



Winery Suites

Traffic Impact and Mitigation Analysis
2nd Submittal

Southwest Corner of Goldwater
Boulevard and 1st Street
in Scottsdale, Arizona

January 2019
Project No. 18-1290


Prepared For:
Horizon Pediatric Therapy, Inc.
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Mesa, Arizona 85206

For Submittal to:
City of Scottsdale

Prepared By:



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EXECUTIVE SUMMARY

The Winery Suites development is located on the southwest corner of Goldwater Boulevard and 1st Street in Scottsdale, Arizona. The proposed site currently consists of the LDV Wine Gallery and Tasting Room and Studio B Interior Design. These tenants have since moved to new locations and the current parcels are now occupied by three dwelling units with flexible leasing terms. The redevelopment will consist of approximately 1,500 square-feet of ground-floor retail space and 31 dwelling units with flexible leasing terms in a mid-rise building. The vicinity of the site is provided in **Figure 1**.

CivTech, Inc. was retained by Horizon Pediatric Therapy, Inc. to perform a traffic impact and mitigation analysis (TIMA) for the proposed redevelopment. The purpose of this assessment is to address the traffic and transportation impacts of the proposed development on the surrounding streets and intersections. The following conclusions have been documented in this study:

- The results of the existing conditions analysis indicates that all study intersections operate with acceptable levels of service (LOS D or better), with the exception of the intersections of 69th Street & Indian School Rd, Goldwater Boulevard & Indian School Road and Goldwater Blvd & Main Street.
 - Currently, the unsignalized intersection of **69th Street and Indian School Road** operates poorly during both the AM and PM peak hours on the northbound and southbound approaches. This delay is due to the high wait times of vehicles making northbound left turns and southbound left turns because of the high volume of through traffic on Indian School Road during both peak hours. Extensive delay during either peak hour at minor roads or driveways that intersect major roads is expected.
 - The signalized intersection of **Goldwater Boulevard and Indian School Road** currently operates adequately in the AM peak hour, but has an overall intersection delay of 54 seconds in the PM peak hour. The threshold for an adequate level of service is 55 seconds, so it is very near to operating at a poor level of service.
 - The signalized intersection of **Goldwater Boulevard and Main Street** experiences delay on the eastbound and westbound approaches of the intersection during both the AM and PM peak hours. This delay is present because the signal operates under actuated-coordinated phasing, meaning that the eastbound and westbound green phases are only triggered when a vehicle approaches. Since Main Street is a minor road, very few vehicles approach the intersection from the east or west, so when they do, there is substantial delay. As more traffic uses this road in the future, the eastbound and westbound delay is likely to decrease.
- The number of crashes reported at the intersection of Goldwater Boulevard and 1st Street does not rise to the level of warranting consideration of a traffic signal based solely on crash experience. CivTech estimates that the existing development could potentially generate 142 external weekday daily trips, 3 trips during the AM peak hour, and 14 trips during the PM peak hour.

- The proposed redevelopment is anticipated to generate 734 external weekday daily trips, 62 trips during the AM peak hour, and 61 trips during the PM peak hour.
 - As compared to the existing uses, the proposed redevelopment could generate an additional 592 external daily trips with 59 additional trips in the AM peak hour and an additional 47 trips in the PM peak hour.
- The results of the 2020 peak hour analysis shows that all intersections operate at a level of service LOS D or better with the exception of the following intersections.
 - The unsignalized intersection of **69th Street and Indian School Road** is expected to continue to operate poorly during both the AM and PM peak hour on the northbound and southbound approaches. Intersections with minor approaches perpendicular to major approaches are expected to operate with delay during certain times of the day when the major road is busy, usually during the peak hour. Due to the location of this intersection to surrounding major intersections and the offset of the driveway from 69th Street, a signal will not be installed at this intersection. If there is significant delay during either peak hour, vehicles will use another route. Mitigation for this intersection is not recommended at this time.
 - The signalized intersection of **Goldwater Boulevard and Indian School Road** is expected to continue to operate poorly during the PM peak hour during both the no-build and build scenarios. The overall intersection delay during both scenarios is expected to be approximately 56 seconds. The threshold for an acceptable level of service is 55 seconds. Since the overall delay is very close to an acceptable level of service, no mitigation measures are recommended at this time, however, they could become necessary in the future.
 - The signalized intersection of **Goldwater Boulevard and Main Street** is expected to experience delay on the eastbound and westbound approaches of the intersection during both the AM and PM peak hours. This delay is present because the signal operates under actuated-coordinated phasing, meaning that the eastbound and westbound green phases are only triggered when a vehicle approaches. Since Main Street is a very small road, very few vehicles approach the intersection from the east or west, so when they do, there is significant delay. If more traffic uses this road in the future, the eastbound and westbound delay is likely to decrease.
- The existing storage lengths at the existing intersections are anticipated to accommodate the additional traffic generated by the proposed development with the exception of the northbound left turn lane at the intersection of Goldwater Boulevard and Indian School Road. No additional northbound left-turns are expected to be added from site generated traffic, meaning that the number of northbound left-turns is the same for the AM and PM peak hours for the no-build and build scenarios. Additional storage length calculations should be completed

prior to traffic signal installation, a change in intersection stop control or installation of raised medians.

- The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. It is recommended that sight triangles be designed at all site access driveways to provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*.

INTRODUCTION

The Winery Suites development is located on the southwest corner of Goldwater Boulevard and 1st Street in Scottsdale, Arizona. The development is proposed for two parcels of land, formerly zoned for residential use, totaling 0.62 gross acres. The two parcels are proposed for a mixed-use development with 34 dwelling units with flexible lease terms and approximately 1,500 square feet (SF) of retail space on the ground floor. Parking will be provided underground, with the entrance located in the alley bordering the site to the south, and there will be on-street parking provided in the alley as well. The vicinity of the site is provided in **Figure 1**.

Study Requirements

This study analyzes the traffic impact due to the proposed development on the surrounding street network. The study will be prepared in conformance with the City of Scottsdale *Design Standards and Policies Manual*, Chapter 5, Transportation Impact Studies, 2018. The specific objectives of the study are:

- To determine the existing site generated trips through trip generation rate calculations
- To determine whether the planned street system in the vicinity of the site is adequate to accommodate the increased traffic that results from the proposed development.
- To recommend additional street improvements or traffic control devices, where necessary, to mitigate the additional site-generated traffic; and,
- Evaluate the internal site circulation and provide recommendations if necessary.

Study Area

The study area has been defined as including the following intersections:

- Goldwater Blvd & Alley
- Goldwater Blvd & 2nd St
- Goldwater Blvd & Indian School Rd
- Goldwater Blvd & Main St
- Goldwater Blvd & 1st St
- 69th St & Indian School Rd
- 69th St & Alley
- 69th St & 1st St
- 69th St & 2nd St

Horizon Years

This study has been conducted to conform to the *Design Standards and Policies Manual (DS&PM)*, Chapter 5, Transportation Impact Studies, prepared by the City of Scottsdale in 2018. Since the owner is applying for a change in zoning, per the *DS&PM*, a Category 2 TIMA is required. For a Category 2 TIMA, the existing year and the opening year will be analyzed. The existing year is 2018 and the opening horizon year for this development will be 2020.

The study intersections and the site accesses will be analyzed for AM and PM peak hours to determine the recommended intersection lane configuration, intersection stop control, turn lane storage requirements, and roadway typical sections for the development.

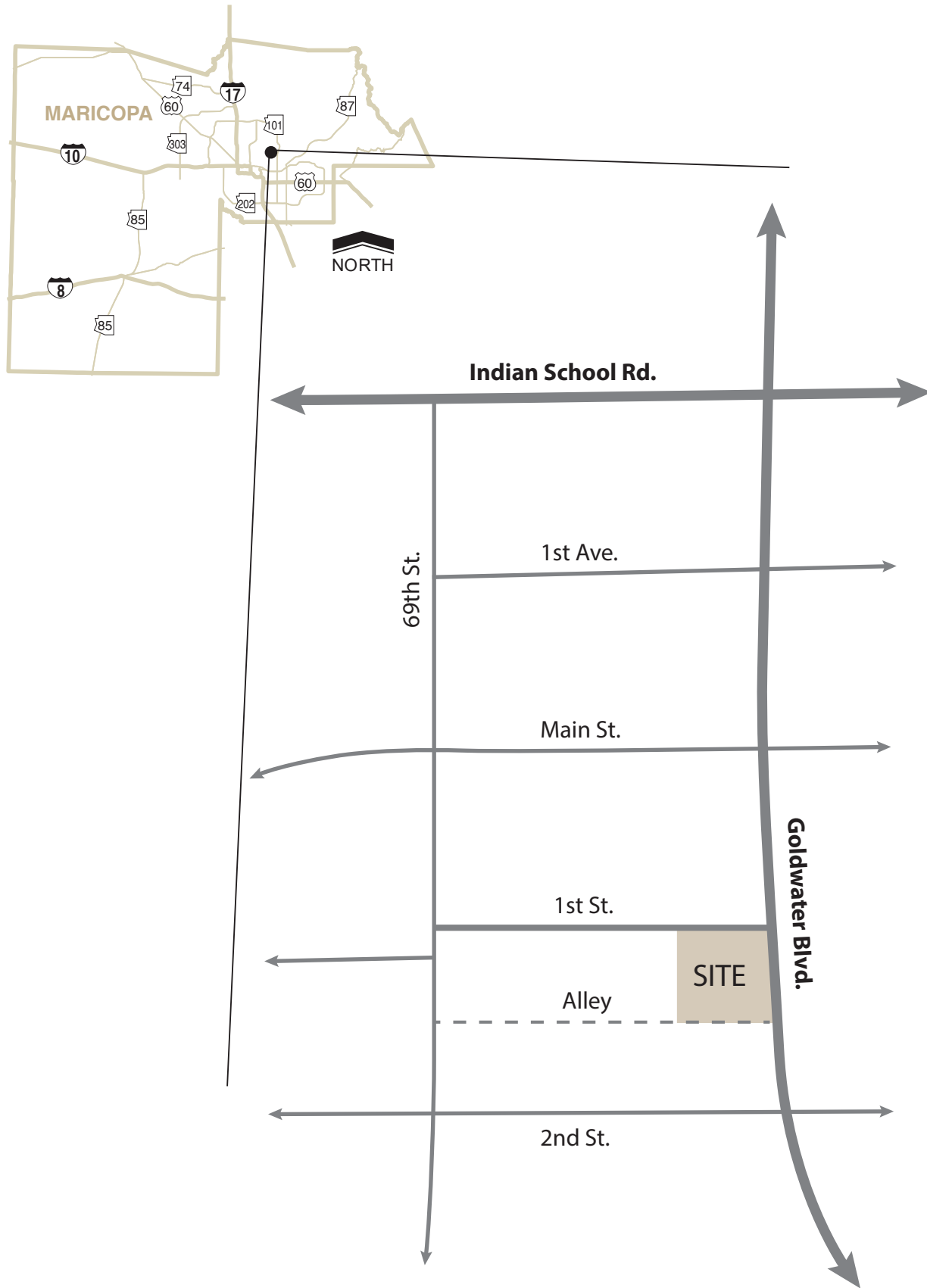


Figure 1: Vicinity Map

EXISTING CONDITIONS

LAND USE

The site of the proposed Winery Suites, according to the Maricopa County Assessor, was previously occupied by the LDV wine tasting room and Studio B Interior Design. Both of these businesses have since moved and the parcels are now occupied by a three dwelling units with flexible leasing terms.

SURROUNDING LAND USE

Surrounding the site on all sides are multi-family residential units and some small businesses. Northwest of the site is the Hotel Valley Ho. Directly east of the site is the La Loma bus station, a major hub for the Valley Metro Bus system. The site can be accessed by bus route 72. Indian School Road, north of the site, allows direct access to Pima Freeway (Loop 101).

ROADWAY NETWORK

The existing roadway network within the study area includes the following:

Goldwater Boulevard is a north-south five-lane road within the vicinity of the site classified as a major arterial by the City of Scottsdale. There are three (3) lanes in the southbound direction, two (2) lanes in the northbound and raised medians along portions of the road. This road begins just south of Chaparral, breaking off from Scottsdale Road to the west, and rejoins Scottsdale Road at the intersection with Osborn Road. This road allows traffic to bypass Old Town Scottsdale and provides access to major and minor arterials to the west of the site. The posted speed limit is 35 mph.

69th Street is a north-south two-lane road bordering the proposed site to the west. There is one (1) lane in each travelling direction. 69th Street begins at the intersection with Indian School Road and continues south for approximately 0.35 miles before terminating at the intersection with 4th Street in a residential community south of the proposed site. There is no posted speed limit.

Indian School Road is an east-west four-lane road classified as a minor arterial by the City of Scottsdale. There are two (2) lanes in each travelling direction as well as a bicycle lane. Along portions of the road, within the vicinity of the site, there is either a two-way-left-turn lane or a raised median. Indian School Road begins in the Town of Goodyear and continues west until terminating just west of Mesa Drive, before intersection with SR 87. Indian School Road provides direct access to Pima Freeway (Loop 101). The posted speed limit is 35 mph within the vicinity of the site.

Main Street is an east-west two-lane road north of the proposed site. There is one (1) lane in each travelling direction and on-street parking along both sides of the road for the entire length of roadway. Main Street begins at the Hotel Valley Ho, just west of the site, and continues east for approximately 0.5 miles before terminating at Brown Avenue. There is no posted speed limit.

1st Street is an east-west two-lane road north of the proposed site. There is one (1) lane in each travelling direction and on-street parking along both sides of the road for the entire length of roadway. 1st Street begins at the intersection with 68th Street and continues east until terminating at the bus station east of the site. There is no posted speed limit.

2nd Street is an east-west two-lane road within the vicinity of the site. There is one (1) lane in each travelling direction and on-street parking along both sides of the road for the entire length of roadway. This portion of 2nd Street begins east of the intersection with 68th Street in a residential neighborhood and continues east until terminating at the City of Scottsdale Civic Center. The posted speed limit is 25 mph.

Alley is an east-west road that connects 69th Street to Goldwater Boulevard. Currently, it provides access to the businesses and residential units on the site, and in the future it will provide access to the underground parking garage for residents of the proposed development.

INTERSECTION CONFIGURATION

The intersection of **Goldwater Boulevard and Indian School Road** is a signalized four-legged intersection with protected phasing on all approaches of the intersection. The northbound approach consists of one (1) dedicated left-turn lane, one (1) through lane and one (1) shared through/right-turn lane. The westbound approach consists of dual left-turn lanes, one (1) through lane, one (1) shared through/right-turn lane and one (1) bicycle lane. The southbound approach consists of one (1) dedicated left-turn lane, two (2) through lanes and one (1) shared through/right-turn lane. The eastbound approach consists of dual left-turn lanes, two (2) through lanes, a bicycle lane and a dedicated right-turn lane. There are pedestrian cross walks across all legs of the intersection.

The intersection of **Goldwater Boulevard and Main Street** is a signalized four-legged intersection with permissive phasing on all approaches and no right-turn-on-red on the eastbound and westbound approaches. The northbound approach consists of one (1) dedicated left-turn, one (1) through lane and one (1) shared through/right-turn lane. The eastbound and westbound approaches consist of one (1) shared left-turn/through/right-turn lane. The southbound approach consists of one (1) dedicated left-turn lane, two (2) through lanes and one (1) shared through/right-turn lane. There are pedestrian cross walks across all legs of the intersection.

The intersection of **Goldwater Boulevard and 1st Street** is a two-way stop controlled intersection with stop signs on the eastbound and westbound approaches. The northbound approach consists of one (1) dedicated left-turn lane, one (1) through lane and one (1) shared through/right-turn lane. The westbound approach consists of one (1) shared left-turn/through lane and one (1) dedicated right-turn lane. The southbound approach consists of one (1) dedicated left-turn lane, two (2) through lanes and one (1) shared through/right-turn lane. The eastbound approach consists of one (1) shared left-turn/through/right-turn lane. There are pedestrian cross walks across the east and west legs of the intersection.

The intersection of **Goldwater Boulevard and Alley** is a three-legged unsignalized intersection with a stop sign on the eastbound approach. This access only allows right-turns into and out of the alley because of a raised median separating the northbound and southbound approaches. The northbound approach consists of two (2) through lanes. The southbound approach consists of two (2) through lanes and one (1) shared through/right-turn lane. The eastbound approach consists of one (1) right-turn lane.

The intersection of **Goldwater Boulevard and 2nd Street** is a two-way stop controlled intersection with stop signs on the eastbound and westbound approaches. The northbound approach consists of one (1) dedicated left-turn lane, one (1) through lane and one (1) shared through/right-turn lane. The westbound approach consists of one (1) shared left-turn/through/right-turn lane and a bicycle lane. The southbound approach consists of one (1) dedicated left-turn lane, two (2) through lanes and one (1) shared through/right-turn lane. The eastbound approach consists of one (1) shared left-turn/through/right-turn lane. There are pedestrian cross walks across the east and west legs of the intersection.

The intersection of **69th Street and Indian School Road** is a four-legged unsignalized intersection with stop signs on the northbound and southbound approaches. The southbound approach is an existing driveway that is approximately 50 feet offset from 69th Street to the west. The northbound approach consists of one (1) shared left-turn/through/right-turn lane. The westbound approach consists of one (1) dedicated left-turn lane, two (2) through lanes, one (1) shared through/right-turn lane and a bicycle lane. The southbound approach consists of one (1) shared left-turn/through/right-turn lane. The eastbound approach consists of one (1) dedicated left turn lane, one (1) lane that is indicated to turn into a left-turn lane at the intersection of Goldwater Boulevard and Indian School Road, one (1) through lane, one (1) shared through/right-turn lane and a bicycle lane. There are pedestrian cross walks across the north and south legs of the intersection.

The intersection of **69th Street and 1st Street** is a four-legged unsignalized intersection with stop signs on the eastbound and westbound approaches. The eastbound approach connects through to 68th Street, but is offset approximately 55 feet south of the westbound approach. The westbound approach is aligned with an existing driveway to the Hotel Valley Ho, however, this is not considered to be the eastbound approach. All approaches consist of one (1) shared left-turn/through/right-turn lane. There is a pedestrian cross walk across the east and west legs of the intersection.

The intersection of **69th Street and Alley** is a three-legged unsignalized intersection with a stop sign on the westbound approach. The northbound approach consists of one (1) shared through/right-turn lane. The westbound approach consists of one (1) shared left-turn/right-turn lane. The southbound approach consists of one (1) shared left-turn/through lane.

The intersection of **69th Street and 2nd Street** is a four-legged unsignalized intersection with stop signs on the northbound and southbound approaches. All approaches consist of one (1) shared left-turn/through/right-turn lane. There are pedestrian cross walks across the north and south legs of the intersection.

The existing intersection configurations and traffic control is illustrated in **Figure 2**.

TRAFFIC VOLUMES

CivTech engaged Field Data Services of Arizona, Inc. to record traffic volumes at the proposed study intersections within the project vicinity. Peak hour volume turning movement counts were performed from 7:00-9:00 AM and 4:00-6:00 PM on Tuesday, August 28, 2018 at the following intersections:

- Goldwater Blvd & Alley
- Goldwater Blvd & 2nd St
- Goldwater Blvd & Indian School Rd
- Goldwater Blvd & Main St
- Goldwater Blvd & 1st St
- 69th St & Indian School Rd
- 69th St & Alley
- 69th St & 1st St
- 69th St & 2nd St

The City of Scottsdale recommends a seasonal adjustment factor based on the month the counts were taken in order to get a more accurate representation of traffic in the area. Scottsdale is a popular area for tourism and traffic volumes are considerably lower during summer months. In order to get a better look at typical traffic, a seasonal adjustment factor is applied. For example, if counts were conducted in June, a 3% increase in traffic is added. Counts for this study were conducted on August 28, 2018. For the month of August, a 5% increase in traffic, or a factor of 1.05 is applied to the existing traffic counts.

The observed existing traffic volumes for this study are presented in **Figure 3** for the weekday AM and PM peak hours and the seasonally adjusted volumes are presented in **Figure 4**. Traffic volume data obtained for this study have been included in the **Appendix B**.

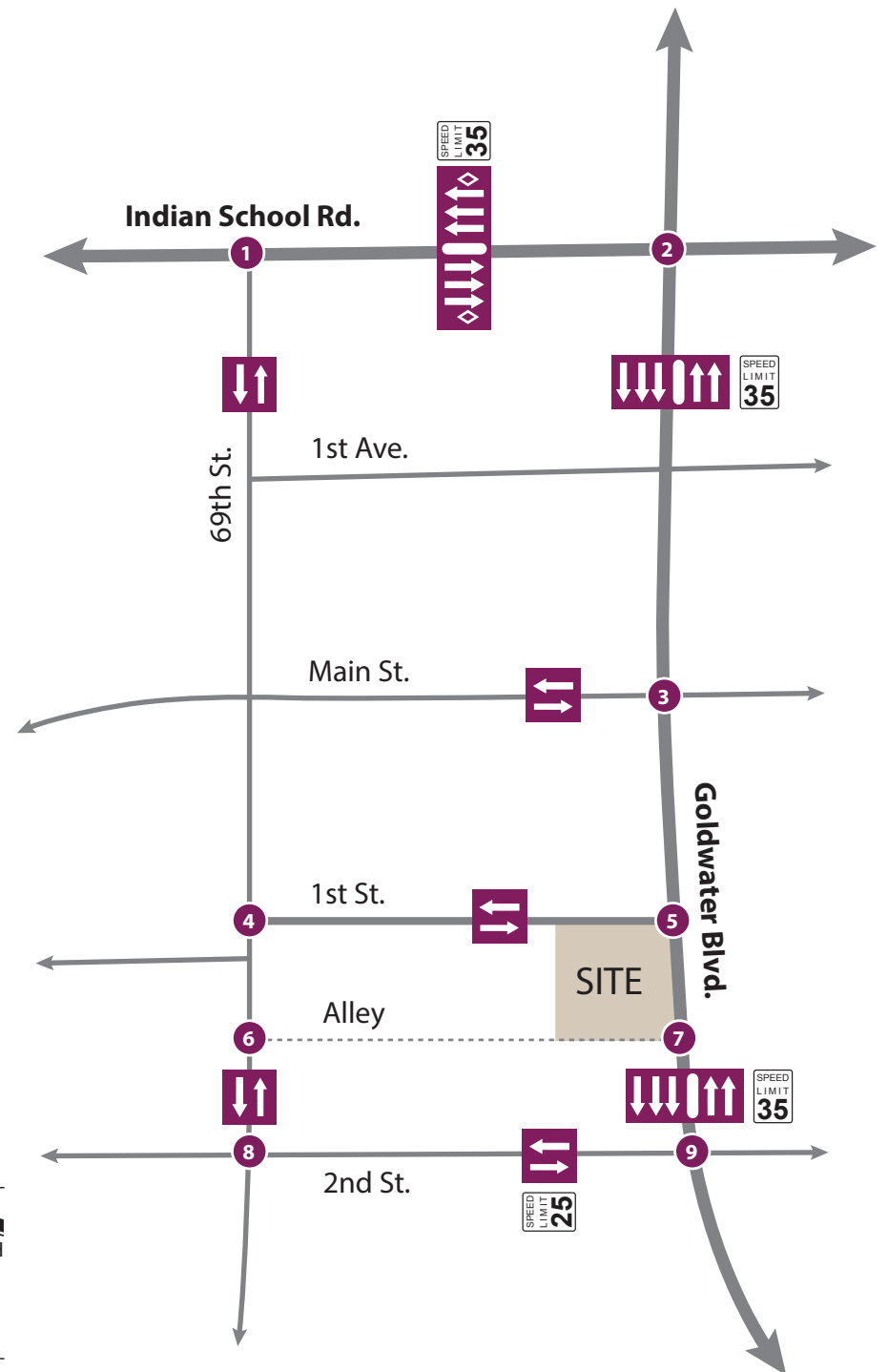
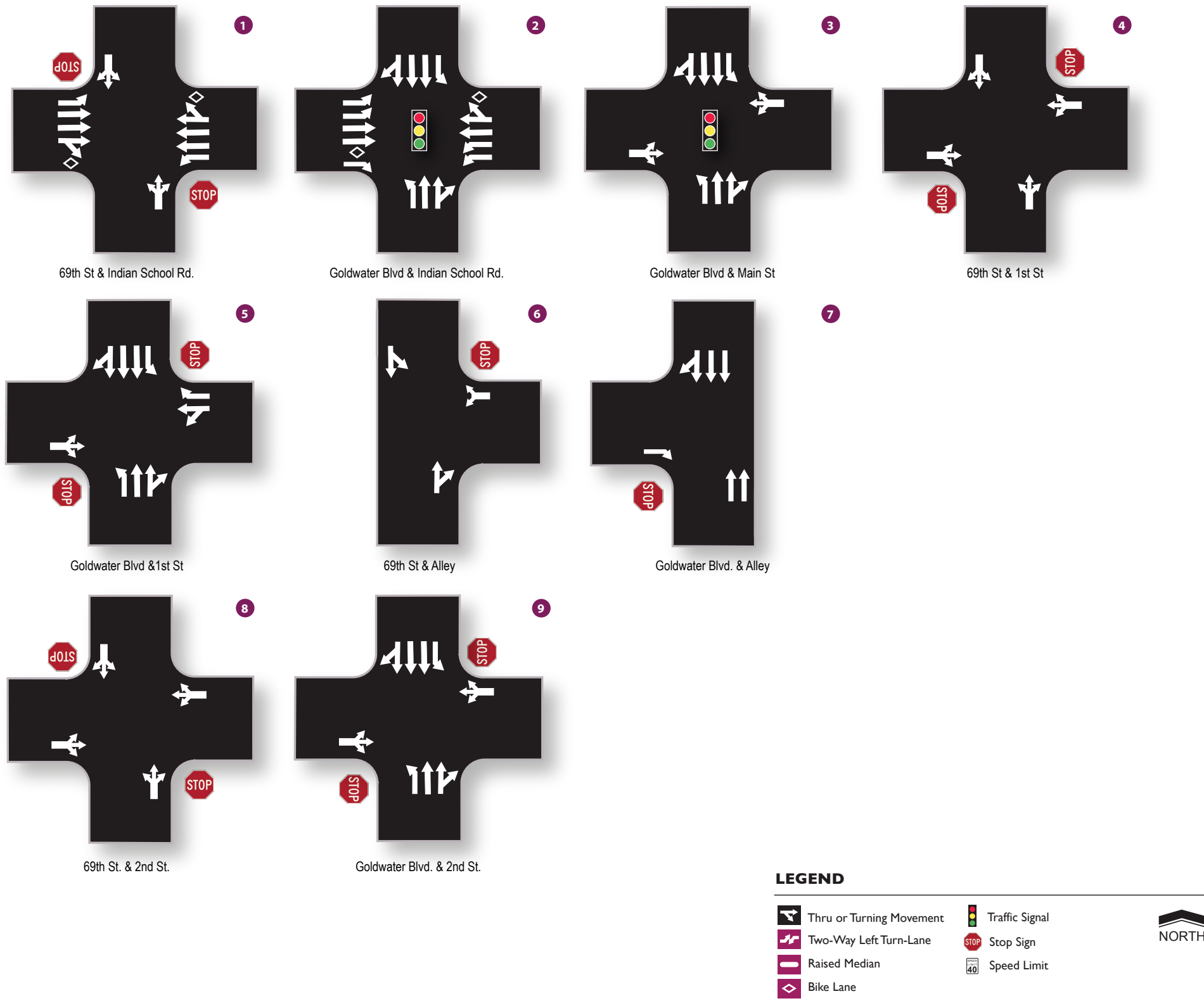


Figure 2: Existing Lane Configurations and Traffic Controls

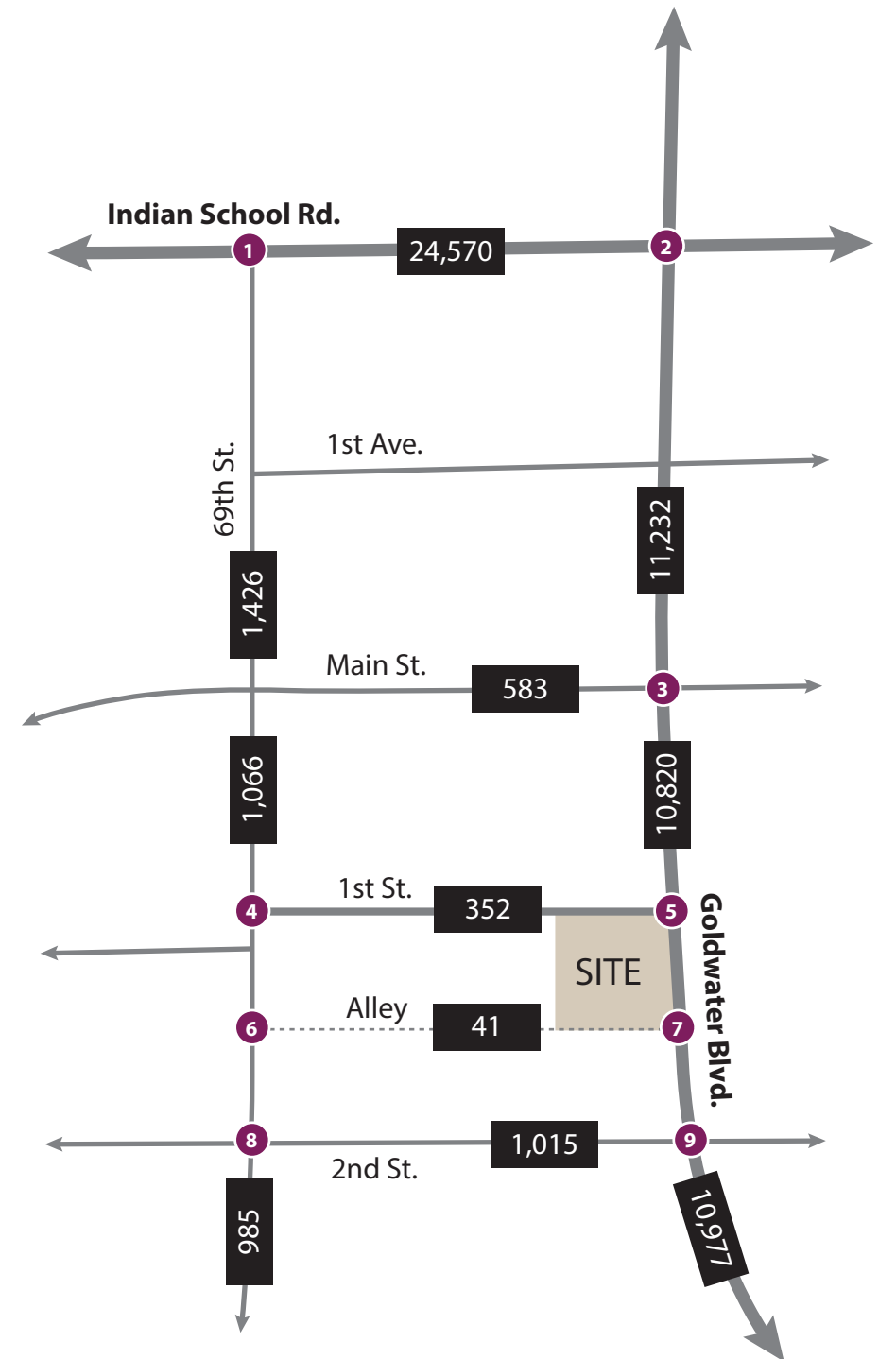
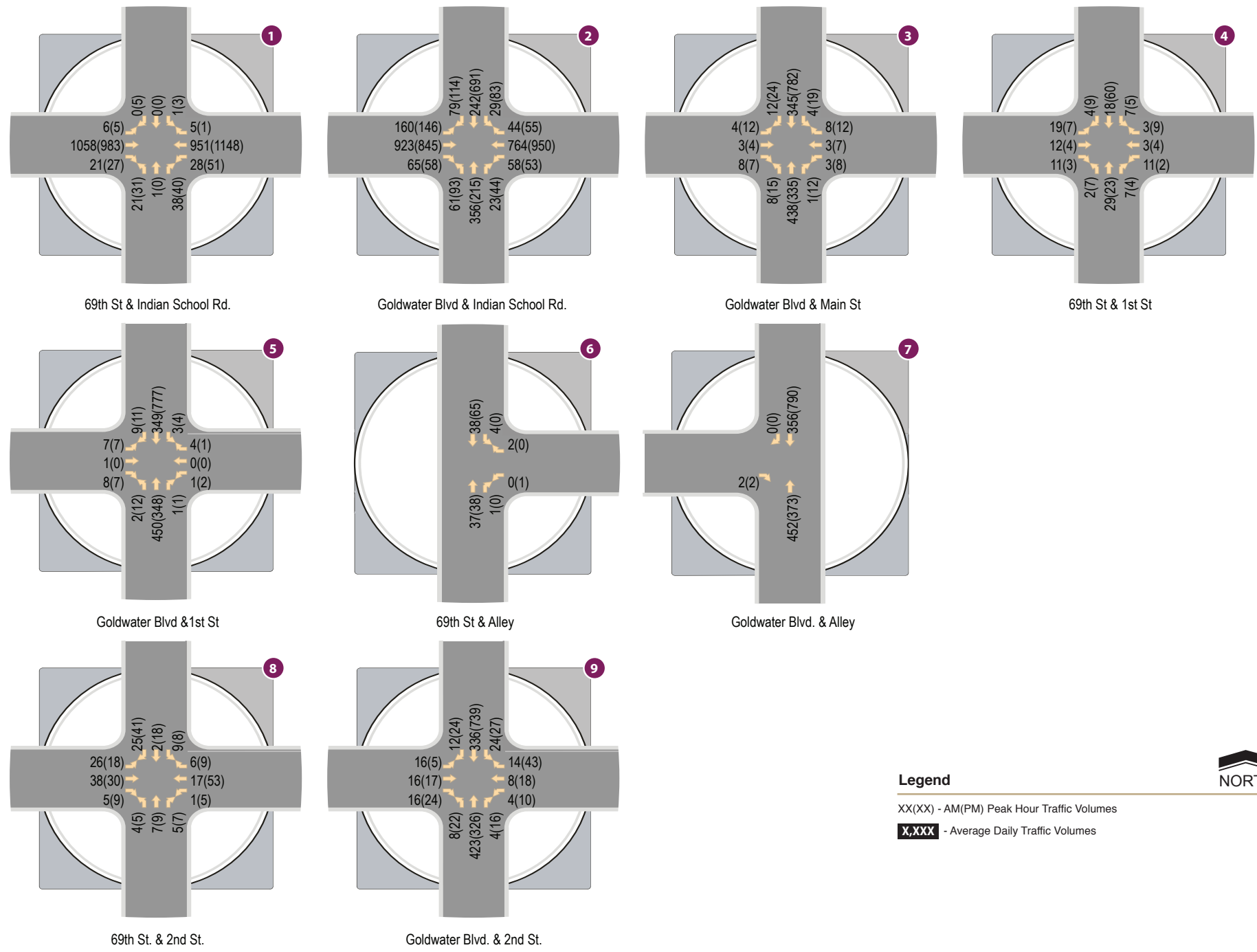
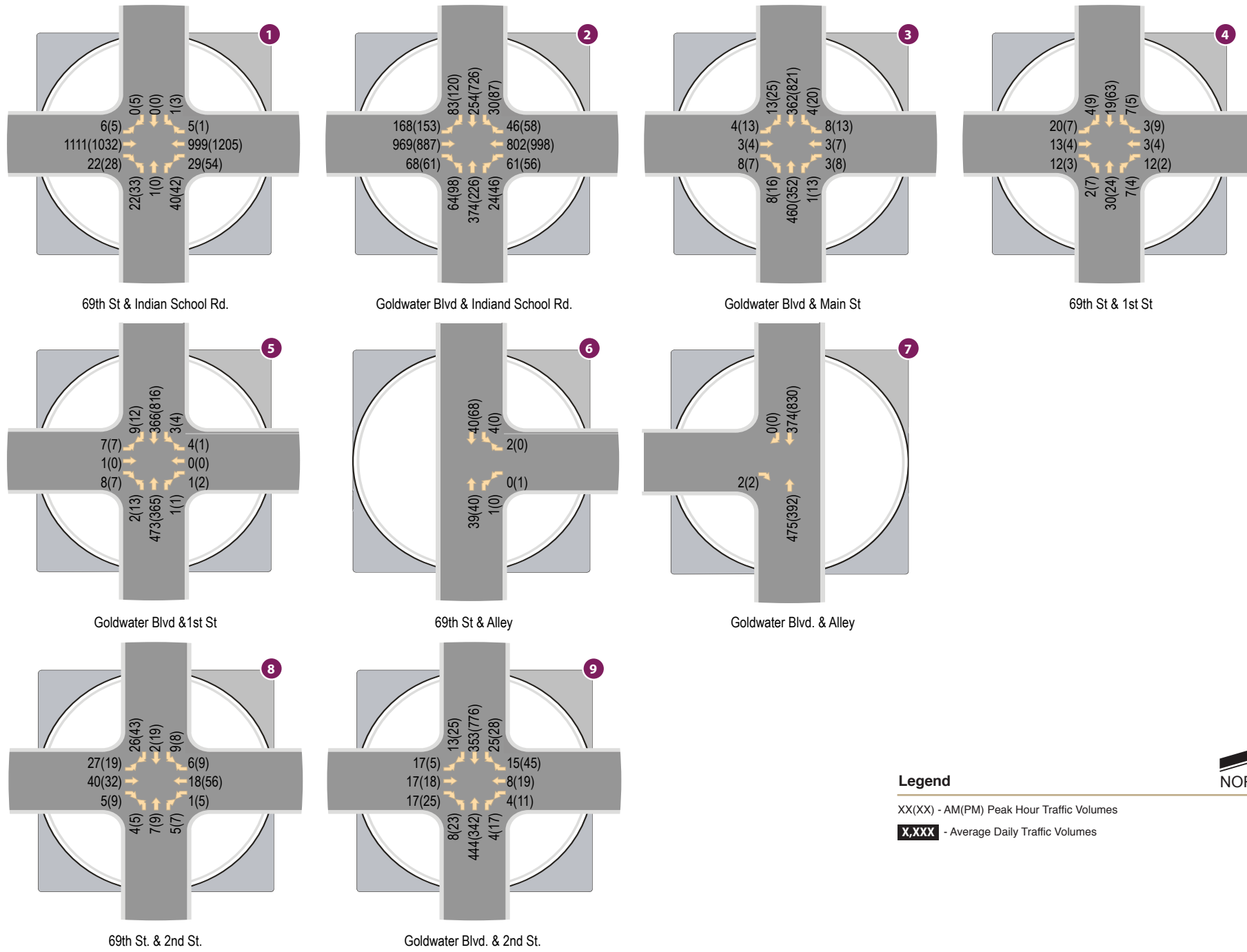


Figure 3: Observed Existing Traffic Volumes



Legend

XX(XX) - AM(PM) Peak Hour Traffic Volumes

X,XXX - Average Daily Traffic Volumes

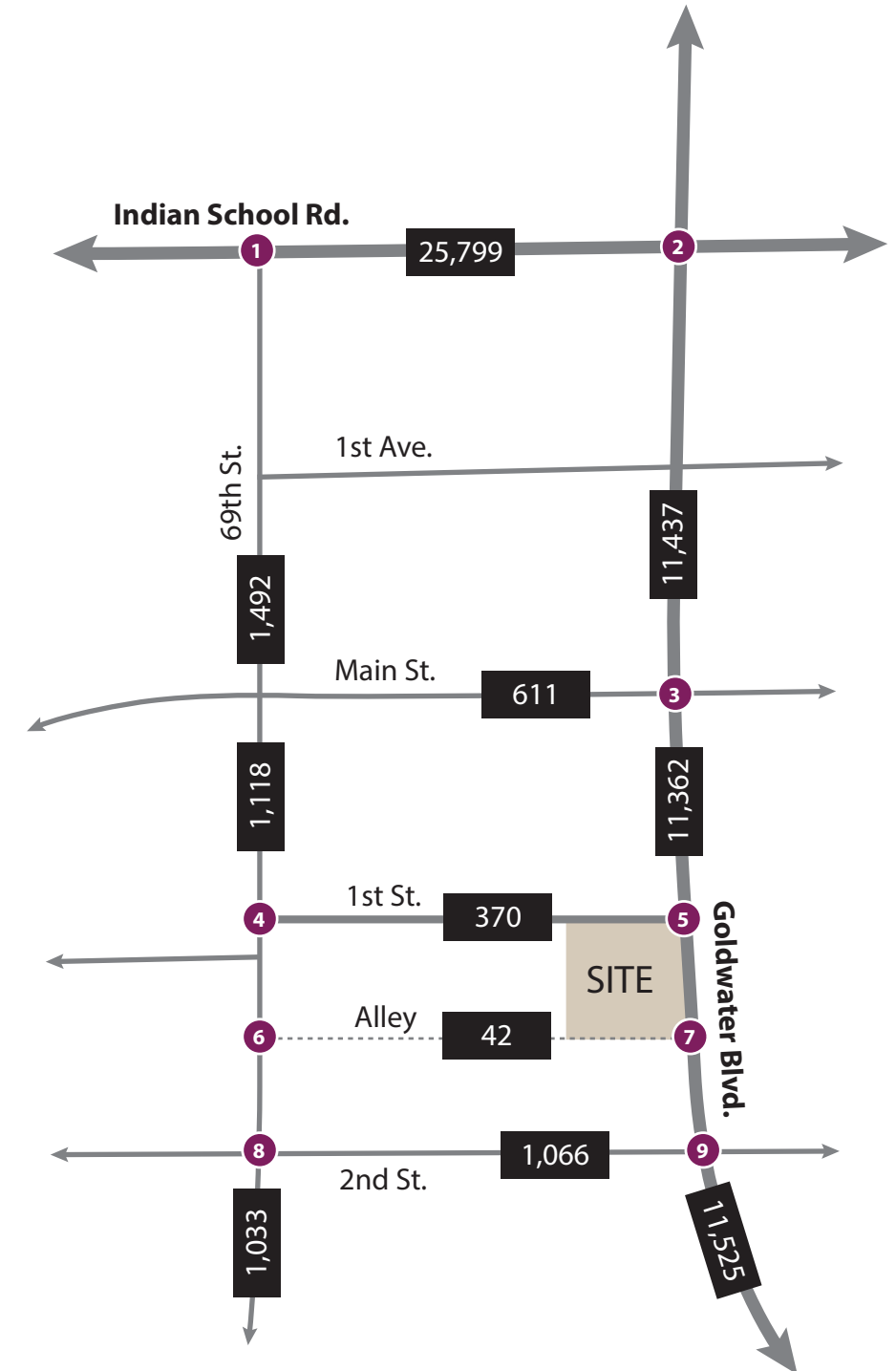


Figure 4: Seasonally Adjusted Traffic Volumes

CAPACITY ANALYSIS

The concept of level of service (LOS) uses qualitative measures that characterize operational conditions within the traffic stream. The individual levels of service are described by factors that include speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations A through F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions.

Table 1 – Intersection Level of Service Criteria

Level of Service	Control Delay (sec/veh)	
	Signalized	Unsignalized
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F*	> 80 (or v/c>1)	> 50 (or v/c>1)

Source: Exhibits 19-8, 20-2, 21-8, and 22-8, Highway Capacity Manual 2017

Levels of service for intersections are defined within ranges of average control delay per vehicle, the number of seconds a vehicle can expect to wait due to the presence of a traffic control device. **Table 1** lists the level of service criteria for signalized and unsignalized intersections.

Peak hour capacity analyses were conducted for the study intersections based on existing conditions and traffic volumes. All intersections have been analyzed using the methodologies presented in the *Highway Capacity Manual (HCM) 6th Edition* and using Synchro traffic analysis software. Signal timing during both the AM and PM peak hour for the intersection of Goldwater Boulevard and Indian School Road was provided by the City of Scottsdale via Synchro models. Signal timing for the intersection of Goldwater Boulevard and Main Street was provided by the City of Scottsdale. Existing signal timing sheets for the intersection of Goldwater Boulevard and Main Street are provided in **Appendix C**.

Results of the existing level-of-service analyses are shown in **Table 2** for both peak hours. The analysis worksheets for the existing conditions have been included in the **Appendix D**.

Table 2: Existing Peak Hour Levels of Service

ID	Intersection	Control	Approach	AM	PM
1	69 th St & Indian School Rd	2-way stop (NB/SB)	NB Shared SB Shared EB Left WB Left	E F C C	F E C C
2	Goldwater Blvd & Indian School Rd	Signal	NB SB EB WB	D E C D	E D D E
			Overall	D	D
3	Goldwater Blvd & Main St	Signal	NB SB EB WB	A A E E	A A E E
			Overall	A	A
4	69 th St & 1 st St	2-way stop (EB/WB)	NB Shared SB Shared EB Shared WB Shared	A A A A	A A A A
5	Goldwater Blvd & 1 st St	2-way stop (EB/WB)	NB Left SB Left EB Shared WB left/thru	A A B C	B A C C
6	69 th St & Alley	1-way stop (WB)	WB Shared SB Left	A A	A A
7	Goldwater Blvd & Alley	1-way stop (EB)	EB Right	B	B
8	69 th St & 2 nd St	2-way stop (NB/SB)	NB Shared SB Shared EB Shared WB Shared	A A A A	A A A A
9	Goldwater Blvd & 2 nd St	2-way stop (EB/WB)	NB Left SB Left EB Shared WB Shared	A A C B	B A D C

The results of the existing conditions analysis summarized in **Table 2** indicates that all study intersections operate with acceptable levels of service (LOS D or better), with the exception of the intersections of 69th Street & Indian School Rd, Goldwater Boulevard & Indian School Road and Goldwater Blvd & Main Street.

The unsignalized intersection of **69th Street and Indian School Road** operates poorly during both the AM and PM peak hours on the northbound and southbound approaches. This delay is due to the high wait times of vehicles making northbound left turns and southbound left turns because of the high volume of through traffic on Indian School Road during both peak hours. Extensive delay during either peak hour at minor roads or driveways that intersect major roads is expected. This delay likely does not occur at all times throughout the day.

The signalized intersection of **Goldwater Boulevard and Indian School Road** operates adequately in the AM peak hour, but has an overall intersection delay of 54 seconds in the PM peak hour. The threshold for an adequate level of service is 55 seconds. So it is very near to operating at a poor level of service.

The signalized intersection of **Goldwater Boulevard and Main Street** experiences delay on the eastbound and westbound approaches of the intersection during both the AM and PM peak hours. This delay is present because the signal operates under actuated-coordinated phasing, meaning that the eastbound and westbound green phases are only triggered when a vehicle approaches. Since Main Street is a minor road, very few vehicles approach the intersection from the east or west, so when they do, there is substantial delay. As more traffic uses this road in the future, the eastbound and westbound delay is likely to decrease.

CRASH ANALYSIS

Crash data for the intersection of Goldwater Boulevard and 1st Street was obtained from the City of Scottsdale. Crashes were documented for the past three (3) years from 2015 to 2017. Only five (5) accidents were reported at this intersection over the analysis period. Of all the incidents reported, none resulted in a fatal injury and only one (1) resulted in incapacitating injury for one (1) of the drivers. The crash listings can be found in **Appendix E**. A summary of the crash data is provided in **Table 3**.

Table 3: Crash Data Summary

Intersection	Total	2017	2016	2015	Injury	Fatality	Angle	Sideswipe	Angle percentage	Sideswipe percentage	Pedestrian	Bicycle
Goldwater Blvd & 1st St	5	2	2	1	3	0	3	2	60%	40%	0	1

A review of the results summarized in **Table 3** reveals that the number of crashes reported at the intersection of Goldwater Boulevard and 1st Street does not rise to the level of warranting consideration of a traffic signal based solely on crash experience.

PROPOSED DEVELOPMENT

SITE LOCATION

The proposed Winery Suites development will be located on the southwest corner of Goldwater Boulevard and 1st Street. The site will encompass 0.62 gross acres of land. Currently, the site consists of a professional office and the LDV wine tasting room, the redevelopment is proposed for a mixed-use development with 31 dwelling units and retail space.

SITE DENSITY

Winery Suites redevelopment will consist of a single mixed-use development with ground floor retail and 31 dwelling units with flexible leasing terms. The site will consist of approximately 1,500 square feet of retail on the ground level.

SITE ACCESS

Resident access to the site will be via an underground parking garage with the entrance located in the alley directly south of the site. There will also be on-street parking available in the alley and public parking in the surrounding area available to visitors.

Access A – is located on the south side of the site in the alley directly south of the proposed development. This will be a full movement access and the only access directly onto the site.

The proposed site plan with access is provided in **Figure 5**.

TRIP GENERATION

The potential trip generation for the proposed development was estimated utilizing the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* and *Trip Generation Handbook, 3rd Edition*. The ITE *Trip Generation Manual* contains data collected by various transportation professionals for a wide range of different land uses. The data are summarized in the report and average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The report provides information for daily and peak hour trips.

The proposed development will consist of approximately 1,500 square feet of ground floor retail space and 26 multi-family dwelling units in a mid-rise building. Since this site is a redevelopment, the existing trips generated were compared to the estimated generated trips. The existing site consists of approximately 1,463 square feet of professional office space and a 1,533 square foot wine tasting room, according to the Maricopa County Assessor. The land use code (LUC) used for the existing office is 710 and the LUC used for the wine tasting room is 931 for a quality restaurant. Although the wine tasting room is not explicitly a quality restaurant, the amount of time that people stay at the establishment and the activities that occur are very similar, meaning that this LUC is an adequate representation of the wine tasting room. For the proposed development,

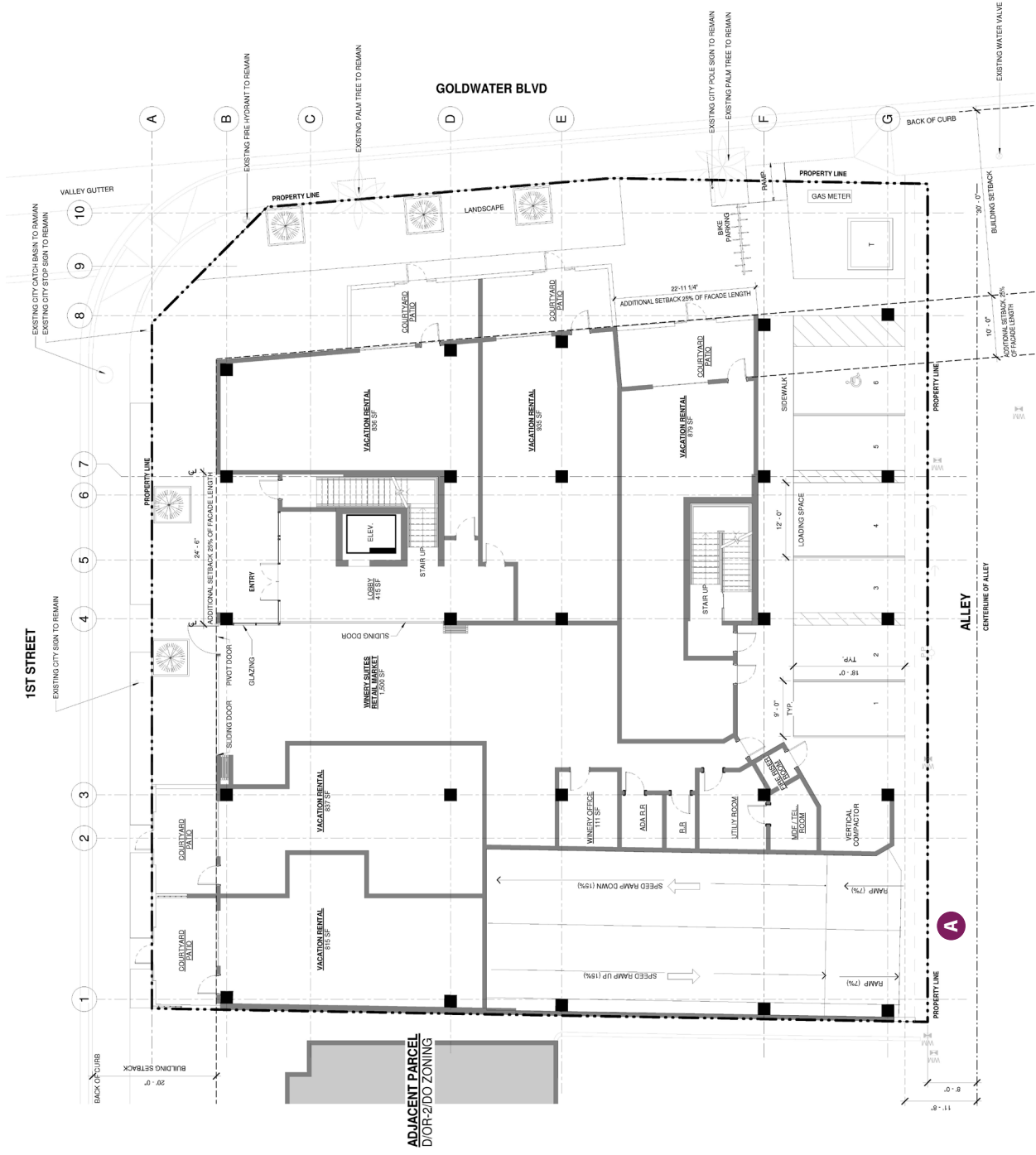


Figure 5: Site Plan and Access

there is a LUC for a mid-rise residential with first-floor commercial, however, since there are very few data points for this LUC and the retail space does not occupy the entire ground floor, it will not be used to analyze this development. The LUC used for the apartments is 221 for mid-rise multi-family and for the retail the LUC 820 was used.

The existing trip generation, using land uses and sizes from the Maricopa County Assessor website, is summarized in **Table 4**. The anticipated trip generation for the Winery Suites development is summarized in **Table 5**. Detailed trip generation calculations are provided in **Appendix F**.

Table 4: Existing Trip Generation

Proposed Use	ITE LUC	Size	Units	Weekday Trips						
				Daily	AM		PM			
				Total	In	Out	Total	In	Out	Total
General Office Building	710	1.463	1,000 square feet	14	2	0	2	0	2	2
Quality Restaurant	931	1.533	1,000 square feet	128	0	1	1	8	4	12
Subtotals				142	2	1	3	8	6	14

The existing development generates 142 external weekday daily trips, 3 trips during the AM peak hour, and 14 trips during the PM peak hour.

Table 5: Proposed Trip Generation Summary

Proposed Use	ITE LUC	Size	Units	Weekday Trips						
				Daily	AM		PM			
				Total	In	Out	Total	In	Out	Total
Vacation Rental with Flexible Lease Terms	221	34	Rental Units	184	3	9	12	10	6	16
Shopping Center	820	1.500	1,000 square feet	56	1	0	1	3	3	6
Subtotals				240	4	9	13	13	9	22
<i>Difference From Existing to Proposed</i>				<i>(98)</i>	<i>(2)</i>	<i>(8)</i>	<i>(10)</i>	<i>(5)</i>	<i>(3)</i>	<i>(8)</i>

The proposed redevelopment is anticipated to generate 734 external weekday daily trips, 62 trips during the AM peak hour, and 61 trips during the PM peak hour.

The proposed redevelopment is anticipated to generate an additional 592 external daily trips with 59 additional trips in the AM peak hour and an additional 47 trips in the PM peak hour when compared to the trips already generated by existing development.

TRIP DISTRIBUTION AND ASSIGNMENT

A single trip distribution pattern was assumed for the proposed development. It is expected that the proposed development will generate trips based on future employment within a 10-mile radius of the site. Future total employment and population within a 10-mile radius of the site, as predicted by the 2020/2030 socio-economic data compiled by the Maricopa Association of Governments (MAG), was used as a basis to estimate trip distribution. The resulting trip distribution percentages for the study area are shown in **Table 6**. The trip distribution calculations are included in **Appendix G**.

Figure 6 illustrates the trip distribution percentages noted in **Table 6** on the roadway network within the study area. The percentages presented in **Figure 6** were applied to the site trips generated to determine the AM and PM peak hour site traffic at the intersections within the study area.

Table 6: Site Trip Distribution

Direction (To/From)	Percentage
North on Goldwater Blvd (north of Indian School Rd)	9%
East on Indian School Rd (east of Goldwater Blvd)	14%
West on Indian School Rd (west of 69 th St)	25%
East on Main St (east of Goldwater Blvd)	2%
East on 2 nd St (east of Goldwater Blvd)	3%
West on 2 nd St (west of 69 th St)	12%
South on Goldwater Blvd (south of 2 nd St)	35%
Total	100%

Figure 7 presents the resulting site trip assignment for the proposed development. It should be noted that with access to this site being provided from an alley and not from either of the two public streets through which the alley passes, there is a likelihood of some U-turns occurring at 2nd Street and 1st Street along Goldwater Boulevard. Since the proposed units are meant to be vacation rentals, drivers visiting this site are most likely not familiar with the area and could make U-turns at 2nd Street to head north on Goldwater Boulevard or make U-turns at 1st Street to access the site from Goldwater. These U-turns are not shown on the site trip assignment; until a vacationer becomes familiar with the area, there is always the likelihood that there could be a few U-turns generated by the site at these median breaks.

FUTURE BACKGROUND TRAFFIC

Per the *City of Scottsdale Design Standards & Policies Manual 2018*, for a redevelopment project, such as Winery Suites, the existing site generated volumes need to be subtracted from the existing adjusted traffic volumes to obtain the base traffic that would be present if the existing site were undeveloped. Peak hour site generated traffic volumes for the existing development are presented in **Figure 8**. These volumes were then subtracted from the existing adjusted volumes and the total is presented in **Figure 9**. The volumes presented in this figure represents the base volumes that are present with no development on the site.

CivTech then applied a growth rate to the base volumes to obtain the future background traffic volumes along the adjacent roadway network. In reviewing the City of Scottsdale Traffic Counts Map, a 1.7% average growth rate was found within the proposed study area. **Table 7** shows the expansion factor used for the proposed opening year 2020.

Table 7: Growth Rate Expansion Factors

Horizon Year	Expansion Factor
2020	1.034

Applying the growth rate to the 2018 base traffic volumes predicts the volume of traffic anticipated on the surrounding area roads without the addition of proposed site generated traffic or existing site generated traffic. This growth rate also assumes that the same percentage of overall traffic will remain pedestrians. This calculation assumes that no new roadway improvements are provided on the study area roadways and that the regional road network remains the same. Calculated background traffic for opening year 2020 is presented in **Figure 10**. Background and site traffic calculations worksheets are included in **Appendix H**.

TOTAL TRAFFIC

Total traffic was determined by adding the proposed site generated traffic to the estimated projected background traffic. Total peak hour traffic volumes for the horizon year 2020 are shown in **Figure 11**.

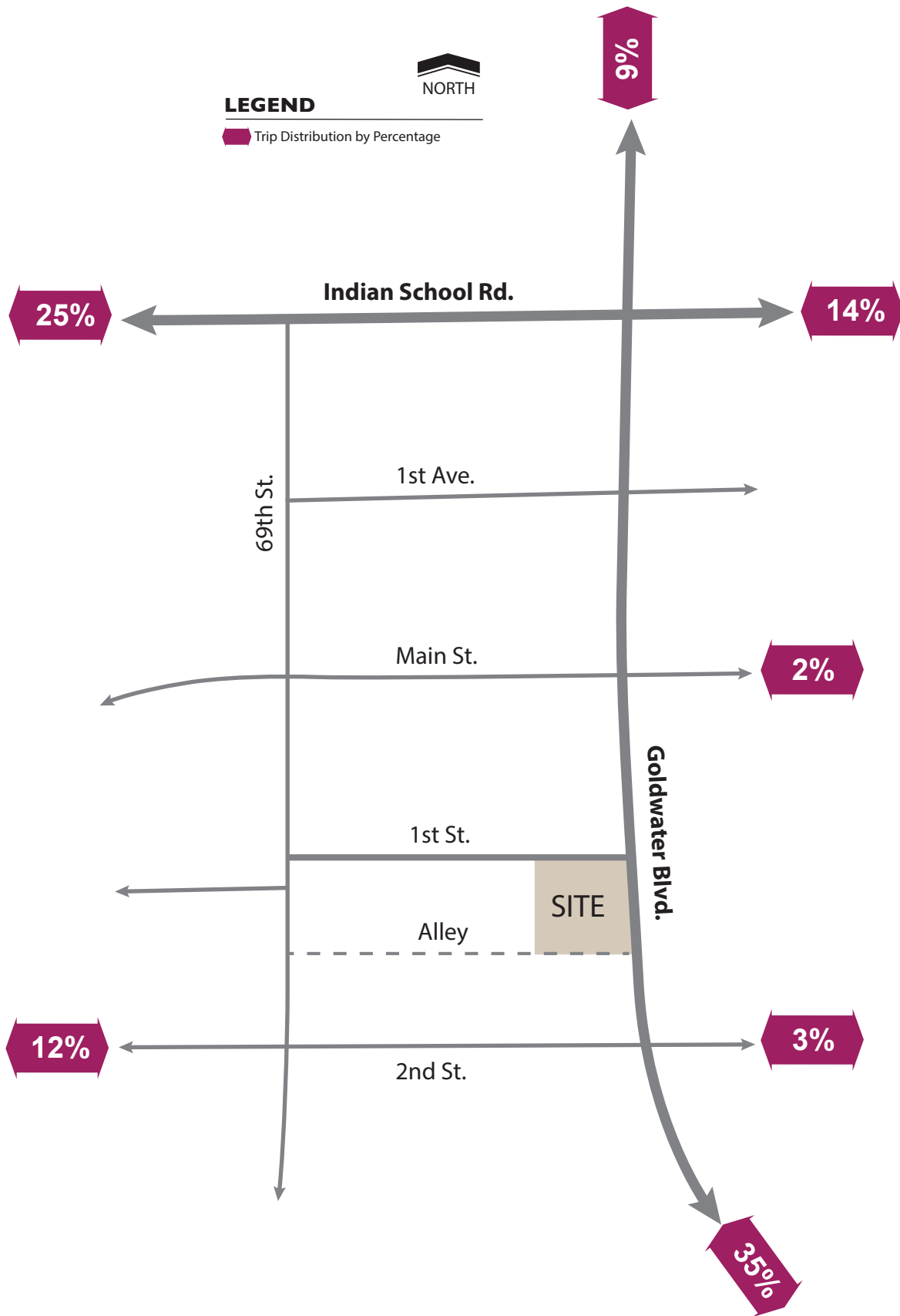
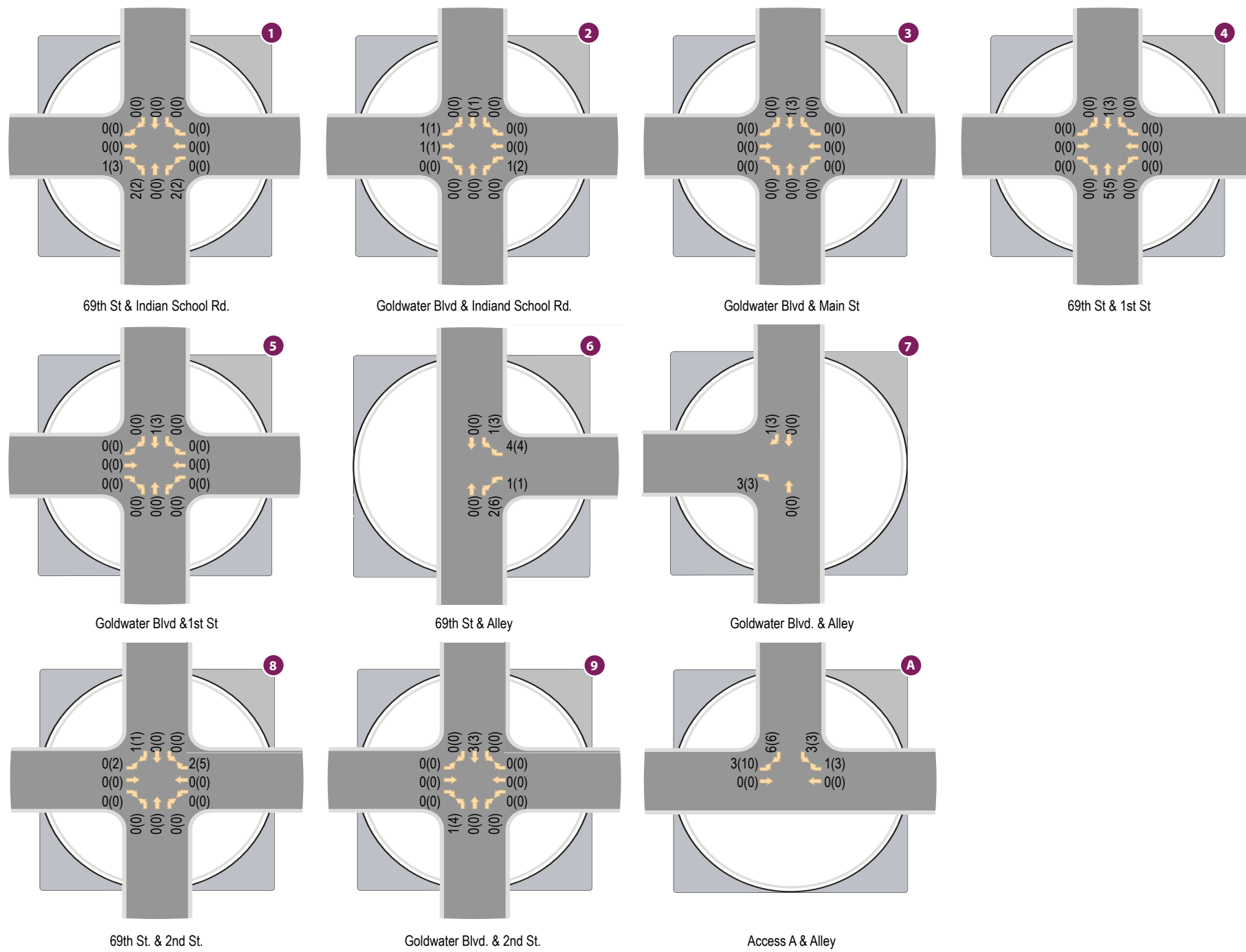


Figure 6: Trip Distribution



Legend
 XX(XX) - AM(PM) Peak Hour Traffic Volumes
 X,XXX - Average Daily Traffic Volumes

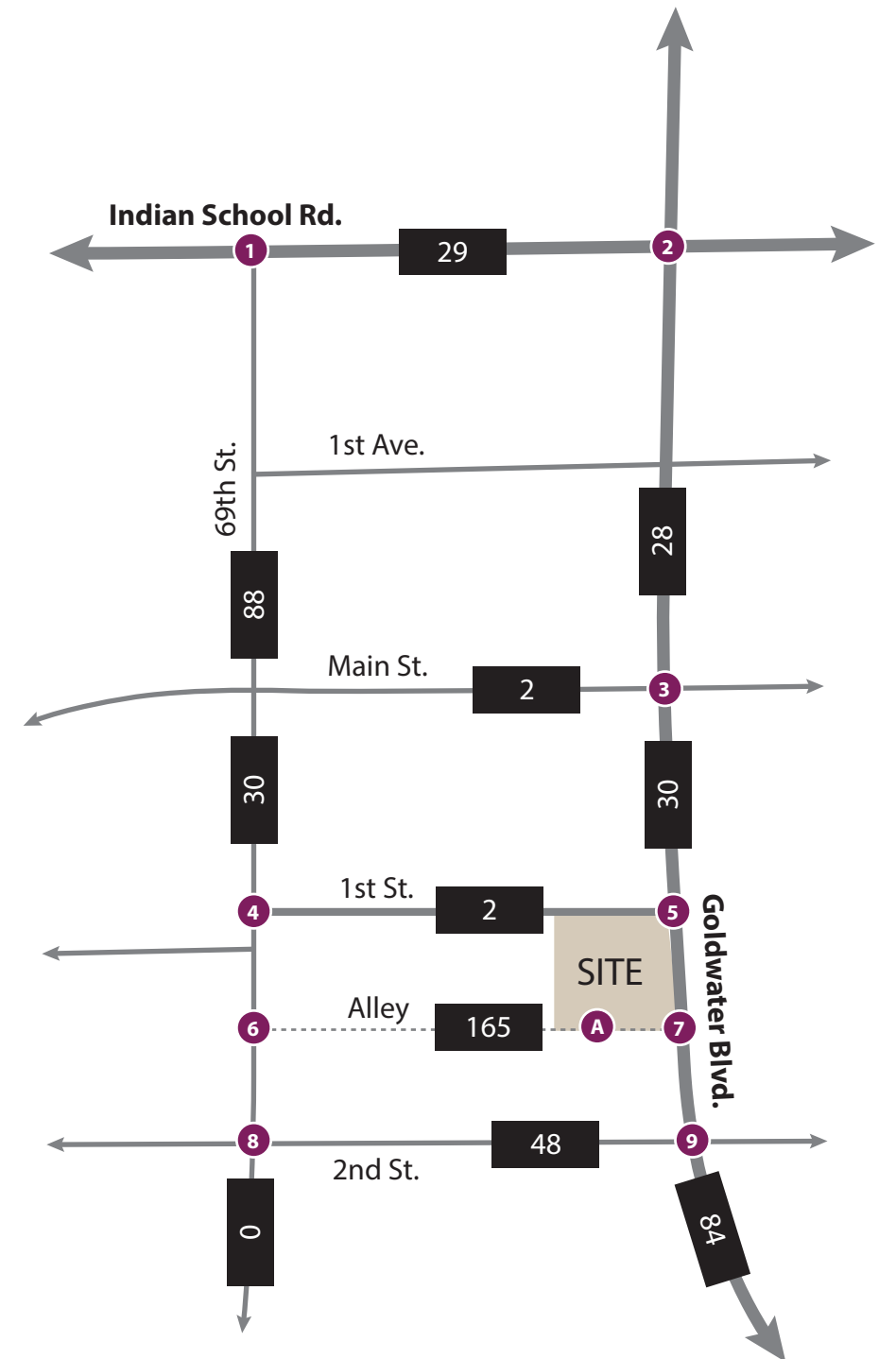
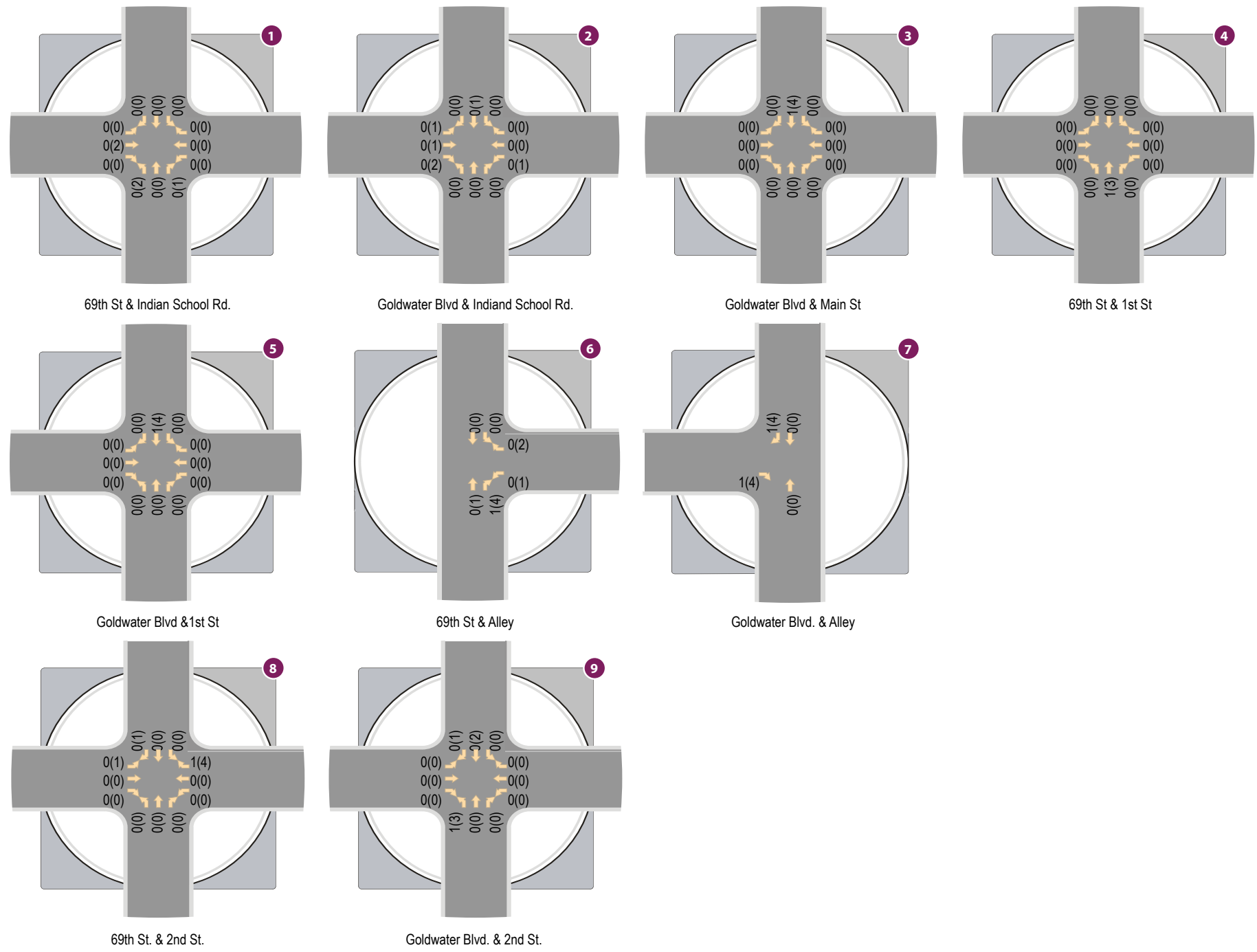


Figure 7: Site Traffic Volumes



Legend
 XX(XX) - AM(PM) Peak Hour Traffic Volumes
 X,XXX - Average Daily Traffic Volumes

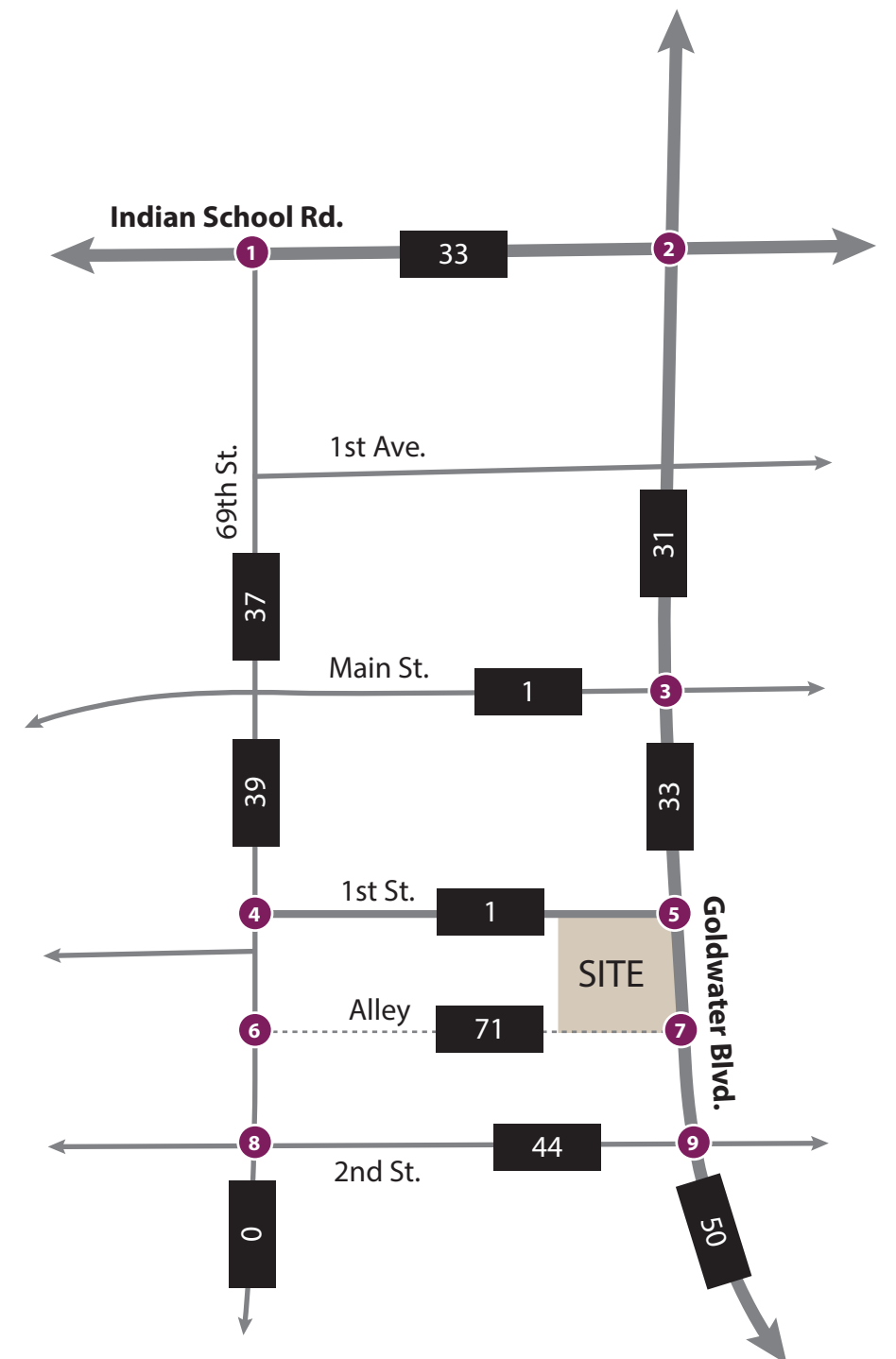
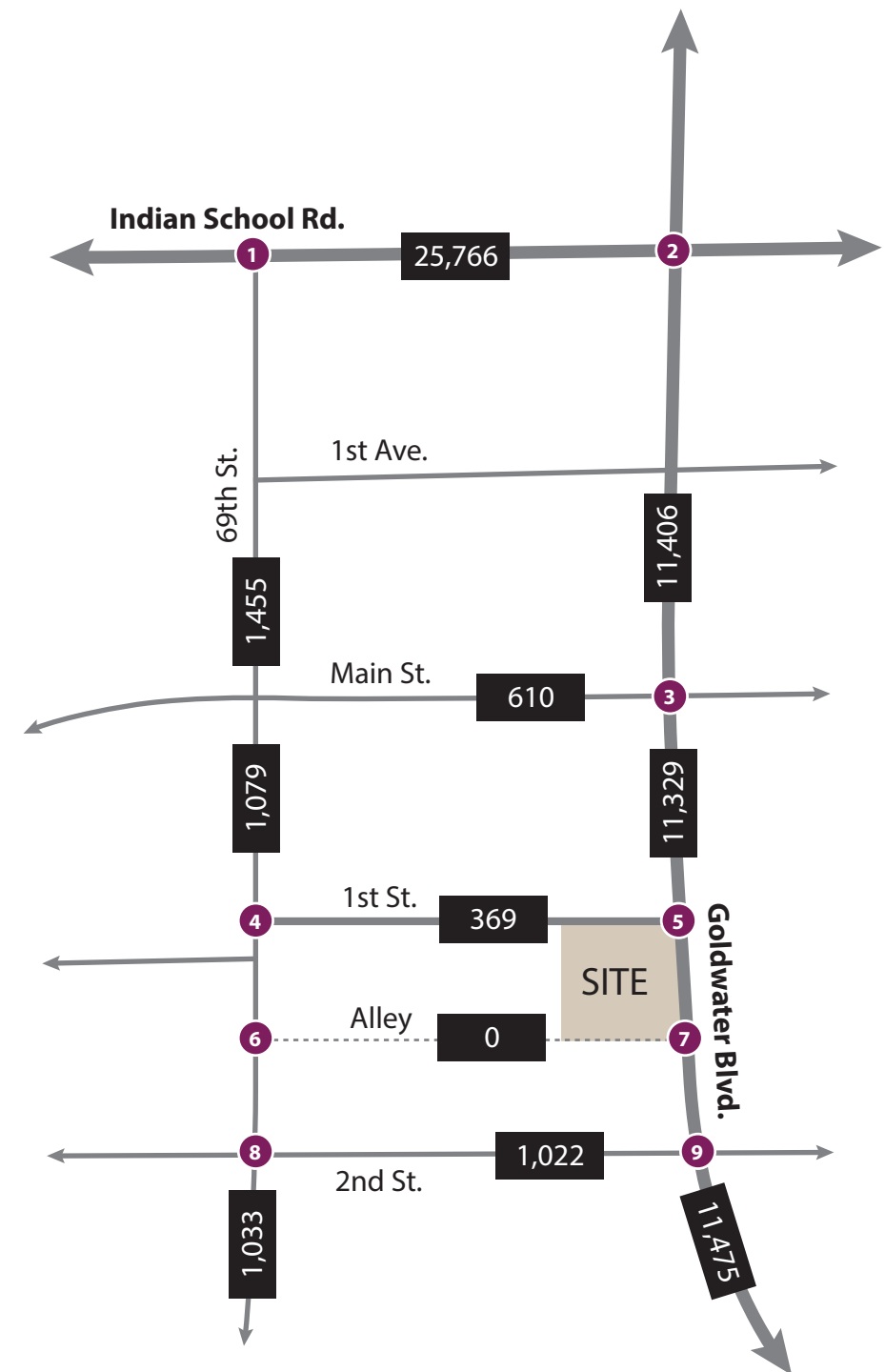
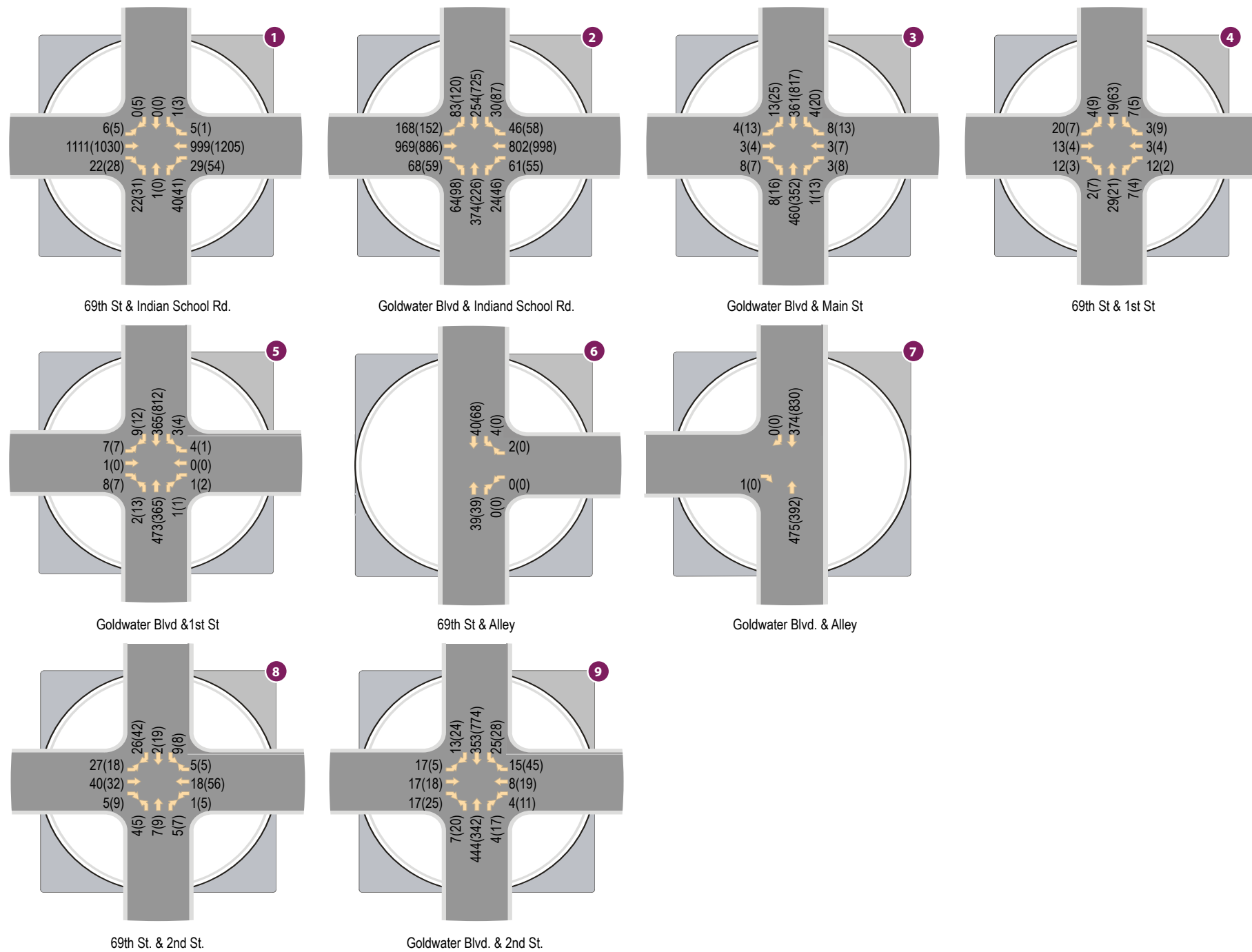


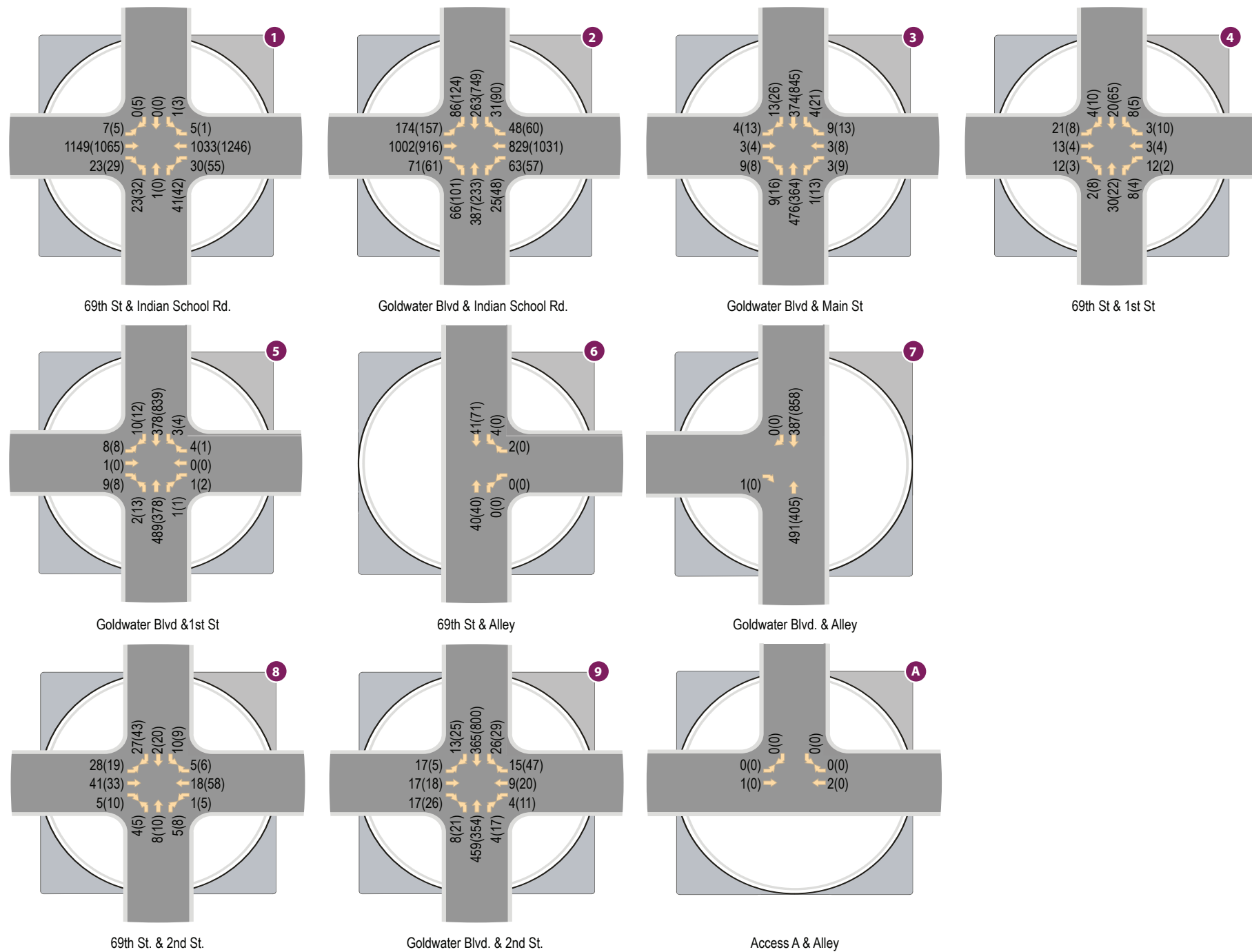
Figure 8: Existing Site Traffic Volumes



Legend
 XX(XX) - AM(PM) Peak Hour Traffic Volumes
 X,XXX - Average Daily Traffic Volumes



Figure 9: Base Traffic Volumes



Legend
 XX(XX) - AM(PM) Peak Hour Traffic Volumes
 X,XXX - Average Daily Traffic Volumes

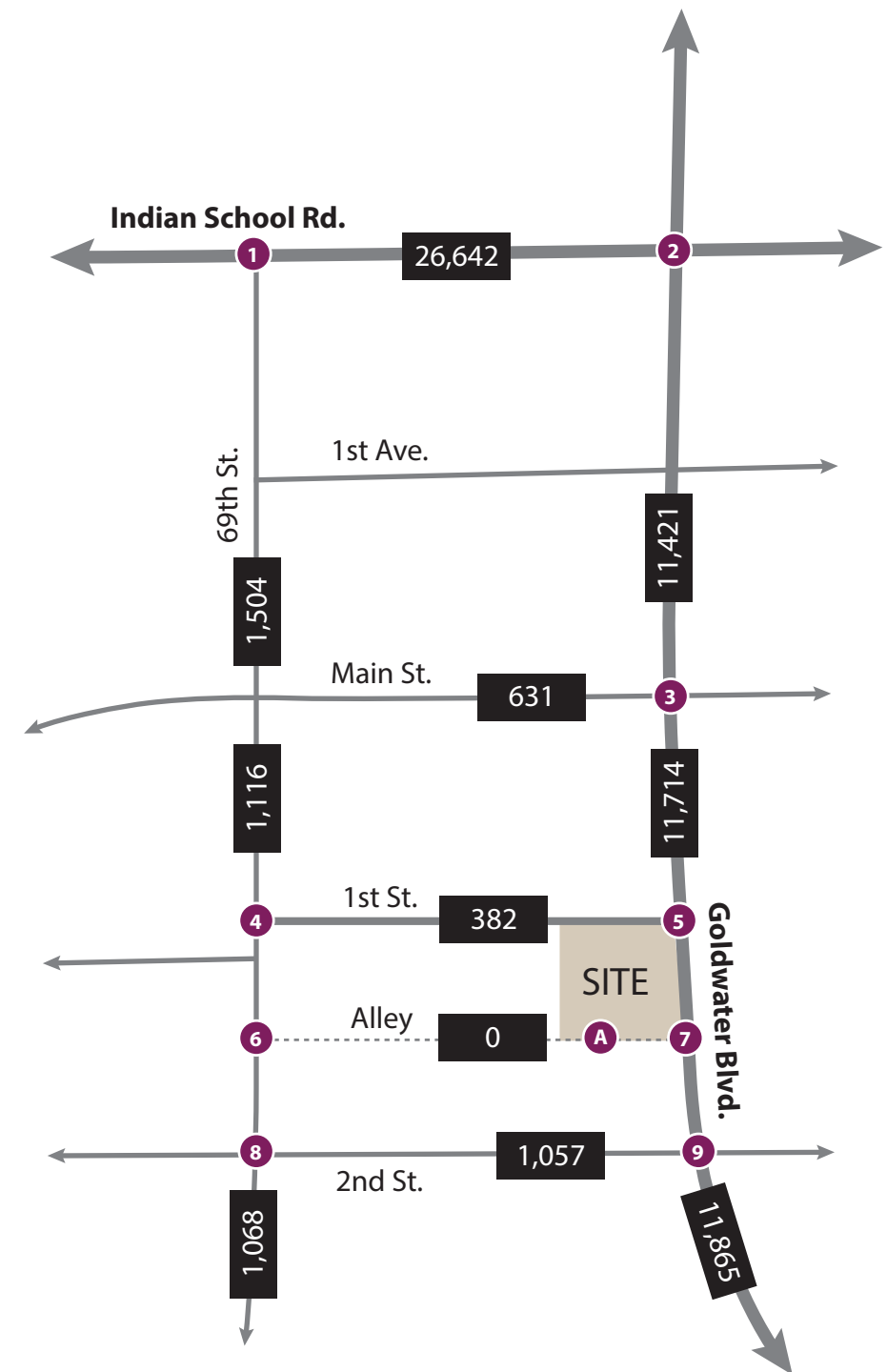
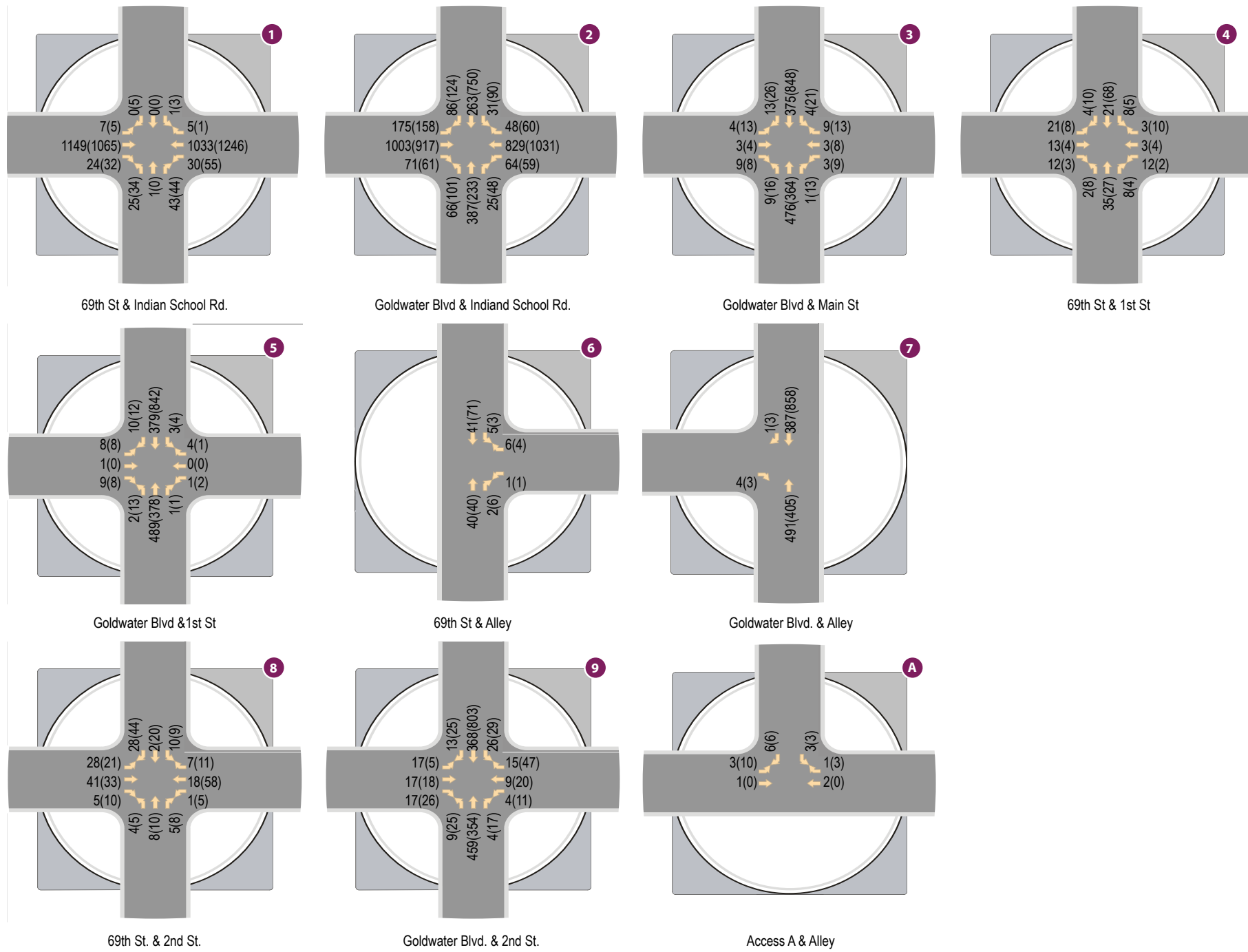


Figure 10: Background Traffic Volumes



Legend
 XX(XX) - AM(PM) Peak Hour Traffic Volumes
 X,XXX - Average Daily Traffic Volumes

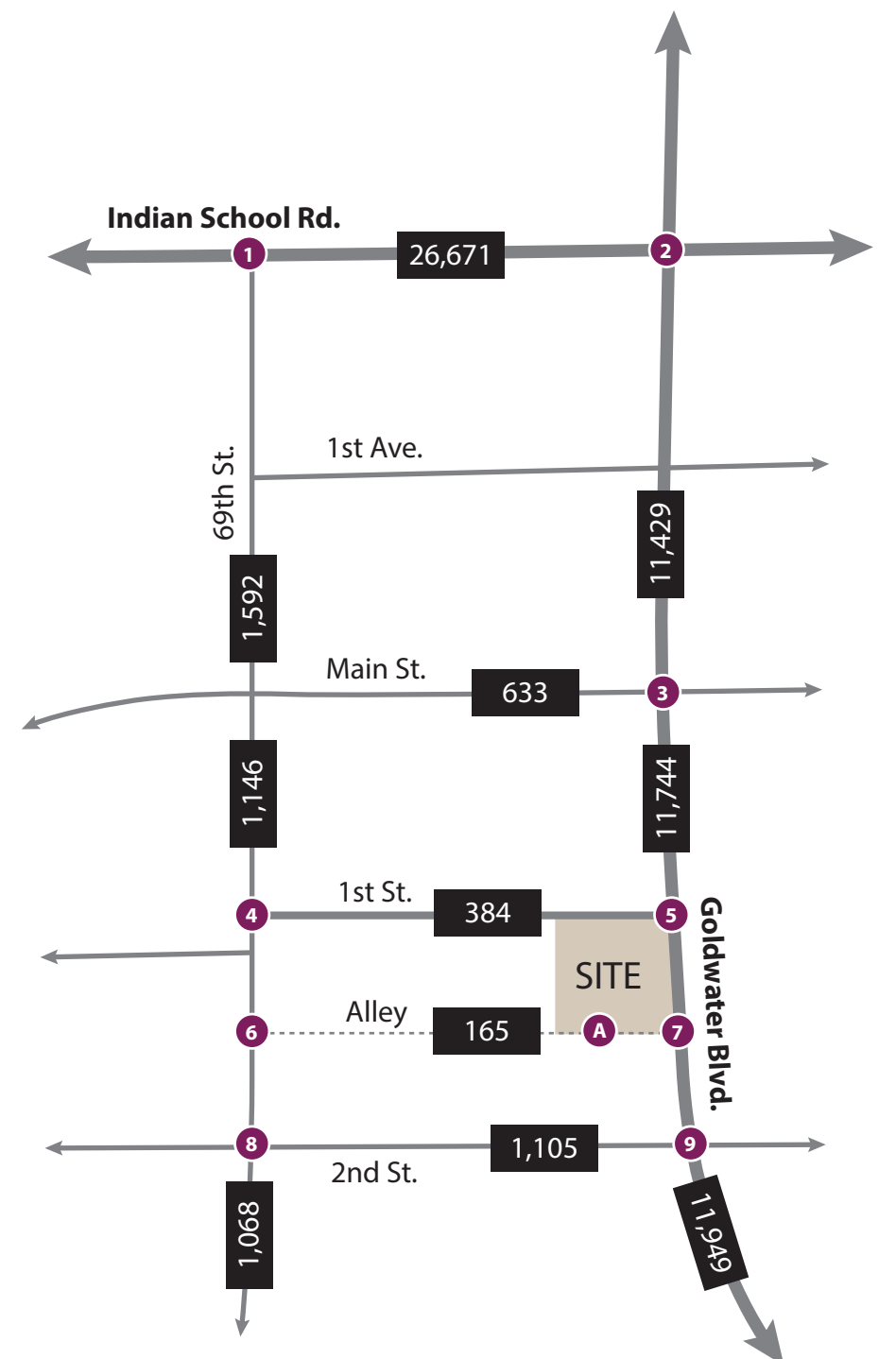


Figure 11: Total Traffic Volumes

TRAFFIC AND IMPROVEMENT ANALYSIS

INTERSECTION CAPACITY ANALYSIS

Future peak hour capacity analyses have been conducted for the study intersections. All intersections have been analyzed using the methodologies presented in the *Highway Capacity Manual (HCM)*, and Synchro 10 as previously described.

Results of the peak hour level-of-service are summarized in **Table 8** for the 2020 opening year. Worksheets for both AM and PM peak hour analyses have been included within **Appendix I** for the 2020 opening year.

Table 8: 2020 Peak Hour Levels of Service

ID	Intersection	Control	Approach	No Build AM(PM)	Build AM(PM)
1	69 th St & Indian School Rd	2-way stop (NB/SB)	NB Shared SB Shared EB Left WB Left	F (F) F (E) C (C) C (C)	F (F) F (E) C (C) C (C)
2	Goldwater Blvd & Indian School Rd	Signal	NB	D (E)	D (E)
			SB	E (D)	E (D)
			EB	C (D)	C (D)
			WB	D (E)	D (E)
			Overall	D (E)	D (E)
3	Goldwater Blvd & Main St	Signal	NB	A (A)	A (A)
			SB	A (A)	A (A)
			EB	E (E)	E (E)
			WB	E (E)	E (E)
			Overall	A (A)	A (A)
4	69 th St & 1 st St	2-way stop (EB/WB)	NB Shared SB Shared EB Shared WB Shared	A (A) A (A) A (A) A (A)	A (A) A (A) A (A) A (A)
5	Goldwater Blvd & 1 st St	2-way stop (EB/WB)	NB Left SB Left EB Shared WB left/thru	A (B) A (A) B (C) C (C)	A (B) A (A) B (C) C (C)
6	69 th St & Alley	1-way stop (WB)	WB Shared SB Left	A (A) A (A)	A (A) A (A)
7	Goldwater Blvd & Alley	1-way stop (EB)	EB Right	B (A)	B (B)
8	69 th St & 2 nd St	2-way stop (NB/SB)	NB Shared SB Shared EB Shared WB Shared	A (A) A (A) A (A) A (A)	A (A) A (A) A (A) A (A)
9	Goldwater Blvd & 2 nd St	2-way stop (EB/WB)	NB Left SB Left EB Shared WB Shared	A (B) A (A) C (D) C (C)	A (B) A (A) C (D) C (C)
A	Access A & Alley	1-way stop (SB)	SB Shared EB Left	- (-) - (-)	A (A) A (A)

The results of the 2020 peak hour analysis shows that all intersections operate at a level of service LOS D or better with the exception of the following intersections.

The unsignalized intersection of **69th Street and Indian School Road** is expected to continue to operate poorly during both the AM and PM peak hour on the northbound and southbound approaches. Intersections with minor approaches perpendicular to major approaches are expected to operate with delay during certain times of the day when the major road is busy, usually during the peak hour. Due to the location of this intersection to surrounding major intersections and the offset of the driveway from 69th Street, a signal will not be installed at this intersection. If there is significant delay during either peak hour, vehicles will use another route. Mitigation for this intersection is not recommended at this time.

The signalized intersection of **Goldwater Boulevard and Indian School Road** is expected to continue to operate poorly during the PM peak hour during both the no-build and build scenarios. The overall intersection delay during both scenarios is expected to be approximately 56 seconds. The threshold for an acceptable level of service is 55 seconds. Since the overall delay is very close to an acceptable level of service, no mitigation measures are recommended at this time, however, they could become necessary in the future.

The signalized intersection of **Goldwater Boulevard and Main Street** is expected to experience delay on the eastbound and westbound approaches of the intersection during both the AM and PM peak hours. This delay is present because the signal operates under actuated-coordinated phasing, meaning that the eastbound and westbound green phases are only triggered when a vehicle approaches. Since Main Street is a minor road, very few vehicles approach the intersection from the east or west, so when they do, there is significant delay. If more traffic uses this road in the future, the eastbound and westbound delay is likely to decrease.

The proposed lane configurations and stop controls are presented in **Figure 12**.

QUEUING ANALYSIS

The site access points were analyzed to determine the storage needed to accommodate the expected traffic volumes for the horizon year 2020 at the left and right turn lanes.

LEFT TURN STORAGE ANALYSIS

Left-turn lanes are required at all street intersections on major collectors and arterials per the City of Scottsdale *Design Standards and Policy Manual (DS&PM)*. Dual left turn lanes should be considered at intersections in which the peak hour turning volume exceeds 300 vehicles, the opposing volume exceeds 1,000 vehicles per hour or the delay of the left-turns exceeds 45 seconds per section 5-3.123 of the *DS&PM*.

A queuing analysis for left turns was performed for all intersection turn lanes within the study area. The intersections were analyzed to determine the left turn storage needed to accommodate the expected traffic volumes for the horizon year 2020. The formulas used for the calculations are stated below. The resulting left turn lane storage requirements for the 2020 horizon year are summarized in **Table 9**.

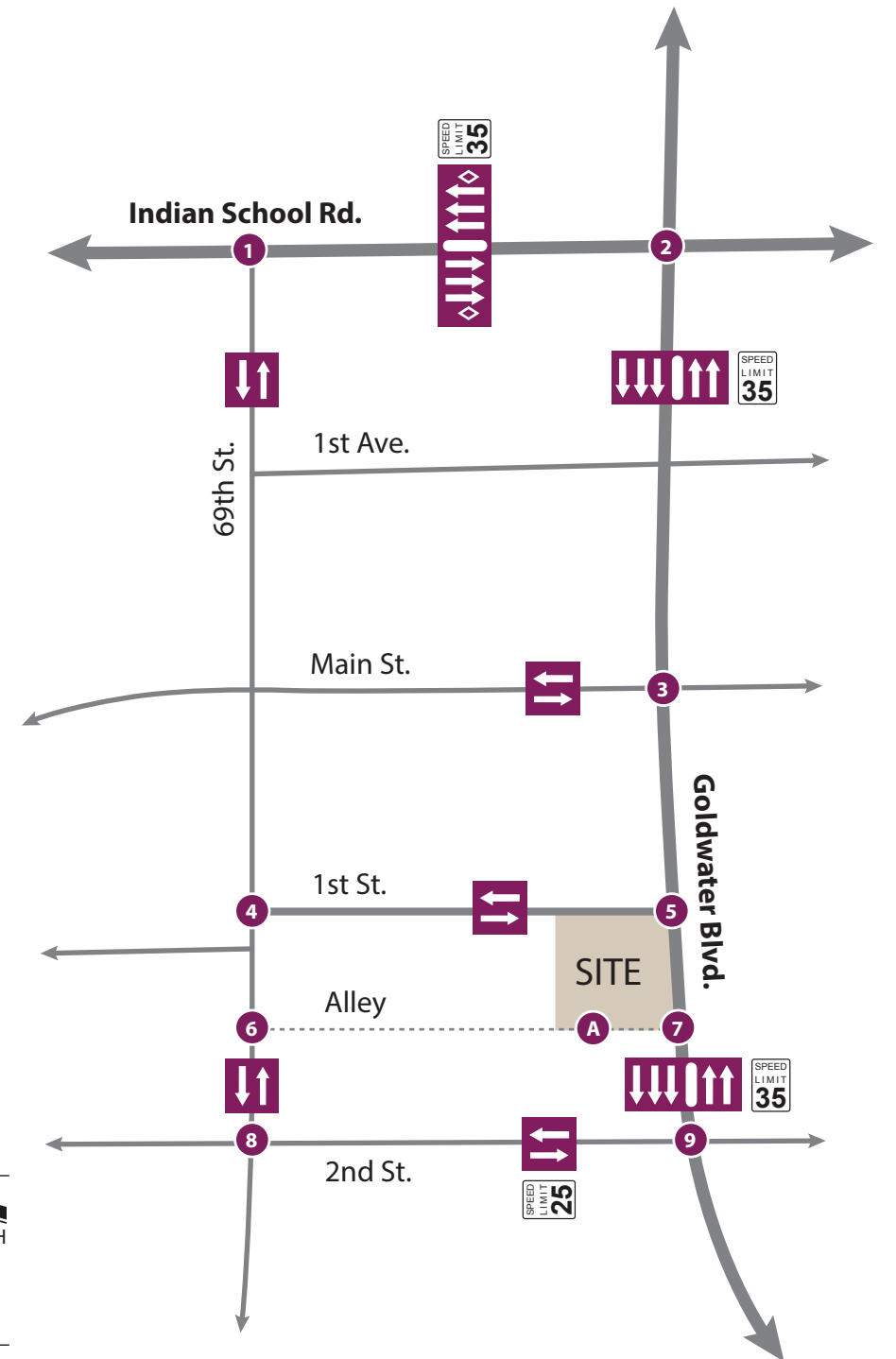
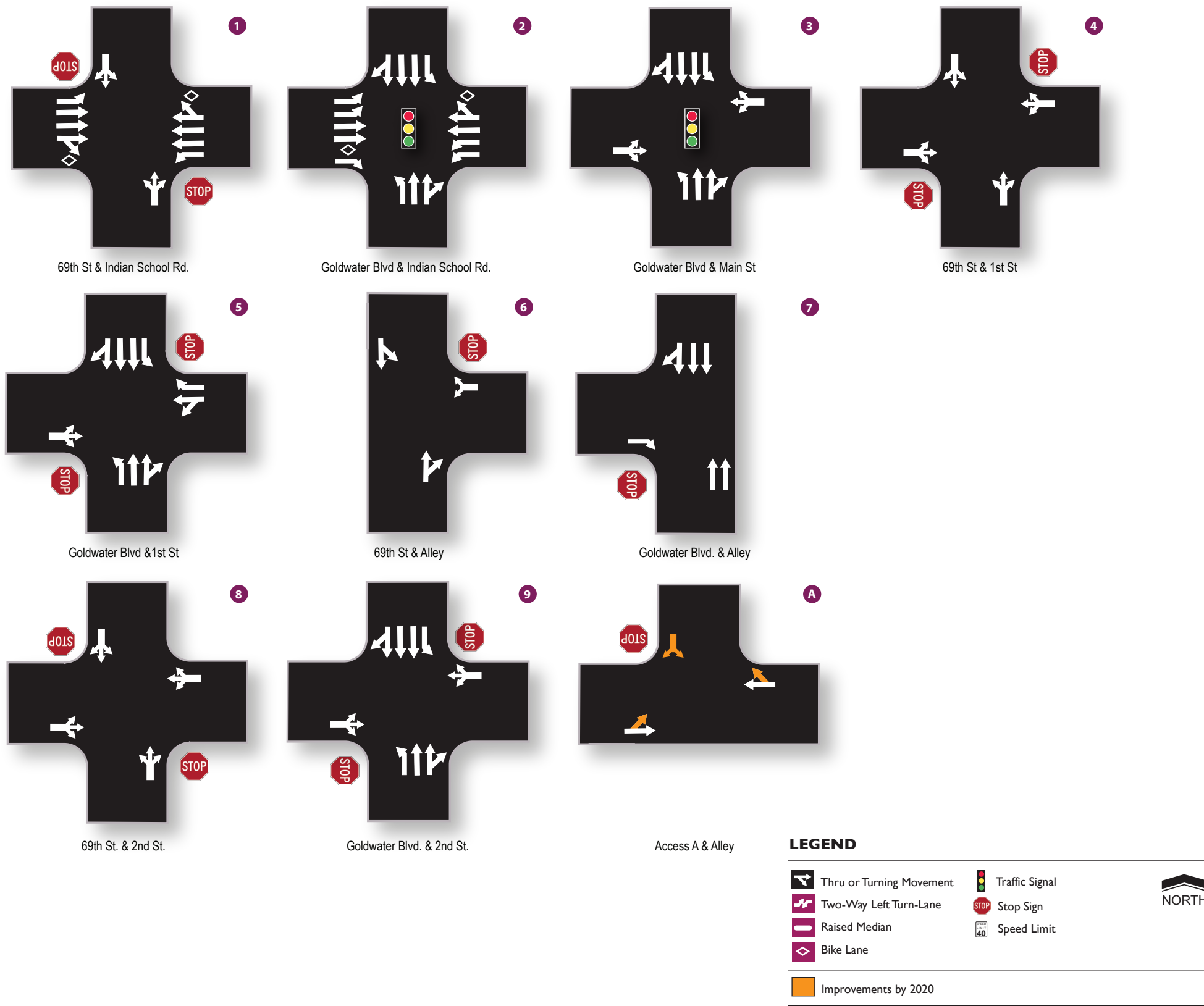


Figure 12: Proposed Lane Configurations and Traffic Controls

Two (2) methods were utilized to calculate the likely queue storage needed at the intersections for the 2032 horizon year. Synchro analysis software provided values for the 50th and 95th percentile queue storage. The 95th percentile has been reported herein. AASHTO also provides the following guidance:

For signalized intersections, the storage length is determined by the following formula:

$$\text{Storage Length} = [2 \times (\text{veh/hr})/(\text{cycles/hr})] \times 25 \text{ feet}$$

For unsignalized intersections, the storage length is determined by the following formula:

$$\text{Storage Length} = [(\text{veh/hr})/(30 \text{ periods/hr})] \times 25 \text{ feet}$$

Queue storage length recommendations at all study intersections herein are based on the 2020 projected traffic volumes.

RIGHT TURN AUXILIARY LANES

Right turn auxiliary lanes are required at all street intersections on major arterials per the City of Scottsdale *DS&PM* section 5-3.206. The standard storage length for a deceleration lane is 150 feet, with a 100-foot minimum length.

DECELERATION LANES

Per the City of Scottsdale *DS&PM*, section 5-3.206, right turn deceleration lanes are generally deemed warranted at a driveway when the following three conditions are satisfied:

- ◆ *At least 5,000 vehicles per day are expected to use the adjacent street;*
- ◆ *The 85th percentile traffic speed on the adjacent street is 35 MPH or higher, or 45 MPH or higher for a one (1) lane per direction roadway;*
- ◆ *At least 30 vehicles will make right turns into a driveway during a peak hour.*

The main access to the site does not meet the requirements listed, meaning that a right turn deceleration lane at the access point to the site is not required, and according to the Synchro analysis performed, it operates at an acceptable level of service under the proposed lane configurations.

Table 9: Queue Length Analysis

ID	Intersection	Intersection Control	Approach	Existing Storage	Synchro 95 th %-ile Q	Calculated Storage	Rec. Storage
1	69th St & Indian School Rd.	2-Way Stop (NB/SB)	EB Left	45'	<25'	25'	(1)45'
			WB Left	70'	<25'	50'	(1)70'
2	Goldwater Blvd & Indian School Rd.	Signalized	NB Left	105'	139'	175'	140'
			SB Left	180'	107'	150'	(1)180'
			EB Left	275'	67'	300'	(1) (2)275'
			WB Left	160'	25'	125'	(1) (2)160'
			EB Right	165'	<25'	125'	(1)165'
3	Goldwater Blvd & Main St	Signalized	NB Left	115'	<25'	50'	(1)115'
			SB Left	115'	<25'	50'	(1)115'
9	Goldwater Blvd. & 2nd St.	2-Way Stop (EB/WB)	NB Left	135'	<25'	50'	(1)135'
			SB Left	85'	<25'	25'	(1)85'

- (1) Existing turn storage is adequate
- (2) Dual left-turn lanes
- (3) 50th percentile synchro recommended

As shown in **Table 9**, the existing storage lengths at the existing intersections are anticipated to accommodate the additional traffic generated by the proposed development with the exception of the northbound left turn lane at the intersection of Goldwater Boulevard and Indian School Road. No additional northbound left-turns are expected to be added from site generated traffic, meaning that the number of northbound left-turns is the same for the AM and PM peak hours for the no-build and build scenarios. Additional storage length calculations should be completed prior to traffic signal installation, a change in intersection stop control or installation of raised medians. Turn queue storage length calculations can be found in the **Appendix J**.

SIGHT DISTANCE ANALYSIS

Adequate sight distance must be provided at the intersections to allow safe turning movements into and out of the development. A sight triangle is the area encompassed by the line of sight from a stopped vehicle on the minor roadway to the approaching vehicle on the major roadway: there must be sufficient unobstructed sight distance along both approaches of a street or driveway intersection and across their included corners to allow operators of vehicles to see each other in time to prevent a collision. There must also be sufficient sight distance along the major street to allow a driver intending to turn left into the site to see an oncoming vehicle in the opposing direction.

Sight distance is largely based on the design speed of the roadway. Per the *City of Scottsdale Design Standards and Policies Manual, dated 2018* intersection sight distance should adhere to *Appendix 5-3B*. *Sight Distance tables in Appendix 5-3B* presents the required sight distance for varying roadway widths and design speeds for passenger cars, single unit trucks and combination trucks. Typically, the posted speed limit is less than the design speed of a roadway. There is no posted speed limit in the Alley. For the purpose of this study, a design speed of 30 mph was used for this road.

The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. Fixed objects

within the safety triangle cannot be taller than 2.5-feet measured from the adjacent roadway surface (edge of pavement); vegetation should be trimmed to 2.5-feet tall measured from the adjacent roadway surface. Trees placed within the sight triangle shall have canopies no lower than eight (8) feet. It is recommended that sight triangles be designed at all site access driveways to provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of Scottsdale Design Standards and Policies Manual* and tables have been included in **Appendix K**.

CONCLUSIONS

The following conclusions have been documented in this study.

- The results of the existing conditions analysis indicates that all study intersections operate with acceptable levels of service (LOS D or better), with the exception of the intersections of 69th Street & Indian School Rd, Goldwater Boulevard & Indian School Road and Goldwater Blvd & Main Street.
 - Currently, the unsignalized intersection of **69th Street and Indian School Road** operates poorly during both the AM and PM peak hours on the northbound and southbound approaches. This delay is due to the high wait times of vehicles making northbound left turns and southbound left turns because of the high volume of through traffic on Indian School Road during both peak hours. Extensive delay during either peak hour at minor roads or driveways that intersect major roads is expected.
 - The signalized intersection of **Goldwater Boulevard and Indian School Road** currently operates adequately in the AM peak hour, but has an overall intersection delay of 54 seconds in the PM peak hour. The threshold for an adequate level of service is 55 seconds, so it is very near to operating at a poor level of service.
 - The signalized intersection of **Goldwater Boulevard and Main Street** experiences delay on the eastbound and westbound approaches of the intersection during both the AM and PM peak hours. This delay is present because the signal operates under actuated-coordinated phasing, meaning that the eastbound and westbound green phases are only triggered when a vehicle approaches. Since Main Street is a minor road, very few vehicles approach the intersection from the east or west, so when they do, there is substantial delay. As more traffic uses this road in the future, the eastbound and westbound delay is likely to decrease.
- The number of crashes reported at the intersection of Goldwater Boulevard and 1st Street does not rise to the level of warranting consideration of a traffic signal based solely on crash experience. CivTech estimates that the existing development could potentially generate 142 external weekday daily trips, 3 trips during the AM peak hour, and 14 trips during the PM peak hour.
- The proposed redevelopment is anticipated to generate 734 external weekday daily trips, 62 trips during the AM peak hour, and 61 trips during the PM peak hour.
 - As compared to the existing uses, the proposed redevelopment could generate an additional 592 external daily trips with 59 additional trips in the AM peak hour and an additional 47 trips in the PM peak hour.
- The results of the 2020 peak hour analysis shows that all intersections operate at a level of service LOS D or better with the exception of the following intersections.

- The unsignalized intersection of **69th Street and Indian School Road** is expected to continue to operate poorly during both the AM and PM peak hour on the northbound and southbound approaches. Intersections with minor approaches perpendicular to major approaches are expected to operate with delay during certain times of the day when the major road is busy, usually during the peak hour. Due to the location of this intersection to surrounding major intersections and the offset of the driveway from 69th Street, a signal will not be installed at this intersection. If there is significant delay during either peak hour, vehicles will use another route. Mitigation for this intersection is not recommended at this time.
- The signalized intersection of **Goldwater Boulevard and Indian School Road** is expected to continue to operate poorly during the PM peak hour during both the no-build and build scenarios. The overall intersection delay during both scenarios is expected to be approximately 56 seconds. The threshold for an acceptable level of service is 55 seconds. Since the overall delay is very close to an acceptable level of service, no mitigation measures are recommended at this time, however, they could become necessary in the future.
- The signalized intersection of **Goldwater Boulevard and Main Street** is expected to experience delay on the eastbound and westbound approaches of the intersection during both the AM and PM peak hours. This delay is present because the signal operates under actuated-coordinated phasing, meaning that the eastbound and westbound green phases are only triggered when a vehicle approaches. Since Main Street is a very small road, very few vehicles approach the intersection from the east or west, so when they do, there is significant delay. If more traffic uses this road in the future, the eastbound and westbound delay is likely to decrease.
- The existing storage lengths at the existing intersections are anticipated to accommodate the additional traffic generated by the proposed development with the exception of the northbound left turn lane at the intersection of Goldwater Boulevard and Indian School Road. No additional northbound left-turns are expected to be added from site generated traffic, meaning that the number of northbound left-turns is the same for the AM and PM peak hours for the no-build and build scenarios. Additional storage length calculations should be completed prior to traffic signal installation, a change in intersection stop control or installation of raised medians.
- The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. It is recommended that sight triangles be designed at all site access driveways to provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*.

LIST OF REFERENCES

- A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials, Washington, D.C., 2011.
- ADOT Traffic Engineering Guidelines and Processes*, Arizona Department of Transportation, 2015.
- Highway Capacity Manual*. Transportation Research Board, National Research Council, Washington, D.C., 2016.
- Manual of Uniform Traffic Control Devices*. U.S. Department of Transportation, Federal Highways Administration, Washington, D.C., 2009.
- Roadway Design Manual*, Maricopa County Department of Transportation, Phoenix, Arizona, 2017.
- Design Standards & Policies Manual*, City of Scottsdale, Arizona, January 2018.
- Trip Generation 10th Edition*, Institute of Transportation Engineers, Washington, D.C., 2016.
- Trip Generation Handbook, 3rd Edition*, Institute of Transportation Engineers, Washington, D.C., 2012.

TECHNICAL APPENDICES

APPENDIX A:	REVIEW COMMENTS (RESERVED)
APPENDIX B:	EXISTING TRAFFIC COUNTS
APPENDIX C:	EXISTING SIGNAL TIMING SHEETS
APPENDIX D:	EXISTING PEAK HOUR ANALYSIS
APPENDIX E:	CRASH DATA
APPENDIX F:	TRIP GENERATION
APPENDIX G:	TRIP DISTRIBUTION
APPENDIX H:	BACKGROUND TRAFFIC CALCULATIONS
APPENDIX I:	2020 PEAK HOUR TRAFFIC ANALYSIS
APPENDIX J:	QUEUE LENGTH ANALYSIS
APPENDIX K:	SIGHT DISTANCE ANALYSIS

APPENDIX A

REVIEW COMMENTS AND RESPONSES

**Winery Suites
2nd Submittal**

Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

CivTech, Inc.

Review Comments & Responses

Reviewer Name, Agency: **Greg Bloemberg, City of Scottsdale**

Item	Review Comment	(Code) & Response
1.	Please revise TIMA to include current traffic counts for link volumes along Goldwater Blvd, 69th Street, and 2nd Street.	(3) The original TIMA included average daily total (ADT) volumes on the vicinity maps included in each figure. These volumes were estimated using the peak hour turning movement counts. Including existing link volumes as the ADT volumes would not change the values substantially.
2.	The report should address site access as it related to the limited access at Goldwater Blvd. and the likelihood of generating U-turns at 2nd Street and 1st Street as drivers enter and exit the site. As these are rental units, there is a higher likelihood of drivers unfamiliar with local streets.	(1) Text has been added to the report indicating that U-turns are likely to occur at 1st Street and 2nd Street along Goldwater due to the nature of the proposed site and the out of town visitors that the site will attract.

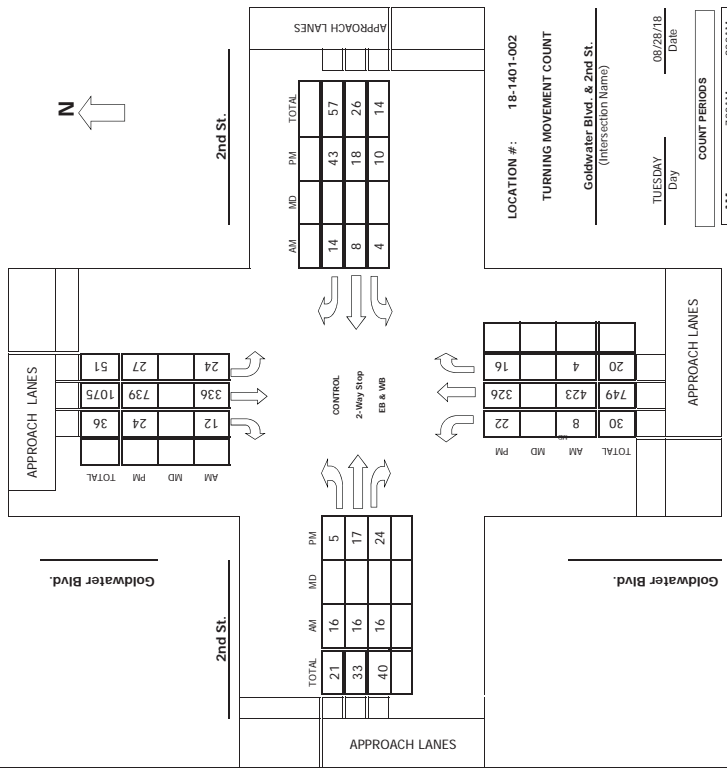


APPENDIX B

EXISTING TRAFFIC COUNTS

Project #: 18-1401-002

TMC SUMMARY OF Goldwater Blvd. & 2nd St.



APPROACH LANES		AM	MD	PM	TOTAL
Left	0	12	24	36	51
Through	0	739	739	1478	2917
Right	0	24	27	51	78
TOTAL	0	775	800	1575	2375

TOTAL	AM		MD		PM	
	Left	Through	Left	Through	Left	Through
21	16	5	16	17	5	17
33	16	17	16	17	17	17
40	16	24	16	24	17	24

APPROACH LANES		AM	MD	PM	TOTAL
Left	0	14	43	57	114
Through	0	8	18	26	52
Right	0	4	10	14	28
TOTAL	0	26	71	97	194

APPROACH LANES		AM	MD	PM	TOTAL
Left	0	30	8	22	60
Through	0	749	423	326	1498
Right	0	20	4	16	40
TOTAL	0	809	435	364	1608

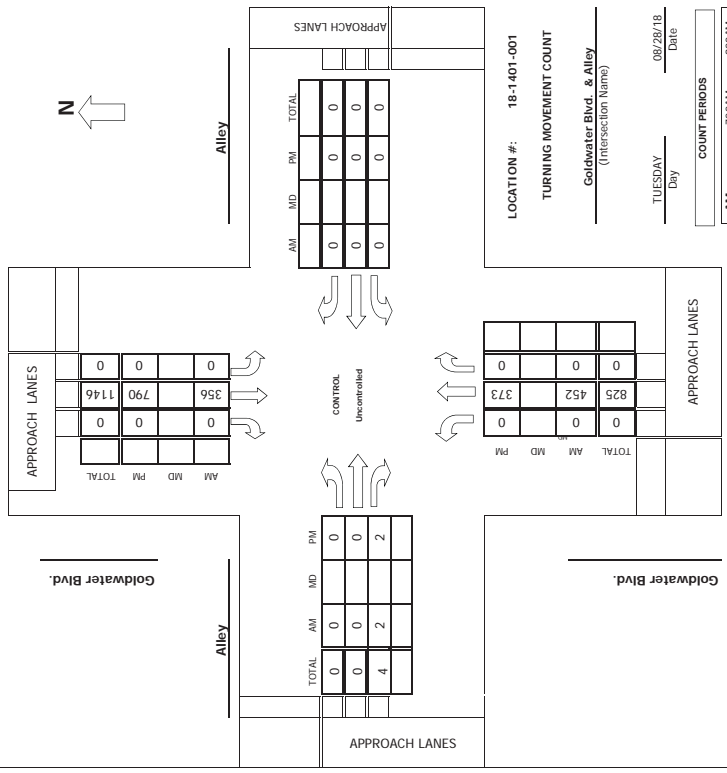
LOCATION #: 18-1401-002
 TURNING MOVEMENT COUNT
 Goldwater Blvd. & 2nd St.
 (Intersection Name)

TUESDAY Day 08/28/18 Date
 COUNT PERIODS
 AM 7:00AM - 9:00AM
 NOON 12:00PM - 1:00PM
 PM 4:00PM - 6:00PM

AM PEAK HOUR 7:15 AM
 NOON PEAK HOUR
 PM PEAK HOUR 4:30 PM

Project #: 18-1401-001

TMC SUMMARY OF Goldwater Blvd. & Alley



APPROACH LANES		AM	MD	PM	TOTAL
Left	0	0	0	0	0
Through	0	790	790	1580	3170
Right	0	0	0	0	0
TOTAL	0	790	790	1580	3170

TOTAL	AM		MD		PM	
	Left	Through	Left	Through	Left	Through
0	0	0	0	0	0	0
0	0	0	0	0	0	0
4	2	2	2	2	2	2

APPROACH LANES		AM	MD	PM	TOTAL
Left	0	0	0	0	0
Through	0	0	0	0	0
Right	0	0	0	0	0
TOTAL	0	0	0	0	0

APPROACH LANES		AM	MD	PM	TOTAL
Left	0	0	0	0	0
Through	0	452	373	825	1650
Right	0	0	0	0	0
TOTAL	0	452	373	825	1650

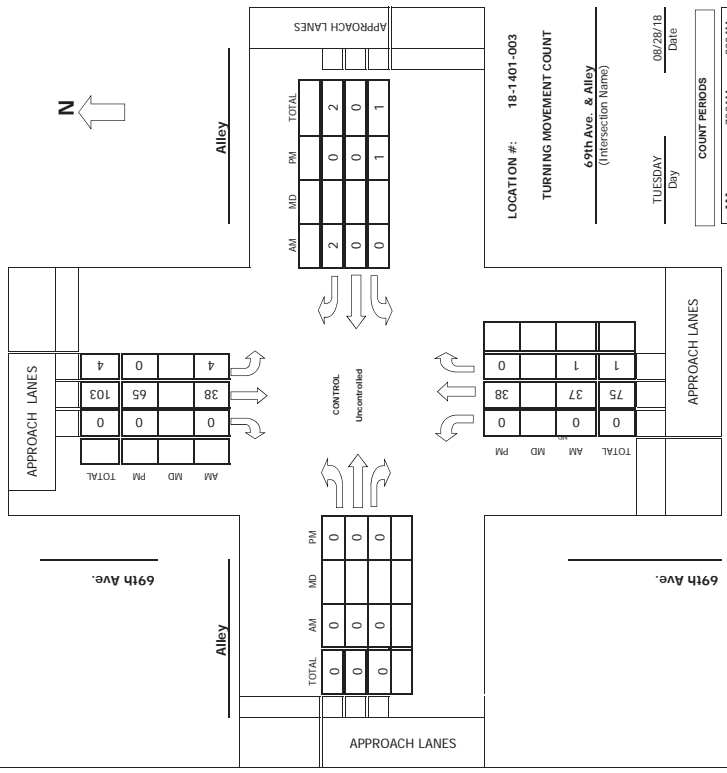
LOCATION #: 18-1401-001
 TURNING MOVEMENT COUNT
 Goldwater Blvd. & Alley
 (Intersection Name)

TUESDAY Day 08/28/18 Date
 COUNT PERIODS
 AM 7:00AM - 9:00AM
 NOON 12:00PM - 1:00PM
 PM 4:00PM - 6:00PM

AM PEAK HOUR 7:15 AM
 NOON PEAK HOUR
 PM PEAK HOUR 4:30 PM

Project #: 18-1401-003

TMC SUMMARY OF 69th Ave. & Alley



TOTAL	AM		MD		PM		TOTAL
	AM	MD	AM	MD	AM	MD	
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

TOTAL	AM		MD		PM		TOTAL
	AM	MD	AM	MD	AM	MD	
2	2	0	0	0	0	2	2
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

TOTAL		AM		MD		PM	
AM	MD	AM	MD	AM	MD	AM	MD
0	0	0	0	0	0	0	0
75	37	1	1	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

LOCATION #: 18-1401-003
 TURNING MOVEMENT COUNT
69th Ave. & Alley
 (Intersection Name)

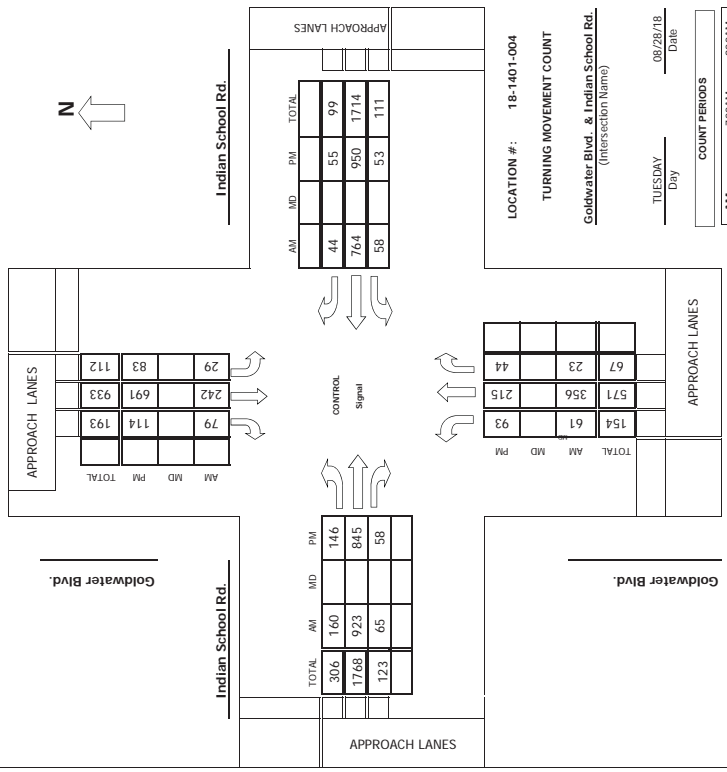
TUESDAY _____ Day
 08/28/18 _____ Date

COUNT PERIODS
 AM 7:00AM - 9:00AM
 NOON 12:00PM - 2:00PM
 PM 4:00PM - 6:00PM

AM PEAK HOUR _____ 7:30 AM
 NOON PEAK HOUR _____
 PM PEAK HOUR _____ 4:45 PM

Project #: 18-1401-004

TMC SUMMARY OF Goldwater Blvd. & Indian School Rd.



TOTAL	AM		MD		PM		TOTAL
	AM	MD	AM	MD	AM	MD	
306	160	146	1768	923	845	123	65
1768	923	845	123	65	58	58	58

TOTAL	AM		MD		PM		TOTAL
	AM	MD	AM	MD	AM	MD	
44	44	55	99	55	99	55	99
764	764	950	1714	950	1714	53	111

TOTAL		AM		MD		PM	
AM	MD	AM	MD	AM	MD	AM	MD
154	61	93	93	571	356	215	215
67	23	44	44	571	356	215	215
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

LOCATION #: 18-1401-004
 TURNING MOVEMENT COUNT
Goldwater Blvd. & Indian School Rd.
 (Intersection Name)

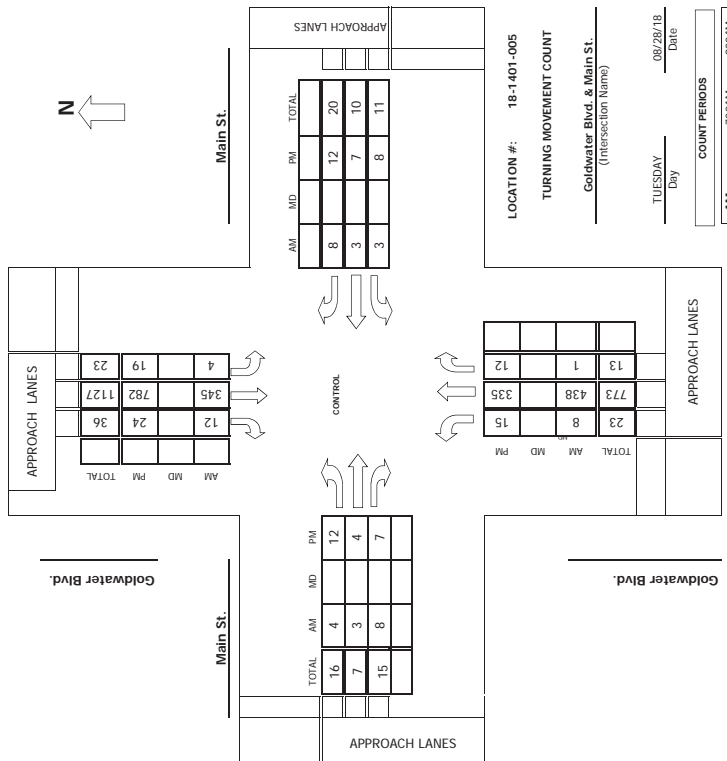
TUESDAY _____ Day
 08/28/18 _____ Date

COUNT PERIODS
 AM 7:00AM - 9:00AM
 NOON 12:00PM - 2:00PM
 PM 4:00PM - 6:00PM

AM PEAK HOUR _____ 7:30 AM
 NOON PEAK HOUR _____
 PM PEAK HOUR _____ 4:30 PM

Project #: 18-1401-005

TMC SUMMARY OF Goldwater Blvd. & Main St.



LOCATION #: 18-1401-005
 TURNING MOVEMENT COUNT
 Goldwater Blvd. & Main St.
 (Intersection Name)

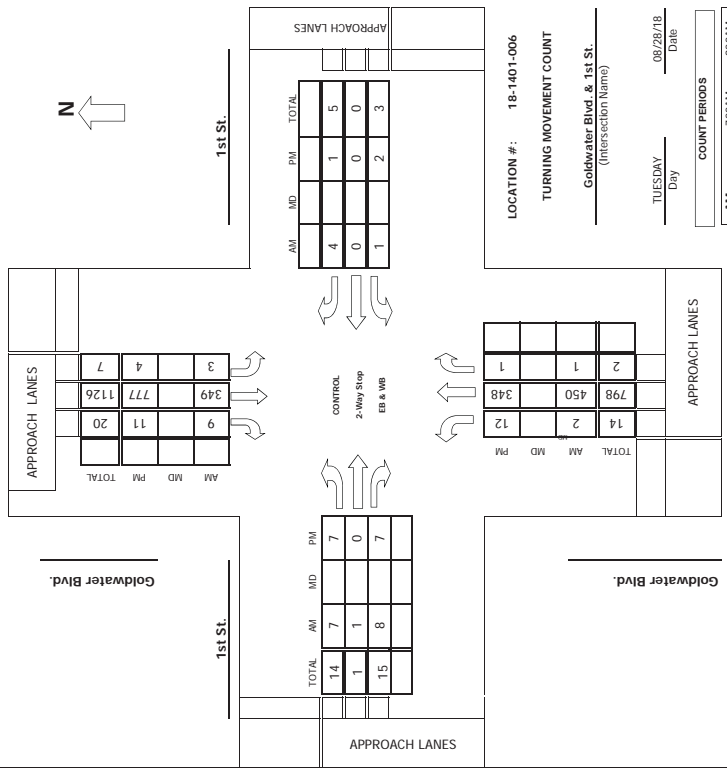
TUESDAY _____ Date: 08/28/18
 Day

COUNT PERIODS	
AM	7:00AM - 9:00AM
NOON	
PM	4:00PM - 6:00PM

AM PEAK HOUR _____ 7:15 AM
 NOON PEAK HOUR _____
 PM PEAK HOUR _____ 4:30 PM

Project #: 18-1401-006

TMC SUMMARY OF Goldwater Blvd. & 1st St.



LOCATION #: 18-1401-006
 TURNING MOVEMENT COUNT
 Goldwater Blvd. & 1st St.
 (Intersection Name)

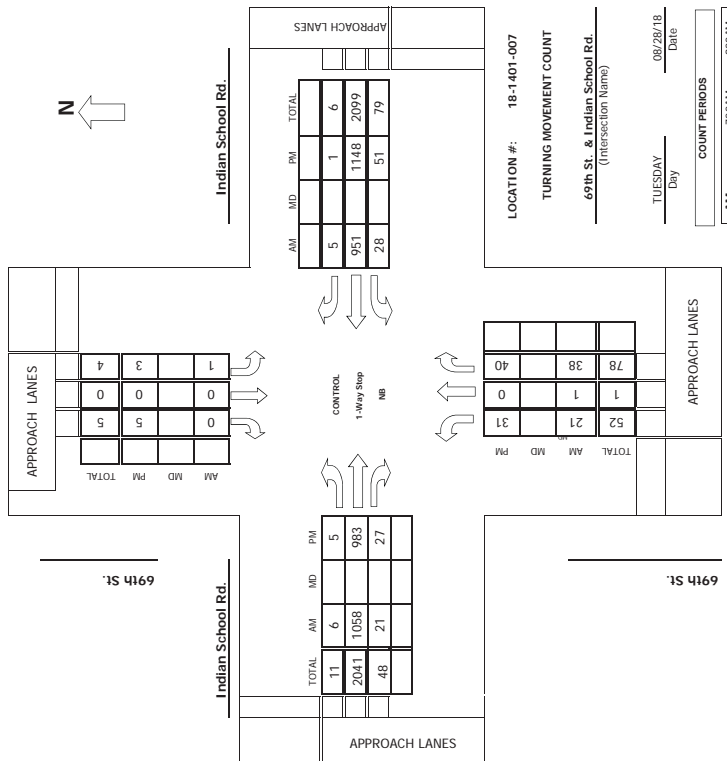
TUESDAY _____ Date: 08/28/18
 Day

COUNT PERIODS	
AM	7:00AM - 9:00AM
NOON	
PM	4:00PM - 6:00PM

AM PEAK HOUR _____ 7:15 AM
 NOON PEAK HOUR _____
 PM PEAK HOUR _____ 4:30 PM

Project #: 18-1401-007

TMC SUMMARY OF 69th St. & Indian School Rd.



LOCATION #: **18-1401-007**
 TURNING MOVEMENT COUNT
 69th St. & Indian School Rd.
 (Intersection Name)

TUESDAY _____ Date: 08/28/18

COUNT PERIODS		
AM	7:00AM	9:00AM
NOON		
PM	4:00PM	6:00PM

AM PEAK HOUR _____ 7:15 AM
 NOON PEAK HOUR _____
 PM PEAK HOUR _____ 4:45 PM

TOTAL	AM	MD	PM	TOTAL
11	6	5		5
2041	1058	983		983
48	21	27		27

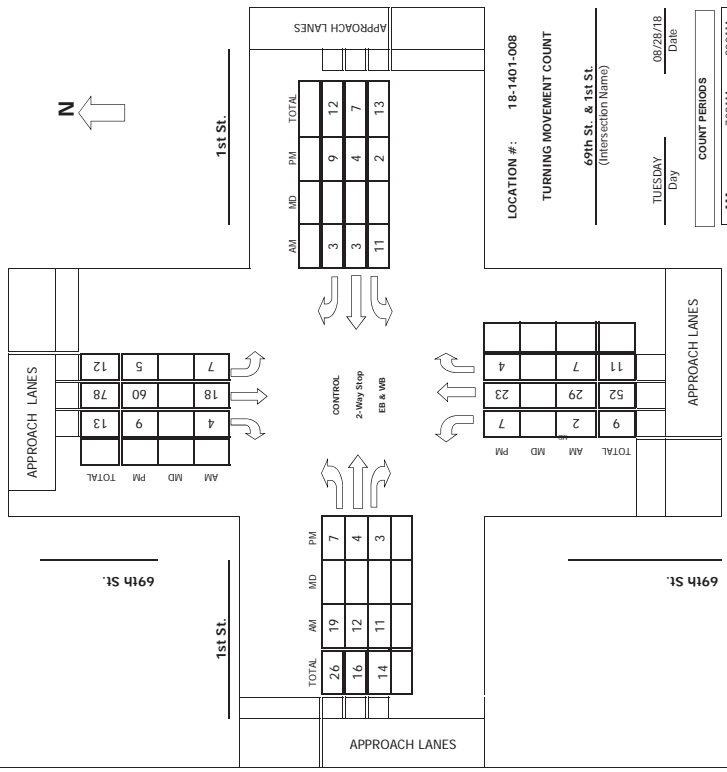
AM	MD	PM	TOTAL
5	1	6	6
951	1148	2009	2099
28	51	79	79

TOTAL	AM	MD	PM	TOTAL
52	21	31		31
78	38	40		40

APPROACH LANES

Project #: 18-1401-008

TMC SUMMARY OF 69th St. & 1st St.



LOCATION #: **18-1401-008**
 TURNING MOVEMENT COUNT
 69th St. & 1st St.
 (Intersection Name)

TUESDAY _____ Date: 08/28/18

COUNT PERIODS		
AM	7:00AM	9:00AM
NOON		
PM	4:00PM	6:00PM

AM PEAK HOUR _____ 7:15 AM
 NOON PEAK HOUR _____
 PM PEAK HOUR _____ 4:30 PM

TOTAL	AM	MD	PM	TOTAL
26	19	7		7
16	12	4		4
14	11	3		3

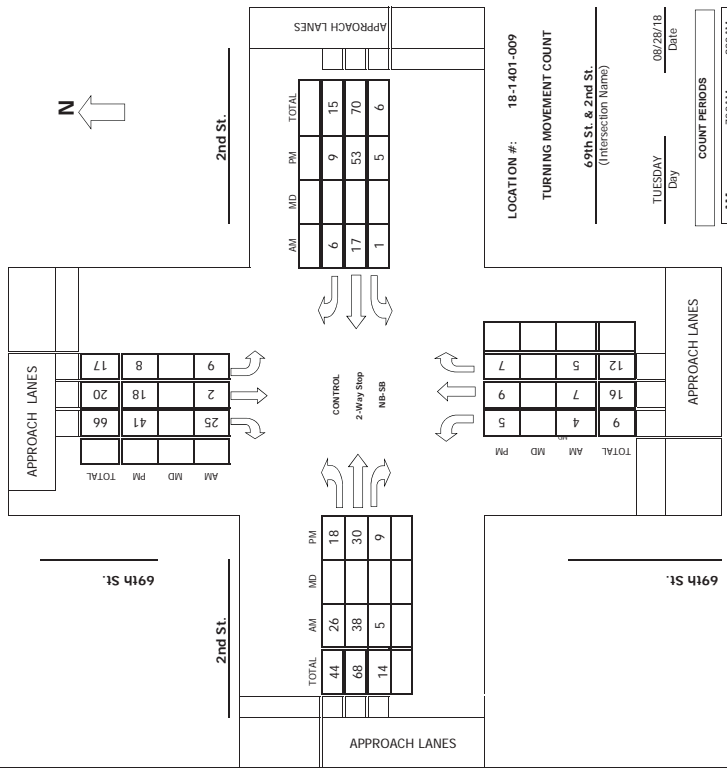
AM	MD	PM	TOTAL
3	9	12	12
3	4	7	7
11	2	13	13

TOTAL	AM	MD	PM	TOTAL
9	2	7		7
52	29	23		23
11	7	4		4

APPROACH LANES

Project #: 18-1401-009

TMC SUMMARY OF 69th St. & 2nd St.



LOCATION #: 18-1401-009
 TURNING MOVEMENT COUNT
69th St. & 2nd St.
 (Intersection Name)

TUESDAY _____ Date
 Day _____ Date
 08/28/18

COUNT PERIODS	
AM	7:00AM - 9:00AM
NOON	12:00PM - 2:00PM
PM	4:00PM - 6:00PM

AM PEAK HOUR _____ 7:30 AM
 NOON PEAK HOUR _____
 PM PEAK HOUR _____ 4:45 PM

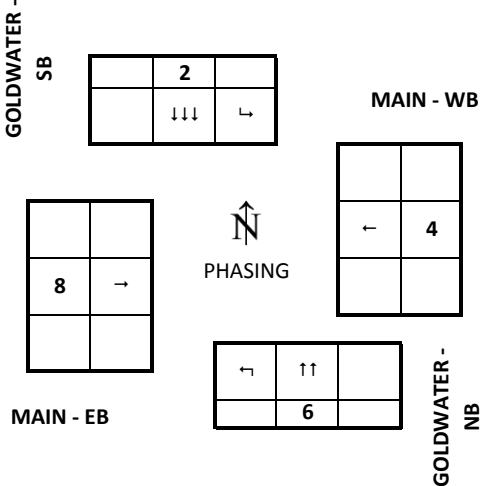
APPENDIX C

EXISTING SIGNAL TIMING SHEETS

GOLDWATER & MAIN		System # 195	
BASIC TIMING PLAN	Section #	I.P. Address MM1-5-1	Date Designed
		172.17.11.95	12/12/2016

TIMING PLAN - MM-2-1	Phase		2	4	6	8
	Movement		SBT	WBT	NBT	EBT
	NOTES					
	MIN GRN		10	7	10	7
	BK MGRN					
	CS MGRN					
	DLY GRN					
	WALK		7	8	7	8
	WALK2					
	WLK MAX					
	PED CLR/FDW		12	21	9	21
	PD CLR2					
	PC MAX					
	PED CO					
	VEH EXT			2		2
	VH EXT2					
	MAX 1		70	35	70	35
	MAX 2		90	50	90	50
	MAX 3					
	DYM MAX					
	DYM STP					
	YELLOW		4.0	3.3	4	3.3
	RED CLR		1.2	1.5	1.2	1.5
	RED MAX					
	RED RVT		2	2	2	2
	ACT B4					
	SEC/ACT					
	MAX INT					
TIME B4						
CARS WT						
STPTDUC						
TTREDUC						
MIN GAP						
RECALLS - MM-2-8	LOCK DET					
	VEH RECALL		X		X	
	PED RECALL					
	MAX RECALL					
	SOFT RECALL					
NO REST						
ADD INIT CAL						

NOTES



PHASING SEQUENCES	
TOD: MORNING	
R1	2 4
R2	6 8
Use Timing plan: B B	
TOD: MIDDAY	
R1	2 4
R2	6 8
Use Timing plan: B B	
TOD: EVENING	
R1	2 4
R2	6 8
Use Timing plan: B B	
TOD: WEEKEND	
R1	2 4
R2	6 8
Use Timing plan: B B	
FREE	
R1	2 4
R2	6 8
Use Timing plan: 254	

EXPIRES XX/XX/XXXX

APPENDIX D

EXISTING PEAK HOUR ANALYSIS

Existing AM
1: 69th St & Indian School Rd

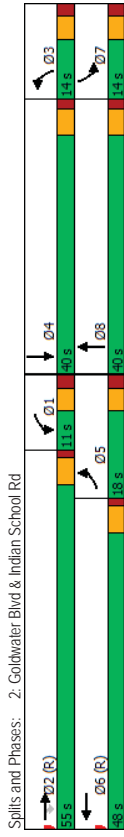
Winery Suites
HCM 6th TWSC

Intersection	1.6											
Initial Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Vol. veh/h	6	1111	22	29	999	5	22	1	40	1	0	0
Future Vol. veh/h	6	1111	22	29	999	5	22	1	40	1	0	0
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	50	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	0	0	0	0	0	0	0	0	0	0	0
Grade, %	0	0	0	0	0	0	0	0	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
Mgmt Flow	7	1208	24	32	1086	5	24	1	43	1	0	0
Major/Minor	Major1	Major2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2
Conflicting Flow All	1091	0	0	1232	0	0	1732	2389	616	1651	2399	546
Stage 1	-	-	-	-	-	-	-	1234	1234	-	1153	1153
Stage 2	-	-	-	-	-	-	-	498	1155	-	498	1246
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Slg 1	-	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54
Critical Hdwy Slg 2	-	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Plat Cap-1 Maneuver	354	-	-	302	-	-	93	33	372	104	33	413
Stage 1	-	-	-	-	-	-	-	137	247	-	156	270
Stage 2	-	-	-	-	-	-	-	478	269	-	478	244
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	354	-	-	302	-	-	84	29	372	81	29	413
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	84	29	-	81	29
Stage 1	-	-	-	-	-	-	-	134	242	-	153	241
Stage 2	-	-	-	-	-	-	-	427	240	-	412	239
Approach	EB	WB	NB	WB	NB	SB	SB	SB	SB	SB	SB	SB
HCM Control Delay, s	0.1	0.5	0.5	45	45	50	50	50	50	50	50	50
HCM LOS	E	E	E	F	F	F	F	F	F	F	F	F
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn1	SBLn1	SBLn1	SBLn1
Capacity (veh/h)	156	354	-	-	302	-	-	81	81	81	81	81
HCM Lane V/C Ratio	0.439	0.018	-	-	0.104	-	-	0.013	0.013	0.013	0.013	0.013
HCM Control Delay (s)	45	15.4	-	-	18.3	-	-	50	50	50	50	50
HCM Lane LOS	E	C	-	-	C	-	-	F	F	F	F	F
HCM 95th %ile Q(veh)	2	0.1	-	-	0.3	-	-	0	0	0	0	0

Existing AM
2: Goldwater Blvd & Indian School Rd

Winery Suites
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	168	969	68	61	802	64	374	30	254	30	254	254
Future Volume (vph)	168	969	68	61	802	64	374	30	254	30	254	254
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Prot	NA	NA
Protected Phases	5	2	2	1	6	3	8	7	4	7	4	4
Permitted Phases	5	2	2	1	6	3	8	7	4	7	4	4
Detector Phase	5	2	2	1	6	3	8	7	4	7	4	4
Switch Phase	5	2	2	1	6	3	8	7	4	7	4	4
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0	11.0
Total Split (s)	18.0	55.0	55.0	11.0	48.0	14.0	40.0	14.0	40.0	14.0	40.0	14.0
Total Split (%)	15.0%	45.8%	45.8%	9.2%	40.0%	11.7%	33.3%	11.7%	33.3%	11.7%	33.3%	11.7%
Yellow Time (s)	3.3	4.0	4.0	3.3	4.0	3.3	4.0	3.3	4.0	3.3	4.0	3.3
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.0	5.0	5.3	5.0	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None
Recall Mode	11.7	73.9	73.9	5.6	65.7	12.2	18.9	7.0	11.6	7.0	11.6	7.0
Act Effct Green (s)	0.10	0.62	0.62	0.05	0.55	0.10	0.16	0.06	0.10	0.16	0.06	0.10
Actuated v/c Ratio	0.58	0.46	0.08	0.44	0.45	0.41	0.74	0.34	0.65	0.34	0.65	0.65
v/c Ratio	59.2	15.2	0.8	65.0	18.9	55.8	55.5	63.0	48.2	63.0	48.2	48.2
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	59.2	15.2	0.8	65.0	18.9	55.8	55.5	63.0	48.2	63.0	48.2	48.2
Total Delay	E	B	A	E	B	E	E	E	E	E	E	D
LOS	E	B	A	E	B	E	E	E	E	E	E	D
Approach Delay	20.5	C	C	22.0	C	C	C	C	C	C	C	C
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary	Intersection LOS: C											
Cycle Length: 120	Intersection LOS: C											
Actuated Cycle Length: 120	Intersection LOS: C											
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	ICU Level of Service B											
Natural Cycle: 60	ICU Level of Service B											
Control Type: Actuated-Coordinated	ICU Level of Service B											
Maximum v/c Ratio: 0.74	ICU Level of Service B											
Intersection Signal Delay: 30.1	ICU Level of Service B											
Intersection Capacity Utilization 61.7%	ICU Level of Service B											
Analysis Period (min) 15	ICU Level of Service B											



Existing AM
2. Goldwater Blvd & Indian School Rd

HCM 6th Signalized Intersection Summary

Winery Suites

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT
Traffic Volume (veh/h)	168	969	68	61	802	46	64	374	24	30	254	83
Future Volume (veh/h)	168	969	68	61	802	46	64	374	24	30	254	83
Initial Q (qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	183	1053	74	66	872	50	70	407	26	33	276	91
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	96	1559	626	805	1289	74	117	484	31	47	384	118
Arrive On Green	0.30	0.42	0.42	0.25	0.36	0.36	0.07	0.14	0.14	0.03	0.09	0.09
Sat Flow, veh/h	3274	3741	1502	3274	3596	206	1688	3571	227	1688	4073	1253
Grp Sat Flow(s),veh/h	183	1053	74	66	454	468	70	213	220	33	241	125
Grp Sat Flow(s),veh/h	1637	1870	1502	1637	1870	1932	1688	1870	1928	1688	1792	1743
Q Serve(g.s), s	4.9	27.4	3.6	1.9	24.6	24.7	4.8	13.3	13.4	2.3	7.8	8.4
Cycle O Clear(g.c), s	4.9	27.4	3.6	1.9	24.6	24.7	4.8	13.3	13.4	2.3	7.8	8.4
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	96	1559	626	805	1289	74	117	484	31	47	384	118
V/C Ratio(X)	0.18	0.68	0.12	0.08	0.68	0.68	0.60	0.84	0.84	0.70	0.71	0.76
Avail Cap(c), veh/h	96	1559	626	805	1289	74	117	484	31	47	384	118
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	30.8	28.4	21.5	34.8	32.6	32.6	54.2	50.6	50.6	57.8	52.8	53.0
Incr Delay (d2), s/veh	0.0	2.4	0.4	0.0	5.4	5.3	4.8	2.8	2.9	6.9	1.1	2.7
Initial Q Delay(Q3),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 BackOf(50%),veh/h	2.0	12.6	1.4	0.8	12.1	12.4	2.2	6.4	6.7	1.1	3.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	30.8	21.9	34.8	38.0	37.9	59.1	53.4	53.5	64.8	53.8	55.8
LnGrp LOS	C	C	C	C	D	D	E	D	D	D	E	D
Approach Vol, veh/h	1310			988			503			399		
Approach Delay, s/veh	30.3			37.7			54.3			55.4		
Approach LOS	C			D			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R), s	34.8	55.0	13.6	16.6	41.8	48.0	8.6	21.6				
Change Period (Y+R), s	5.3	* 5	* 5.3	* 5.3	5.3	* 5	* 5.3	* 5.3				
Max Green Stalling (Gmax), s	5.7	* 50	* 8.7	* 35	12.7	* 43	* 8.7	* 35				
Max Q Clear Time (g_c+1t), s	3.9	29.4	6.8	10.4	6.9	26.7	4.3	15.4				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.2	2.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	39.5											
HCM 6th LOS	D											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Existing AM
3. Main St & Goldwater Blvd

Winery Suites

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT
Traffic Volume (vph)	4	3	3	3	3	3	3	3	3	3	3	3
Future Volume (vph)	4	3	3	3	3	3	3	3	3	3	3	3
Initial Q (qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	183	1053	74	66	872	50	70	407	26	33	276	91
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	96	1559	626	805	1289	74	117	484	31	47	384	118
Arrive On Green	0.30	0.42	0.42	0.25	0.36	0.36	0.07	0.14	0.14	0.03	0.09	0.09
Sat Flow, veh/h	3274	3741	1502	3274	3596	206	1688	3571	227	1688	4073	1253
Grp Sat Flow(s),veh/h	183	1053	74	66	454	468	70	213	220	33	241	125
Grp Sat Flow(s),veh/h	1637	1870	1502	1637	1870	1932	1688	1870	1928	1688	1792	1743
Q Serve(g.s), s	4.9	27.4	3.6	1.9	24.6	24.7	4.8	13.3	13.4	2.3	7.8	8.4
Cycle O Clear(g.c), s	4.9	27.4	3.6	1.9	24.6	24.7	4.8	13.3	13.4	2.3	7.8	8.4
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	96	1559	626	805	1289	74	117	484	31	47	384	118
V/C Ratio(X)	0.18	0.68	0.12	0.08	0.68	0.68	0.60	0.84	0.84	0.70	0.71	0.76
Avail Cap(c), veh/h	96	1559	626	805	1289	74	117	484	31	47	384	118
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	30.8	28.4	21.5	34.8	32.6	32.6	54.2	50.6	50.6	57.8	52.8	53.0
Incr Delay (d2), s/veh	0.0	2.4	0.4	0.0	5.4	5.3	4.8	2.8	2.9	6.9	1.1	2.7
Initial Q Delay(Q3),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 BackOf(50%),veh/h	2.0	12.6	1.4	0.8	12.1	12.4	2.2	6.4	6.7	1.1	3.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	30.8	21.9	34.8	38.0	37.9	59.1	53.4	53.5	64.8	53.8	55.8
LnGrp LOS	C	C	C	C	D	D	E	D	D	D	E	D
Approach Vol, veh/h	1310			988			503			399		
Approach Delay, s/veh	30.3			37.7			54.3			55.4		
Approach LOS	C			D			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R), s	34.8	55.0	13.6	16.6	41.8	48.0	8.6	21.6				
Change Period (Y+R), s	5.3	* 5	* 5.3	* 5.3	5.3	* 5	* 5.3	* 5.3				
Max Green Stalling (Gmax), s	5.7	* 50	* 8.7	* 35	12.7	* 43	* 8.7	* 35				
Max Q Clear Time (g_c+1t), s	3.9	29.4	6.8	10.4	6.9	26.7	4.3	15.4				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.2	2.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	59.5											
HCM 6th LOS	E											
Notes												

Spills and Phases: 3: Main St & Goldwater Blvd

Existing AM

Winery Suites

3. Main St & Goldwater Blvd

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	3	8	3	3	8	8	8	460	1	4	362
Traffic Volume (veh/h)	4	3	8	3	3	8	8	460	1	4	362	13
Future Volume (veh/h)	4	3	8	3	3	8	8	460	1	4	362	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	4	3	9	3	3	9	9	500	1	4	393	14
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	41	17	34	38	17	36	872	3422	7	797	4762	169
Arrive On Green	0.04	0.04	0.04	0.04	0.04	0.04	0.89	0.89	0.89	0.89	0.89	0.89
Sat Flow, veh/h	267	480	960	204	483	1029	927	3830	8	850	5329	189
Grp Volume(v), veh/h	16	0	0	15	0	0	9	244	257	4	263	144
Grp Sat Flow(s),veh/h	1707	0	0	1716	0	0	927	1870	1967	850	1792	1935
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.2	2.2	0.1	1.2	1.2
Cycle Q Clear(g_c), s	1.2	0.0	0.0	1.2	0.0	1.4	2.2	2.2	2.3	1.2	1.2	1.2
Prop In Lane	0.25	0.56	0.20	0.60	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	92	0	0	91	0	0	872	1671	1758	797	3202	1729
V/C Ratio(X)	0.17	0.00	0.00	0.16	0.00	0.00	0.01	0.15	0.15	0.01	0.08	0.08
Avail Cap(c), veh/h	570	0	0	573	0	0	872	1671	1758	797	3202	1729
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 Filler(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.82	0.82	0.82
Uniform Delay (d), s/veh	65.8	0.0	0.0	65.7	0.0	0.0	0.9	0.9	0.9	1.1	0.9	0.9
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.1
%ile BackOf(50%),veh/h	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 BackOf(90%),veh/h	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.4	0.5	0.0	0.2	0.2
Unsig. Movement Delay, s/veh	66.1	0.0	0.0	66.1	0.0	0.0	1.0	1.1	1.1	1.1	0.9	0.9
LnGrp Delay(d),s/veh	66.1	A	A	E	A	A	A	A	A	A	A	A
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Delay, s/veh	66.1	66.1	66.1	66.1	66.1	66.1	66.1	66.1	66.1	66.1	66.1	66.1
Approach LOS	E	E	E	E	E	E	E	E	E	E	E	E
Timer - Assigned Phs	2	4	4	6	8	8	8	8	8	8	8	8
Phs Duration (G+Y+Rc), s	130.3	9.7	9.7	130.3	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Change Period (Y+Rc), s	* 5.2	* 4.8	* 4.8	* 5.2	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8
Max Green Sailing (Gmax), s	* 85	* 45	* 45	* 85	* 45	* 45	* 45	* 45	* 45	* 45	* 45	* 45
Max Q Clear Time (g_c+1T), s	4.3	3.2	3.2	4.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Green Ext Time (p_c), s	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary												
HCM 6th Ctrl Delay	3.1											
HCM 6th LOS	A											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Existing AM

Winery Suites

4. 69th St & 1st St

HCM 6th TWSC

Intersection	4.9											
In/Delay, s/veh	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	4	3	8	3	3	8	8	8	460	1	4	362
Lane Configurations	4	3	8	3	3	8	8	8	460	1	4	362
Traffic Vol, veh/h	20	13	12	12	12	3	3	2	30	7	7	19
Future Vol, veh/h	20	13	12	12	12	3	3	2	30	7	7	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-
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	22	14	13	13	3	3	2	33	8	8	21	4
Major/Minor	Minor2	Minor1	Minor1	Major1	Major1	Major2	Major2	Major2	Major2	Major2	Major2	Major2
Conflicting Flow All	83	84	23	94	82	37	25	0	0	41	0	0
Stage 1	39	39	-	41	41	-	-	-	-	-	-	-
Stage 2	44	45	-	53	41	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3,518	4,018	3,318	3,518	4,018	3,318	2,218	-	-	2,218	-	-
Pd Cap-1 Maneuver	904	806	1054	889	808	1035	1589	-	-	1568	-	-
Stage 1	976	862	-	974	861	-	-	-	-	-	-	-
Stage 2	970	857	-	960	861	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	894	801	1054	862	803	1035	1589	-	-	1568	-	-
Mov Cap-2 Maneuver	894	801	-	862	803	-	-	-	-	-	-	-
Stage 1	975	858	-	973	860	-	-	-	-	-	-	-
Stage 2	962	856	-	928	857	-	-	-	-	-	-	-
Approach	EB	WB	NB	NB	NB	SB	SB	SB	SB	SB	SB	SB
HCM Control Delay, s	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
HCM LOS	A	A	A	A	A	A	A	A	A	A	A	A
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLmTWBLn1	SBL	SBT	SBR	SBL	SBT	SBR	SBL	SBR
Capacity (veh/h)	1589	-	-	900	876	1568	-	-	-	-	-	-
HCM Lane V/C Ratio	0.001	-	-	0.054	0.022	0.005	-	-	-	-	-	-
HCM Control Delay (s)	7.3	0	-	9.2	9.2	7.3	0	-	-	-	-	-
HCM Lane LOS	A	A	-	A	A	A	A	-	-	-	-	-
HCM 95th %ile Q(veh)	0	-	-	0.2	0.1	0	-	-	-	-	-	-

Existing AM
5: Goldwater Blvd & 1st St

Existing AM
6: Alley & 69th St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection													
Init Delay, s/veh													
0.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol. veh/h	7	1	8	1	0	4	2	473	1	3	366	9	
Future Vol. veh/h	7	1	8	1	0	4	2	473	1	3	366	9	
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	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	-	-	-	-	-	-	0	70	-	-	70	-	
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	1	9	1	0	4	2	514	1	3	398	10	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	670	928	204	685	933	258	408	0	0	515	0	0	
Stage 1	409	409	-	519	519	-	-	-	-	-	-	-	
Stage 2	261	519	-	166	414	-	-	-	-	-	-	-	
Critical Hdwy	6.99	6.54	7.14	6.99	6.54	6.94	5.34	-	-	4.14	-	-	
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-	
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-	
Pl Cap-1 Maneuver	369	266	683	360	265	741	748	-	-	1047	-	-	
Stage 1	521	594	-	492	531	-	-	-	-	-	-	-	
Stage 2	695	531	-	781	591	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	365	264	683	353	263	741	748	-	-	1047	-	-	
Mov Cap-2 Maneuver	365	264	-	353	263	-	-	-	-	-	-	-	
Stage 1	519	592	-	491	529	-	-	-	-	-	-	-	
Stage 2	689	529	-	767	589	-	-	-	-	-	-	-	
Approach	EB	WB	NB	SB									
HCM Control Delay, s	13.1	11	11	11	0	0	0.1						
HCM LOS	B	B	B	B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR				
Capacity (veh/h)	748	0	-	461	353	741	1047	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.038	0.003	0.006	0.003	-	-				
HCM Control Delay (s)	9.8	-	-	13.1	15.2	9.9	8.4	-	-				
HCM Lane LOS	A	-	-	B	C	A	A	-	-				
HCM 95th %ile Q(veh)	0	-	-	0.1	0	0	0	-	-				

Intersection													
Init Delay, s/veh													
0.6													
Movement	WBL	WBR	NBT	NBR	SBL	SBT							
Lane Configurations													
Traffic Vol. veh/h	0	2	39	1	4	40							
Future Vol. veh/h	0	2	39	1	4	40							
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	-	-	-	-	-							
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	0	2	42	1	4	43							
Major/Minor	Minor1	Major1	Major2										
Conflicting Flow All	94	43	0	0	43	0							
Stage 1	43	-	-	-	-	-							
Stage 2	51	-	-	-	-	-							
Critical Hdwy	6.42	6.22	-	-	4.12	-							
Critical Hdwy Stg 1	5.42	-	-	-	-	-							
Critical Hdwy Stg 2	5.42	-	-	-	-	-							
Follow-up Hdwy	3,518	3,318	-	-	2,218	-							
Pl Cap-1 Maneuver	906	1027	-	-	1566	-							
Stage 1	979	-	-	-	-	-							
Stage 2	971	-	-	-	-	-							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	903	1027	-	-	1566	-							
Mov Cap-2 Maneuver	903	-	-	-	-	-							
Stage 1	976	-	-	-	-	-							
Stage 2	971	-	-	-	-	-							
Approach	WB	NB	SB										
HCM Control Delay, s	8.5	0	0.7										
HCM LOS	A												
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT								
Capacity (veh/h)	-	-	1027	1566	-								
HCM Lane V/C Ratio	-	-	0.002	0.003	-								
HCM Control Delay (s)	-	-	8.5	7.3	0								
HCM Lane LOS	-	-	A	A	A								
HCM 95th %ile Q(veh)	-	-	0	0	-								

Existing AM
7: Alley & Goldwater Blvd

Existing AM
8: 69th St & 2nd St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection	0											
Int Delay, s/veh	0											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations				↑↑↑↑↑								
Traffic Vol, veh/h	0	2	0	475	374	0						
Future Vol, veh/h	0	2	0	475	374	0						
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	-	-	-	-						
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	0	2	0	516	407	0						
Major/Minor	Minor2	Major1	Major1	Major2								
Conflicting Flow All	-	204	-	0	-	0						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	7.14	-	-	-	-						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	3.92	-	-	-	-						
Pot Cap-1 Maneuver	0	683	0	-	-	-						
Stage 1	0	0	0	-	-	-						
Stage 2	0	0	0	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	683	-	-	-	-						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	10.3	0	0									
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR								
Capacity (veh/h)	-	683	-	-								
HCM Lane V/C Ratio	-	0.003	-	-								
HCM Control Delay (s)	-	10.3	-	-								
HCM Lane LOS	-	B	-	-								
HCM 95th %ile Q(veh)	-	0	-	-								

Intersection	4.6											
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations		↔		↔			↔		↔		↔	
Traffic Vol, veh/h	27	40	5	1	18	6	4	7	5	9	2	
Future Vol, veh/h	27	40	5	1	18	6	4	7	5	9	2	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	
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	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	29	43	5	1	20	7	4	8	5	10	2	
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	27	0	0	48	0	0	145	133	46	136	132	
Stage 1	-	-	-	-	-	-	104	104	-	26	26	
Stage 2	-	-	-	-	-	-	41	29	-	110	106	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	
Pot Cap-1 Maneuver	1587	-	-	1559	-	-	824	758	1023	835	759	
Stage 1	-	-	-	-	-	-	902	809	-	992	874	
Stage 2	-	-	-	-	-	-	974	871	-	895	807	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1587	-	-	1559	-	-	788	743	1023	812	744	
Mov Cap-2 Maneuver	-	-	-	-	-	-	788	743	-	812	744	
Stage 1	-	-	-	-	-	-	885	794	-	973	873	
Stage 2	-	-	-	-	-	-	945	870	-	865	792	
Approach	EB	WB	NB	SB								
HCM Control Delay, s	2.7	0.3	9.5	8.9								
HCM LOS	A	A	A	A								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	825	1587	-	-	1559	-	-	961				
HCM Lane V/C Ratio	0.021	0.018	-	-	0.001	-	-	0.042				
HCM Control Delay (s)	9.5	7.3	0	-	7.3	0	-	8.9				
HCM Lane LOS	A	A	A	A	A	A	A	A				
HCM 95th %ile Q(veh)	0.1	0.1	-	-	0	-	-	0.1				

Existing AM
9: Goldwater Blvd & 2nd St

Existing PM
1: 69th St & Indian School Rd

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection		1.7											
In/Delay, s/veh													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Vol, veh/h	17	17	17	4	8	15	8	444	4	25	353	13	
Future Vol, veh/h	17	17	17	4	8	15	8	444	4	25	353	13	
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	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	-	-	-	-	130	-	-	-	82	-	
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-	
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	18	18	18	4	9	16	9	483	4	27	384	14	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	709	950	199	720	955	244	398	0	0	487	0	0	
Stage 1	445	445	-	503	503	-	-	-	-	-	-	-	
Stage 2	264	505	-	217	452	-	-	-	-	-	-	-	
Critical Hdwy	699	654	7.14	699	654	6.94	5.34	-	-	4.14	-	-	
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-	
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-	
Pl Cap-1 Maneuver	348	259	688	342	257	757	756	-	-	1072	-	-	
Stage 1	492	573	-	503	540	-	-	-	-	-	-	-	
Stage 2	693	539	-	728	569	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	322	249	688	305	247	757	756	-	-	1072	-	-	
Mov Cap-2 Maneuver	322	249	-	305	247	-	-	-	-	-	-	-	
Stage 1	486	559	-	497	534	-	-	-	-	-	-	-	
Stage 2	659	533	-	668	555	-	-	-	-	-	-	-	
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	17.2	14.4	14.4	0.2	0.2	0.5	0.5						
HCM LOS	C	B	B	C	C	E	E						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	756	-	-	350	413	1072	-	-					
HCM Lane V/C Ratio	0.012	-	-	0.158	0.071	0.025	-	-					
HCM Control Delay (s)	9.8	-	-	17.2	14.4	8.4	-	-					
HCM Lane LOS	A	-	-	C	B	A	-	-					
HCM 95th %ile Q(veh)	0	-	-	0.6	0.2	0.1	-	-					

Intersection		2.7											
In/Delay, s/veh													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Vol, veh/h	5	1032	28	54	1205	1	33	0	42	3	0	5	
Future Vol, veh/h	5	1032	28	54	1205	1	33	0	42	3	0	5	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	50	-	-	75	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-	
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-	
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	5	1122	30	59	1310	1	36	0	46	3	0	5	
Major/Minor	Major1	Major2	Minor1	Minor2									
Conflicting Flow All	1311	0	0	1152	0	0	1789	2576	576	1888	2591	656	
Stage 1	-	-	-	-	-	-	1147	1147	-	1429	1429	-	
Stage 2	-	-	-	-	-	-	642	1429	-	459	1162	-	
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14	
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-	
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92	
Pl Cap-1 Maneuver	276	-	-	330	-	-	86	25	394	74	25	350	
Stage 1	-	-	-	-	-	-	157	272	-	99	199	-	
Stage 2	-	-	-	-	-	-	391	199	-	504	267	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	276	-	-	330	-	-	72	20	394	56	20	350	
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	20	-	56	20	-	
Stage 1	-	-	-	-	-	-	154	267	-	97	163	-	
Stage 2	-	-	-	-	-	-	316	163	-	438	262	-	
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	0.1	0.8	0.8	6.7	6.7	37.9	37.9						
HCM LOS	F	F	F	E	E	E	E						
Minor Lane/Major Mvmt	NBLn1	EBLn1	EBLn1	WBLn1	WBLn1	SBLn1	SBLn1						
Capacity (veh/h)	133	276	-	-	-	330	-	-	-	118	-	-	
HCM Lane V/C Ratio	0.613	0.02	-	-	-	0.178	-	-	-	0.074	-	-	
HCM Control Delay (s)	67.7	18.3	-	-	-	18.3	-	-	-	37.9	-	-	
HCM Lane LOS	F	C	-	-	-	C	-	-	-	E	-	-	
HCM 95th %ile Q(veh)	3.2	0.1	-	-	-	0.6	-	-	-	0.2	-	-	

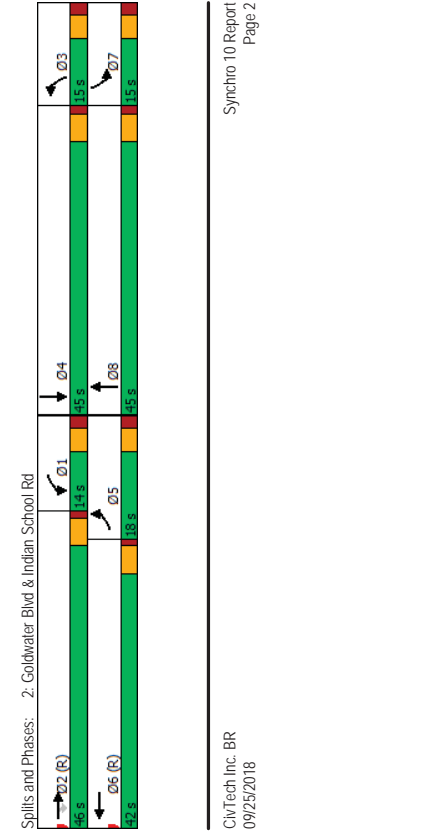
Existing PM
2: Goldwater Blvd & Indian School Rd

Existing PM
2: Goldwater Blvd & Indian School Rd

Winery Suites
Timings

HCM 6th Signalized Intersection Summary
Winery Suites

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	W	W	W	W	W	W	W	W	W
Lane Configurations	W	W	W	W	W	W	W	W	W
Traffic Volume (vph)	153	887	61	56	998	98	226	87	726
Future Volume (vph)	153	887	61	56	998	98	226	87	726
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	2	1	6	3	8	7	4
Permitted Phases	5	2	2	1	6	3	8	7	4
Detector Phase									
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0
Total Split (s)	18.0	46.0	46.0	14.0	42.0	15.0	45.0	15.0	45.0
Total Split (%)	15.0%	38.3%	38.3%	11.7%	35.0%	12.5%	37.5%	12.5%	37.5%
Yellow Time (s)	3.3	4.0	4.0	3.3	4.0	3.3	4.0	3.3	4.0
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	2.0	1.3	2.0	1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.0	5.0	5.3	5.0	5.3	5.3	5.3	5.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead/Lag Optimize?									
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	10.5	56.3	56.3	6.8	50.6	12.8	13.0	25.0	25.2
Actuated g/C Ratio	0.09	0.47	0.47	0.06	0.42	0.11	0.11	0.21	0.21
v/c Ratio	0.59	0.95	0.09	0.33	0.74	0.60	0.72	0.27	0.82
Control Delay	61.0	26.7	0.7	58.8	34.2	64.6	58.0	40.5	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	26.7	0.7	58.8	34.2	64.6	58.0	40.5	50.1
LOS	E	C	A	E	C	E	E	D	D
Approach Delay		30.0			35.5		59.7		49.2
Approach LOS		C			D		E		D
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green									
Natural Cycle: 70									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.82									
Intersection Signal Delay: 40.0									
Intersection Capacity Utilization 71.6%									
Analysis Period (min) 15									

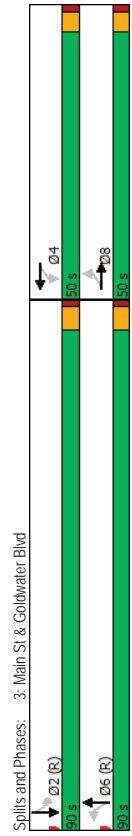


	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Movement	W	W	W	W	W	W	W	W	W
Lane Configurations	W	W	W	W	W	W	W	W	W
Traffic Volume (veh/h)	153	887	61	56	998	98	226	87	726
Future Volume (veh/h)	153	887	61	56	998	98	226	87	726
Initial Q (Ob.) veh	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	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	No	No	No	No	No
Adj Sat Flow (veh/h)	1772	1969	1772	1772	1969	1772	1969	1772	1969
Adj Flow Rate (veh/h)	166	964	66	61	1085	63	107	246	50
Peak Hour Factor	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
Cap. veh/h	785	1278	513	676	1108	64	130	312	62
Arrive On Green	0.24	0.34	0.34	0.21	0.31	0.31	0.08	0.10	0.18
Sat Flow (veh/h)	3274	3741	1502	3274	3593	209	1688	3106	621
Grp Volume(v), veh/h	166	964	66	61	565	583	107	146	150
Grp Sat Flow(s),veh/h	1637	1870	1502	1637	1870	1931	1688	1870	1857
Q Serve(g.s), s	4.9	27.4	3.6	1.8	35.9	35.9	7.5	9.2	9.5
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	0.33	1.00	0.42
Lane Grp Cap(c), veh/h	785	1278	513	676	577	595	130	188	187
V/C Ratio(X)	0.21	0.75	0.13	0.09	0.98	0.98	0.82	0.78	0.80
Avail Cap(c), veh/h	785	1278	513	676	577	595	136	619	614
HCM Platoon Ratio	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
Uniform Delay (d), veh/h	36.5	35.0	27.2	38.5	41.1	41.1	54.6	52.7	52.8
Incr Delay (d2), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q(50%))veh/h	2.0	13.1	1.4	0.7	21.5	22.2	4.2	4.4	4.6
Unsig. Movement Delay, s/veh									
LnGrp Delay(d) s/veh	36.6	39.2	27.7	38.5	73.8	73.3	83.3	55.3	47.5
LnGrp LOS	D	D	C	D	E	E	F	E	D
Approach Vol. veh/h		1196			1209		403		1014
Approach Delay, s/veh		38.2			71.8		62.9		47.6
Approach LOS		D			E		E		D
Timer - Assigned Phs	1	2	3	4	5	6	7	8	
Phs Duration (G+Y+Rc), s	30.1	46.0	14.5	29.4	34.1	42.0	26.6	17.4	
Change Period (Y+Rc), s	5.3	* 5	* 5.3	* 5.3	* 5	* 5.3	* 5	* 5.3	
Max Green Setting (Gmax), s	8.7	* 41	* 9.7	* 40	12.7	* 37	* 9.7	* 40	
Max Q Clear Time (g_c+I1), s	3.8	29.4	9.5	21.8	6.9	37.9	7.9	11.5	
Green Ext Time (g_e), s	0.0	2.4	0.0	2.3	0.1	0.0	0.0	0.6	
Intersection Summary									
HCM 6th Ctrl Delay	53.9								
HCM 6th LOS	D								
Notes									

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Existing PM
3. Main St & Goldwater Blvd

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
13	4	8	7	16	352	20	821
13	4	8	7	16	352	20	821
Perm	NA	Perm	NA	Perm	NA	Perm	NA
8	4	4	4	6	6	2	2
8	4	4	4	6	6	2	2
7.0	7.0	7.0	7.0	10.0	10.0	10.0	10.0
35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
50.0	50.0	50.0	50.0	90.0	90.0	90.0	90.0
35.7%	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%
3.3	3.3	3.3	3.3	4.0	4.0	4.0	4.0
1.5	1.5	1.5	1.5	1.2	1.2	1.2	1.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.8	4.8	4.8	4.8	5.2	5.2	5.2	5.2
None	None	None	None	C-Max	C-Max	C-Max	C-Max
7.4	7.4	129.4	129.4	129.4	129.4		
0.05	0.05	0.92	0.92	0.92	0.92		
0.27	0.31	0.03	0.12	0.03	0.19		
55.4	49.6	1.3	0.9	1.1	1.0		
55.4	49.6	1.3	0.9	1.1	1.0		
E	D	A	A	A	A		
55.4	49.6	49.6	1.0	1.0	1.0		
E	D	D	A	A	A		
Intersection Summary							
Cycle Length: 140							
Actuated Cycle Length: 140							
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBL, Start of Green							
Natural Cycle: 105							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.31							
Intersection Signal Delay: 3.1							
Intersection Capacity Utilization 31.7%							
Analysis Period (min) 15							



Existing PM
3. Main St & Goldwater Blvd

EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
13	4	7	8	7	13	16	352
13	4	7	8	7	13	16	352
0	0	0	0	0	0	0	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1772	1969	1772	1772	1969	1772	1772	1969
14	4	8	9	8	14	17	383
0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
2	2	2	2	2	2	2	2
70	22	23	48	27	35	547	3264
0.04	0.04	0.04	0.04	0.04	0.88	0.88	0.88
678	498	523	330	613	776	576	3681
26	0	0	31	0	17	194	203
1688	0	0	1719	0	0	576	1870
0.0	0.0	0.0	0.3	0.0	0.0	0.6	1.9
1.9	0.0	0.0	2.3	0.0	0.0	3.8	1.9
0.54	0.31	0.29	0.45	1.00	0.07	1.00	0.08
115	0	0	110	0	0	547	1663
0.23	0.00	0.00	0.28	0.00	0.03	0.12	0.12
557	0	0	575	0	0	547	1663
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.59
64.8	0.0	0.0	65.0	0.0	1.4	1.1	1.1
0.4	0.0	0.0	0.5	0.0	0.1	0.1	0.1
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.9	0.0	0.0	1.1	0.0	0.1	0.4	0.4
65.2	0.0	0.0	65.5	0.0	1.5	1.2	1.2
E	A	A	E	A	A	A	A
26			31		414		941
65.2			65.5		1.2		1.2
E			E		A		A
2			4		6		8
129.0			11.0		129.0		11.0
* 5.2			* 4.8		* 5.2		* 4.8
* 85			* 45		* 85		* 45
5.2			4.3		5.8		3.9
1.2			0.1		0.5		0.1
Intersection Summary							
HCM 6th Ctrl Delay							
HCM 6th LOS							
A							
Notes							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

Intersection	2.5											
Ini Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	<div style="display: flex; justify-content: space-around; font-size: small;"> ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ </div>											
Traffic Vol, veh/h	7	4	3	2	4	9	7	24	4	5	63	9
Future Vol, veh/h	7	4	3	2	4	9	7	24	4	5	63	9
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	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-
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	4	3	2	4	10	8	26	4	5	68	10

Intersection	0.4											
Ini Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	<div style="display: flex; justify-content: space-around; font-size: small;"> ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ </div>											
Traffic Vol, veh/h	7	0	7	2	0	1	13	365	1	4	816	12
Future Vol, veh/h	7	0	7	2	0	1	13	365	1	4	816	12
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	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-
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	8	2	0	1	14	397	1	4	887	13

Existing PM
6: Alley & 69th St

Existing PM
7: Alley & Goldwater Blvd

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection										
Int Delay, s/veh	0.1									
Movement	WBL	WBR	NBT	NBR	SBL	SBT	EBL	EBR	NBL	SBR
Lane Configurations	W		P			4				
Traffic Vol, veh/h	1	0	40	0	0	68	0	2	0	830
Future Vol, veh/h	1	0	40	0	0	68	0	2	0	830
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0	0	-	-	0
Grade, %	0	-	0	-	-	0	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	43	0	0	74	0	2	0	902
Major/Minor	Minor1	Minor1	Major1	Major1	Major2	Major2	Minor2	Minor2	Major1	Major2
Conflicting Flow All	117	43	0	0	43	0	-	451	-	0
Stage 1	43	-	-	-	-	-	-	-	-	-
Stage 2	74	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-	-	7.14	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-	-	3.92	-	-
Pl Cap-1 Maneuver	879	1027	-	-	1566	-	0	475	0	0
Stage 1	979	-	-	-	-	-	0	0	-	-
Stage 2	949	-	-	-	-	-	0	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	879	1027	-	-	1566	-	-	475	-	-
Mov Cap-2 Maneuver	879	-	-	-	-	-	-	-	-	-
Stage 1	979	-	-	-	-	-	-	-	-	-
Stage 2	949	-	-	-	-	-	-	-	-	-
Approach	WB	NB	SB	SB	SB	SB	EB	NB	SB	SB
HCM Control Delay, s	9.1	0	0	0	0	0	12.6	0	0	0
HCM LOS	A						B			
Minor Lane/Major Mvmt	NBT	NBR	WBL	NL	SBL	SBT	NBT	EBL	NL	SBT
Capacity (veh/h)	-	-	879	1566	-	-	-	475	-	-
HCM Lane V/C Ratio	-	-	0.001	-	-	-	-	0.005	-	-
HCM Control Delay (s)	-	-	9.1	0	-	-	-	12.6	-	-
HCM Lane LOS	-	-	A	A	-	-	-	B	-	-
HCM 95th %ile Q(veh)	-	-	0	0	-	-	-	0	-	-

Intersection										
Int Delay, s/veh	0									
Movement	EBL	EBR	NBL	NBR	SBT	SBR	EBL	EBR	NBL	SBR
Lane Configurations		P								
Traffic Vol, veh/h	0	2	0	392	830	0	0	2	0	830
Future Vol, veh/h	0	2	0	392	830	0	0	2	0	830
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-	0	-	-	-
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	0	426	902	0	0	2	0	902
Major/Minor	Minor2	Minor2	Major1	Major1	Major2	Major2	Minor2	Minor2	Major1	Major2
Conflicting Flow All	-	-	-	-	-	-	-	451	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	7.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	3.92	-	-
Pl Cap-1 Maneuver	0	475	0	-	-	-	0	475	0	-
Stage 1	0	-	0	-	-	-	0	-	0	-
Stage 2	0	-	0	-	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	475	-	-	-	-	-	475	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-
Approach	EB	NB	SB	SB	SB	SB	EB	NB	SB	SB
HCM Control Delay, s	12.6	0	0	0	0	0	12.6	0	0	0
HCM LOS	B						B			
Minor Lane/Major Mvmt	NBT	EBL	NL	SBT	SBT	SBT	NBT	EBL	NL	SBT
Capacity (veh/h)	-	475	-	-	-	-	-	475	-	-
HCM Lane V/C Ratio	-	0.005	-	-	-	-	-	0.005	-	-
HCM Control Delay (s)	-	12.6	-	-	-	-	-	12.6	-	-
HCM Lane LOS	-	B	-	-	-	-	-	B	-	-
HCM 95th %ile Q(veh)	-	0	-	-	-	-	-	0	-	-

Existing PM
8: 69th St & 2nd St

Existing PM
9: Goldwater Blvd & 2nd St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection													
Ini Delay, s/veh													
4.7													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	+	+	+	+	+	+	+	+	+	+	+	+	+
Traffic Vol, veh/h	19	32	9	5	56	9	5	9	7	8	19	43	
Future Vol, veh/h	19	32	9	5	56	9	5	9	7	8	19	43	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	None
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	21	35	10	5	61	10	5	10	8	9	21	47	

Intersection													
Ini Delay, s/veh													
2.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	+	+	+	+	+	+	+	+	+	+	+	+	+
Traffic Vol, veh/h	5	18	25	11	19	45	23	342	17	28	776	25	
Future Vol, veh/h	5	18	25	11	19	45	23	342	17	28	776	25	
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
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	82
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	5	20	27	12	21	49	25	372	18	30	843	27	

Major/Minor	Major1	Minor2	Minor1	Minor2
Conflicting Flow All	71	0	45	0
Stage 1	-	-	82	82
Stage 2	-	-	110	81
Critical Hdwy	4.12	-	4.12	-
Critical Hdwy Stg 1	-	-	6.12	5.52
Critical Hdwy Stg 2	-	-	6.12	5.52
Follow-up Hdwy	2.218	-	2.218	-
Pl Cap-1 Maneuver	1529	-	1563	-
Stage 1	-	-	926	827
Stage 2	-	-	895	828
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1529	-	1563	-
Mov Cap-2 Maneuver	-	-	707	717
Stage 1	-	-	913	815
Stage 2	-	-	829	826

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1164	1357	435	838
Stage 1	917	917	431	431
Stage 2	247	440	407	930
Critical Hdwy	6.99	6.54	7.14	6.99
Critical Hdwy Stg 1	7.34	5.54	6.54	5.54
Critical Hdwy Stg 2	6.54	5.54	6.74	5.54
Follow-up Hdwy	3.67	4.02	3.92	3.67
Pl Cap-1 Maneuver	175	148	487	287
Stage 1	233	349	554	581
Stage 2	708	576	559	344
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	137	136	487	227
Mov Cap-2 Maneuver	137	136	227	135
Stage 1	220	340	524	549
Stage 2	605	544	485	335

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	0.5	9.7	9.5
HCM LOS	A	A	A	A

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.6	20.9	0.8	0.3
HCM LOS	D	C	C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBR	WBL	WBT	WBR	NBLn1	SBL	SBT	SBR
Capacity (veh/h)	795	1529	-	1563	-	-	876	-	-	-
HCM Lane V/C Ratio	0.029	0.014	-	0.003	-	-	0.087	-	-	-
HCM Control Delay (s)	9.7	7.4	0	7.3	0	-	9.5	-	-	-
HCM Lane LOS	A	A	A	A	A	A	A	A	A	A
HCM 95th %ile Q(veh)	0.1	0	-	0	-	-	0.3	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	452	-	218	307	1165	-	-	-
HCM Lane V/C Ratio	0.055	-	0.239	0.266	0.026	-	-	-
HCM Control Delay (s)	13.4	-	26.6	20.9	8.2	-	-	-
HCM Lane LOS	B	-	D	C	A	-	-	-
HCM 95th %ile Q(veh)	0.2	-	0.9	1	0.1	-	-	-

APPENDIX E

CRASH DATA

REPORT #	YYMMDD	HHMM	NS ST	NS SF	EW ST	EW SF	DIR FROM	DIST FROM	AUX REF ST	DIR FROM AUX	DOB 1	DOB 2	INJ SEV 1	INJ SEV 2	PHYSICAL COND 1
17-15863	170717	1005	GOLDWATER	BL	1	ST	AT				2/7/1943	10/19/1965	4	1	0
17-22604	171012	1000	GOLDWATER	BL	1	ST	AT				3/17/1953		99	1	99
15-08797	150416	1254	GOLDWATER	BL	1	ST	W	126	INDIAN SCHOOL	S	4/16/1957	7/28/1981	1	1	0
16-02919	160205	2043	GOLDWATER	BL	1	ST	AT				6/29/1983		99	1	99
16-23376	161020	0901	GOLDWATER	BL	1	ST	W	101			2/2/1990	8/6/1984	1	1	0

KEY

INJURY SEVERITY:

1=NO INJURY, 2=POSSIBLE INJURY, 3=NON-IMPACTING INJURY, 4=IMPACTING INJURY, 5=FATAL INJURY, 99=NOT REPORTED / UNKNOWN

PHYSICAL CONDITION:

0=NO APPARENT INFLUENCE, 1=ILLNESS, 2=PHYSICAL IMPAIRMENT, 3=FELL ASLEEP / FATIGUED 4=ALCOHOL, 5=DRUGS, 6=MEDICATIONS, A=NO TEST GIVEN, B=TEST GIVEN, C=TEST REFUSED, D=TESTING UNKNOWN, 97=OTHER, 99=UNKNOWN

VIOLATION:

1=NO IMPROPER ACTION, 2=SPEED TOO FAST FOR CONDITIONS, 3=EXCEEDED LAWFUL SPEED 4=FOLLOWED TOO CLOSELY, 5=LANE STOP SIGN, 6=DISREGARDED TRAFFIC SIGNAL 7=MADE IMPROPER TURN, 8=DROVE/RODE IN OPPOSITE TRAFFIC LANE, 9=KNOWINGLY OPERATED WITH FAULTY / MISSING EQUIPMENT, 10=REQUIRED MOTORCYCLE SAFETY EQUIPMENT NOT USED, 11=PASSED IN NO PASSING ZONE, 12=UNSAFE LANE CHANGE, 13=FAILED TO KEEP IN PROPER LANE, 14=DISREGARDED PAVEMENT MARKINGS, 15=OTHER UNSAFE PASSING, 16=INATTENTION/DISTRACTION, 17=DID NOT USE CROSSWALK, 18=WALKED ON WRONG SIDE OF ROAD, 19=ELECTRONIC COMMUNICATIONS DEVICE, 20=FAILED TO YIELD RIGHT OF WAY (added August 2014), 97=OTHER, 99=UNKNOWN

ACTION:

1=GOING STRAIGHT AHEAD, 2=SLOWING IN TRAFFICWAY, 3=STOPPED IN TRAFFICWAY, 4=MAKING LEFT TURN, 5=MAKING RIGHT TURN, 6=MAKING U-TURN, 7=OVERTAKING/PASSING, 8=CHANGING LANES, 9=NE GOTTING A CURVE, 10=BACKING, 11=AVOIDING VEHICLE/ANIMAL, 12=ENTERING PARKING POSITION, 13=LEAVING PARKING POSITION, 14=PROPERLY PARKED, 15=IMPROPERLY PARKED, 16=DRIVERLESS MOVING VEHICLE, 17=CROSSING ROAD, 18=WALKING WITH TRAFFIC, 19=WALKING AGAINST TRAFFIC, 20=STANDING, 21=LYING, 22=GETTING ON OR OFF VEHICLE, 23=WORKING ON/PUSHING VEHICLE, 24=WORKING ON ROAD, 97=OTHER, 99=UNKNOWN

MANNER OF COLLISION:

1=SINGLE VEHICLE, 2=ANGLE (front to side, other than left turn), 3=LEFT TURN, 4=REAR END (front to rear), 5=HEAD-ON (front to front, other than left turn), 6=SIDE SWIPE (same direction), 7=SIDE SWIPE (opposite direction), 8=REAR-TO-SIDE, 9=REAR TO REAR, 97=OTHER, 99=UNKNOWN

PHYSICAL COND 2	VIOL 1	VIOL 2	ACTION 1	ACTION 2	TRAVEL DIR 1	TRAVEL DIR 2	MANNER	COMMENTS	DATE ENTERED
0	13	1	17	1	NB	EB	2	CAR/BICYCLE	8/1/2017
0	7	1	5	1	SB	SB	6	HIT AND RUN	10/24/2017
0		1	13	1	EB	EB	2		42122
0	97	1	10	5	WB	WB	7	HIT AND RUN	42422
0	97	97	10	10	SB	NB	2		42676

KAY
KAY
KAY

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APPENDIX F

TRIP GENERATION

Winery Suites - Existing

Proposed

Trip Generation

September 2018

Appendix D

Methodology Overview

This form facilitates trip generation estimation using data within the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition and methodology described within ITE's *Trip Generation Handbook*, 3rd Edition. These references will be referred to as *Manual and Handbook*, respectively. The *Manual* contains data collected by various transportation professionals for a wide range of different land uses, with each land use category represented by a land use code (LUC). Average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized LUC in various settings and time periods. The *Handbook* indicates an established methodology for how to use data contained within the *Manual* when to use the fitted curve instead of the average rate and when to adjustments to the volume of trips are appropriate and how to do so. The methodology steps are represented visually in boxes in Figure 3.1. This worksheet applies calculations for each box if applicable.

Box 1 - Define Study Site Land Use Type & Site Characteristics

The analyst is to pick an appropriate LUC(s) based on the subject's zoning/land use(s)/future land use(s). The size of the land use(s) is described in reference to an independent variable(s) specific to (each) the land use (example: 1,000 square feet of building area is relatively common).

Land Use Types and Size

Proposed Use	Amount Units	ITE LUC	ITE Land Use Name
General Office Building	1.463 1,000 square feet	710	General Office Building
Quality Restaurant	1.533 1,000 square feet	931	Quality Restaurant

Box 2 - Define Site Context

Context assessment is to "simply determine whether the study sites is in a multimodal setting" and "could have persons accessing the site by walking, bicycling, or riding transit."

This assessment is used in Box 4. The *Manual* separates data into 4 setting categories - **Rural, General Urban/Suburban, Dense Multi-Urban Use** and **Center City Core**.

This worksheet uses the following abbreviations, respectively: **R, G, D,** and **C**. The *Manual* does not have data for all settings of all land use codes. See the table on the next page titled

"Site Context and Time Periods" - if this table is not provided, the "General Urban/Suburban" setting is used by default.

Box 3 - Define Analysis Objectives Types of Trips & Time Period

This tool will focus on vehicular trips for a 24-hour period on a typical weekday as well as its AM peak hour and PM peak hour. Other time period(s) may be of interest.



Winery Suites - Existing

Proposed

Trip Generation

September 2018

Appendix D

Box 4 - Is Study Site Multimodal?

Per the Handbook, "if the objective is to establish a local trip generation rate for a particular land use or study site, the simplified approach (Box 9) may be acceptable but the *Box 5 through 8* approach is required if the study site is located in an infill setting, contains a mix of uses on-site, or is near significant transit service."

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Determine Equation)

Vehicle trips are estimated using rates/equations applicable to each LUC. When the appropriate graph has a fitted curve, the *Handbook* has a process (Figure 4.2) to determine when to use it versus using the weighted average rate or collecting local data. The methodology requires for engineering judgement in some circumstances and permits engineering judgement to override or make adjustments when appropriate to best project (example 1: study site is expected to operate differently than data in the applicable land use code - such as restaurant that is closed in the morning or in the evening; example 2: LUC data in a localized area fails to be represented by the typically selected fitted curve/weighted average rate - a small shop/LUC 820, AM peak hour is skewed by the high y-intercept).

Weighted Average Rate ("WA"), Fitted Curve ("FC"), or Custom ("C") Used in Analysis?

Proposed Use	ADT Equation [Equated Rate]	AM Equation [Equated Rate]	PM Equation [Equated Rate]	(not used)
General Office Building	WA: T=X*9.74 [9.74]	WA: T=X*1.16 [1.16]	FC: LN(T)=0.95*LN(X)+0.36 [1.41]	
Quality Restaurant	WA: T=X*83.84 [83.84]	WA: T=X*0.73 [0.73]	WA: T=X*7.8 [7.80]	

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Apply Equations and in/out Distributions)

Baseline Vehicular Trips

Proposed Use	ADT				AM				PM				(not used)
	% In	In	Out	Total	% In	In	Out	Total	% In	In	Out	Total	
General Office Building	50%	7	7	14	86%	2	0	2	16%	0	2	2	
Quality Restaurant	50%	64	64	128	0%	0	1	1	67%	8	4	12	
Totals		71	71	142		2	1	3		8	6	14	



Methodology Overview

This form facilitates trip generation estimation using data within the Institute of Transportation Engineer's (ITE) *Trip Generation Manual*, 10th Edition and methodology described within ITE's *Trip Generation Handbook*, 3rd Edition. These references will be referred to as *Manual and Handbook*, respectively. The *Manual* contains data collected by various transportation professionals for a wide range of different land uses, with each land use category represented by a land use code (LUC). Average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized LUC in various settings and time periods. The *Handbook* indicates an established methodology for how to use data contained within the Manual when to use the fitted curve instead of the average rate and when to adjustments to the volume of trips are appropriate and how to do so. The methodology steps are represented visually in boxes in Figure 3.1. This worksheet applies calculations for each box if applicable.

Box 1 - Define Study Site Land Use Type & Site Characteristics

The analyst is to pick an appropriate LUC(s) based on the subject's zoning/land use(s)/future land use(s). The size of the land use(s) is described in reference to an independent variable(s) specific to (each) the land use (example: 1,000 square feet of building area is relatively common).

Land Use Types and Size

Proposed Use	Amount Units	ITE LUC	ITE Land Use Name
Apartments	26 Dwelling Units	221	Multifamily Housing (Mid-Rise)
Shopping Center	1,482 1,000 square feet	820	Shopping Center
High Turnover (Sit Down) Restaurant	5,454 1,000 square feet	932	High Turnover(Sit Down) Restaurant

Box 2 - Define Site Context

Context assessment is to "simply determine whether the study sites is in a multimodal setting" and "could have persons accessing the site by walking, bicycling, or riding transit." This assessment is used in Box 4. The *Manual* separates data into 4 setting categories - **Rural, General Urban/Suburban, Dense Multi-Urban Use** and **Center City Core**. This worksheet uses the following abbreviations, respectively: **R, G, D,** and **C**. The *Manual* does not have data for all settings of all land use codes. See the table on the next page titled "Site Context and Time Periods" - if this table is not provided, the "General Urban/Suburban" setting is used by default.

Box 3 - Define Analysis Objectives Types of Trips & Time Period

This tool will focus on vehicular trips for a 24-hour period on a typical weekday as well as its AM peak hour and PM peak hour. Other time period(s) may be of interest.



Site Context and Time Periods - Actual Setting, Setting Data Available for LUC, Setting Used in Analyses

Proposed Use	Setting	ADT		AM		PM		(not used)	
		Available	Used	Available	Used	Available	Used		
Apartments	General Urban/Suburban G	G	D	G	D	G	D		
Shopping Center	General Urban/Suburban G	G	G	G	D	G	D		
High Turnover (Sit Down) Restaurant	General Urban/Suburban G	G	G	G	G	G	G		

If the desired setting is not available within the *Manual*, adjustments may be made in Boxes 6 through 8.

Box 4 - Is Study Site Multimodal?

Per the Handbook, "if the objective is to establish a local trip generation rate for a particular land use or study site, the simplified approach (Box 9) may be acceptable but the *Box 5 through 8* approach is required if the study site is located in an infill setting, contains a mix of uses on-site, or is near significant transit service."

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Determine Equation)

Vehicle trips are estimated using rates/equations applicable to each LUC. When the appropriate graph has a fitted curve, the *Handbook* has a process (Figure 4.2) to determine when to use it versus using the weighted average rate or collecting local data. The methodology requires for engineering judgement in some circumstances and permits engineering judgement to override or make adjustments when appropriate to best project (example 1: study site is expected to operate differently than data in the applicable land use code - such as restaurant that is closed in the morning or in the evening; example 2: LUC data in a localized area fails to be represented by the typically selected fitted curve/weighted average rate - a small shop/LUC 820, AM peak hour is skewed by the high y-intercept).

Weighted Average Rate ("WA"), Fitted Curve ("FC"), or Custom ("C") Used in Analysis?

Proposed Use	ADT Equation [Equated Rate]	AM Equation [Equated Rate]	PM Equation [Equated Rate]	(not used)
Apartments	FC: T=5.45*X-1.75 [5.38]	FC: LN(T)=0.98*LN(X)-0.98 [0.35]	FC: LN(T)=0.96*LN(X)-0.63 [0.47]	
Shopping Center	WA: T=X*37.75 [37.75]	WA: T=X*0.94 [0.94]	WA: T=X*3.81 [3.81]	
High Turnover (Sit Down) Restaurant	WA: T=X*112.18 [112.18]	WA: T=X*9.94 [9.94]	WA: T=X*9.77 [9.77]	



Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Apply Equations and in/out Distributions)

Baseline Vehicular Trips

Proposed Use	ADT				AM				PM				(not used)
	% In	In	Out	Total	% In	In	Out	Total	% In	In	Out	Total	
Apartments	50%	70	70	140	26%	2	7	9	61%	7	5	12	
Shopping Center	50%	28	28	56	62%	1	0	1	48%	3	3	6	
High Turnover (Sit Down) Restaurant	50%	306	306	612	55%	30	24	54	62%	33	20	53	
Totals		404	404	808		33	31	64		43	28	71	

Box 6 - Convert Baseline Vehicle Trips to Person Trips

If no vehicle trip reductions are to be applied, this portion may be ignored. The *Handbook* states "There are not enough samples to derive precise percentages by mode...however, for all but on ...the motor vehicle percentage of total person trips is at least 96 percent." and "[vehicle occupancy for] many of the most commonly analyzed land use codes are not [available]." This form assumes that the total baseline vehicle trips for all land use codes accounts for 90% of total person trips. Unless otherwise specified, this form later reverses the conversion in Box 8.



Box 7 - Estimate Internal Person Trips, External Walk/Bike Trips, Transit Person Trips, External Person Trips (Internal Capture)

Internal capture occurs for mixed-use developments when a portion of the trips generated by the site are expected to have the both the origin and destination within the site. Internal capture is not dependent on mode choice. The reduction is applied as a percent of vehicular trips removed from the baseline trips.

Adjustments for Internal Trips

Proposed Use	ADT				AM				PM				(not used)
	Percent	In	Out	Total	Percent	In	Out	Total	Percent	In	Out	Total	
Apartments	9%	7	7	14	3%	0	0	0	15%	2	0	2	
Shopping Center	9%	3	3	6	3%	0	0	0	15%	0	2	2	
High Turnover (Sit Down) Restaurant	9%	31	31	62	3%	0	2	2	15%	6	2	8	
Totals		41	41	82		0	2	2		8	4	12	

Box 8 - Convert Person Trips to Final Vehicle Trips

The vehicle occupancy and baseline alternate mode are now factored out from the external trips in vehicles, after any adjustments for internal capture and additional alternate mode from Box 7. In Box 6, vehicle trips were considered to account for 90% of total person trips. Alternate mode trips in addition to the baseline, if any, are accounted for in Box 7. It is estimated that vehicle trips should be reduced by an additional 0% due to carpooling. The final external trips in vehicles is multiplied by 90%-0%= 90% to produce the external vehicle trips.

External Vehicular Trips

Proposed Use	ADT			AM			PM			(not used)
	In	Out	Total	In	Out	Total	In	Out	Total	
Apartments	64	64	128	2	7	9	5	5	10	
Shopping Center	25	25	50	1	0	1	3	2	5	
High Turnover (Sit Down) Restaurant	278	278	556	30	22	52	28	18	46	
Totals	367	367	734	33	29	62	36	25	61	



NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	Winery Suites	Organization:	CivTech Inc	Performed By:	Brittlee Rees
Project Location:	Goldwater Blvd & 1st St	Date:	9/19/2018	Checked By:	
Scenario Description:		Date:		Checked By:	
Analysis Year:	2020	Date:		Checked By:	
Analysis Period:	AM Street Peak Hour	Date:		Checked By:	

Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ^a		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0	0	0
Retail				1	1	0
Restaurant				54	30	24
Cinema/Entertainment				0	0	0
Residential				9	2	7
Hotel				0	0	0
All Other Land Uses ²				64	33	31

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office	0	0	0	0	0	0
Retail	0	0	0	0	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	1	0	0	0
Hotel	0	0	0	0	0	0

	Table 5-A: Computations Summary			Table 6-A: Internal Trip Capture Percentages by Land Use		
	Total	Entering	Exiting	Land Use	Entering Trips	Exiting Trips
All Person-Trips	64	33	31	Office	N/A	N/A
Internal Capture Percentage	3%	3%	3%	Retail	0%	N/A
External Vehicle-Trips ³	62	32	30	Restaurant	3%	0%
External Transit-Trips ⁴	0	0	0	Cinema/Entertainment	N/A	N/A
External Non-Motorized Trips ⁴	0	0	0	Residential	0%	14%
				Hotel	N/A	N/A

Land Use Codes (LUCs) from Trip Generation Manual, published by the Institute of Transportation Engineers.

Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

¹Enter trips assuming no transit or non-motorized trips (as assumed in ITE Trip Generation Manual).

²Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 5-A (G and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁴Person-Trips

⁵Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	Winery Suites	Organization:	CivTech Inc	Performed By:	Brittlee Rees
Project Location:	Goldwater Blvd & 1st St	Date:	9/19/2018	Checked By:	
Scenario Description:		Date:		Checked By:	
Analysis Year:	2020	Date:		Checked By:	
Analysis Period:	PM Street Peak Hour	Date:		Checked By:	

Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ^a		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0	0	0
Retail				6	3	3
Restaurant				53	33	20
Cinema/Entertainment				0	0	0
Residential				12	7	5
Hotel				0	0	0
All Other Land Uses ²				71	43	28

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office	0	0	0	0	0	0
Retail	0	0	1	0	1	0
Restaurant	0	2	0	0	1	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	1	0	0	0
Hotel	0	0	0	0	0	0

	Table 5-P: Computations Summary			Table 6-P: Internal Trip Capture Percentages by Land Use		
	Total	Entering	Exiting	Land Use	Entering Trips	Exiting Trips
All Person-Trips	71	43	28	Office	N/A	N/A
Internal Capture Percentage	17%	14%	21%	Retail	67%	67%
External Vehicle-Trips ³	59	37	22	Restaurant	6%	15%
External Transit-Trips ⁴	0	0	0	Cinema/Entertainment	N/A	N/A
External Non-Motorized Trips ⁴	0	0	0	Residential	29%	20%
				Hotel	N/A	N/A

Land Use Codes (LUCs) from Trip Generation Manual, published by the Institute of Transportation Engineers.

Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

¹Enter trips assuming no transit or non-motorized trips (as assumed in ITE Trip Generation Manual).

²Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-P, 5-P (G and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁴Person-Trips

⁵Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

APPENDIX G

TRIP DISTRIBUTION

APPENDIX H

BACKGROUND TRAFFIC CALCULATIONS

Location of counts: Goldwater Blvd btw Camelback and Indian School

Source(s): <https://www.scottsdaleaz.gov/transportation/studies-reports/traffic-volume>

	Year	Volume	Avg Growth Rate to 2014	Expansion Factor to 2014
Beginning	2014	17,800		
End	2016	18,400	1.7%	0.967

Growth Rate Used 1.7%
 Per-Year Multiplier 1.017

Year	Expansion Factor(s)
2018	1.000
2019	1.017
2020	1.034 <- Expansion factor to opening
2021	1.052
2022	1.070
2023	1.088
2024	1.106
2025	1.125
2026	1.144
2027	1.164
2028	1.184
2029	1.204
2030	1.224
2031	1.245
2032	1.266
2033	1.288
2034	1.310
2035	1.332
2036	1.354
2037	1.378
2038	1.401

APPENDIX I

2020 PEAK HOUR TRAFFIC ANALYSIS

Background AM
1: 69th St & Indian School Rd

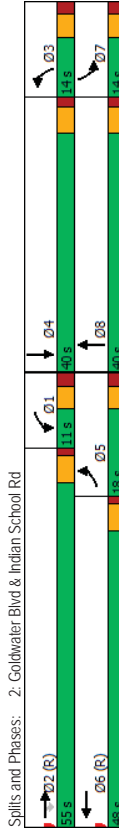
Winery Suites
HCM 6th TWSC

Intersection	1.8											
Initial Delay, s/veh												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol. veh/h	7	1149	23	30	1033	5	23	1	41	1	0	0
Future Vol. veh/h	7	1149	23	30	1033	5	23	1	41	1	0	0
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	50	-	-	75	-	-	-	-	-	-	-	-
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
Mgmt Flow	8	1249	25	33	1123	5	25	1	45	1	0	0
Major/Minor	Major1	Major2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2
Conflicting Flow All	1128	0	0	1274	0	0	1793	2472	637	1708	2482	564
Stage 1	-	-	-	-	-	-	-	1278	1278	-	1192	1192
Stage 2	-	-	-	-	-	-	-	515	1194	-	516	1290
Critical Hwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hwy Slg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hwy Slg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pl Cap-1 Maneuver	339	-	-	288	-	-	85	30	360	96	29	402
Stage 1	-	-	-	-	-	-	-	127	235	-	146	259
Stage 2	-	-	-	-	-	-	-	466	258	-	466	232
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	339	-	-	288	-	-	76	26	360	73	25	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	76	26	-	73	25	-
Stage 1	-	-	-	-	-	-	-	124	229	-	142	229
Stage 2	-	-	-	-	-	-	-	413	228	-	397	226
Approach	EB	WB	NB	WB	NB	SB	WB	NB	WB	NB	SB	WB
HCM Control Delay, s	0.1	0.5	0.5	52.6	52.6	55.1	52.6	52.6	55.1	52.6	55.1	52.6
HCM LOS	F	F	F	F	F	F	F	F	F	F	F	F
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBT	SBT	SBT	SBT
Capacity (veh/h)	143	339	-	-	288	-	-	-	73	-	-	-
HCM Lane V/C Ratio	0.494	0.022	-	-	0.113	-	-	-	0.015	-	-	-
HCM Control Delay (s)	52.6	15.9	-	-	19.1	-	-	-	55.1	-	-	-
HCM Lane LOS	F	C	-	-	C	-	-	-	F	-	-	-
HCM 95th %ile Q(veh)	2.3	0.1	-	-	0.4	-	-	-	0	-	-	-

Background AM
2: Goldwater Blvd & Indian School Rd

Winery Suites
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (vph)	174	1002	71	63	829	66	387	31	263	31	263	
Future Volume (vph)	174	1002	71	63	829	66	387	31	263	31	263	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Prot	NA	
Protected Phases	5	2	2	1	6	3	8	7	4			
Permitted Phases	5	2	2	1	6	3	8	7	4			
Detector Phase												
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	7.0	5.0	7.0	5.0	7.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0	
Total Split (s)	18.0	55.0	55.0	11.0	48.0	14.0	40.0	14.0	40.0	14.0	40.0	
Total Split (%)	15.0%	45.8%	45.8%	9.2%	40.0%	11.7%	33.3%	11.7%	33.3%	11.7%	33.3%	
Yellow Time (s)	3.3	4.0	4.0	3.3	4.0	3.3	4.0	3.3	4.0	3.3	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	2.0	1.3	2.0	1.3	2.0	1.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.3	5.0	5.0	5.3	5.0	5.3	5.3	5.3	5.3	5.3	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	11.7	73.4	73.4	5.6	65.2	12.4	19.4	7.0	11.9	7.0	11.9	
Actuated g/C Ratio	0.10	0.61	0.61	0.05	0.54	0.10	0.16	0.06	0.10	0.06	0.10	
v/C Ratio	0.60	0.48	0.08	0.45	0.47	0.42	0.75	0.35	0.66	0.35	0.66	
Control Delay	59.8	15.8	1.0	65.6	19.6	55.8	55.3	63.4	48.3	63.4	48.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	59.8	15.8	1.0	65.6	19.6	55.8	55.3	63.4	48.3	63.4	48.3	
LOS	E	B	A	E	B	E	E	E	E	E	D	
Approach Delay		21.1			22.6				55.4		49.6	
Approach LOS		C			C				E		D	
Intersection Summary												
Cycle Length: 120												
Actuated Cycle Length: 120												
Offset: 0 (0%), Referenced to phase 2EBT and 6:WBT, Start of Green												
Natural Cycle: 60												
Control Type: Actuated-Coordinated												
Maximum v/C Ratio: 0.75												
Intersection Signal Delay: 30.5												
Intersection Capacity Utilization: 63.0%												
Analysis Period (min): 15												



Background AM
2. Goldwater Blvd & Indian School Rd

Winery Suites
Timings

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT
Traffic Volume (veh/h)	174	1002	71	63	829	48	66	387	25	31	263	86
Future Volume (veh/h)	174	1002	71	63	829	48	66	387	25	31	263	86
Initial Q (qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	No	No	No	No	No	No	No	No	No	No	No	No
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	189	1089	77	68	901	52	72	421	27	34	286	93
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	981	1559	626	790	1288	74	120	498	32	48	395	121
Arrive On Green	0.30	0.42	0.42	0.24	0.36	0.36	0.07	0.14	0.14	0.03	0.10	0.10
Sat Flow, veh/h	3274	3741	1502	3274	3594	207	1688	3570	228	1688	4075	1252
Grp Sat Flow(s),veh/h	189	1089	77	68	901	52	72	421	27	34	286	93
Grp Sat Flow(s),veh/h	1637	1870	1502	1637	1870	1931	1688	1870	1928	1688	1792	1743
Q Serve(g.s), s	5.1	28.7	3.8	1.9	25.8	25.8	5.0	13.8	13.9	2.4	8.1	8.7
Cycle Q Clear(g.c), s	5.1	28.7	3.8	1.9	25.8	25.8	5.0	13.8	13.9	2.4	8.1	8.7
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	981	1559	626	790	1288	74	120	498	32	48	395	121
V/C Ratio(X)	0.19	0.70	0.12	0.09	0.70	0.70	0.60	0.84	0.85	0.71	0.72	0.77
Avail Cap(c), veh/h	981	1559	626	790	1288	74	120	498	32	48	395	121
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	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	28.8	21.5	35.3	33.0	33.0	54.1	50.3	50.4	57.8	52.6	52.9
Incr Delay (d2), s/veh	0.0	2.6	0.4	0.0	6.0	5.8	5.3	2.8	2.8	7.1	1.1	2.7
Initial Q Delay(Q3),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 BackQ(50%),veh/m	2.1	13.3	1.4	0.8	12.7	13.1	2.3	6.6	6.9	1.1	3.7	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	31.4	21.9	35.3	39.0	38.8	59.4	53.2	53.2	65.0	53.7	55.6
LnGrp LOS	C	C	C	D	D	D	E	D	D	D	E	D
Approach Vol, veh/h	1355			1021			520				413	
Approach Delay, s/veh	30.9			38.6			54.0				55.2	
Approach LOS	C			D			D				E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R), s	34.3	55.0	13.8	16.9	41.3	48.0	8.7	22.0				
Change Period (Y+R), s	5.3	* 5	* 5.3	* 5.3	5.3	* 5	* 5.3	* 5.3				
Max Green Stalling (Gmax), s	5.7	* 50	* 8.7	* 35	12.7	* 43	* 8.7	* 35				
Max Q Clear Time (g_c+1t), s	3.9	30.7	7.0	10.7	7.1	27.8	4.4	15.9				
Green Ext Time (p_c), s	0.0	3.2	0.0	0.9	0.2	2.1	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	39.9											
HCM 6th LOS	D											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Background AM
3. Main St & Goldwater Blvd

Winery Suites
Timings

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	EB	EB	EB	EB	EB	EB	EB	EB	EB
Traffic Volume (vph)	4	3	3	3	3	3	3	3	3	3	3	3
Future Volume (vph)	4	3	3	3	3	3	3	3	3	3	3	3
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Turn Type	8	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	8	8	8	8	8	8	8	8	8	8	8	8
Detector Phase	8	8	8	8	8	8	8	8	8	8	8	8
Switch Phase	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Initial (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Minimum Split (s)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Lead-Lag												
Lead-Lag Optimize?	None	None	None	None	None	None	None	None	None	None	None	None
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Actuated g/C Ratio	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
v/C Ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Control Delay	69.3	68.7	69.3	68.7	69.3	68.7	69.3	68.7	69.3	68.7	69.3	68.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	68.7	69.3	68.7	69.3	68.7	69.3	68.7	69.3	68.7	69.3	68.7
LOS	E	E	E	E	E	E	E	E	E	E	E	E
Approach Delay	69.3			68.7			68.7			68.7		68.7
Approach LOS	E			E			E			E		E
Intersection Summary												
Cycle Length: 140												
Actuated Cycle Length: 140												
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green												
Natural Cycle: 105												
Control Type: Actuated-Coordinated												
Maximum v/C Ratio: 0.20												
Intersection Signal Delay: 3.0												
Intersection Capacity Utilization 26.7%												
Analysis Period (min) 15												
Spills and Phases: 3: Main St & Goldwater Blvd												
04												
50 s												
06												
50 s												

Background AM

3: Main St & Goldwater Blvd

Winery Suites
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	3	9	3	3	9	9	476	1	4	374	13
Traffic Volume (veh/h)	4	3	9	3	3	9	9	476	1	4	374	13
Future Volume (veh/h)	4	3	9	3	3	9	9	476	1	4	374	13
Initial Q (Qsb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	No	No	No	No	No	No	No	No	No	No	No	No
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	4	3	10	3	3	10	10	517	1	4	407	14
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	41	16	36	37	16	39	860	3418	7	784	4763	163
Arrive On Green	0.04	0.04	0.04	0.04	0.04	0.04	0.89	0.89	0.89	0.89	0.89	0.89
Sat Flow, veh/h	246	456	1003	187	456	1071	915	3830	7	837	5337	183
Grp Volume(v), veh/h	17	0	0	16	0	0	10	252	266	4	273	148
Grp Sat Flow(s), veh/hln	1706	0	0	1713	0	0	915	1870	1967	837	1792	1936
Q Serve(g.s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.3	2.4	0.1	1.2	1.3
Cycle Q Clear(g.c), s	1.3	0.0	0.0	1.2	0.0	1.4	2.3	2.4	2.4	1.2	1.3	1.3
Prop In Lane	0.24	0.59	0.19	0.62	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.09
Lane Grp Cap(c), veh/h	93	0	0	92	0	0	860	1669	1756	784	3198	1728
V/C Ratio(x)	0.18	0.00	0.00	0.17	0.00	0.00	0.01	0.15	0.15	0.01	0.09	0.09
Avail Cap(c), veh/h	570	0	0	573	0	0	860	1669	1756	784	3198	1728
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.82	0.82	0.82
Uniform Delay (d), s/veh	65.7	0.0	0.0	65.6	0.0	0.0	1.0	0.9	0.9	1.1	0.9	0.9
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.1
Initial Q Delay(Q3), 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 BackOf(50%), veh/h	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.5	0.5	0.0	0.2	0.2
Unsig. Movement Delay, s/veh	66.0	0.0	0.0	66.0	0.0	0.0	1.0	1.1	1.1	1.1	0.9	1.0
LnGrp Delay(d), s/veh	E	A	A	E	A	A	A	A	A	A	A	A
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	17			16			528				425	
Approach Delay, s/veh	66.0			66.0			1.1				0.9	
Approach LOS	E			E			A				A	
Timer - Assigned Phs	2			4			8					
Phs Duration (G+Y+R), s	130.1			9.9			130.1				9.9	
Change Period (Y+R), s	* 5.2			* 4.8			* 5.2				* 4.8	
Max Green Sailing (Gmax), s	* 85			* 45			* 85				* 45	
Max Q Clear Time (g_c+1T), s	4.4			3.2			4.4				3.3	
Green Ext Time (p_c), s	0.5			0.0			0.5				0.0	
Intersection Summary												
HCM 6th Ctrl Delay	3.2											
HCM 6th LOS	A											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Background AM
4: 69th St & 1st St

Winery Suites
HCM 6th TWSC

Intersection	4,9											
In Delay, s/veh												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	21	13	12	12	3	3	2	30	8	8	20	4
Traffic Vol, veh/h	21	13	12	12	3	3	2	30	8	8	20	4
Future Vol, veh/h	21	13	12	12	3	3	2	30	8	8	20	4
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	None	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	23	14	13	13	3	3	2	33	9	9	22	4
Major/Minor	Minor2	Minor1	Minor1	Minor1	Major1	Major1	Major2	Major2				
Conflicting Flow All	87	88	24	98	86	38	26	0	0	42	0	0
Stage 1	42	42	-	42	-	-	-	-	-	-	-	-
Stage 2	45	46	-	56	44	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3,518	4,018	3,318	3,518	4,018	3,318	2,218	-	-	2,218	-	-
Pl Cap-1 Maneuver	899	802	1052	884	804	1034	1588	-	-	1567	-	-
Stage 1	972	860	-	972	860	-	-	-	-	-	-	-
Stage 2	969	857	-	956	858	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	888	796	1052	857	798	1034	1588	-	-	1567	-	-
Mov Cap-2 Maneuver	888	796	-	857	798	-	-	-	-	-	-	-
Stage 1	971	855	-	971	859	-	-	-	-	-	-	-
Stage 2	961	856	-	923	853	-	-	-	-	-	-	-
Approach	EB	WB	NB	NB	NB	SB	SB	1.8				
HCM Control Delay, s	9.3	9.2		9.2		0.4						
HCM LOS	A	A		A								
Minor Lane/Major Mvmt Capacity (veh/h)	1588	-	-	895	871	1567	-	-	-	-	-	-
HCM Lane V/C Ratio	0.001	-	-	0.056	0.022	0.006	-	-	-	-	-	-
HCM Control Delay (s)	7.3	0	-	9.3	9.2	7.3	0	-	-	-	-	-
HCM Lane LOS	A	A	-	A	A	A	A	-	-	-	-	-
HCM 95th %ile Q(veh)	0	-	-	0.2	0.1	0	-	-	-	-	-	-

Background AM
5: Goldwater Blvd & 1st St

Winery Suites
HCM 6th TWSC

Intersection												
In Delay, s/veh												
0.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				4	7	4	7	4	7	4	7	4
Traffic Vol, veh/h	8	1	9	1	0	4	2	489	1	3	378	10
Future Vol, veh/h	8	1	9	1	0	4	2	489	1	3	378	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	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	0	70	-	-	70	-
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	1	10	1	0	4	2	532	1	3	411	11
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	693	960	211	708	965	267	422	0	0	533	0	0
Stage 1	423	423	-	537	537	-	-	-	-	-	-	-
Stage 2	270	537	-	171	428	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	7.14	6.99	6.54	6.94	5.34	-	-	4.14	-	-
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-
Pot Cap-1 Maneuver	356	255	676	348	253	731	737	-	-	1031	-	-
Stage 1	510	586	-	480	521	-	-	-	-	-	-	-
Stage 2	687	521	-	776	583	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	352	253	676	340	251	731	737	-	-	1031	-	-
Mov Cap-2 Maneuver	352	253	-	340	251	-	-	-	-	-	-	-
Stage 1	508	584	-	479	519	-	-	-	-	-	-	-
Stage 2	681	519	-	761	581	-	-	-	-	-	-	-
Approach	EB	WB	NB	WB	NB	SB						
HCM Control Delay, s	13.4	11.1	11.1	0	0	0.1						
HCM LOS	B	B	B	B	B	B						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Capacity (veh/h)	737	-	450	340	731	1031	-	-	-	-	-	-
HCM Lane V/C Ratio	0.003	-	0.043	0.003	0.006	0.003	-	-	-	-	-	-
HCM Control Delay (s)	9.9	-	13.4	15.6	10	8.5	-	-	-	-	-	-
HCM Lane LOS	A	-	B	C	B	A	-	-	-	-	-	-
HCM 95th %ile Q(veh)	0	-	0.1	0	0	0	-	-	-	-	-	-

Background AM
6: Alley & 69th St

Winery Suites
HCM 6th TWSC

Intersection												
In Delay, s/veh												
0.5												
Movement	WBL	WBR	NBL	NBR	SBL	SBT						
Lane Configurations	W	W	T	T	4	4						
Traffic Vol, veh/h	0	2	40	0	4	41						
Future Vol, veh/h	0	2	40	0	4	41						
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	-	-	-	-	-						
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	0	2	43	0	4	45						
Major/Minor	Minor1	Major1	Major2									
Conflicting Flow All	96	43	0	0	43	0						
Stage 1	43	-	-	-	-	-						
Stage 2	53	-	-	-	-	-						
Critical Hdwy	6.42	6.22	-	-	4.12	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3,518	3,318	-	-	2,218	-						
Pot Cap-1 Maneuver	903	1027	-	-	1566	-						
Stage 1	979	-	-	-	-	-						
Stage 2	970	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	900	1027	-	-	1566	-						
Mov Cap-2 Maneuver	900	-	-	-	-	-						
Stage 1	976	-	-	-	-	-						
Stage 2	970	-	-	-	-	-						
Approach	WB	NB	SB									
HCM Control Delay, s	8.5	0	0.6									
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT							
Capacity (veh/h)	-	-	1027	1566	-							
HCM Lane V/C Ratio	-	-	0.002	0.003	-							
HCM Control Delay (s)	-	-	8.5	7.3	0							
HCM Lane LOS	-	-	A	A	A							
HCM 95th %ile Q(veh)	-	-	0	0	-							

Background AM
7: Alley & Goldwater Blvd

Background AM
8: 69th St & 2nd St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	T T T T T T											
Traffic Vol, veh/h	0	1	0	491	387	0						
Future Vol, veh/h	0	1	0	491	387	0						
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	-	-	-	-						
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	0	1	0	534	421	0						
Major/Minor	Minor2	Major1	Major1	Major2								
Conflicting Flow All	-	211	-	0	-	0						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	7.14	-	-	-	-						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	3.92	-	-	-	-						
Pot Cap-1 Maneuver	0	676	0	-	-	-						
Stage 1	0	0	0	-	-	-						
Stage 2	0	0	0	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	676	-	-	-	-						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	10.3	0	0									
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR								
Capacity (veh/h)	-	676	-	-								
HCM Lane V/C Ratio	-	0.002	-	-								
HCM Control Delay (s)	-	10.3	-	-								
HCM Lane LOS	-	B	-	-								
HCM 95th %ile Q(veh)	-	0	-	-								

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	T T T T T T T T T T T T											
Traffic Vol, veh/h	28	41	5	1	18	5	4	8	5	10	2	27
Future Vol, veh/h	28	41	5	1	18	5	4	8	5	10	2	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	30	45	5	1	20	5	4	9	5	11	2	29
Major/Minor	Major1	Major2	Major1	Minor1	Minor2							
Conflicting Flow All	25	0	0	50	0	0	148	135	48	140	135	23
Stage 1	-	-	-	-	-	-	108	108	-	25	25	-
Stage 2	-	-	-	-	-	-	40	27	-	115	110	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1589	-	-	1557	-	-	820	756	1021	830	756	1054
Stage 1	-	-	-	-	-	-	897	806	-	993	874	-
Stage 2	-	-	-	-	-	-	975	873	-	890	804	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1589	-	-	1557	-	-	783	741	1021	806	741	1054
Mov Cap-2 Maneuver	-	-	-	-	-	-	783	741	-	806	741	-
Stage 1	-	-	-	-	-	-	880	791	-	974	873	-
Stage 2	-	-	-	-	-	-	945	872	-	859	789	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	2.8	0.3	9.5	8.9								
HCM LOS	A	A	A	A								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	817	1589	-	-	1557	-	-	958				
HCM Lane V/C Ratio	0.023	0.019	-	-	0.001	-	-	0.044				
HCM Control Delay (s)	9.5	7.3	0	-	7.3	0	-	8.9				
HCM Lane LOS	A	A	A	A	A	A	A	A				
HCM 95th %ile Q(veh)	0.1	0.1	-	-	0	-	-	0.1				

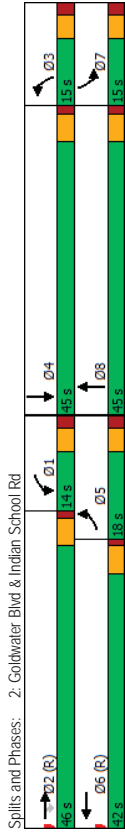
Intersection		1.7													
In/ Delay, s/vch															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Traffic Vol, veh/h	17	17	17	4	9	15	8	459	4	26	365	13			
Future Vol, veh/h	17	17	17	4	9	15	8	459	4	26	365	13			
Conflicting Peds, #/hr	0	0	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	Free	Free	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	-	-	130	-	-	-	82	-	-	-	
Grade, %	-	0	-	-	-	-	-	-	-	-	-	-	-	-	
Peak Hour Factor	92	92	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	2	2	
Mvmt Flow	18	18	18	4	10	16	9	499	4	28	397	14			

Intersection		2.9													
In/ Delay, s/vch															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Traffic Vol, veh/h	5	1065	29	55	1246	1	32	0	42	3	0	5			
Future Vol, veh/h	5	1065	29	55	1246	1	32	0	42	3	0	5			
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Storage Length	50	-	-	75	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	-	-	-	-	-	-	-	-	-	-	
Grade, %	-	0	-	-	-	-	-	-	-	-	-	-	-	-	
Peak Hour Factor	92	92	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	2	2	
Mvmt Flow	5	1158	32	60	1354	1	35	0	46	3	0	5			

Background PM
2: Goldwater Blvd & Indian School Rd

Winery Suites
Timings

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	W	W	W	W	W	W	W	W	W
Lane Configurations	1	1	1	1	1	1	1	1	1
Traffic Volume (vph)	157	916	61	57	1031	101	233	90	749
Future Volume (vph)	157	916	61	57	1031	101	233	90	749
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	5	2	2	1	6	3	8	7	4
Detector Phase									
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0
Total Split (s)	18.0	46.0	46.0	14.0	42.0	15.0	45.0	15.0	45.0
Total Split (%)	15.0%	38.3%	38.3%	11.7%	35.0%	12.5%	37.5%	12.5%	37.5%
Yellow Time (s)	3.3	4.0	4.0	3.3	4.0	3.3	4.0	3.3	4.0
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	2.0	1.3	2.0	1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.0	5.0	5.3	5.0	5.3	5.3	5.3	5.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead/Lag Optimize?									
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	10.5	55.3	55.3	6.9	49.5	13.1	13.2	25.8	25.9
Actuated g/C Ratio	0.09	0.46	0.46	0.06	0.41	0.11	0.11	0.22	0.22
v/c Ratio	0.60	0.58	0.09	0.34	0.78	0.60	0.73	0.27	0.82
Control Delay	61.5	28.0	0.7	58.8	36.3	64.2	58.3	39.9	49.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	28.0	0.7	58.8	36.3	64.2	58.3	39.9	49.8
LOS	E	C	A	E	D	E	E	D	D
Approach Delay									
Approach LOS	C	C	D	D	D	E	E	D	D
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green									
Natural Cycle: 75									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.82									
Intersection Signal Delay: 40.9									
Intersection Capacity Utilization 73.3%									
Analysis Period (min) 15									



Background PM
2: Goldwater Blvd & Indian School Rd

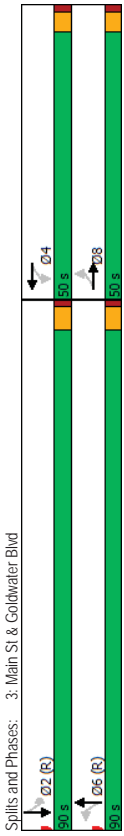
HCM 6th Signalized Intersection Summary
Winery Suites

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Movement	W	W	W	W	W	W	W	W	W	W
Lane Configurations	1	1	1	1	1	1	1	1	1	1
Traffic Volume (veh/h)	157	916	61	57	1031	101	233	48	90	749
Future Volume (veh/h)	157	916	61	57	1031	101	233	48	90	749
Initial Q (Ob.) veh	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	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
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow (veh/h)	1772	1969	1772	1772	1969	1772	1772	1772	1969	1772
Adj Flow Rate, veh/h	171	996	66	62	1121	65	110	253	52	98
Peak Hour Factor	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
Cap. veh/h	760	1278	513	651	1108	64	133	319	65	308
Arrive On Green	0.23	0.34	0.34	0.20	0.31	0.31	0.08	0.10	0.10	0.18
Sat Flow, veh/h	3274	3741	1502	3274	3593	208	1688	3100	627	1688
Grp Volume(v), veh/h	171	996	66	62	583	603	110	151	154	98
Grp Sat Flow(s),veh/h	1637	1870	1502	1637	1870	1931	1688	1870	1856	1688
Q Serve(g.s), s	5.1	28.7	3.6	1.9	37.0	37.0	7.7	9.5	9.7	6.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	760	1278	513	651	577	595	133	193	191	308
V/C Ratio(X)	0.23	0.78	0.13	0.10	1.01	1.01	0.83	0.78	0.81	0.32
Avail Cap(c), veh/h	760	1278	513	651	577	595	136	619	614	308
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	37.3	35.4	27.2	39.3	41.5	41.5	54.5	52.5	52.6	42.6
Incr Delay (d2), s/veh	0.1	4.7	0.5	0.0	40.3	40.0	30.0	2.6	3.0	0.2
Initial Q Delay(Q3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q50%),veh/ln	2.1	13.8	1.4	0.8	23.3	24.0	4.4	4.6	4.7	2.6
Unsig. Movement Delay, s/veh	37.4	40.2	27.7	39.3	81.8	81.5	84.5	55.1	55.6	42.8
LnGrp Delay(d),s/veh	D	D	C	D	F	F	F	E	E	D
LnGrp LOS	D	D	C	D	F	F	F	E	E	D
Approach Vol, veh/h	1233			1248			415			1047
Approach Delay, s/veh	39.1			79.5			63.1			47.7
Approach LOS	D			E			E			D
Timer - Assigned Phs	1	2	3	4	5	6	7	8		
Phs Duration (G+Y+Rc), s	29.2	46.0	14.8	30.1	33.2	42.0	27.2	17.7		
Change Period (Y+Rc), s	5.3	* 5	* 5.3	* 5.3	* 5	* 5.3	* 5.3	* 5.3		
Max Green Setting (Gmax), s	8.7	* 4.1	* 9.7	* 4.0	12.7	* 3.7	* 9.7	* 4.0		
Max Q Clear Time (q_c+I1), s	3.9	30.7	9.7	22.4	7.1	39.0	8.0	11.7		
Green EXT Time (p_c), s	0.0	2.4	0.0	2.4	0.1	0.0	0.0	0.6		
Intersection Summary										
HCM 6th Ctrl Delay	56.7									
HCM 6th LOS	E									
Notes										

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Background PM
3. Main St & Goldwater Blvd

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group								
Lane Configurations								
Traffic Volume (vph)	13	4	9	8	16	364	21	845
Future Volume (vph)	13	4	9	8	16	364	21	845
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	8		4		6		2	
Permitted Phases	8	8	4	4	6	6	2	2
Detector Phase								
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (s)	50.0	50.0	50.0	50.0	90.0	90.0	90.0	90.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.2	1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.8		4.8		5.2		5.2	
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	7.4	7.4	129.4	129.4	129.4	129.4		
Actuated g/C Ratio	0.05	0.05	0.92	0.92	0.92	0.92		
v/c Ratio	0.27	0.33	0.04	0.12	0.03	0.19		
Control Delay	54.0	51.0	1.3	1.0	1.2	1.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	54.0	51.0	1.3	1.0	1.2	1.0		
LOS	D	D	A	A	A	A		
Approach Delay	54.0	51.0	51.0	51.0	1.0	1.0		
Approach LOS	D	D	A	A	A	A		
Intersection Summary								
Cycle Length: 140								
Actuated Cycle Length: 140								
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green								
Natural Cycle: 105								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.33								
Intersection Signal Delay: 3.1								
Intersection Capacity Utilization 32.6%								
Analysis Period (min) 15								



Background PM
3. Main St & Goldwater Blvd

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (veh/h)	13	4	9	8	16	364	13	21
Future Volume (veh/h)	13	4	9	8	16	364	13	21
Initial Q (Obs.) veh	0	0	0	0	0	0	0	0
Pod-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
Work Zone On Approach	No	No	No	No	No	No	No	No
Adj Sat Flow (veh/h)	1772	1969	1772	1969	1772	1969	1772	1969
Adj Flow Rate (veh/h)	14	4	9	10	9	14	17	36
Peak Hour Factor	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
Cap. veh/h	69	22	26	49	29	33	534	3264
Arrive On Green	0.05	0.05	0.05	0.05	0.05	0.05	0.88	0.88
Sat Flow (veh/h)	653	483	568	352	639	730	562	3686
Grp Volume(V) veh/h	27	0	0	33	0	17	201	209
Grp Sat Flow(s) veh/h	1704	0	0	1721	0	562	1870	1945
Q Serve(g_s) s	0.0	0.0	0.5	0.0	0.0	0.6	2.0	0.5
Cycle Q Clear(g_c) s	2.0	0.0	2.5	0.0	4.0	2.0	2.4	3.4
Prop In Lane	0.52	0.33	0.30	0.42	1.00	0.07	1.00	0.08
Lane Grp Cap(c) veh/h	116	0	111	0	534	1652	1719	865
V/C Ratio(X)	0.23	0.00	0.30	0.00	0.03	0.12	0.12	0.03
Avail Cap(c_a) veh/h	557	0	575	0	534	1652	1719	865
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter()	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.58
Uniform Delay (d) s/veh	64.8	0.0	65.0	0.0	1.4	1.1	1.1	1.1
Incr Delay (d2) s/veh	0.4	0.0	0.5	0.0	0.1	0.2	0.1	0.1
Initial Q Delay(d3) s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q50%) veh/h	1.0	0.0	1.2	0.0	0.1	0.4	0.5	0.1
Unsig. Movement Delay, s/veh								
LnGrp Delay(d) s/veh	65.1	0.0	65.5	0.0	1.5	1.2	1.2	1.3
LnGrp LOS	E	A	A	E	A	A	A	A
Approach Vol. veh/h	27		33		427		969	
Approach Delay, s/veh	65.1		65.5		1.2		1.3	
Approach LOS	E		E		A		A	
Timer - Assigned Phs	2	4	6	8				
Phs Duration (G+Y+Rc) s	128.9	11.1	128.9	11.1				
Change Period (Y+Rc) s	* 5.2	* 4.8	* 5.2	* 4.8				
Max Green Selling (Gmax) s	* 85	* 45	* 85	* 45				
Max Q Clear Time (g_c+H) s	5.4	4.5	6.0	4.0				
Green Ext Time (g_e) s	1.3	0.1	0.5	0.1				
Intersection Summary								
HCM 6th Ctrl Delay		3.9						
HCM 6th LOS		A						
Notes								

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Background PM
4: 69th St & 1st St

Winery Suites
HCM 6th TWSC

Intersection																
Ini Delay, s/veh																
2.7																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Vol. veh/h	8	4	3	2	4	10	8	22	4	5	65	10				
Future Vol. veh/h	8	4	3	2	4	10	8	22	4	5	65	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	-	None				
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-				
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	4	3	2	4	11	9	24	4	5	71	11				
Major/Minor	Minor2	Minor1	Major1	Major2												
Conflicting Flow All	139	133	77	134	136	26	82	0	0	28	0	0				
Stage 1	87	87	-	44	44	-	-	-	-	-	-	-				
Stage 2	52	46	-	90	92	-	-	-	-	-	-	-				
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-				
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-				
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-				
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-				
Pot Cap-1 Maneuver	831	758	984	838	765	1050	1515	-	-	1585	-	-				
Stage 1	921	823	-	970	858	-	-	-	-	-	-	-				
Stage 2	961	857	-	917	819	-	-	-	-	-	-	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	814	751	984	825	748	1050	1515	-	-	1585	-	-				
Mov Cap-2 Maneuver	814	751	-	825	748	-	-	-	-	-	-	-				
Stage 1	915	821	-	964	853	-	-	-	-	-	-	-				
Stage 2	941	852	-	906	817	-	-	-	-	-	-	-				
Approach	EB	WB	NB	SB												
HCM Control Delay, s	9.5	9	1.7	0.5												
HCM LOS	A	A	A	A												
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	NBLn2	SBL	SBT	SBR							
Capacity (veh/h)	1515	-	-	824	925	1585	-	-	-	-	-	-	-	-	-	
HCM Lane V/C Ratio	0.006	-	-	0.02	0.019	0.003	-	-	-	-	-	-	-	-	-	
HCM Control Delay (s)	7.4	0	9.5	9	7.3	0	-	-	-	-	-	-	-	-	-	
HCM Lane LOS	A	A	A	A	A	A	A	A	A	-	-	-	-	-	-	
HCM 95th %ile Q(veh)	0	-	-	0.1	0.1	0	-	-	-	-	-	-	-	-	-	

Background PM
5: Goldwater Blvd & 1st St

Winery Suites
HCM 6th TWSC

Intersection																
Ini Delay, s/veh																
0.4																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Vol. veh/h	8	0	8	2	0	1	13	378	1	4	839	12				
Future Vol. veh/h	8	0	8	2	0	1	13	378	1	4	839	12				
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	-	None				
Storage Length	-	-	-	-	-	-	-	0	70	-	-	70				
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	9	2	0	1	14	411	1	4	912	13				
Major/Minor	Minor2	Minor1	Major1	Major2												
Conflicting Flow All	1161	1367	463	813	1373	206	925	0	0	412	0	0				
Stage 1	927	927	-	440	440	-	-	-	-	-	-	-				
Stage 2	234	440	-	373	933	-	-	-	-	-	-	-				
Critical Hdwy	6.99	6.54	7.14	6.99	6.54	6.94	5.34	-	-	4.14	-	-				
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-				
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-				
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-				
Pot Cap-1 Maneuver	176	146	467	298	145	800	425	-	-	1143	-	-				
Stage 1	229	345	-	547	576	-	-	-	-	-	-	-				
Stage 2	721	576	-	587	343	-	-	-	-	-	-	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	171	141	467	284	140	800	425	-	-	1143	-	-				
Mov Cap-2 Maneuver	171	141	-	284	140	-	-	-	-	-	-	-				
Stage 1	221	344	-	529	557	-	-	-	-	-	-	-				
Stage 2	696	557	-	574	342	-	-	-	-	-	-	-				
Approach	EB	WB	NB	SB												
HCM Control Delay, s	20.5	15	0.5	0												
HCM LOS	C	C	A	A												
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	NBLn2	SBL	SBT	SBR							
Capacity (veh/h)	425	-	-	250	284	800	1143	-	-	-	-	-	-	-	-	
HCM Lane V/C Ratio	0.033	-	-	0.07	0.008	0.001	0.004	-	-	-	-	-	-	-	-	
HCM Control Delay (s)	13.8	-	-	20.5	17.8	9.5	8.2	-	-	-	-	-	-	-	-	
HCM Lane LOS	B	-	-	C	C	A	A	-	-	-	-	-	-	-	-	
HCM 95th %ile Q(veh)	0.1	-	-	0.2	0	0	0	-	-	-	-	-	-	-	-	

Background PM
6: Alley & 69th St

Background PM
7: Alley & Goldwater Blvd

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection												
Int Delay, s/veh												0
Movement	WBL	WBR	NBT	NBR	SBL	SBT						
Lane Configurations	W		P			4						
Traffic Vol, veh/h	0	0	40	0	0	71						
Future Vol, veh/h	0	0	40	0	0	71						
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	-	-	-	-	-						
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	0	0	43	0	0	77						
Major/Minor	Minor1	Minor1	Major1	Major1	Major2							
Conflicting Flow All	120	43	0	0	43	0						
Stage 1	43	-	-	-	-	-						
Stage 2	77	-	-	-	-	-						
Critical Hdwy	6.42	6.22	-	-	4.12	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	-	-	2.218	-						
Pot Cap-1 Maneuver	876	1027	-	-	1566	-						
Stage 1	979	-	-	-	-	-						
Stage 2	946	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	876	1027	-	-	1566	-						
Mov Cap-2 Maneuver	876	-	-	-	-	-						
Stage 1	979	-	-	-	-	-						
Stage 2	946	-	-	-	-	-						
Approach	WB	NB	SB	SB								
HCM Control Delay, s	0	0	0	0								
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	NBR	WBL	N1	SBL	SBT						
Capacity (veh/h)	-	-	-	-	1566	-						
HCM Lane V/C Ratio	-	-	-	-	-	-						
HCM Control Delay (s)	-	-	0	0	-	-						
HCM Lane LOS	-	-	A	A	-	-						
HCM 95th %ile Q(veh)	-	-	-	0	-	-						

Intersection												
Int Delay, s/veh												0
Movement	EBL	EBR	NBL	NBR	SBT	SBR						
Lane Configurations		P			P	P						
Traffic Vol, veh/h	0	0	0	405	858	0						
Future Vol, veh/h	0	0	0	405	858	0						
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	-	-	-	-						
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	0	0	0	440	933	0						
Major/Minor	Minor2	Minor2	Major1	Major1	Major2							
Conflicting Flow All	-	467	-	0	-	0						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	7.14	-	-	-	-						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	3.92	-	-	-	-						
Pot Cap-1 Maneuver	0	464	0	-	-	-						
Stage 1	0	-	0	-	-	-						
Stage 2	0	-	0	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	464	-	-	-	-						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach	EB	NB	SB	SB								
HCM Control Delay, s	0	0	0	0								
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	EB	N1	SBT	SBR							
Capacity (veh/h)	-	-	-	-	-	-						
HCM Lane V/C Ratio	-	-	-	-	-	-						
HCM Control Delay (s)	-	0	-	-	-	-						
HCM Lane LOS	-	A	-	-	-	-						
HCM 95th %ile Q(veh)	-	-	-	-	-	-						

Background PM
8: 69th St & 2nd St

Background PM
9: Goldwater Blvd & 2nd St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection															
Ini Delay, s/veh															
2.6															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔														
Traffic Vol, veh/h	19	33	10	5	58	6	5	10	8	9	20	43			
Future Vol, veh/h	19	33	10	5	58	6	5	10	8	9	20	43			
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free			
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-			
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-			
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-			
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-			
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	21	36	11	5	63	7	5	11	9	10	22	47			
Major/Minor	Major1	Major2	Minor1	Minor2											
Conflicting Flow All	70	0	0	47	0	195	164	42	171	166	67				
Stage 1	-	-	-	-	-	84	84	-	77	77	-				
Stage 2	-	-	-	-	-	111	80	-	94	89	-				
Critical Hdwy	4.12	-	-	4.12	-	7.12	6.52	6.22	7.12	6.52	6.22				
Critical Hdwy Stg 1	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-				
Critical Hdwy Stg 2	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-				
Follow-up Hdwy	2.218	-	-	2.218	-	3.518	4.018	3.318	3.518	4.018	3.318				
Pl Cap-1 Maneuver	1531	-	-	1560	-	764	729	1029	792	727	997				
Stage 1	-	-	-	-	-	924	825	-	932	831	-				
Stage 2	-	-	-	-	-	894	828	-	913	821	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	1531	-	-	1560	-	702	717	1029	766	715	997				
Mov Cap-2 Maneuver	-	-	-	-	-	702	717	-	766	715	-				
Stage 1	-	-	-	-	-	911	813	-	919	829	-				
Stage 2	-	-	-	-	-	827	826	-	881	810	-				
Approach	EB	WB	NB	SB											
HCM Control Delay, s	2.3	0.5	9.7	9.6											
HCM LOS	A				A										
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBL	SBT	SBR				
Capacity (veh/h)	797	1531	-	-	1560	-	-	869	-	-	-				
HCM Lane V/C Ratio	0.031	0.013	-	-	0.003	-	-	0.09	-	-	-				
HCM Control Delay (s)	9.7	7.4	0	-	7.3	0	-	9.6	-	-	-				
HCM Lane LOS	A	A	A	-	A	-	-	A	-	-	-				
HCM 95th %ile Q(veh)	0.1	0	-	-	0	-	-	0.3	-	-	-				

Intersection															
Ini Delay, s/veh															
2.6															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔														
Traffic Vol, veh/h	5	18	26	11	20	47	21	354	17	29	800	25			
Future Vol, veh/h	5	18	26	11	20	47	21	354	17	29	800	25			
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	-	-	-	-	-	-	-	-	-	-	-	-			
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-			
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-			
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-			
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	5	20	28	12	22	51	23	385	18	32	870	27			
Major/Minor	Minor2	Minor1	Major1	Major2											
Conflicting Flow All	1198	1397	449	862	1401	202	897	0	0	403	0	0			
Stage 1	948	948	-	440	440	-	-	-	-	-	-	-			
Stage 2	250	449	-	422	961	-	-	-	-	-	-	-			
Critical Hdwy	6.99	6.54	7.14	6.99	6.54	6.94	5.34	-	-	4.14	-	-			
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-			
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-			
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-			
Pl Cap-1 Maneuver	166	140	477	276	139	805	439	-	-	1152	-	-			
Stage 1	221	338	-	547	576	-	-	-	-	-	-	-			
Stage 2	706	571	-	548	333	-	-	-	-	-	-	-			
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-			
Mov Cap-1 Maneuver	127	129	477	216	128	805	439	-	-	1152	-	-			
Mov Cap-2 Maneuver	127	129	-	216	128	-	-	-	-	-	-	-			
Stage 1	210	329	-	519	546	-	-	-	-	-	-	-			
Stage 2	602	541	-	471	324	-	-	-	-	-	-	-			
Approach	EB	WB	NB	SB											
HCM Control Delay, s	27.9	22.1	0.7	0.3											
HCM LOS	D				C										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBLn1	SBL	SBT	SBR						
Capacity (veh/h)	439	-	-	210	294	1152	-	-	-						
HCM Lane V/C Ratio	0.052	-	-	0.254	0.288	0.027	-	-	-						
HCM Control Delay (s)	13.7	-	-	27.9	22.1	8.2	-	-	-						
HCM Lane LOS	B	-	-	D	C	A	-	-	-						
HCM 95th %ile Q(veh)	0.2	-	-	1	1.2	0.1	-	-	-						

Total AM
1: 69th St & Indian School Rd

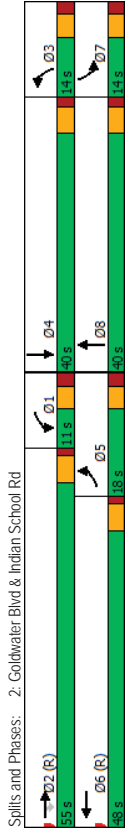
Winery Suites
HCM 6th TWSC

Intersection	2.5											
Initial Delay, s/veh	2.5											
Initial Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W
Traffic Vol. veh/h	7	1149	31	30	1033	5	30	1	48	1	0	0
Future Vol. veh/h	7	1149	31	30	1033	5	30	1	48	1	0	0
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free											
RT Channelized	Free											
Storage Length	50											
Veh in Median Storage, #	0											
Grade, %	0											
Peak Hour Factor	0.92											
Heavy Vehicles, %	2											
Mgmt Flow	8											
Major/Minor	Major1	Major2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2
Conflicting Flow All	1128	0	0	1283	0	0	1797	2476	642	1708	2491	564
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hwy Slg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hwy Slg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pl Cap-1 Maneuver	339	-	-	285	-	-	85	29	357	96	29	402
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Platoon blocked, %	0											
Mov Cap-1 Maneuver	339	-	-	285	-	-	76	25	357	71	25	402
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB	WB	NB	WB	NB	SB	WB	NB	WB	NB	SB	WB
HCM Control Delay, s	0.1	0.5	0.5	65.7	65.7	56.5	65.7	65.7	65.7	65.7	65.5	65.5
HCM LOS	F	F	F	F	F	F	F	F	F	F	F	F
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	NBLn1	EBLn1	EBLn1	EBLn1
Capacity (veh/h)	139	339	-	-	285	-	-	-	-	-	-	71
HCM Lane V/C Ratio	0.618	0.022	-	-	0.114	-	-	-	-	-	-	0.015
HCM Control Delay (s)	65.7	15.9	-	-	19.3	-	-	-	-	-	-	56.5
HCM Lane LOS	F	C	-	-	C	-	-	-	-	-	-	F
HCM 95th %ile Q(veh)	3.3	0.1	-	-	0.4	-	-	-	-	-	-	0

Total AM
2: Goldwater Blvd & Indian School Rd

Winery Suites
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations	W	W	W	W	W	W	W	W	W	W	
Traffic Volume (vph)	177	1006	71	67	829	66	387	31	266	266	
Future Volume (vph)	177	1006	71	67	829	66	387	31	266	266	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	NA	
Protected Phases	5	2	2	1	6	3	8	7	4	4	
Permitted Phases	5	2	2	1	6	3	8	7	4	4	
Detector Phase											
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	7.0	7.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0	16.0	
Total Split (s)	18.0	55.0	55.0	11.0	48.0	14.0	40.0	14.0	40.0	40.0	
Total Split (%)	15.0%	45.8%	45.8%	9.2%	40.0%	11.7%	33.3%	11.7%	33.3%	33.3%	
Yellow Time (s)	3.3	4.0	4.0	3.3	4.0	3.3	4.0	3.3	4.0	4.0	
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	2.0	1.3	2.0	1.3	1.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.3	5.0	5.0	5.3	5.0	5.3	5.3	5.3	5.3	5.3	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	
Act Effct Green (s)	11.7	73.4	73.4	5.6	65.2	12.4	19.4	7.0	12.0	12.0	
Actuated v/c Ratio	0.10	0.61	0.61	0.05	0.54	0.10	0.16	0.06	0.10	0.10	
v/c Ratio	0.60	0.48	0.08	0.49	0.47	0.42	0.75	0.35	0.66	0.66	
Control Delay	60.1	15.8	1.0	66.9	19.6	55.9	55.3	63.4	48.5	48.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	60.1	15.8	1.0	66.9	19.6	55.9	55.3	63.4	48.5	48.5	
LOS	E	B	A	E	B	E	E	E	E	D	
Approach Delay											
Approach LOS											
Intersection Summary											
Cycle Length: 120											
Actuated Cycle Length: 120											
Offset: 0 (0%), Referenced to phase 2EBT and 6:WBT, Start of Green											
Natural Cycle: 60											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.75											
Intersection Signal Delay: 30.7											
Intersection Capacity Utilization: 63.1%											
Analysis Period (min): 15											



Total AM
2. Goldwater Blvd & Indian School Rd

HCM 6th Signalized Intersection Summary

Winery Suites

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	177	1006	71	67	829	48	66	387	25	31	266	86
Traffic Volume (veh/h)	177	1006	71	67	829	48	66	387	25	31	266	86
Future Volume (veh/h)	177	1006	71	67	829	48	66	387	25	31	266	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	192	1093	71	73	901	52	72	421	27	34	289	93
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	981	1559	626	790	1288	74	119	498	32	48	398	121
Arrive On Green	0.30	0.42	0.42	0.24	0.36	0.36	0.07	0.14	0.14	0.03	0.10	0.10
Sat Flow, veh/h	3274	3741	1502	3274	3594	207	1688	3570	228	1688	4085	1243
Grp Sat Flow(s), veh/hln	1637	1870	1502	1637	1870	1931	1688	1870	1928	1688	1792	1745
Q Serve(g_s), s	5.2	289	3.8	2.1	25.8	25.8	5.0	13.8	13.9	2.4	8.2	8.8
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	981	1559	626	790	1288	74	119	498	32	48	398	121
V/C Ratio(X)	0.20	0.70	0.12	0.09	0.70	0.70	0.61	0.84	0.85	0.71	0.72	0.77
Avail Cap(c), veh/h	981	1559	626	790	1288	74	119	498	32	48	398	121
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	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	28.8	21.5	35.3	33.0	33.0	54.2	50.3	50.4	57.8	52.6	52.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.4	2.8	2.8	1.1	2.7
Initial Q Delay(Q3), 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 BackOf(50%), veh/h	2.1	13.4	1.4	0.8	12.7	13.1	2.3	6.6	6.9	1.1	3.7	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.3	31.5	21.9	35.3	39.0	38.8	59.6	53.2	53.2	65.0	53.6	55.6
LnGrp LOS	C	C	C	D	D	D	E	D	D	D	E	D
Approach Vol, veh/h	1362			1026			520				416	
Approach Delay, s/veh	30.9			38.6			54.1				55.2	
Approach LOS	C			D			D				E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R), s	34.3	55.0	13.7	17.0	41.3	48.0	8.7	22.0				
Change Period (Y+R), s	5.3	* 5	* 5.3	* 5.3	5.3	* 5	* 5.3	* 5.3				
Max Green Stalling (Gmax), s	5.7	* 50	* 8.7	* 35	12.7	* 43	* 8.7	* 35				
Max Q Clear Time (g_c+1t), s	4.1	30.9	7.0	10.8	7.2	27.8	4.4	15.9				
Green Ext Time (p_c), s	0.0	3.2	0.0	0.9	0.2	2.1	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	40.0											
HCM 6th LOS	D											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Total AM
3. Main St & Goldwater Blvd

Winery Suites

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	3	9	476	4	382	
Traffic Volume (vph)	4	4	4	4	4	4	3	9	476	4	382	
Future Volume (vph)	4	4	4	4	4	4	3	9	476	4	382	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	8		8		8		6		6		2	
Permitted Phases	8	8	8	4	4	4	6	6	6	2	2	2
Detector Phase	8	8	8	4	4	4	6	6	6	2	2	2
Switch Phase	8	8	8	4	4	4	6	6	6	2	2	2
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0	70.0	70.0
Total Split (s)	50.0	50.0	50.0	50.0	50.0	50.0	90.0	90.0	90.0	90.0	90.0	90.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%	64.3%	64.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	5.2	5.2	5.2	5.2	5.2	5.2
Lead-Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	7.2	7.2	7.2	7.2	7.2	7.2	133.0	133.0	133.0	133.0	133.0	133.0
Actuated g/C Ratio	0.05	0.05	0.05	0.05	0.05	0.05	0.95	0.95	0.95	0.95	0.95	0.95
v/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.15	0.15	0.15	0.15	0.15	0.15
Control Delay	69.5	69.5	69.5	69.2	69.2	69.2	1.0	0.7	1.0	0.6	0.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	69.5	69.5	69.2	69.2	69.2	1.0	0.7	1.0	0.6	0.6	0.6
LOS	E	E	E	A	A	A	A	A	A	A	A	A
Approach Delay	69.5	69.5	69.5	69.2	69.2	69.2	0.7	0.7	0.7	0.6	0.6	0.6
Approach LOS	E	E	E	A	A	A	A	A	A	A	A	A
Intersection Summary												
Cycle Length: 140												
Actuated Cycle Length: 140												
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green												
Natural Cycle: 105												
Control Type: Actuated-Coordinated												
Maximum v/C Ratio: 0.21												
Intersection Signal Delay: 3.1												
Intersection Capacity Utilization 26.7%												
Analysis Period (min) 15												
Spills and Phases: 3: Main St & Goldwater Blvd												
04												
50 s												
06												
50 s												

Intersection	4: 69th St & 1st St											
Initial Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (veh/h)	21	13	12	13	3	3	2	45	8	8	28	4
Future Volume (veh/h)	21	13	12	13	3	3	2	45	8	8	28	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	No	No	No	No	No	No	No	No	No	No	No	No
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	4	4	10	4	3	10	10	517	1	4	415	14
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	40	20	36	41	17	37	853	3414	7	783	4761	160
Arrive On Green	0.04	0.04	0.04	0.04	0.04	0.04	0.89	0.89	0.89	0.89	0.89	0.89
Sat Flow, veh/h	230	534	955	242	461	1004	908	3830	7	837	5341	179
Grp Volume(v), veh/h	18	0	0	17	0	0	10	252	266	4	278	151
Grp Sat Flow(s),veh/hln	1720	0	0	1707	0	0	908	1870	1967	837	1792	1937
Q Serve(g.s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.4	2.4	0.1	1.3	1.3
Cycle Q Clear(g.c), s	1.4	0.0	0.0	1.3	0.0	0.0	1.5	2.4	2.4	2.5	1.3	1.3
Prop In Lane	0.22	0.56	0.24	0.59	1.00	0.00	0.00	1.00	1.00	0.00	0.09	0.09
Lane Grp Cap(c), veh/h	95	0	0	95	0	0	853	1667	1754	783	3194	1726
V/C Ratio(X)	0.19	0.00	0.00	0.18	0.00	0.00	0.01	0.15	0.15	0.01	0.09	0.09
Avail Cap(c), veh/h	574	0	0	570	0	0	853	1667	1754	783	3194	1726
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	65.6	0.0	0.0	65.5	0.0	0.0	1.0	1.0	1.0	1.1	0.9	0.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.1
%ile BackOf(50%),veh/h	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 BackOf(50%),veh/h	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.5	0.5	0.0	0.2	0.3
Unsig. Movement Delay, s/veh	65.9	0.0	0.0	65.8	0.0	0.0	1.0	1.1	1.1	1.1	0.9	1.0
LnGrp Delay(d),s/veh	E	A	A	E	A	A	A	A	A	A	A	A
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Delay, s/veh	18	65.9	65.9	17	65.8	65.8	1.1	1.1	1.1	433	1.0	1.0
Approach LOS	E	E	E	E	E	E	A	A	A	A	A	A
Timer - Assigned Phs	2	4	4	6	8	8	8	8	8	8	8	8
Phs Duration (G+Y+Rc), s	130.0	10.0	10.0	130.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Change Period (Y+Rc), s	* 5.2	* 4.8	* 4.8	* 5.2	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8
Max Green Sailing (Gmax), s	* 85	* 45	* 45	* 85	* 45	* 45	* 45	* 45	* 45	* 45	* 45	* 45
Max Q Clear Time (g_c+1T), s	4.5	3.3	3.3	4.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Green Ext Time (p_c), s	0.5	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Intersection Summary												
HCM 6th Ctrl Delay	3.3											
HCM 6th LOS	A											

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	111	112	32	122	110	54	34	0	0	58	0	0
Stage 1	50	50	58	58	-	-	-	-	-	-	-	-
Stage 2	61	62	64	62	52	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3,518	4,018	3,318	3,518	4,018	3,318	2,218	-	-	2,218	-	-
Pt Cap-1 Maneuver	867	778	1042	853	780	1013	1578	-	-	1546	-	-
Stage 1	963	853	-	954	847	-	-	-	-	-	-	-
Stage 2	950	843	-	947	852	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	857	773	1042	827	775	1013	1578	-	-	1546	-	-
Mov Cap-2 Maneuver	857	773	-	827	775	-	-	-	-	-	-	-
Stage 1	962	848	-	953	846	-	-	-	-	-	-	-
Stage 2	942	842	-	914	847	-	-	-	-	-	-	-
Approach	EB	WB	NB	NB	SB	SB	1.5					
HCM Control Delay, s	9.4	9.4	0.3	0.3	1.5	1.5						
HCM LOS	A	A	A	A	A	A						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLmTWBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1578	-	871	842	1546	-	-					
HCM Lane V/C Ratio	0.001	-	0.057	0.025	0.006	-	-					
HCM Control Delay (s)	7.3	0	9.4	9.4	7.3	0	-					
HCM Lane LOS	A	A	A	A	A	A	-					
HCM 95th %ile Q(veh)	0	-	0.2	0.1	0	-	-					

Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Total AM
5: Godwater Blvd & 1st St

Total AM
6: Alley & 69th St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection														
In Delay, s/veh														
0.4														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol. veh/h	8	1	9	1	0	4	3	489	1	3	386	10		
Future Vol. veh/h	8	1	9	1	0	4	3	489	1	3	386	10		
Conflicting Peds. #/hr	0	0	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	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	0	70	-	-	70	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	-	-
Grade, %	-	0	-	-	0	-	-	-	-	-	-	-	-	-
Peak Hour Factor	92	92	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	2	2
Mvmt Flow	9	1	10	1	0	4	3	532	1	3	420	11		

Intersection														
In Delay, s/veh														
2.1														
Movement	WBL	WBR	NBT	NBR	SBL	SBT								
Lane Configurations														
Traffic Vol. veh/h	4	16	40	16	13	41								
Future Vol. veh/h	4	16	40	16	13	41								
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Peak Hour Factor	92	92	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	2	2
Mvmt Flow	4	17	43	17	14	45								

Major/Minor	Minor2	Minor1	Major1	Major2										
Conflicting Flow All	704	971	216	714	976	267	431	0	0	533	0	0		
Stage 1	432	432	-	539	539	-	-	-	-	-	-	-		
Stage 2	272	539	-	175	437	-	-	-	-	-	-	-		
Critical Hdwy	6.99	6.54	7.14	6.99	6.54	6.94	5.34	-	-	4.14	-	-		
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-		
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-		
Plat Cap-1 Maneuver	350	251	671	345	250	731	730	-	-	1031	-	-		
Stage 1	503	581	-	479	520	-	-	-	-	-	-	-		
Stage 2	685	520	-	772	578	-	-	-	-	-	-	-		
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver	346	249	671	337	248	731	730	-	-	1031	-	-		
Mov Cap-2 Maneuver	346	249	-	337	248	-	-	-	-	-	-	-		
Stage 1	501	579	-	477	518	-	-	-	-	-	-	-		
Stage 2	678	518	-	757	576	-	-	-	-	-	-	-		
Approach	EB	WB	NB	WB	NB	SB								
HCM Control Delay, s	13.5	11.1	0.1	11.1	0.1	0.1								
HCM LOS	B	B	B	B	B	B								

Major/Minor	Minor1	Major1	Major2											
Conflicting Flow All	125	52	0	60	0									
Stage 1	52	-	-	-	-									
Stage 2	73	-	-	-	-									
Critical Hdwy	6.42	6.22	-	4.12	-									
Critical Hdwy Stg 1	5.42	-	-	-	-									
Critical Hdwy Stg 2	5.42	-	-	-	-									
Follow-up Hdwy	3,518	3,318	-	2,218	-									
Plat Cap-1 Maneuver	870	1016	-	1544	-									
Stage 1	970	-	-	-	-									
Stage 2	950	-	-	-	-									
Platoon blocked, %	-	-	-	-	-									
Mov Cap-1 Maneuver	862	1016	-	1544	-									
Mov Cap-2 Maneuver	862	-	-	-	-									
Stage 1	961	-	-	-	-									
Stage 2	950	-	-	-	-									
Approach	WB	NB	SB											
HCM Control Delay, s	8.8	0	1.8											
HCM LOS	A	A	A											

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR					
Capacity (veh/h)	730	-	444	337	731	1031	-	-	-					
HCM Lane V/C Ratio	0.004	-	0.044	0.003	0.006	0.003	-	-	-					
HCM Control Delay (s)	10	-	13.5	15.7	10	8.5	-	-	-					
HCM Lane LOS	A	-	B	C	B	A	-	-	-					
HCM 95th %tile Q(veh)	0	-	0.1	0	0	0	-	-	-					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT					
Capacity (veh/h)	-	981	1544	-	-					
HCM Lane V/C Ratio	-	0.022	0.009	-	-					
HCM Control Delay (s)	-	8.8	7.4	0	-					
HCM Lane LOS	-	A	A	A	A					
HCM 95th %tile Q(veh)	-	0.1	0	-	-					

Total AM
7: Alley & Goldwater Blvd

Total AM
8: 69th St & 2nd St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection												
Int Delay, s/veh												
0.1												
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations												
Traffic Vol, veh/h	0	12	0	492	387	8						
Future Vol, veh/h	0	12	0	492	387	8						
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	-	-	-	-						
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	0	13	0	535	421	9						
Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	-	215	-	0	-	0						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	7.14	-	-	-	-						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	3.92	-	-	-	-						
Pot Cap-1 Maneuver	0	672	0	-	-	-						
Stage 1	0	0	0	-	-	-						
Stage 2	0	0	0	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	672	-	-	-	-						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	10.5	0	0									
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR								
Capacity (veh/h)	-	672	-	-								
HCM Lane V/C Ratio	-	0.019	-	-								
HCM Control Delay (s)	-	10.5	-	-								
HCM Lane LOS	-	B	-	-								
HCM 95th %ile Q(veh)	-	0.1	-	-								

Intersection												
Int Delay, s/veh												
4.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	41	5	1	18	17	4	8	5	11	2	30
Future Vol, veh/h	32	41	5	1	18	17	4	8	5	11	2	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	35	45	5	1	20	18	4	9	5	12	2	33
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	38	0	0	50	0	0	167	158	48	156	151	29
Stage 1	-	-	-	-	-	-	118	118	-	31	31	-
Stage 2	-	-	-	-	-	-	49	40	-	125	120	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1572	-	-	1557	-	-	797	734	1021	810	741	1046
Stage 1	-	-	-	-	-	-	887	798	-	986	869	-
Stage 2	-	-	-	-	-	-	964	862	-	879	796	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1572	-	-	1557	-	-	756	716	1021	783	723	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	756	716	-	783	723	-
Stage 1	-	-	-	-	-	-	867	780	-	963	868	-
Stage 2	-	-	-	-	-	-	931	861	-	845	778	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	3	0.2	9.6	9								
HCM LOS	A	A	A	A								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	-	796	1572	-	-	1557	-	-	945			
HCM Lane V/C Ratio	-	0.023	0.022	-	-	0.001	-	-	0.049			
HCM Control Delay (s)	-	9.6	7.3	0	-	7.3	0	-	9			
HCM Lane LOS	-	A	A	A	-	A	-	-	A			
HCM 95th %ile Q(veh)	-	0.1	0.1	-	-	0	-	-	0.2			

Total AM
9: Godwater Blvd & 2nd St

Total AM
10: Alley & Access A

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection														
Init Delay, s/veh														
1.9														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol. veh/h	17	17	18	4	10	15	19	460	4	27	375	14		
Future Vol. veh/h	17	17	18	4	10	15	19	460	4	27	375	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
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	82	-
Veh in Median Storage, #	-	-	-	-	-	-	130	-	-	-	-	-	-	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	18	18	20	4	11	16	21	500	4	29	408	15		
Major/Minor	Minor2	Minor1	Major1	Major2										
Conflicting Flow All	772	1020	212	774	1025	252	423	0	0	504	0	0		
Stage 1	474	474	-	544	544	-	-	-	-	-	-	-		
Stage 2	298	546	-	230	481	-	-	-	-	-	-	-		
Critical Hdwy	6.99	6.54	7.14	6.99	6.54	6.94	5.34	-	-	4.14	-	-		
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-		
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-		
Pl Cap-1 Maneuver	317	235	675	316	234	748	736	-	-	1057	-	-		
Stage 1	471	556	-	476	517	-	-	-	-	-	-	-		
Stage 2	662	576	-	715	552	-	-	-	-	-	-	-		
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver	286	222	675	275	221	748	736	-	-	1057	-	-		
Mov Cap-2 Maneuver	286	222	-	275	221	-	-	-	-	-	-	-		
Stage 1	457	541	-	462	502	-	-	-	-	-	-	-		
Stage 2	615	501	-	652	537	-	-	-	-	-	-	-		
Approach	EB	WB	NB	WB	NB	SB								
HCM Control Delay, s	18.6	15.9	0.4	0.4	0.6	0.6								
HCM LOS	C	C	C	C	C	C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR						
Capacity (veh/h)	736	-	-	320	363	1057	-	-	-	-	-	-	1014	
HCM Lane V/C Ratio	0.028	-	-	0.177	0.087	0.028	-	-	-	-	-	-	0.031	
HCM Control Delay (s)	10	-	-	18.6	15.9	8.5	-	-	-	-	-	-	8.7	
HCM Lane LOS	B	-	-	C	C	A	-	-	-	-	-	-	A	
HCM 95th %ile Q(veh)	0.1	-	-	0.6	0.3	0.1	-	-	-	-	-	-	0.1	

Intersection														
Init Delay, s/veh														
6.7														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol. veh/h	25	1	2	8	11	18								
Future Vol. veh/h	25	1	2	8	11	18								
Conflicting Peds. #/hr	0	0	0	0	0	0								
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop		
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None		
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-		
Veh in Median Storage, #	-	-	-	-	-	-	-	-	-	-	-	-		
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-		
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	2	9	12	20								
Major/Minor	Major1	Major2	Minor2											
Conflicting Flow All	11	0	-	0	62	7								
Stage 1	-	-	-	-	-	-								
Stage 2	-	-	-	-	-	-								
Critical Hdwy	4.12	-	-	-	-	6.42	6.22							
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42							
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42							
Follow-up Hdwy	2.218	-	-	-	-	3.518	3.318							
Pl Cap-1 Maneuver	1608	-	-	-	-	944	1075							
Stage 1	-	-	-	-	-	-	1016							
Stage 2	-	-	-	-	-	-	968							
Platoon blocked, %	-	-	-	-	-	-	-							
Mov Cap-1 Maneuver	1608	-	-	-	-	928	1075							
Mov Cap-2 Maneuver	-	-	-	-	-	928	-							
Stage 1	-	-	-	-	-	-	999							
Stage 2	-	-	-	-	-	-	968							
Approach	EB	WB	SB											
HCM Control Delay, s	7	0	8.7											
HCM LOS	A	A	A											
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1									
Capacity (veh/h)	1608	-	-	-	-	-	-	-	-	-	-	-	-	1014
HCM Lane V/C Ratio	0.017	-	-	-	-	-	-	-	-	-	-	-	-	0.031
HCM Control Delay (s)	7.3	0	-	-	-	-	-	-	-	-	-	-	-	8.7
HCM Lane LOS	A	A	A	-	-	-	-	-	-	-	-	-	-	A
HCM 95th %ile Q(veh)	0.1	-	-	-	-	-	-	-	-	-	-	-	-	0.1

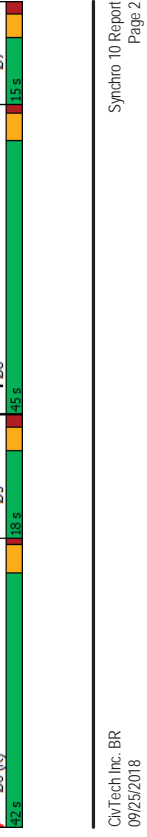
Winery Suites
HCM 6th TWSC

Total PM
2: Goldwater Blvd & Indian School Rd

Winery Suites
Timings

Intersection	3.9															
Init Delay, s/veh	3.9															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations	5	1065	38	55	1246	1	38	0	48	3	0	5				
Traffic Vol, veh/h	5	1065	38	55	1246	1	38	0	48	3	0	5				
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0				
Conflicting Peds, #/hr	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop				
Sign Control	-	-	None	-	None	-	-	None	-	None	-	None				
RT Channelized	50	-	75	-	0	-	-	-	-	-	-	-				
Storage Length	-	0	-	-	0	-	-	-	-	-	-	-				
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	-	-				
Grade, %	-	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	5	1158	41	60	1354	1	41	0	52	3	0	5				
Major/Minor	Major1	Major2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2	Minor1	Minor2				
Conflicting Flow All	1355	0	0	1199	0	0	1851	2664	600	1948	2684	678				
Stage 1	-	-	-	-	-	-	-	1189	1189	-	1475	1475				
Stage 2	-	-	-	-	-	-	-	662	1475	-	473	1209				
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14				
Critical Hdwy Stg 1	-	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54				
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54				
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92				
Pl Cap-1 Maneuver	263	-	-	313	-	-	79	22	381	68	22	388				
Stage 1	-	-	-	-	-	-	-	147	260	-	92	189				
Stage 2	-	-	-	-	-	-	-	380	189	-	494	254				
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	263	-	-	313	-	-	65	17	381	49	17	388				
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	65	17	-	49	17				
Stage 1	-	-	-	-	-	-	-	144	255	-	90	153				
Stage 2	-	-	-	-	-	-	-	302	153	-	418	249				
Approach	EB	WB	NB	WB	NB	SB	WB	NB	SB	WB	NB	SB				
HCM Control Delay, s	0.1	0.8	0.8	97.4	97.4	42.4	F	F	E	F	F	E				
HCM LOS																
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1								
Capacity (veh/h)	121	263	-	-	313	-	-	105								
HCM Lane V/C Ratio	0.773	0.021	-	-	0.191	-	-	0.083								
HCM Control Delay (s)	97.4	19	-	-	19.2	-	-	42.4								
HCM Lane LOS	F	C	-	-	C	-	-	E								
HCM 95th %ile Q(veh)	4.4	0.1	-	-	0.7	-	-	0.3								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W
Traffic Volume (vph)	159	920	61	62	1031	101	233	90	752	90	752	90
Future Volume (vph)	159	920	61	62	1031	101	233	90	752	90	752	90
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Prot	NA	Prot
Protected Phases	5	2	2	1	6	3	8	7	4	7	4	4
Permitted Phases	5	2	2	1	6	3	8	7	4	7	4	4
Detector Phase	5	2	2	1	6	3	8	7	4	7	4	4
Switch Phase	5	2	2	1	6	3	8	7	4	7	4	4
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0	11.0	16.0	16.0
Total Split (s)	18.0	46.0	46.0	14.0	42.0	15.0	45.0	15.0	45.0	15.0	45.0	45.0
Total Split (%)	15.0%	38.3%	38.3%	11.7%	35.0%	12.5%	37.5%	12.5%	37.5%	12.5%	37.5%	37.5%
Yellow Time (s)	3.3	4.0	4.0	3.3	4.0	3.3	4.0	3.3	4.0	3.3	4.0	4.0
All-Red Time (s)	2.0	1.0	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0	1.0	1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.0	5.0	5.3	5.0	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	10.6	55.1	55.1	6.9	49.4	13.1	13.2	25.9	26.0	13.2	25.9	26.0
Actuated g/C Ratio	0.09	0.46	0.46	0.06	0.41	0.11	0.11	0.22	0.22	0.11	0.22	0.22
v/C Ratio	0.60	0.58	0.09	0.36	0.78	0.60	0.73	0.27	0.82	0.73	0.27	0.82
Control Delay	61.4	28.2	0.7	59.3	36.5	64.2	58.3	39.8	49.8	58.3	39.8	49.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	28.2	0.7	59.3	36.5	64.2	58.3	39.8	49.8	58.3	39.8	49.8
LOS	E	C	A	E	D	E	D	E	D	E	D	D
Approach Delay												
Approach LOS												
Intersection Summary												
Cycle Length: 120												
Actuated Cycle Length: 120												
Offset: 0 (0%), Referenced to phase 2EBT and 6:WBT, Start of Green												
Natural Cycle: 75												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.82												
Intersection Signal Delay: 41.0												
Intersection Capacity Utilization 73.4%												
Analysis Period (min) 15												



Total PM
2. Goldwater Blvd & Indian School Rd

Winery Suites
 HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT
Traffic Volume (veh/h)	159	920	61	62	1031	60	101	233	48	90	752	124
Future Volume (veh/h)	159	920	61	62	1031	60	101	233	48	90	752	124
Initial Q (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	173	1000	66	67	1121	65	110	253	52	98	817	135
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	768	1278	513	649	1108	64	133	319	65	309	963	158
Arrive On Green	0.23	0.34	0.34	0.20	0.31	0.31	0.08	0.10	0.10	0.18	0.21	0.21
Sat Flow, veh/h	3274	3741	1502	3274	3593	208	1688	3100	627	1688	4651	764
Grp Sat Flow(s)/veh/hln	1637	1870	1502	1637	1870	1931	1688	1870	1856	1688	1792	1831
Q Serve(g.s), s	5.1	28.8	3.6	2.0	37.0	37.0	7.7	9.5	9.7	6.0	20.2	20.4
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	768	1278	513	649	1108	64	133	319	65	309	963	158
V/C Ratio(X)	0.23	0.78	0.13	0.10	1.01	0.83	0.78	0.81	0.32	0.32	0.85	0.85
Avail Cap(c), veh/h	758	1278	513	649	1108	64	133	319	65	309	963	158
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	37.4	35.5	27.2	39.4	41.5	41.5	54.5	52.5	52.6	42.5	45.7	45.8
Incr Delay (d2), s/veh	0.1	4.8	0.5	0.0	40.3	40.0	30.0	2.6	3.0	0.2	1.8	3.8
Initial Q Delay(Q3), 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 BackOf(50%),veh/h	2.1	13.9	1.4	0.8	23.3	24.0	4.4	4.6	4.7	2.6	9.2	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d)/s/veh	37.5	40.3	27.7	39.4	41.5	41.5	54.5	55.1	55.6	42.7	47.5	49.6
LnGrp LOS	D	D	C	D	F	F	F	F	E	E	D	D
Approach Vol. veh/h	1239			1253			415				1050	
Approach Delay, s/veh	39.2			79.4			63.1				47.7	
Approach LOS	D			E			E				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.1	46.0	14.8	30.2	33.1	42.0	27.3	17.7				
Change Period (Y+Rc), s	5.3	* 5	* 5.3	* 5.3	5.3	* 5	* 5.3	* 5.3				
Max Green Stalling (Gmax), s	8.7	* 41	* 9.7	* 40	12.7	* 37	* 9.7	* 40				
Max Q Clear Time (g_c+1t), s	4.0	30.8	9.7	22.4	7.1	39.0	8.0	11.7				
Green Ext Time (p_c), s	0.0	2.4	0.0	2.4	0.1	0.0	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay	56.7											
HCM 6th LOS	E											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Total PM
3. Main St & Goldwater Blvd

Winery Suites
 Timings

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	HT	HT	HT	HT	HT	HT	HT	HT
Traffic Volume (vph)	13	5	10	8	16	364	21	863
Future Volume (vph)	13	5	10	8	16	364	21	863
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	8		4		6		6	2
Permitted Phases	8	8	4	4	6	6	2	2
Detector Phase								
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (s)	50.0	50.0	50.0	50.0	90.0	90.0	90.0	90.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	64.3%	64.3%	64.3%	64.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.2	1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.8		4.8	5.2	5.2	5.2	5.2
Lead-Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	7.5	129.3	129.3	129.3	129.3	129.3	129.3	129.3
Actuated g/C Ratio	0.05	0.05	0.05	0.05	0.92	0.92	0.92	0.92
v/C Ratio	0.28	0.33	0.04	0.12	0.03	0.03	0.19	0.19
Control Delay	54.6	51.6	1.3	1.0	1.2	1.0	1.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	51.6	1.3	1.0	1.2	1.0	1.0	1.0
LOS	D	D	A	A	A	A	A	A
Approach Delay	54.6	51.6	51.6	51.6	1.0	1.0	1.0	1.0
Approach LOS	D	D	D	D	A	A	A	A
Intersection Summary								
Cycle Length: 140								
Actuated Cycle Length: 140								
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green								
Natural Cycle: 105								
Control Type: Actuated-Coordinated								
Maximum v/C Ratio: 0.33								
Intersection Signal Delay: 3.2								
Intersection Capacity Utilization 32.6%								
Analysis Period (min) 15								
Spills and Phases: 3: Main St & Goldwater Blvd								

Total PM
3. Main St & Goldwater Blvd

Winery Suites
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Traffic Volume (veh/h)	13	5	8	10	8	13	16	364	13	21	853	26
Future Volume (veh/h)	13	5	8	10	8	13	16	364	13	21	853	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pb1)	1.00	1.00	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1772	1969	1772	1772	1969	1772	1772	1969	1772	1772	1969	1772
Adj Flow Rate, veh/h	14	5	9	11	9	14	17	396	14	23	927	28
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	67	24	25	52	29	32	529	3255	115	855	4734	143
Arrive On Green	0.05	0.05	0.05	0.05	0.05	0.05	0.88	0.88	0.88	0.88	0.88	0.88
Sat Flow, veh/h	632	532	551	385	628	709	557	3686	130	924	5361	162
Grp Volume(v), veh/h	28	0	0	34	0	0	17	201	209	23	619	336
Grp Sat Flow(s), veh/hln	1714	0	0	1721	0	0	557	1870	1945	924	1792	1940
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	0.6	2.0	2.0	0.5	3.4	3.4
Cycle Q Clear(g_c), s	2.0	0.0	0.0	2.6	0.0	0.0	4.1	2.0	2.0	2.4	3.4	3.4
Prop In Lane	0.50	0.32	0.32	0.41	1.00	0.41	1.00	0.07	1.00	0.08	1.00	0.08
Lane Grp Cap(c), veh/h	117	0	0	112	0	0	529	1652	1718	855	3164	1713
V/C Ratio(X)	0.24	0.00	0.00	0.30	0.00	0.00	0.03	0.12	0.12	0.03	0.20	0.20
Avail Cap(c), veh/h	560	0	0	574	0	0	529	1652	1718	855	3164	1713
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.58	0.58	0.58
Uniform Delay (d), s/veh	64.7	0.0	0.0	65.0	0.0	0.0	1.4	1.1	1.1	1.2	1.2	1.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.1
Initial Q Delay(Q), 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 BackOf(50%), veh/h	1.0	0.0	0.0	1.2	0.0	0.0	0.1	0.4	0.5	0.1	0.7	0.7
Unsig. Movement Delay, s/veh	65.1	0.0	0.0	65.5	0.0	0.0	1.6	1.2	1.2	1.3	1.2	1.3
LnGrp Delay(d), s/veh	E	A	A	E	A	A	A	A	A	A	A	A
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	28	0	0	34	0	0	17	201	209	23	619	336
Approach Delay, s/veh	65.1	0.0	0.0	65.5	0.0	0.0	1.6	1.2	1.2	1.3	1.2	1.3
Approach LOS	E	A	A	E	A	A	A	A	A	A	A	A
Timer - Assigned PHS	2	4	4	6	6	6	8	8	8	8	8	8
PHS Duration (G+Y+Rc), s	128.8	11.2	11.2	128.8	11.2	11.2	128.8	11.2	11.2	11.2	11.2	11.2
Change Period (Y+Rc), s	* 5.2	* 4.8	* 4.8	* 5.2	* 4.8	* 4.8	* 5.2	* 4.8	* 4.8	* 4.8	* 4.8	* 4.8
Max Green Sailing (Gmax), s	* 85	* 45	* 45	* 85	* 45	* 45	* 85	* 45	* 45	* 45	* 45	* 45
Max Q Clear Time (g_c+1T), s	5.4	4.6	4.6	6.1	4.0	4.0	6.1	4.0	4.0	4.0	4.0	4.0
Green Ext Time (p_Lc), s	1.3	0.1	0.1	0.5	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.1
Intersection Summary												
HCM 6th Ctrl Delay	4.0											
HCM 6th LOS	A											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Total PM
4. 69th St & 1st St

Winery Suites
HCM 6th TWSC

Intersection	2.4											
In Delay, s/veh	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Traffic Vol, veh/h	8	4	3	3	4	10	8	35	4	5	74	10
Future Vol, veh/h	8	4	3	3	4	10	8	35	4	5	74	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	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	4	3	3	4	11	9	38	4	5	80	11
Major/Minor	Minor2	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1	Minor1
Conflicting Flow All	162	156	86	157	159	40	91	0	0	42	0	0
Stage 1	96	96	-	58	58	-	-	-	-	-	-	-
Stage 2	66	60	-	99	101	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3,518	4,018	3,518	4,018	3,518	2,218	-	-	-	2,218	-	-
Pt Cap-1 Maneuver	803	736	973	809	733	1031	1504	-	-	1567	-	-
Stage 1	911	815	-	954	847	-	-	-	-	-	-	-
Stage 2	945	845	-	907	811	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	785	729	973	797	726	1031	1504	-	-	1567	-	-
Mov Cap-2 Maneuver	785	729	-	797	726	-	-	-	-	-	-	-
Stage 1	906	813	-	948	842	-	-	-	-	-	-	-
Stage 2	925	840	-	896	809	-	-	-	-	-	-	-
Approach	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
HCM Control Delay, s	9.6	9.1	9.1	9.1	9.1	1.3	0.4	0.4	0.4	0.4	0.4	0.4
HCM LOS	A	A	A	A	A	A	A	A	A	A	A	A
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLm1	WBLm1	NBL	NBT	NBR	EBLm1	WBLm1	NBL	NBT
Capacity (veh/h)	1504	-	-	800	896	1567	-	-	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	0.02	0.021	0.003	-	-	-	-	-	-
HCM Control Delay (s)	7.4	0	0	9.6	9.1	7.3	0	0	0	0	0	0
HCM Lane LOS	A	A	A	A	A	A	A	A	A	A	A	A
HCM 95th %ile Q(veh)	0	-	-	0.1	0.1	0	-	-	-	-	-	-

Total PM
5: Godwater Blvd & 1st St

Total PM
6: Alley & 69th St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection													
In Delay, s/veh													
0.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol. veh/h	8	0	8	2	0	1	14	378	1	4	848	12	
Future Vol. veh/h	8	0	8	2	0	1	14	378	1	4	848	12	
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
Storage Length	-	-	-	-	-	-	0	70	-	-	70	-	-
Veh in Median Storage, #	-	-	-	-	-	-	0	0	-	-	0	-	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-	-
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	9	2	0	1	15	411	1	4	922	13	

Intersection													
In Delay, s/veh													
1.3													
Movement	WBL	WBR	NBT	NBR	SBL	SBT							
Lane Configurations													
Traffic Vol. veh/h	3	12	40	17	10	71	4						
Future Vol. veh/h	3	12	40	17	10	71							
Conflicting Peds. #/hr	0	0	0	0	0	0	0						
Sign Control	Stop	Stop	Free	Free	Free	Free							
RT Channelized	-	None	-	None	-	None							
Storage Length	0	-	-	-	-	-							
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	13	43	18	11	77							

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1173	1379	468	819
Stage 1	937	937	442	442
Stage 2	236	442	377	943
Critical Hdwy	6.99	6.54	7.14	6.99
Critical Hdwy Stg 1	7.34	5.54	6.54	5.54
Critical Hdwy Stg 2	6.54	5.54	6.74	5.54
Follow-up Hdwy	3.67	4.02	3.92	3.67
Pl Cap-1 Maneuver	172	143	463	295
Stage 1	225	342	546	575
Stage 2	719	575	583	339
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	167	137	463	281
Mov Cap-2 Maneuver	167	137	281	136
Stage 1	217	341	526	554
Stage 2	692	554	570	338

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	151	52	0
Stage 1	52	-	-
Stage 2	99	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pl Cap-1 Maneuver	841	1016	-
Stage 1	970	-	-
Stage 2	925	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	835	1016	-
Mov Cap-2 Maneuver	835	-	-
Stage 1	963	-	-
Stage 2	925	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.8	15.1	0.5	0
HCM LOS	C	C	C	C

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.9
HCM LOS	A	A	A

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	421	-	245	281	800	1143	-	-	-
HCM Lane V/C Ratio	0.036	-	0.071	0.008	0.001	0.004	-	-	-
HCM Control Delay (s)	13.9	-	20.8	17.9	9.5	8.2	-	-	-
HCM Lane LOS	B	-	C	C	A	A	-	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0	0	0	-	-	-

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	974	1542	-
HCM Lane V/C Ratio	-	-	0.017	0.007	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Total PM
7: Alley & Goldwater Blvd

Total PM
8: 69th St & 2nd St

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection												
Init Delay, s/veh												
4.7												
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations				↑↑↑↑↑								
Traffic Vol, veh/h	0	9	0	406	858	9						
Future Vol, veh/h	0	9	0	406	858	9						
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	-	-	-	-						
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	0	10	0	441	933	10						
Major/Minor												
Major2 Major1 Major2												
Conflicting Flow All	-	472	-	0	-	0						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	7.14	-	-	-	-						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	3.92	-	-	-	-						
Pot Cap-1 Maneuver	0	461	0	-	-	-						
Stage 1	0	0	0	-	-	-						
Stage 2	0	0	0	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	461	-	-	-	-						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach												
EB NB SB												
HCM Control Delay, s	13	0	0	0	0	0						
HCM LOS	B											
Minor Lane/Major Mvmt												
NBT EBLn1 SBT SBR												
Capacity (veh/h)	-	461	-	-	-	-						
HCM Lane V/C Ratio	-	0.021	-	-	-	-						
HCM Control Delay (s)	-	13	-	-	-	-						
HCM Lane LOS	-	B	-	-	-	-						
HCM 95th %ile Q(veh)	-	0.1	-	-	-	-						

Intersection												
Init Delay, s/veh												
4.7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔			↔		↔		↔	
Traffic Vol, veh/h	23	33	10	5	58	19	5	10	8	9	20	46
Future Vol, veh/h	23	33	10	5	58	19	5	10	8	9	20	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	25	36	11	5	63	21	5	11	9	10	22	50
Major/Minor												
Major1 Major2 Minor1 Minor2												
Conflicting Flow All	84	0	0	47	0	0	212	186	42	186	181	74
Stage 1	-	-	-	-	-	-	92	92	-	84	84	-
Stage 2	-	-	-	-	-	-	120	94	-	102	97	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1513	-	-	1560	-	-	745	708	1029	775	713	988
Stage 1	-	-	-	-	-	-	915	819	-	924	825	-
Stage 2	-	-	-	-	-	-	884	817	-	904	815	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1513	-	-	1560	-	-	680	694	1029	748	699	988
Mov Cap-2 Maneuver	-	-	-	-	-	-	680	694	-	748	699	-
Stage 1	-	-	-	-	-	-	899	805	-	908	823	-
Stage 2	-	-	-	-	-	-	815	815	-	869	801	-
Approach												
EB WB NB SB												
HCM Control Delay, s	2.6			0.4			9.8			9.6		
HCM LOS	A			A			A			A		
Minor Lane/Major Mvmt												
NBLn1 EBL EBT EBR WBL WBT WBR SBLn1												
Capacity (veh/h)	779	1513	-	-	1560	-	-	-	-	860	-	-
HCM Lane V/C Ratio	0.032	0.017	-	-	0.003	-	-	-	-	0.095	-	-
HCM Control Delay (s)	9.8	7.4	0	-	7.3	0	-	-	-	9.6	-	-
HCM Lane LOS	A	A	A	-	A	A	-	-	-	A	-	-
HCM 95th %ile Q(veh)	0.1	0.1	-	-	0	-	-	-	-	0.3	-	-

Total PM
9: Godwater Blvd & 2nd St

Total PM
10: Alley & Access A

Winery Suites
HCM 6th TWSC

Winery Suites
HCM 6th TWSC

Intersection																
Ini Delay, s/veh																
3																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations													↔	↔	↔	↔
Traffic Vol, veh/h	5	18	26	11	21	47	33	355	17	30	808	25				
Future Vol, veh/h	5	18	26	11	21	47	33	355	17	30	808	25				
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	-	-	-	-	-	-	-	-	-	-	-	-				
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-				
Veh in Median Storage, #	-	0	-	-	0	-	-	130	-	-	-	-				
Grade, %	-	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	5	20	28	12	23	51	36	386	18	33	878	27				
Major/Minor	Minor2	Minor1	Major1	Major2				Major2								
Conflicting Flow All	1235	1434	453	894	1438	202	905	0	0	404	0	0				
Stage 1	958	958	-	467	467	-	-	-	-	-	-	-				
Stage 2	277	476	-	427	971	-	-	-	-	-	-	-				
Critical Hdwy	6.99	6.54	7.14	6.99	6.54	6.94	5.34	-	-	4.14	-	-				
Critical Hdwy Stg 1	7.34	5.54	-	6.54	5.54	-	-	-	-	-	-	-				
Critical Hdwy Stg 2	6.54	5.54	-	6.74	5.54	-	-	-	-	-	-	-				
Follow-up Hdwy	3.67	4.02	3.92	3.67	4.02	3.32	3.12	-	-	2.22	-	-				
Pl Cap-1 Maneuver	157	133	474	263	132	805	435	-	-	1151	-	-				
Stage 1	218	334	-	528	560	-	-	-	-	-	-	-				
Stage 2	681	555	-	544	329	-	-	-	-	-	-	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	115	118	474	198	117	805	435	-	-	1151	-	-				
Mov Cap-2 Maneuver	115	118	-	198	117	-	-	-	-	-	-	-				
Stage 1	200	324	-	484	514	-	-	-	-	-	-	-				
Stage 2	559	509	-	467	319	-	-	-	-	-	-	-				
Approach	EB	WB	NB	SB				SB								
HCM Control Delay, s	30.3	24.5	1.1	1.1	0.3				0.3							
HCM LOS	D	C	C	C	D				D							
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBLn1	SBR									
Capacity (veh/h)	435	-	-	195	269	1151	-	-	-	-	-	-				
HCM Lane V/C Ratio	0.082	-	-	0.273	0.319	0.028	-	-	-	-	-	-				
HCM Control Delay (s)	14	-	-	30.3	24.5	8.2	-	-	-	-	-	-				
HCM Lane LOS	B	-	-	D	C	A	-	-	-	-	-	-				
HCM 95th %ile Q(veh)	0.3	-	-	1.1	1.3	0.1	-	-	-	-	-	-				

Intersection																
Ini Delay, s/veh																
6.8																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations													↔	↔	↔	↔
Traffic Vol, veh/h	27	0	0	0	9	9	16	16	9	9	16	16				
Future Vol, veh/h	27	0	0	0	9	9	16	16	9	9	16	16				
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free				
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-				
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-				
Veh in Median Storage, #	-	0	0	0	0	0	0	0	0	0	0	0				
Grade, %	-	0	0	0	0	0	0	0	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	29	0	0	0	10	10	10	10	10	10	10	17				
Major/Minor	Major1	Major2	Minor2				Minor2									
Conflicting Flow All	10	0	-	0	63	5	-	-	-	-	-	-				
Stage 1	-	-	-	-	-	5	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	58	-	-	-	-	-	-				
Critical Hdwy	4.12	-	-	-	-	6.42	6.22	-	-	-	-	-				
Critical Hdwy Stg 1	-	-	-	-	-	5.42	-	-	-	-	-	-				
Critical Hdwy Stg 2	-	-	-	-	-	5.42	-	-	-	-	-	-				
Follow-up Hdwy	2.218	-	-	-	-	3.518	3.318	-	-	-	-	-				
Pl Cap-1 Maneuver	1610	-	-	-	-	943	1078	-	-	-	-	-				
Stage 1	-	-	-	-	-	1018	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	965	-	-	-	-	-	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	1610	-	-	-	-	926	1078	-	-	-	-	-				
Mov Cap-2 Maneuver	-	-	-	-	-	926	-	-	-	-	-	-				
Stage 1	-	-	-	-	-	1000	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	965	-	-	-	-	-	-				
Approach	EB	WB	SB				SB									
HCM Control Delay, s	7.3	0	8.6				8.6									
HCM LOS	A	A	A				A									
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBRn1										
Capacity (veh/h)	1610	-	-	-	-	1018	-	-	-	-	-					
HCM Lane V/C Ratio	0.018	-	-	-	-	0.027	-	-	-	-	-					
HCM Control Delay (s)	7.3	0	-	-	-	8.6	-	-	-	-	-					
HCM Lane LOS	A	A	A	-	-	A	-	-	-	-	-					
HCM 95th %ile Q(veh)	0.1	-	-	-	-	0.1	-	-	-	-	-					

APPENDIX J

QUEUE STORAGE ANALYSIS

Winery Suites

Signalized Intersection
2020

Queue Length Analysis

Average Vehicle Length (ft): 25
 Intersection Cycle Length (sec): 120
 Equation Used: storage length = 2 x (vehicles/hour)/(cycles/hour) x average vehicle length

Cycles: 2

Intersection	Approach	AM Peak		Midday		PM Peak		Max Trucks per 2 cycles	Max Trucks per 2 cycles	Storage Length
		(veh/hr)	Peak	(veh/hr)	Peak	(veh/hr)	Peak			
Goldwater Blvd & Indian School Rd.	NB Left	66	0	101	0	7	0	0	0	175'
	SB Left	31	0	90	0	6	0	0	0	150'
	EB Left	177	0	159	0	12	0	0	0	300'
Goldwater Blvd & Main St	WB Left	67	0	62	0	5	0	0	0	125'
	EB Right	71	0	61	0	5	0	0	0	125'
	NB Left	9	0	16	0	2	0	0	0	50'
	SB Left	4	0	21	0	2	0	0	0	50'



Winery Suites

Unsignalized Intersection
2020

Queue Length Analysis

Average Vehicle Length (ft): 25

Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Approach	AM Peak		Midday		PM Peak		Veh per 2 minutes	Trucks per 2 minutes	Storage Length
		(veh/hr)	Peak	(veh/hr)	Peak	(veh/hr)	Peak			
69th St & Indian School Rd.	EB Left	7	0	5	0	1	0	0	0	25'
	WB Left	30	0	55	0	2	0	0	0	50'
	NB Left	19	0	33	0	2	0	0	0	50'
Goldwater Blvd. & 2nd St.	SB Left	27	0	30	0	1	0	0	0	25'



Queue Length
2: Goldwater Blvd & Indian School Rd

Winery Suites
Queues

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	173	1000	66	67	1186	110	305	98	952
Lane Group Flow (vph)	0.60	0.58	0.09	0.36	0.78	0.60	0.73	0.27	0.82
v/c Ratio	61.4	28.2	0.7	59.3	36.5	64.2	58.3	39.8	49.8
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	61.4	28.2	0.7	59.3	36.5	64.2	58.3	39.8	49.8
Total Delay	61.4	28.2	0.7	59.3	36.5	64.2	58.3	39.8	49.8
Queue Length 50th (ft)	67	306	0	26	415	82	114	63	252
Queue Length 95th (ft)	103	445	4	50	653	139	157	107	285
Internal Link Dist (ft)	548			753		580		255	
Turn Bay Length (ft)	275	165	155	105		180			
Base Capacity (vph)	344	1711	752	235	1523	187	1214	361	1752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.58	0.09	0.29	0.78	0.59	0.25	0.27	0.54
Intersection Summary									
#	95th percentile volume exceeds capacity, queue may be longer.								
	Queue shown is maximum after two cycles.								

Queue Length
3: Main St & Goldwater Blvd

Winery Suites
Queues

	EBT	WBT	NBT	SBT
Lane Group	28	34	17	410
Lane Group Flow (vph)	0.28	0.33	0.04	0.12
v/c Ratio	54.6	51.6	1.3	1.0
Control Delay	0.0	0.0	0.0	0.0
Queue Delay	54.6	51.6	1.3	1.0
Total Delay	54.6	51.6	1.3	1.0
Queue Length 50th (ft)	17	18	1	18
Queue Length 95th (ft)	50	55	5	28
Internal Link Dist (ft)	234	426	251	580
Turn Bay Length (ft)	565	553	467	833
Base Capacity (vph)	0	0	0	0
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.06	0.04	0.12
Intersection Summary				

APPENDIX K

SIGHT DISTANCE ANALYSIS

SITE DISTANCE

SIX LANE ROADWAY¹

SIGHT DISTANCE						
DESIGN SPEED	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	304	340	403	440	476	513
30	364	408	483	527	572	616
35	425	476	564	615	667	718
40	486	544	644	703	762	821
45	546	612	725	791	857	923
50	607	680	805	879	952	1026
55	668	748	886	967	1048	1128

FOUR LANE ROADWAY¹

SIGHT DISTANCE						
DESIGN SPEED	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	285	322	377	414	451	487
30	342	386	453	497	541	585
35	399	451	528	579	631	682
40	456	515	603	662	721	780
45	513	579	679	745	811	877
50	570	644	754	827	901	974
55	627	708	829	910	991	1072

THREE LANE ROADWAY¹

SIGHT DISTANCE						
DESIGN SPEED	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	267	304	351	388	425	462
30	320	364	422	466	510	554
35	374	425	492	543	595	646
40	427	486	562	621	680	738
45	480	546	632	698	765	831
50	267	304	351	388	425	462
55	320	364	422	466	510	554

SITE DISTANCE

TWO LANE ROADWAY¹

SIGHT DISTANCE						
DESIGN SPEED	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	239	276	313	350	386	423
30	287	331	375	419	464	508
35	335	386	438	489	541	592
40	383	441	500	559	618	677
45	430	497	563	629	695	761
50	478	552	625	699	772	846
55	526	607	688	769	849	930

Notes: ¹

Cross section assumed to include a 12' median/center lane and 6' bike lane

TH = Through Movement, LT = Turn Movement

All distances given in feet

Design speed by roadway classification is shown in Appendix 5-3A

For cross sections deviating from the tabulated configurations, refer to the AASHTO Geometric Design of Highways and Streets (current editions) for additional information