2	9.7	8.2	-	-
HCM Lane LOS	B	-	-	D	B	D	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	1	0	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	6	637	44	12	841
Future Vol, veh/h	45	6	637	44	12	841
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	7	692	48	13	914

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1175	346	0	0	740	0
Stage 1	692	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	*320	*833	-	-	1185	-
Stage 1	*786	-	-	-	-	-
Stage 2	*586	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*316	*833	-	-	1185	-
Mov Cap-2 Maneuver	*443	-	-	-	-	-
Stage 1	*786	-	-	-	-	-
Stage 2	*580	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	469	1185	-
HCM Lane V/C Ratio	-	-	0.118	0.011	-
HCM Control Delay (s)	-	-	13.7	8.1	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	44	0	0	0	95	549	0	0	862	55
Future Vol, veh/h	12	0	44	0	0	0	95	549	0	0	862	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	48	0	0	0	103	597	0	0	937	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1442	1740	469	1272	1800	299	997	0	0	597	0	0
Stage 1	937	937	-	803	803	-	-	-	-	-	-	-
Stage 2	505	803	-	469	997	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*144	107	541	205	96	*869	690	-	-	1297	-	-
Stage 1	*285	342	-	579	554	-	-	-	-	-	-	-
Stage 2	*819	554	-	544	320	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*127	91	541	166	82	*869	690	-	-	1297	-	-
Mov Cap-2 Maneuver	*127	91	-	166	82	-	-	-	-	-	-	-
Stage 1	*243	342	-	493	472	-	-	-	-	-	-	-
Stage 2	*697	472	-	496	320	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	0	1.6	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	690	-	-	127	541	-	1297	-	-
HCM Lane V/C Ratio	0.15	-	-	0.103	0.088	-	-	-	-
HCM Control Delay (s)	11.1	-	-	36.6	12.3	0	0	-	-
HCM Lane LOS	B	-	-	E	B	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.3	0.3	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix K – Year 2028 No Build Capacity Analysis

K

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	1175	88	210	908	116	149	261	372	233	383	111
Future Volume (veh/h)	94	1175	88	210	908	116	149	261	372	233	383	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	1277	96	228	987	126	162	284	404	253	416	121
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	1147	512	211	1247	556	338	533	476	216	754	217
Arrive On Green	0.05	0.32	0.32	0.08	0.35	0.35	0.08	0.30	0.30	0.06	0.28	0.28
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1777	1585	1781	2722	784
Grp Volume(v), veh/h	102	1277	96	228	987	126	162	284	404	253	270	267
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1729
Q Serve(g_s), s	4.2	35.5	4.8	9.0	27.5	6.2	7.1	14.6	26.3	6.5	14.3	14.5
Cycle Q Clear(g_c), s	4.2	35.5	4.8	9.0	27.5	6.2	7.1	14.6	26.3	6.5	14.3	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	212	1147	512	211	1247	556	338	533	476	216	492	479
V/C Ratio(X)	0.48	1.11	0.19	1.08	0.79	0.23	0.48	0.53	0.85	1.17	0.55	0.56
Avail Cap(c_a), veh/h	214	1147	512	211	1247	556	361	533	476	216	492	479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	37.2	26.9	28.8	32.1	25.2	26.0	32.1	36.2	37.9	33.9	34.0
Incr Delay (d2), s/veh	1.7	63.5	0.8	84.7	5.2	0.9	1.1	3.8	17.1	114.4	4.4	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	24.6	1.8	8.5	12.0	2.3	2.9	6.5	11.8	9.5	6.4	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	100.7	27.7	113.5	37.3	26.1	27.1	35.9	53.2	152.3	38.3	38.6
LnGrp LOS	C	F	C	F	D	C	C	D	D	F	D	D
Approach Vol, veh/h		1475			1341			850			790	
Approach Delay, s/veh		90.9			49.2			42.5			74.9	
Approach LOS		F			D			D			E	

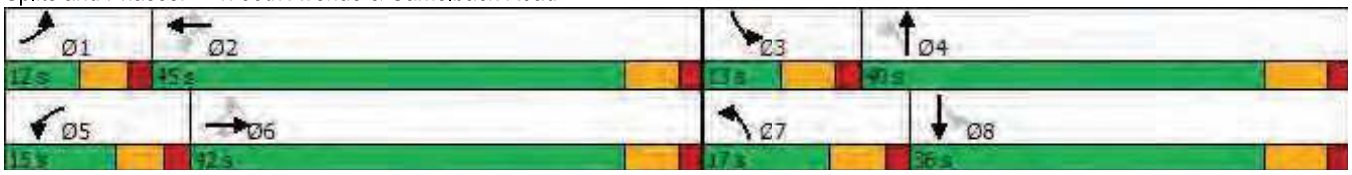
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	45.1	13.0	40.0	15.0	42.0	15.5	37.5
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	6.0	38.5	6.5	33.0	9.0	35.5	10.5	29.0
Max Q Clear Time (g_c+I1), s	6.2	29.5	8.5	28.3	11.0	37.5	9.1	16.5
Green Ext Time (p_c), s	0.0	3.2	0.0	1.2	0.0	0.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	66.3
HCM 6th LOS	E

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	None	Max	None	Max
Maximum Split (s)	12	45	13	40	15	42	17	36
Maximum Split (%)	10.9%	40.9%	11.8%	36.4%	13.6%	38.2%	15.5%	32.7%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	57	70	0	15	57	74
End Time (s)	12	57	70	0	15	57	74	0
Yield/Force Off (s)	6	50.5	63.5	103	9	50.5	67.5	103
Yield/Force Off 170(s)	6	30.5	63.5	77	9	31.5	67.5	82
Local Start Time (s)	95	107	42	55	95	0	42	59
Local Yield (s)	101	35.5	48.5	88	104	35.5	52.5	88
Local Yield 170(s)	101	15.5	48.5	62	104	16.5	52.5	67

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	110

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	24	24	0	4	21	494	8	3	658	3
Future Vol, veh/h	8	0	24	24	0	4	21	494	8	3	658	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	26	26	0	4	23	537	9	3	715	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1038	1315	359	947	1307	269	718	0	0	546	0	0
Stage 1	723	723	-	583	583	-	-	-	-	-	-	-
Stage 2	315	592	-	364	724	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	185	157	638	216	158	729	879	-	-	1019	-	-
Stage 1	384	429	-	465	497	-	-	-	-	-	-	-
Stage 2	671	492	-	627	429	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	180	152	638	203	153	729	879	-	-	1019	-	-
Mov Cap-2 Maneuver	180	152	-	203	153	-	-	-	-	-	-	-
Stage 1	374	428	-	453	484	-	-	-	-	-	-	-
Stage 2	650	479	-	600	428	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	23.1	0.4	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	879	-	-	180	638	203	729	1019	-	-
HCM Lane V/C Ratio	0.026	-	-	0.048	0.041	0.129	0.006	0.003	-	-
HCM Control Delay (s)	9.2	-	-	26	10.9	25.3	10	8.5	-	-
HCM Lane LOS	A	-	-	D	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0.4	0	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	0	458	1	2	607
Future Vol, veh/h	3	0	458	1	2	607
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	0	498	1	2	660

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	832	249	0	0	499	0
Stage 1	498	-	-	-	-	-
Stage 2	334	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	308	751	-	-	1061	-
Stage 1	576	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	307	751	-	-	1061	-
Mov Cap-2 Maneuver	425	-	-	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	696	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	425	1061	-
HCM Lane V/C Ratio	-	-	0.008	0.002	-
HCM Control Delay (s)	-	-	13.5	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	1	53	0	0	0	49	409	0	0	589	31
Future Vol, veh/h	25	1	53	0	0	0	49	409	0	0	589	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1	58	0	0	0	53	445	0	0	640	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	969	1191	320	872	1225	223	674	0	0	445	0	0
Stage 1	640	640	-	551	551	-	-	-	-	-	-	-
Stage 2	329	551	-	321	674	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	208	186	676	245	178	780	913	-	-	1112	-	-
Stage 1	430	468	-	486	514	-	-	-	-	-	-	-
Stage 2	658	514	-	665	452	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	199	175	676	213	168	780	913	-	-	1112	-	-
Mov Cap-2 Maneuver	199	175	-	213	168	-	-	-	-	-	-	-
Stage 1	405	468	-	458	484	-	-	-	-	-	-	-
Stage 2	620	484	-	607	452	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	0	1	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	913	-	-	199	642	-	1112	-	-
HCM Lane V/C Ratio	0.058	-	-	0.137	0.091	-	-	-	-
HCM Control Delay (s)	9.2	-	-	25.9	11.2	0	0	-	-
HCM Lane LOS	A	-	-	D	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.3	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	1212	77	189	1371	250	128	343	207	217	439	206
Future Volume (veh/h)	142	1212	77	189	1371	250	128	343	207	217	439	206
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	154	1317	84	205	1490	272	139	373	225	236	477	224
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	1527	681	227	1599	713	213	472	280	263	580	271
Arrive On Green	0.06	0.43	0.43	0.08	0.45	0.45	0.07	0.22	0.22	0.10	0.25	0.25
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	2144	1274	1781	2352	1098
Grp Volume(v), veh/h	154	1317	84	205	1490	272	139	308	290	236	360	341
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1641	1781	1777	1673
Q Serve(g_s), s	7.6	50.4	4.8	9.9	59.6	17.1	9.0	24.5	25.1	14.5	28.7	29.0
Cycle Q Clear(g_c), s	7.6	50.4	4.8	9.9	59.6	17.1	9.0	24.5	25.1	14.5	28.7	29.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.78	1.00		0.66
Lane Grp Cap(c), veh/h	169	1527	681	227	1599	713	213	391	361	263	438	413
V/C Ratio(X)	0.91	0.86	0.12	0.90	0.93	0.38	0.65	0.79	0.80	0.90	0.82	0.83
Avail Cap(c_a), veh/h	169	1527	681	250	1599	713	213	391	361	263	438	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	38.8	25.8	34.6	39.1	27.4	43.6	55.2	55.4	44.9	53.4	53.5
Incr Delay (d2), s/veh	44.2	6.7	0.4	30.8	11.2	1.5	7.0	14.8	17.0	30.0	15.7	17.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	22.5	1.8	6.0	27.3	6.6	4.3	12.3	11.8	8.9	14.4	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.1	45.4	26.1	65.4	50.3	28.9	50.6	70.0	72.5	74.9	69.1	70.6
LnGrp LOS	F	D	C	E	D	C	D	E	E	E	E	E
Approach Vol, veh/h		1555			1967			737			937	
Approach Delay, s/veh		47.9			48.9			67.3			71.1	
Approach LOS		D			D			E			E	

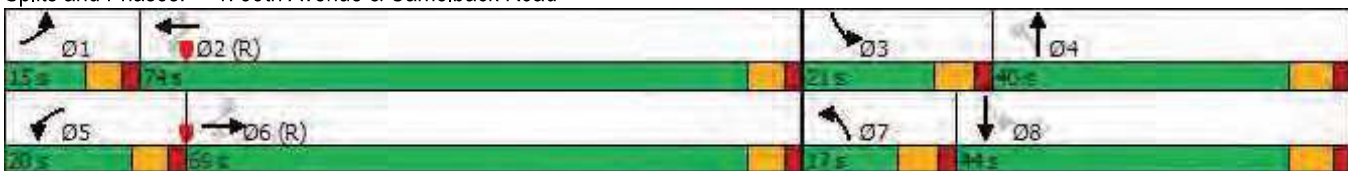
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	74.0	21.0	40.0	18.0	71.0	17.0	44.0
Change Period (Y+Rc), s	6.0	6.5	6.5	7.0	6.0	6.5	6.5	7.0
Max Green Setting (Gmax), s	9.0	67.5	14.5	33.0	14.0	62.5	10.5	37.0
Max Q Clear Time (g_c+I1), s	9.6	61.6	16.5	27.1	11.9	52.4	11.0	31.0
Green Ext Time (p_c), s	0.0	3.7	0.0	1.1	0.1	4.5	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	55.2
HCM 6th LOS	E

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	74	21	40	20	69	17	44
Maximum Split (%)	10.0%	49.3%	14.0%	26.7%	13.3%	46.0%	11.3%	29.3%
Minimum Split (s)	12	40	12	40	15	40	12	35
Yellow Time (s)	4	4.5	4.5	5	4	4.5	4.5	5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	5	20	5	20	5	20
Vehicle Extension (s)	3	2	3	2	3	2	3	2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		20		26		19		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	130	145	69	90	130	0	69	86
End Time (s)	145	69	90	130	0	69	86	130
Yield/Force Off (s)	139	62.5	83.5	123	144	62.5	79.5	123
Yield/Force Off 170(s)	139	42.5	83.5	97	144	43.5	79.5	102
Local Start Time (s)	130	145	69	90	130	0	69	86
Local Yield (s)	139	62.5	83.5	123	144	62.5	79.5	123
Local Yield 170(s)	139	42.5	83.5	97	144	43.5	79.5	102

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 1: 99th Avenue & Camelback Road



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	28	17	0	7	11	709	14	14	857	14
Future Vol, veh/h	7	0	28	17	0	7	11	709	14	14	857	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	160	-	120	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	30	18	0	8	12	771	15	15	932	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1380	1780	474	1291	1772	386	947	0	0	786	0	0
Stage 1	970	970	-	795	795	-	-	-	-	-	-	-
Stage 2	410	810	-	496	977	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*208	112	537	*254	*114	*792	721	-	-	*1184	-	-
Stage 1	*272	330	-	*746	*654	-	-	-	-	-	-	-
Stage 2	*746	652	-	*524	*327	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*201	108	537	*234	*111	*792	721	-	-	*1184	-	-
Mov Cap-2 Maneuver	*201	108	-	*234	*111	-	-	-	-	-	-	-
Stage 1	*267	326	-	*734	*643	-	-	-	-	-	-	-
Stage 2	*727	641	-	*488	*323	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	18.2	0.2	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	721	-	-	201	537	234	792	* 1184	-	-
HCM Lane V/C Ratio	0.017	-	-	0.038	0.057	0.079	0.01	0.013	-	-
HCM Control Delay (s)	10.1	-	-	23.6	12.1	21.7	9.6	8.1	-	-
HCM Lane LOS	B	-	-	C	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0.3	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	2	633	5	2	831
Future Vol, veh/h	13	2	633	5	2	831
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	110	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	2	688	5	2	903

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1144	344	0	0	693	0
Stage 1	688	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	*339	*833	-	-	*1246	-
Stage 1	*786	-	-	-	-	-
Stage 2	*605	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*338	*833	-	-	*1246	-
Mov Cap-2 Maneuver	*461	-	-	-	-	-
Stage 1	*786	-	-	-	-	-
Stage 2	*604	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	490	* 1246	-
HCM Lane V/C Ratio	-	-	0.033	0.002	-
HCM Control Delay (s)	-	-	12.6	7.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	44	0	0	0	95	542	0	0	843	55
Future Vol, veh/h	12	0	44	0	0	0	95	542	0	0	843	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	50	-	-	160	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	48	0	0	0	103	589	0	0	916	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1417	1711	458	1253	1771	295	976	0	0	589	0	0
Stage 1	916	916	-	795	795	-	-	-	-	-	-	-
Stage 2	501	795	-	458	976	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*152	113	550	213	102	*869	703	-	-	*1299	-	-
Stage 1	*293	349	-	586	560	-	-	-	-	-	-	-
Stage 2	*819	560	-	552	327	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*135	96	550	173	87	*869	703	-	-	*1299	-	-
Mov Cap-2 Maneuver	*135	96	-	173	87	-	-	-	-	-	-	-
Stage 1	*250	349	-	500	478	-	-	-	-	-	-	-
Stage 2	*699	478	-	504	327	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17	0	1.6	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	703	-	-	135	550	-	* 1299	-	-
HCM Lane V/C Ratio	0.147	-	-	0.097	0.087	-	-	-	-
HCM Control Delay (s)	11	-	-	34.5	12.2	0	0	-	-
HCM Lane LOS	B	-	-	D	B	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.3	0.3	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon