



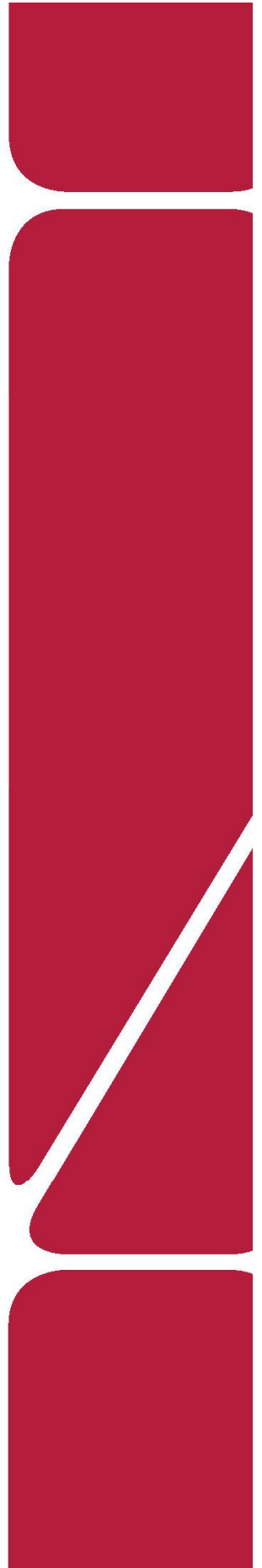
Traffic Impact Study

Vista Creek Multi-Family Aurora, Colorado

Prepared for:

Forum Real Estate Group, LLC

Kimley»Horn



T R A F F I C I M P A C T S T U D Y

Vista Creek Multi-Family

Aurora, Colorado

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1.0 EXECUTIVE SUMMARY

Vista Creek Multi-Family is proposed to be located on the southwest corner of the 6th Avenue and Gun Club Road intersection in Aurora, Colorado. For the purposes of this analysis, the project is anticipated to include 321 multifamily dwelling units. It is expected that Vista Creek Multi-Family will be completed in the next several of years; therefore, analysis was conducted for the 2024 and 2045 horizons.

The purpose of this traffic study is to identify project traffic generation characteristics and potential project traffic related impacts on the local street system, as well as to develop mitigation measures required for identified impacts. The following intersections were incorporated into this traffic study in accordance with City of Aurora standards and requirements:

- 6th Avenue and Gun Club Road
- 5th Avenue and Gun Club Road
- 6th Parkway and Gun Club Road
- Colfax Avenue and Gun Club Road/I-70 Frontage Road

Regional access to Vista Creek Multi-Family will be provided by Interstate 70 (I-70), E-470, and Interstate 225 (I-225). Primary access to the project is provided by 6th Parkway and Gun Club Road. Direct access is proposed from the future west legs of 5th Avenue and 6th Avenue at Gun Club Road.

Vista Creek Multi-Family is expected to generate approximately 1,748 weekday daily trips, with 107 of these trips occurring during the morning peak hour and 136 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes Vista Creek Multi-Family will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

2024 Recommendations

- With buildout of the project, the west leg will be constructed at the intersection of 6th Avenue and Gun Club Road and will provide access to the project. The eastbound exiting approach of this intersection should provide two egress lanes with a 50-foot eastbound left turn lane and a shared through/right turn lane. It is recommended that a R1-1 “STOP” sign be installed by the project at the eastbound approach of the 6th Avenue and Gun Club Road intersection. A northbound and southbound left turn lane and a southbound right turn lane should be implemented at the 6th Avenue and Gun Club Road intersection. The northbound left turn lane and southbound right turn lane should be constructed by the project, whereas the southbound left turn lane is anticipated to be constructed by Cross Creek. These northbound left and southbound right turn lanes should provide 50 feet of length. The southbound left turn lane should provide a length of 75 feet. The existing southbound left turn volumes warrant a turn lane with City of Aurora standards.
- It is anticipated that the proposed adjacent development to the south, Lamar Landing Subdivision, will be built out prior to the project and will construct the west leg and a northbound left turn lane at the 5th Avenue and Gun Club Road intersection. The intersection of 5th Avenue and Gun Club Road is anticipated to meet four-hour vehicular volume warrants in 2024; therefore, signalization is anticipated to be the appropriate control at this intersection by 2024. If signalized, the eastbound and westbound approaches of this intersection should provide 75-foot designated left turn lanes and a shared through/right turn lane, and the northbound approach should consist of a 50-foot designated left turn lane and a shared through/right turn lane. It should be noted that signalization is triggered by traffic volumes on the east leg of this intersection; therefore, it is believed that westbound left turn lane and signalization will be constructed in association with the development of Cross Creek.
- It is recommended that the eastbound left turn lane at the 6th Parkway and Gun Club Road intersection be extended to 225 feet. A southbound right turn should be constructed with a

length of 50 feet at this intersection. These turn lane improvements are anticipated with development of the Lamar Landing project.

2045 Recommendations

- By 2045, the City of Aurora six-lane cross section is expected to be provided by others along 6th Parkway within the project limits. Further, Gun Club Road is expected to be constructed by others to the ultimate street section of two through lanes in each direction.
- The intersection of 6th Avenue and Gun Club Road is anticipated to meet four-hour vehicular volume warrants in 2045; therefore, signalization may be needed by 2045 which is consistent with the Aurora Crossroads study. If signalized, the westbound approaches of this intersection should provide a designated left turn lane. It should be noted that signalization is triggered by traffic volumes on the east leg of this intersection; therefore, it is believed that westbound left turn lane and signalization will be constructed in association with the development of Cross Creek.
- Eastbound and westbound dual left turn lanes and an eastbound right turn lane may be needed at the 6th Parkway and Gun Club Road intersection by 2045. It should be noted that these improvements are consistent with the findings in the Aurora Crossroads study and should be provided as a background improvement.
- By 2045, the intersection of Colfax Avenue and I-70 Frontage Road is anticipated to be realigned so that Colfax Avenue extends east-west, and the I-70 Frontage Road extend north-south. With this realignment, the eastbound approach should consist of a left turn lane and two through lanes while the westbound approach should include two through lanes with the outside lane being a shared through/right turn lane. The southbound approach should be stop-controlled with a R1-1 STOP sign and provide separate left and right turn lanes. Of note, these improvements are consistent with the findings in the Aurora Crossroads study and should be provided as a background improvement.

General Recommendations:

- Any on-site and off-site roadway, signing, striping, and signal improvements should be incorporated into the Civil Drawings, and conform to City of Aurora standards as well as the Manual on Uniform Traffic Control Devices – 2009 Edition (MUTCD).

2.0 INTRODUCTION

Kimley-Horn and Associates, Inc. has prepared this report to document the results of the Traffic Study for the proposed Vista Creek Multi-Family project to be located on the southwest corner of the 6th Avenue and Gun Club Road intersection in Aurora, Colorado. A vicinity map illustrating the Vista Creek Multi-Family development area site Aurora is shown in **Figure 1**. For the purposes of this analysis, Vista Creek Multi-Family is anticipated to include 321 multifamily dwelling units. A conceptual land use plan is attached in **Figure 2**. It is expected that Vista Creek Multi-Family will be completed in the next several years; therefore, analysis was conducted for the 2024 short term horizon as well as the 2045 long-term horizon.

The purpose of this traffic study is to identify project traffic generation characteristics and potential project traffic related impacts on the local street system, as well as to develop mitigation measures required for identified impacts. The following intersections were incorporated into this traffic study in accordance with City of Aurora standards and requirements:

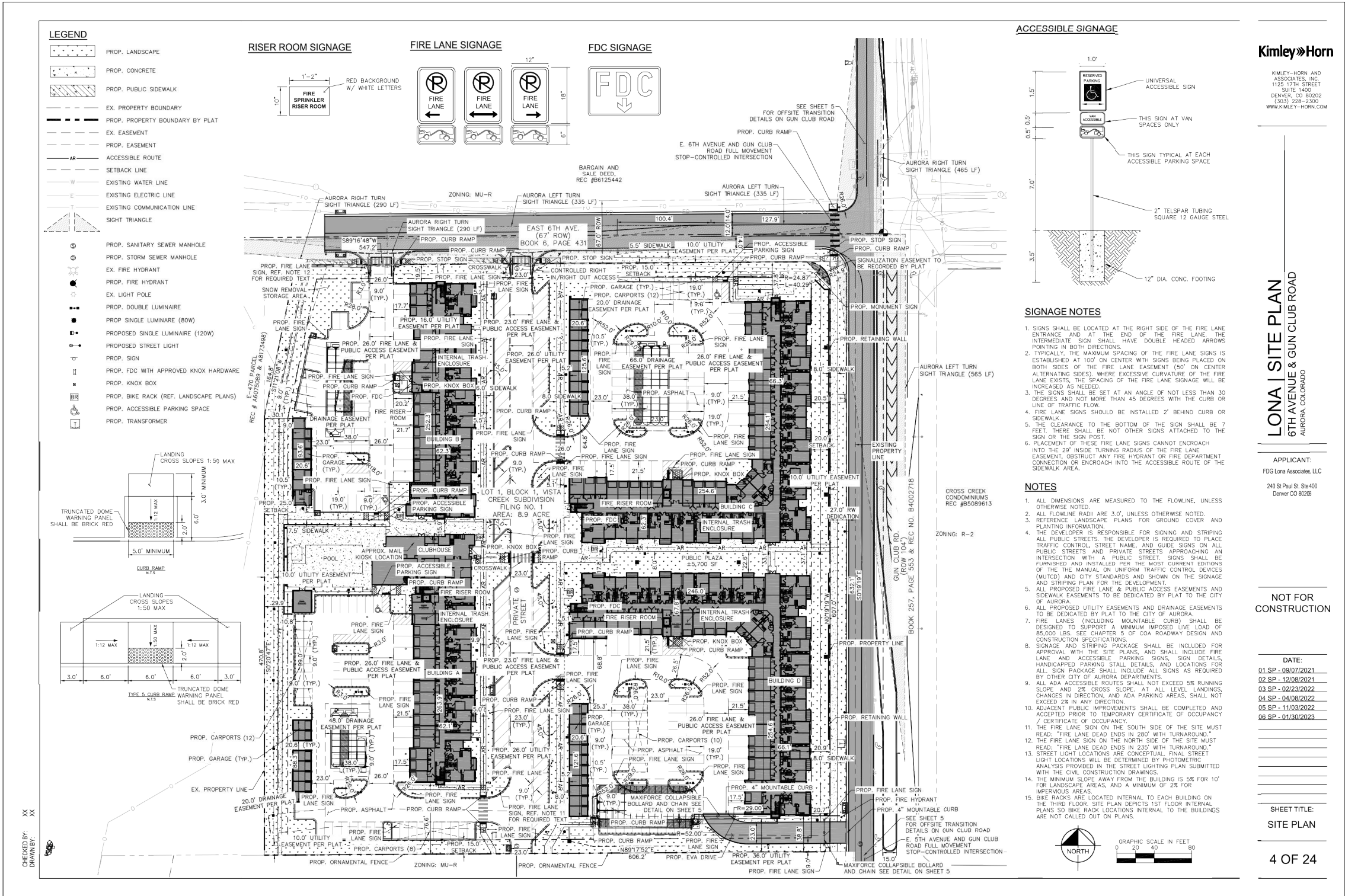
- 6th Avenue and Gun Club Road
- 5th Avenue and Gun Club Road
- 6th Parkway and Gun Club Road
- Colfax Avenue and Gun Club Road/I-70 Frontage Road

Regional access to Vista Creek Multi-Family will be provided by Interstate 70 (I-70), E-470, and Interstate 225 (I-225). Primary access to the project is provided by 6th Parkway and Gun Club Road. Direct access is proposed from the future west legs of 5th Avenue and 6th Avenue at Gun Club Road.



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
VICINITY MAP

FIGURE 1



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
SITE PLAN

FIGURE 2



3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area/Site Visit

The existing site is comprised of vacant land. The project location is mainly surrounded by vacant land with some residential housing to the east. To the south is the proposed Lamar Landing Subdivision and directly to the east are multifamily homes. The project site backs up to E-470 to the west. Buckley Air Force Base is located in the extended area west of the project.

3.2 Existing Roadway Network

6th Parkway provides one through lane eastbound and westbound with a 45 mile per hour posted speed. Gun Club Road provides one lane of travel in each direction, northbound and southbound, with a speed limit of 45 miles per hour. 6th Parkway and Gun Club Road both provide a striped centerline and a left turn lane at 5th Avenue along Gun Club Road. The east leg of 6th Parkway at Gun Club Road provides a raised median and is built to the ultimate configuration of three through lanes in each direction. 5th Avenue and 6th Avenue both are collector streets extending eastbound and westbound with one through lane of travel in each direction.

6th Avenue and Gun Club Road is a three-leg stop controlled intersection, with a stop sign on the westbound approach. The westbound and southbound approaches consist of a single lane for all available movements. The northbound approach consists of a right turn lane and a through lane. An aerial photo of the existing intersection configuration is below (north is up - typical).



6th Avenue & Gun Club Road

5th Avenue and Gun Club Road is a three-leg stop-controlled intersection, with a stop sign on the westbound approach. The westbound and northbound approaches consist of a single lane for all available movements. The southbound approach consists of a left turn lane and a through lane. An aerial photo of the existing intersection configuration is below (typ.).



5th Avenue & Gun Club Road

The 6th Parkway and Gun Club Road intersection is a four-leg signalized intersection. The westbound and northbound approaches consist of a left turn lane, a through lane, and a right turn lane. The eastbound and southbound approach consists of a left turn lane and a shared through/right turn lane. According to the October 2018 Northeast Area Transportation Study Refresh, 6th Parkway is planned to be a 6-lane roadway and Gun Club Road is planned to be a 4-lane roadway by 2040. An aerial photo of the existing intersection configuration is below (typ.).



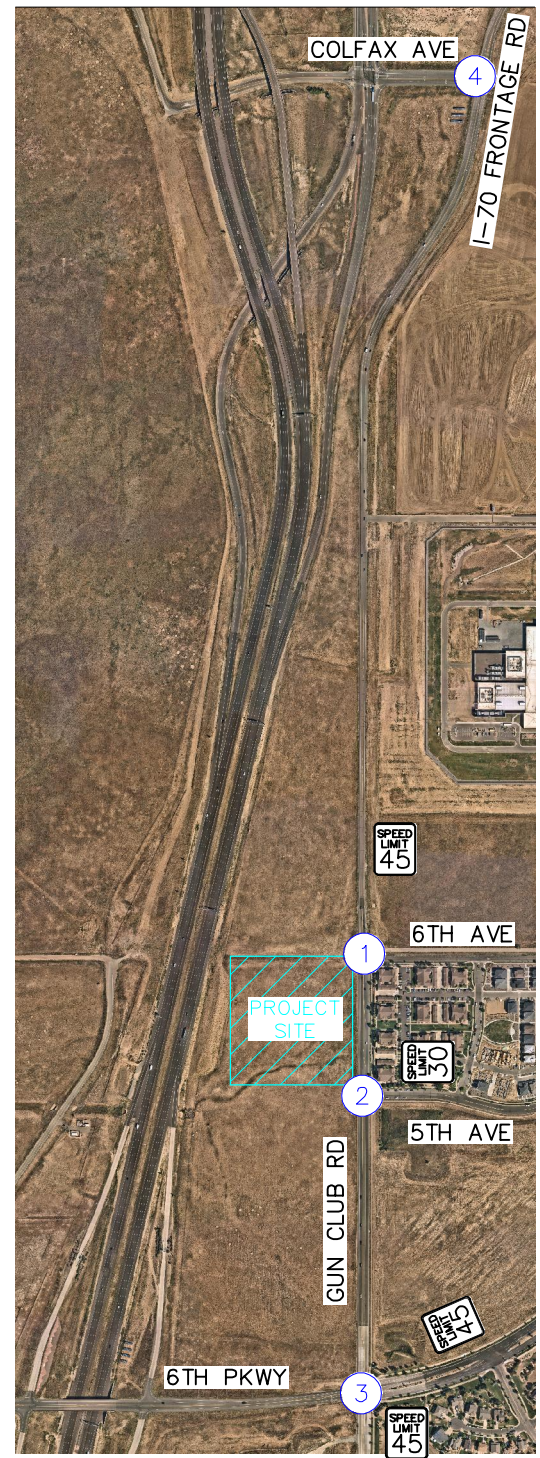
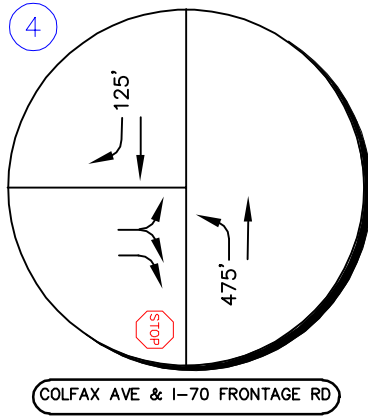
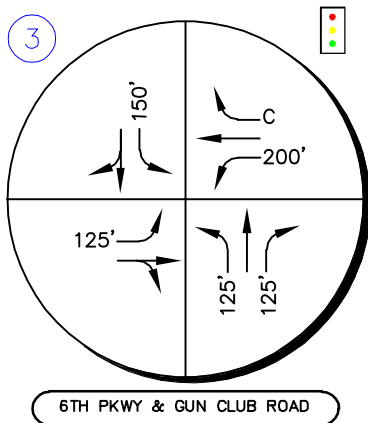
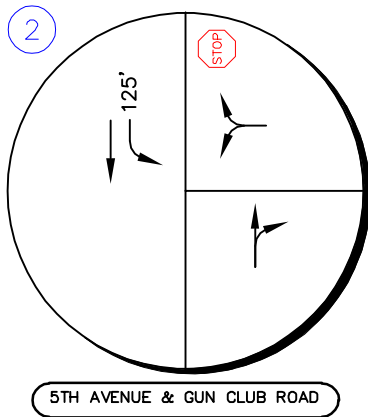
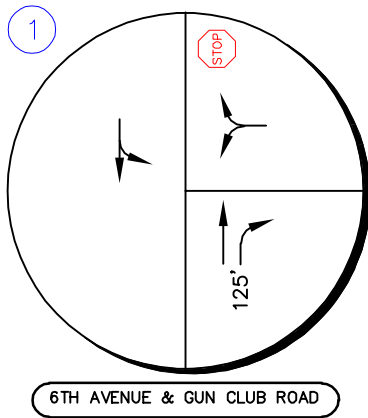
6th Parkway & Gun Club Road

Colfax Avenue and Gun Club Road/I-70 Frontage Road is a three-leg stop-controlled intersection, with a stop sign on the eastbound approach. The eastbound approach consists of a shared left turn/right turn lane and a right turn lane. The northbound approach consists of a left turn lane and a through lane while the southbound approach includes a through lane and a right turn lane. An aerial photo of the existing intersection configuration is below (typ.).



Colfax Avenue & Gun Club Road/I-70 Frontage Road

The intersection lane configuration and control for the study area key intersections are shown in **Figure 3**.



LEGEND	
(X)	Study Area Key Intersection
Signalized Intersection	
Stop Controlled Approach	
Roadway Speed Limit	
100'	Turn Lane Length (feet)
C	Continuous Turn Lane



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
EXISTING GEOMETRY AND CONTROL

FIGURE 3



3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Wednesday, July 21, 2021, during the morning and afternoon peak hours with the exception of the counts at the intersection of Colfax Avenue and Gun Club Road/I-70 Frontage Road which were collected on Wednesday, February 12, 2020. These counts were grown to 2021 using the City of Aurora requirement of a two (2) percent annual growth rate. Counts were conducted in 15-minute intervals during the morning and afternoon peak hours of adjacent street traffic from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on this count date. The existing intersection traffic volumes are shown in **Figure 4** with count sheets provided in **Appendix A**.

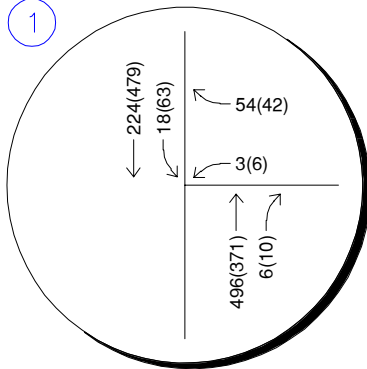
3.4 Unspecified Development Traffic Growth

To generate 2024 background volumes, the 2022 total traffic volumes from the *Lamar Landing Subdivision Traffic Impact Study* completed by Kimley-Horn & Associates in September 2020 were grown using a two (2) percent annual growth rate per the City of Aurora growth requirement to 2024. The traffic volumes from the Lamar Landing study included site traffic volumes from the E-470 and 6th Parkway FDP and Cross Creek projects. The City of Aurora standard annual growth rate of two (2) percent was applied at the intersection of 6th Avenue and Gun Club Road while increasing the northbound and southbound through volumes to balance with the traffic volumes from the Lamar Landing traffic study.

As directed by the City of Aurora, traffic volumes were derived from 2040 traffic volume projections within the Northeast Area Transportation Study Refresh (NEATS Refresh). This was due to recent changes in the Aurora Crossroads development and to reduce travel volumes along Gun Club Road. The reduction of traffic volumes along Gun Club Road is expected with travel pattern changes associated with 6th Parkway being extended further to the east and additional interchange connections being provided along I-70 to the northeast in the future. Neither of these infrastructure changes to 6th Parkway and I-70 will occur by 2024; therefore, traffic volumes in 2024 were not modified to account for the addition of future roadways in the surrounding area. It is believed that travel patterns will shift with the future extension of 6th Parkway to the east and additional interchange access to I-70 to the northeast (consistent with findings in NEATS). Applicable traffic study documents from the Lamar Landing Subdivision, Cross Creek, E-470 and 6th Pkwy FDP, and Aurora Crossroads developments are included in **Appendix B**. Background traffic volumes for 2024 and 2045 are shown in **Figures 5** and **6**, respectively.

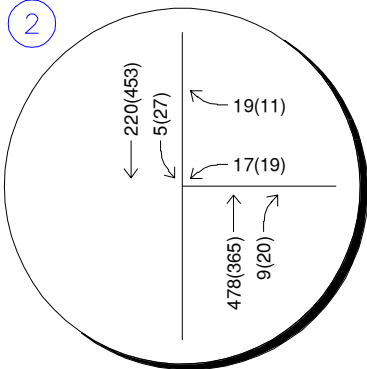
Adjusted to 2021 from counts on
Wednesday, February 12, 2020
7:00 to 8:00AM (4:30 to 5:30PM)

Wednesday, July 21, 2021
7:00 to 8:00AM (5:00 to 6:00PM)



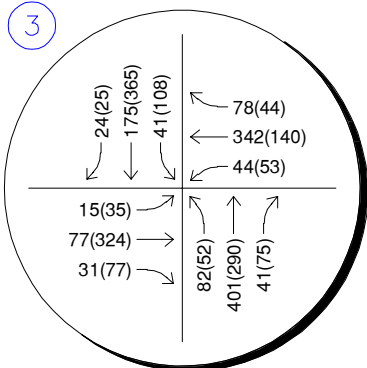
6TH AVENUE & GUN CLUB ROAD

Wednesday, July 21, 2021
7:00 to 8:00AM (5:00 to 6:00PM)



5TH AVENUE & GUN CLUB ROAD

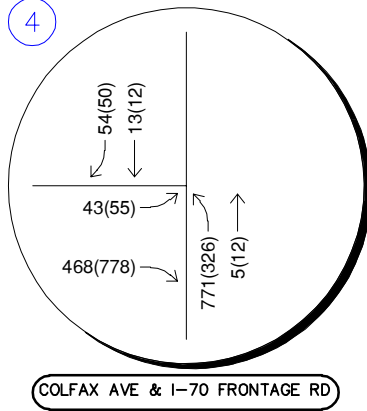
Wednesday, July 21, 2021
7:00 to 8:00AM (4:45 to 5:45PM)



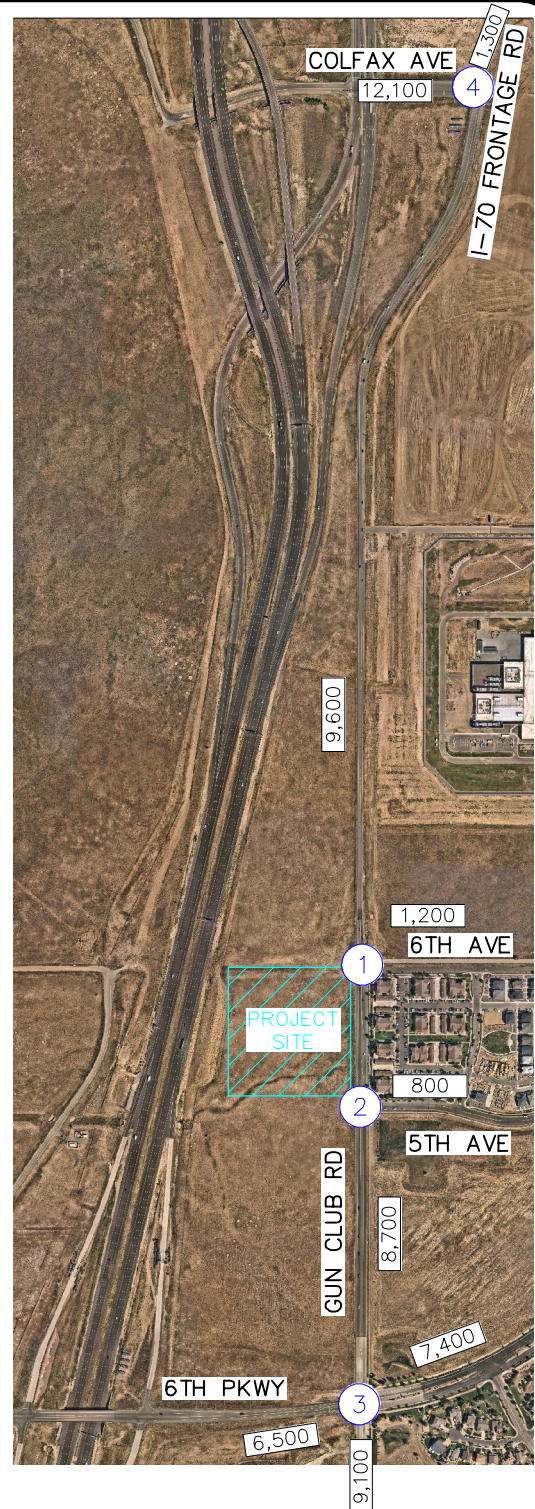
6TH PKWY & GUN CLUB ROAD



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2021 EXISTING TRAFFIC VOLUMES



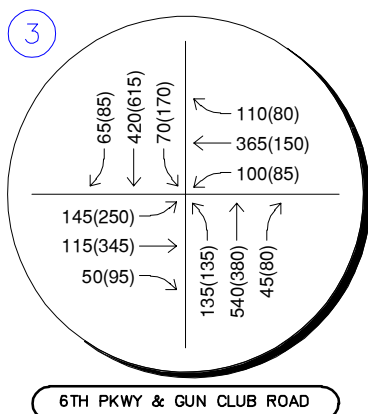
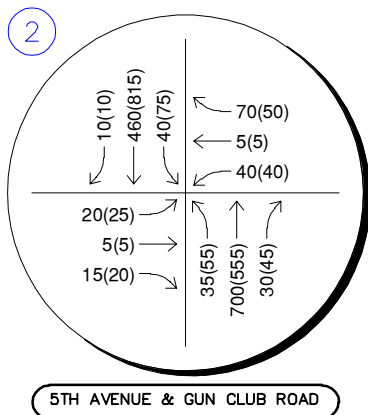
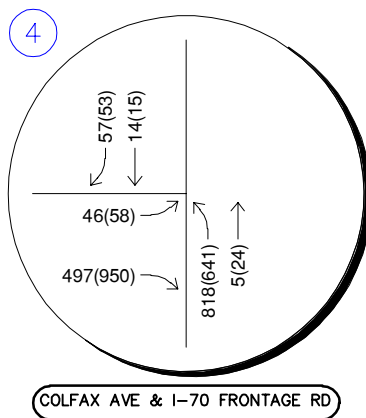
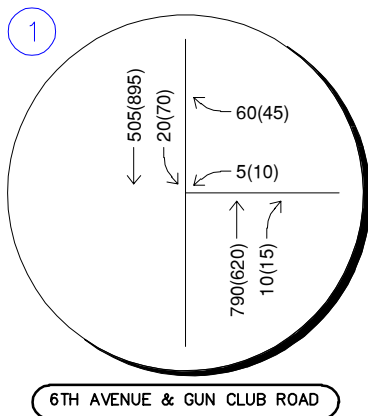
COLFAX AVE & I-70 FRONTAGE RD



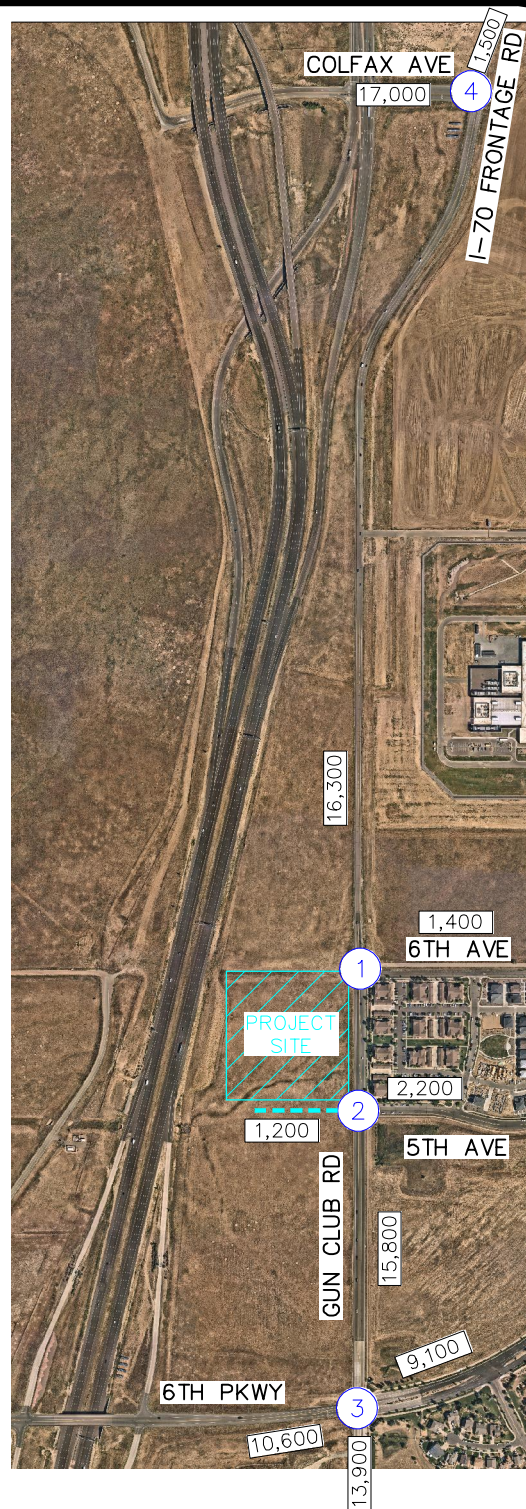
LEGEND

- ④ Study Area Key Intersection
- xxx(xxx) Weekday AM(PM)
Peak Hour Traffic Volumes
- [xx,x00] Estimated Daily Traffic Volume

FIGURE 4



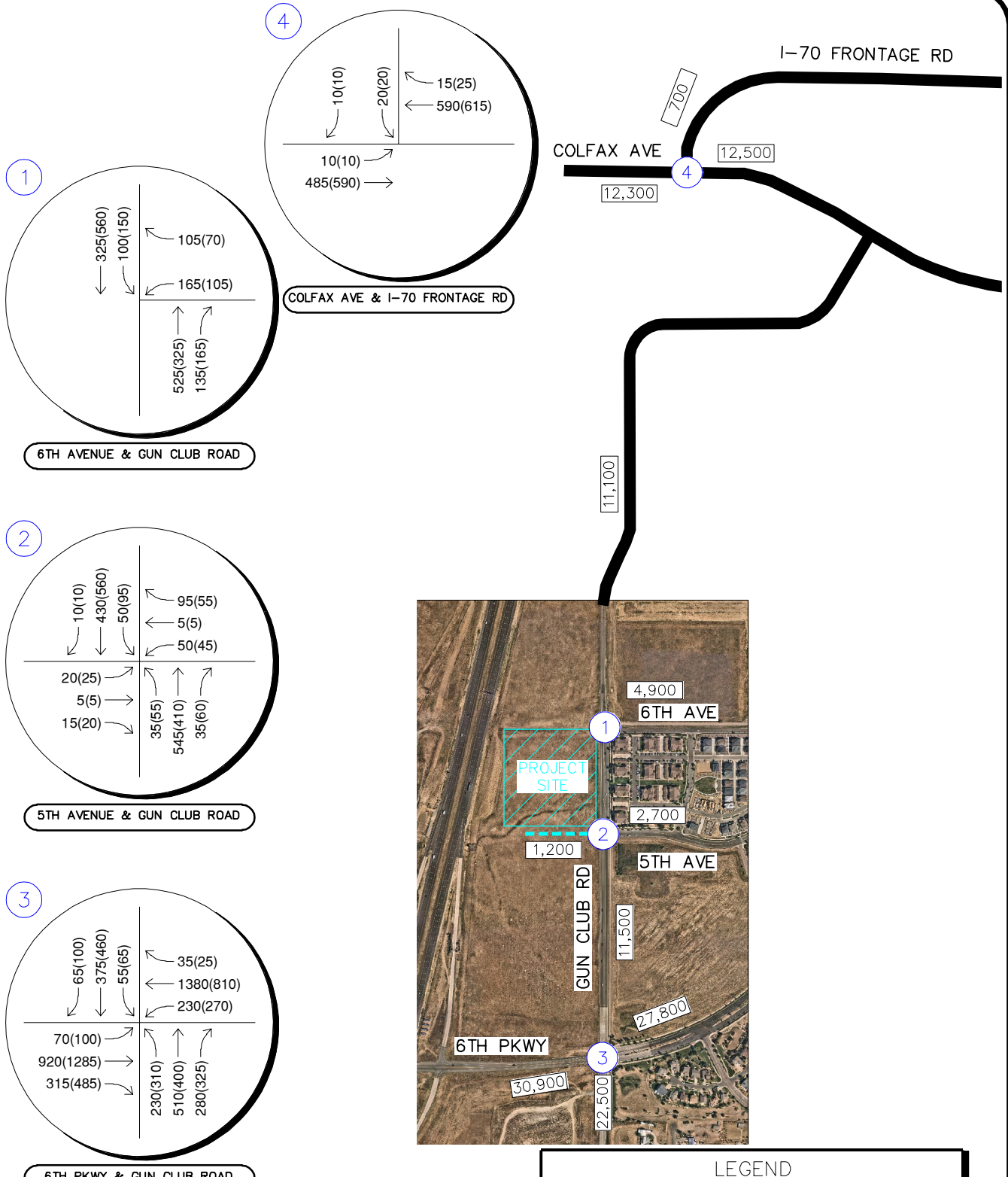
VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2024 BACKGROUND TRAFFIC VOLUMES



LEGEND

- (X) Study Area Key Intersection
- xxx(xxx) Weekday AM(PM)
Peak Hour Traffic Volumes
- [xx,x00] Estimated Daily Traffic Volume

FIGURE 5



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2045 BACKGROUND TRAFFIC VOLUMES

LEGEND

(X) Study Area Key Intersection

XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes

XX,X00 Estimated Daily Traffic Volume

FIGURE 6



4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*¹ published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Report fitted curve equations that applies to Multifamily Mid-Rise Housing (ITE Land Use Code 221), for traffic associated with the development.

Vista Creek Multi-Family is expected to generate approximately 1,748 weekday daily trips, with 107 of these trips occurring during the morning peak hour and 136 of these trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 10th Edition – Volume 1: User's Guide and Handbook*, 2017. **Table 1** summarizes the estimated trip generation for the Vista Creek Multi-Family. It should be noted that the City of Aurora requested that average trip rates also be provided in addition to the fitted curve equations and these rates are also shown in **Table 1**. ITE Trip Generation provides a flow chart to determine when average rates and fitted curve equations should be used, and the fitted curve equations were appropriately utilized in this study. The trip generation worksheets are included in **Appendix C**.

Table 1 – Vista Creek Multi-Family Traffic Generation

Land Use and Size	Rate	Daily	Weekday Vehicle Trips							
			AM Peak Hour				PM Peak Hour			
			Rate	In	Out	Total	Rate	In	Out	Total
Fitted Curve Equations (Used in Analysis) Multifamily Mid-Rise Housing (ITE 221) – 321 Dwelling Units	-	1,748	-	28	79	107	-	83	53	136
Average Rates Multifamily Mid-Rise Housing (ITE 221) – 321 Dwelling Units	5.44	1,746	0.36	30	86	116	0.44	86	55	141

¹ Institute of Transportation Engineers, *Trip Generation Manual*, Tenth Edition, Washington DC, 2017.

4.2 Trip Distribution

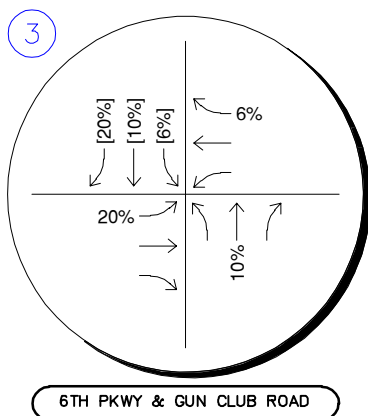
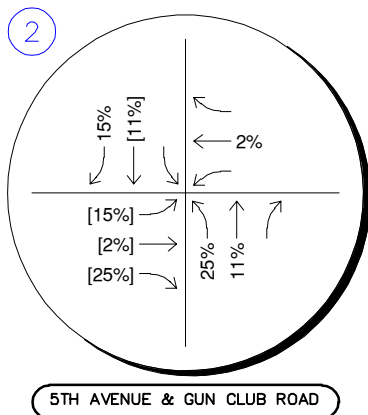
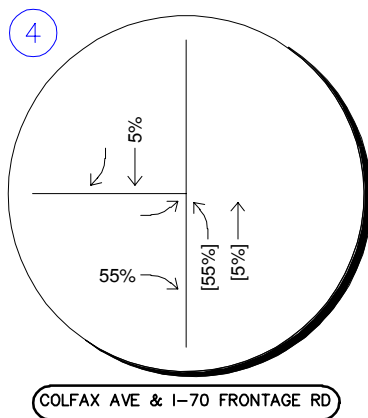
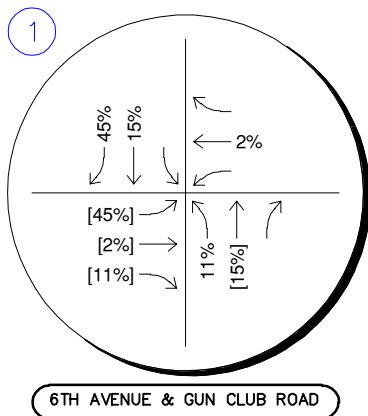
Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. Two project distributions were provided due to the proposed future realignment of the intersection of Colfax Avenue and I-70 Frontage Road/Gun Club Road. The project trip distribution for the proposed development is illustrated in **Figure 7** for the 2024 horizon and **Figure 8** for the 2045 horizon.

4.3 Traffic Assignment

Vista Creek Multi-Family traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment for the proposed project is shown in **Figure 9** for the 2024 horizon and **Figure 10** for the 2045 horizon.

4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2024 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2024 and 2045 horizon years in **Figures 11** and **12**, respectively.



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2024 PROJECT TRIP DISTRIBUTION

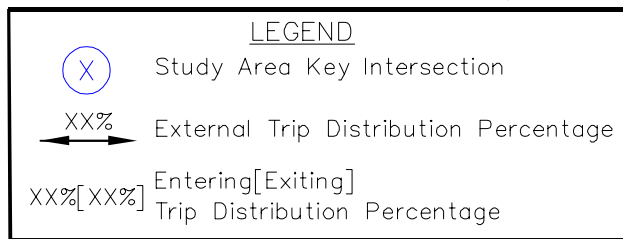
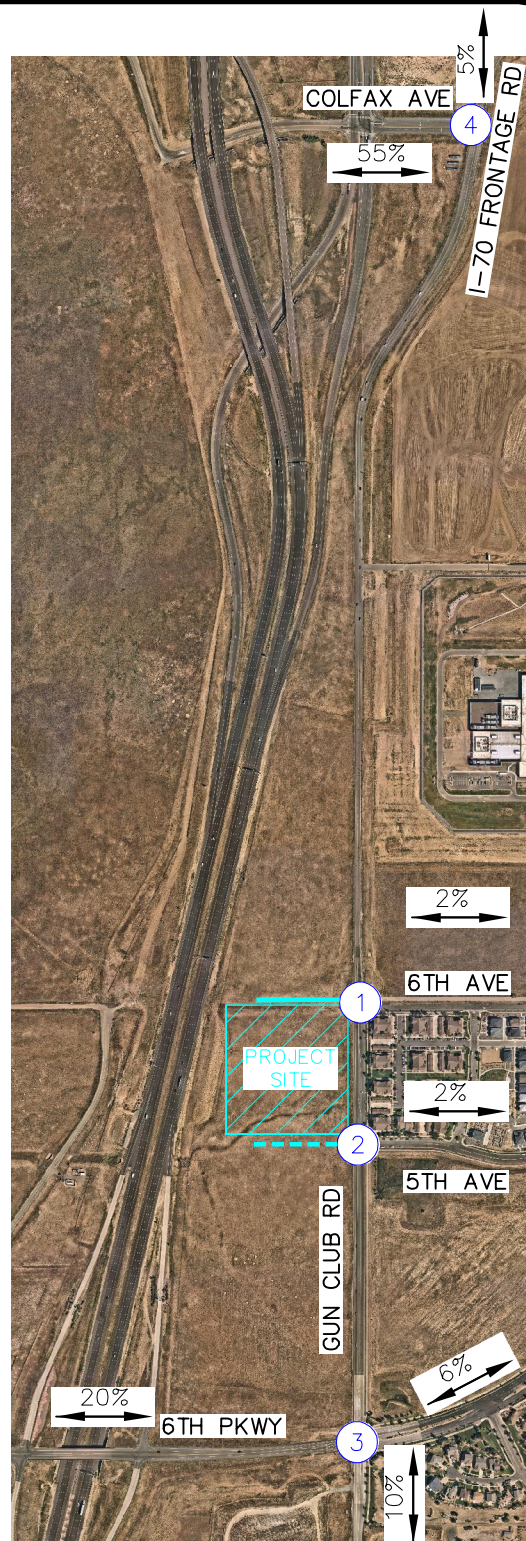
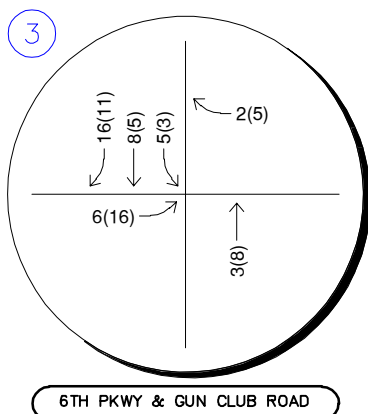
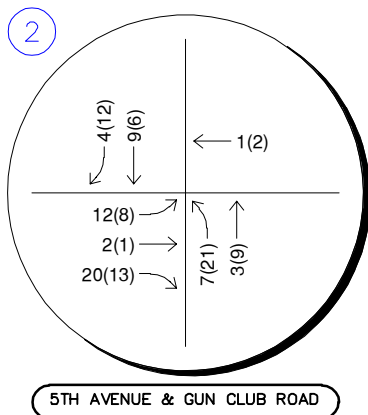
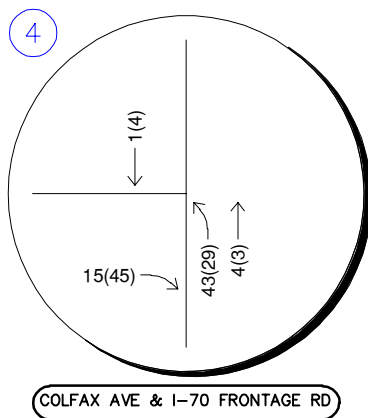
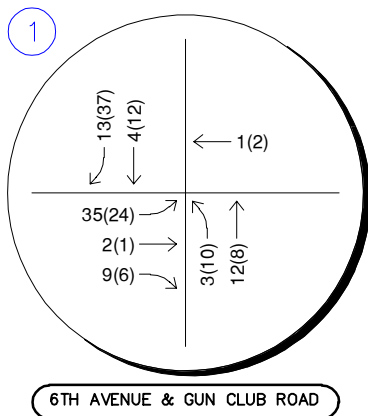
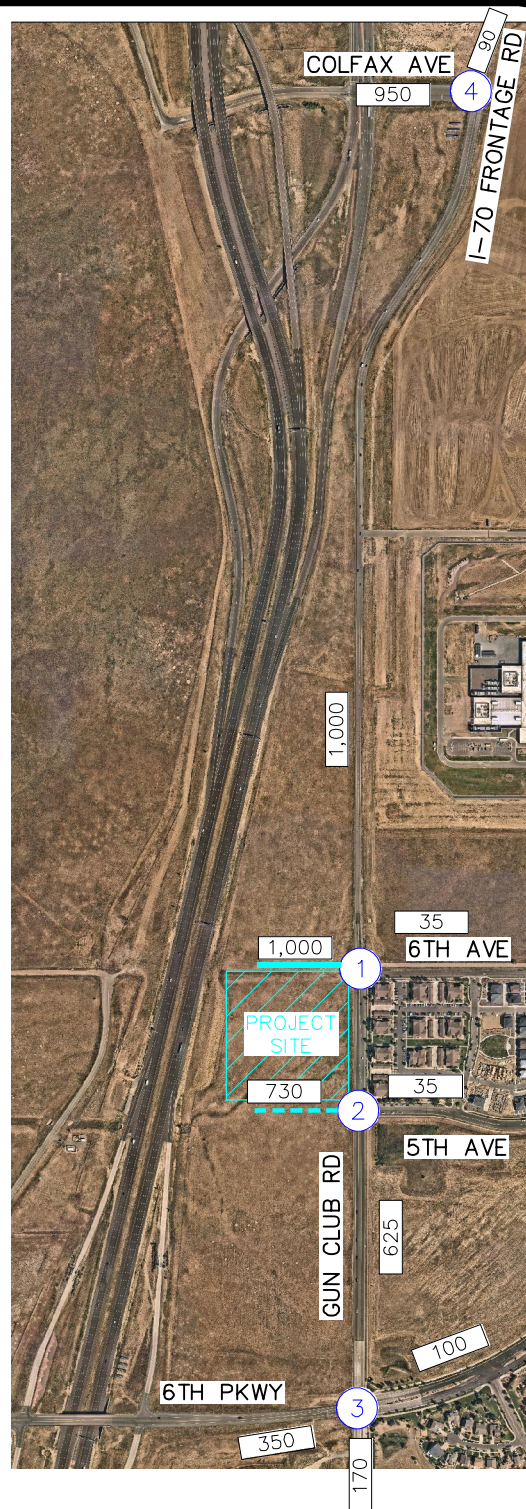


FIGURE 7

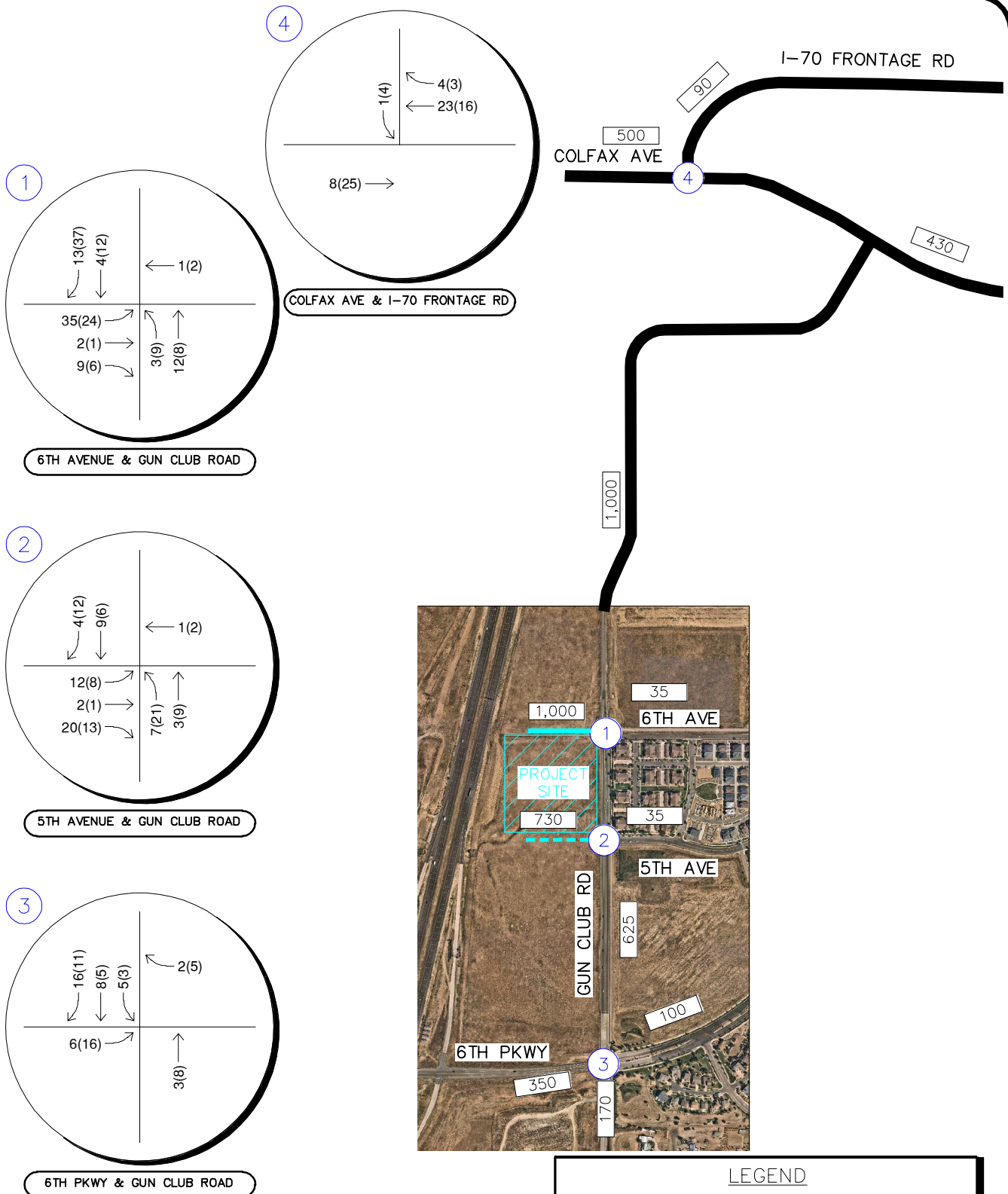


VISTA CREEK MULTI-FAMILY AURORA, COLORADO 2024 PROJECT TRAFFIC ASSIGNMENT



LEGEND	
(X)	Study Area Key Intersection
xxx(xxx)	Weekday AM(PM)
	Peak Hour Traffic Volumes
xx,x00	Estimated Daily Traffic Volume

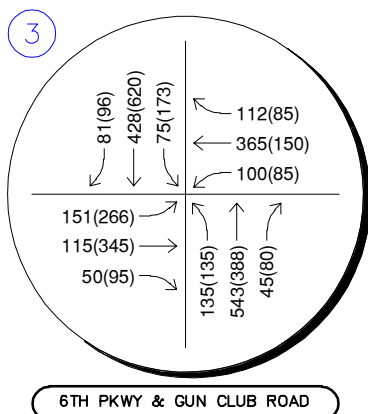
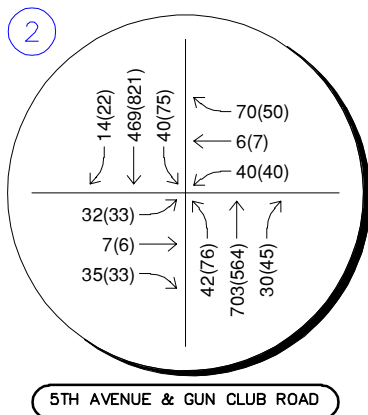
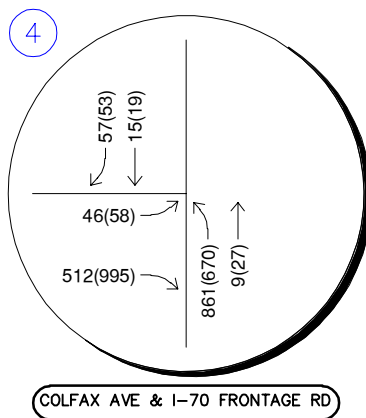
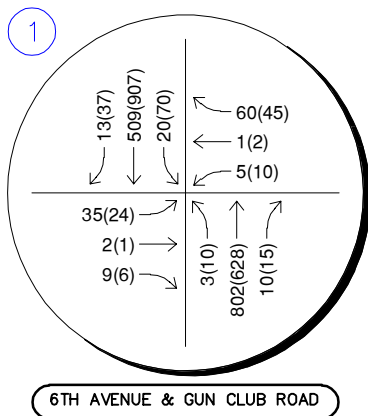
FIGURE 9



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2045 PROJECT TRAFFIC ASSIGNMENT

LEGEND	
(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM)
	Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 10



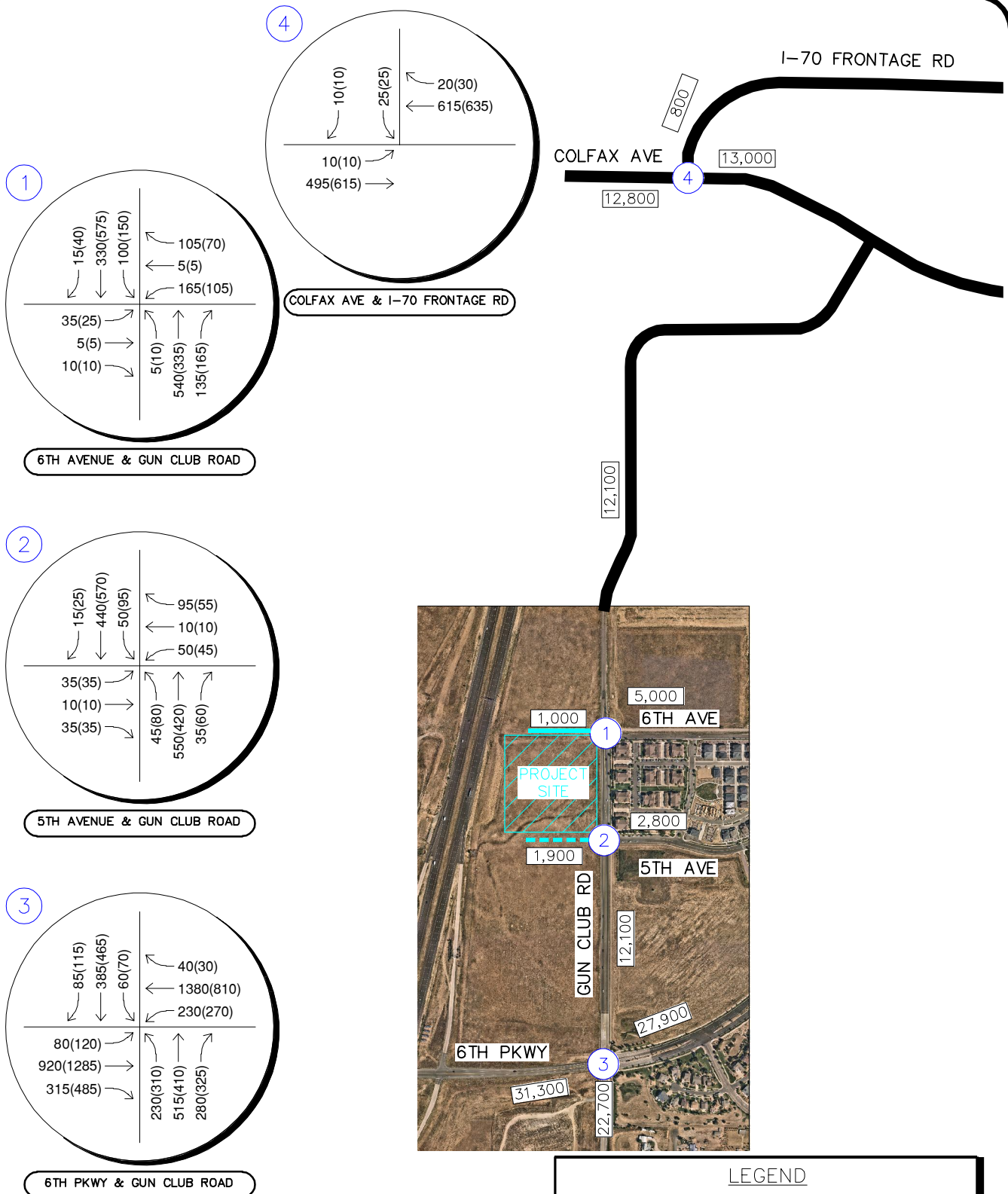
VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2024 TOTAL TRAFFIC VOLUMES



LEGEND

- (X) Study Area Key Intersection
- xxx(xxx) Weekday AM(PM)
- Peak Hour Traffic Volumes
- xx,x00 Estimated Daily Traffic Volume

FIGURE 11



VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2045 TOTAL TRAFFIC VOLUMES

LEGEND

- (X) Study Area Key Intersection
- XXX(XXX) Weekday AM(PM)
Peak Hour Traffic Volumes
- XX,X00 Estimated Daily Traffic Volume

FIGURE 12



5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2024 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*².

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). According to City of Aurora guidelines for signalized intersections, individual movements may be allowed to fall to LOS E, but in most cases the overall intersection must operate (or be projected to operate) at a LOS D or better during AM and PM peak periods. If the existing LOS for an intersection is less than LOS D, potential alternatives to improve the intersection should be provided to achieve LOS D or maintain the existing critical lane volume with the addition of site generated traffic. Minor movements at unsignalized intersections, such as left turns onto a major arterial from a side street, may be allowed to fall below LOS D pending the specific conditions. Movements which have a light traffic demand, and a viable travel alternative may be allowed to fall below LOS D. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

² Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for signalized, roundabout, and four-way stop controlled intersections are defined for each approach and for the overall intersection.

5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix D**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 3**. Existing peak hour factors were utilized in the existing and 2024 horizon analysis years while the HCM urban standard of 0.92 was used for the long-term 2045 horizon analysis. The signalized intersection analysis utilizes the observed cycle lengths with optimized phasing and timing. Based on increased national attention given to establishing appropriate yellow and all-red clearance intervals to improve intersection safety, these have been calculated and are applied for approaches at the signalized intersections. The increase in yellow and all red time sacrifices intersection capacity for improved safety. Synchro traffic analysis software was used to analyze the signalized, and unsignalized key intersections for HCM level of service.

6th Avenue and Gun Club Road

6th Avenue and Gun Club Road is a three-leg stop controlled intersection, with a stop sign on the westbound approach. The intersection movements operate acceptably at LOS B or better during both peak hours under existing conditions. With completion of the development, a west leg is proposed to align with 6th Avenue to create a full movement access that will be constructed by Vista Creek. It is recommended that Vista Creek install a R1-1 “STOP” sign at the eastbound approach and designate an eastbound left turn lane, a northbound left turn lane, and a southbound right turn lane for entering and exiting the development. Of note, a southbound left turn lane, to be constructed by Cross Creek, is warranted for the developments east of Gun Club Road and has been included in the background and total scenario analyses. With these improvements, the movements at this intersection are anticipated to operate at LOS D or better throughout 2024.

By 2045, Gun Club Road is expected to be constructed by others to the ultimate street section of two through lanes in each direction and a northbound right turn lane. A four-hour signal warrant evaluation was conducted at this intersection, and it was determined that a signal is anticipated to be warranted with 2045 background traffic projections, due to the traffic on the east leg from the Cross Creek development. Signal warrant analysis worksheets are included in **Appendix F**. Therefore, signalization may be needed and be constructed by Cross Creek by 2045 which is consistent with the Aurora Crossroads study. If signalized, the westbound approach of this intersection should provide a designated left turn lane to be constructed by Cross Creek. With these improvements the intersection is anticipated to operate acceptably overall throughout 2045. However, some movements are anticipated at LOS E which is typical due to the 120 second cycle length and the time needed to trigger green from the minor approaches, as well as the low duration of green time provided on the minor approach.

Although a northbound right turn lane is expected to be warranted at this intersection by 2045 based on traffic volume projections, the City of Aurora has requested an additional 2045 alternative analysis without a northbound right turn lane due to geometric constraints. It should be noted that project traffic does not contribute to the northbound right turn movement at this intersection. However, through additional design coordination with the City of Aurora, a northbound right turn lane has been recommended at this intersection. **Table 3** provides the results of the LOS analysis conducted at this intersection.

Table 3 – 6th Avenue & Gun Club Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing				
Westbound Approach	12.4	B	11.8	B
Southbound Left	8.5	A	8.4	A
2024 Background #				
Westbound Approach	17.3	C	15.6	C
Southbound Left	9.7	A	9.8	A
2024 Background Plus Project #*				
Northbound Left	8.5	A	10.5	B
Eastbound Left	24.1	C	29.3	D
Eastbound Through/Right	12.8	B	18.4	C
Westbound Approach	17.6	C	18.2	C
Southbound Left	9.7	A	9.4	A
2045 Background #				
Westbound Approach	12.4	B	8.8	A
Westbound Left	57.3	E	60.2	E
Westbound Right	59.9	E	62.3	E
Northbound Approach	53.2	D	57.1	E
Northbound Through	0.2	A	0.1	A
Northbound Right	0.1	A	0.1	A
Southbound Approach	0.2	A	0.2	A
Southbound Left	2.7	A	2.1	A
Southbound Through	3.1	A	2.4	A
	2.6	A	2.0	A
2045 Background #~				
Westbound Approach	12.5	B	8.8	A
Westbound Left	57.3	E	60.2	E
Westbound Right	59.9	E	62.3	E
Northbound Approach	53.2	D	57.1	E
Northbound Through/Right	0.4	A	0.3	A
Southbound Approach	0.4	A	0.3	A
Southbound Left	2.7	A	2.1	A
Southbound Through	3.1	A	2.4	A
	2.6	A	2.0	A
2045 Background Plus Project #^\$				
Eastbound Approach	13.5	B	10.7	B
Eastbound Left	54.7	D	55.1	E
Eastbound Through/Right	53.6	D	53.7	D
Westbound Approach	57.3	E	57.5	E
Westbound Left	50.1	D	51.8	D
Westbound Through/Right	48.0	D	49.5	D
Northbound Approach	53.1	D	55.0	D
Northbound Left	0.3	A	0.3	A
Northbound Through	6.7	A	5.4	A
Northbound Right	0.2	A	0.1	A
Southbound Approach	0.3	A	0.3	A
Southbound Left	6.1	A	5.6	A
Southbound Through	5.4	A	4.5	A
Southbound Right	6.4	A	6.0	A
	5.7	A	4.9	A

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2045 Background Plus Project #^~	13.7	B	10.7	B
Eastbound Approach	54.7	D	55.1	E
Eastbound Left	53.6	D	53.7	D
Eastbound Through/Right	57.3	E	57.5	E
Westbound Approach	50.1	D	51.8	D
Westbound Left	48.0	D	49.5	D
Westbound Through/Right	53.1	D	55.0	D
Northbound Approach	0.7	A	0.5	A
Northbound Left	6.7	A	5.4	A
Northbound Through/Right	0.7	A	0.5	A
Southbound Approach	6.1	A	5.6	A
Southbound Left	5.4	A	4.5	A
Southbound Through	6.4	A	6.0	A
Southbound Right	5.7	A	4.9	A

= Addition of a SB Left Turn Lane

* = Addition of a SB Right Turn Lane, EB Left Turn Lane, NB Left Turn Lane and a Stop-Controlled West Leg

^ = Addition of a SB Right Turn Lane, EB Left Turn Lane

\$ = Signalized, Two NB and SB Through Lanes, NB Right Turn Lane, and a Left Turn Lanes on All Approaches

~ = Signalized, Two NB and SB Through Lanes with the Outside NB Through Lane Being a Shared Through/Right Turn, and a Left Turn Lanes on All Approaches

5th Avenue and Gun Club Road

5th Avenue and Gun Club Road is a three-leg stop controlled intersection with a stop sign on the westbound approach. The intersection movements operate acceptably at LOS B or better during both peak hours under existing conditions. The west leg of this intersection will be constructed with the Lamar Landing Subdivision development along with a northbound left turn lane. With stop control along the eastbound and westbound approaches of this intersection, the westbound approach is expected to operate with LOS F during the afternoon peak hour in 2024. As such, a four-hour signal warrant evaluation was conducted at this intersection, and it was determined that a signal is anticipated to be warranted with 2024 total traffic projections and in the future with 2045 background traffic projections. Signal warrant analysis worksheets are included in **Appendix F**. It should be noted that signalization is triggered on the east leg of this intersection with adjacent development traffic volumes and therefore the signal should be installed with development of Cross Creek. With signalization, implementation of an eastbound and westbound left turn lane is recommended to avoid split phasing the intersection and to avoid left turn movements blocking through movements. The eastbound left turn lane will be constructed with development of Lamar Landing, whereas the westbound left turn lane should be constructed by Cross Creek. With these improvements, this intersection is expected to operate acceptably with LOS B during both peak hours 2024.

By 2045, Gun Club Road is expected to be constructed by others to the ultimate street section of two through lanes in each direction. With two through lanes in each direction along Gun Club Road and signalization, this intersection is anticipated to operate acceptably at LOS A during both peak hours in 2045. However, some movements are anticipated at LOS E which is typical due to the 120 second cycle length because of the low duration of green time provided on the minor approach. **Table 4** provides the results of the LOS analysis conducted at this intersection.

Table 4 – 5th Avenue & Gun Club Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing				
Westbound Approach	11.4	B	12.6	B
Southbound Left	8.5	A	8.1	A
2024 Background #				
Northbound Left	8.5	A	10.1	B
Eastbound Approach	21.5	C	33.2	D
Westbound Approach	21.8	C	36.8	E
Southbound Left	10.3	B	9.3	A
2024 Background Plus Project #				
Northbound Left	8.5	A	10.3	B
Eastbound Approach	23.6	C	42.7	E
Westbound Approach	23.2	C	52.7	F
Southbound Left	10.3	B	9.3	A
2024 Background Plus Project *				
Eastbound Approach	10.5	B	14.7	B
Eastbound Left	40.5	D	42.2	D
Eastbound Through/Right	37.8	D	38.8	D
Eastbound Through/Right	42.6	D	45.0	D
Westbound Approach	44.3	D	44.2	D
Westbound Left	37.5	D	38.6	D
Westbound Through/Right	47.8	D	48.1	D
Northbound Approach	4.2	A	9.5	A
Northbound Left	5.0	A	9.5	A
Northbound Through/Right	4.1	A	9.5	A
Southbound Approach	8.0	A	13.3	B
Southbound Left	4.9	A	5.9	A
Southbound Through/Right	8.2	A	14.0	B
2045 Background * \$				
Eastbound Approach	9.4	A	7.4	A
Eastbound Left	53.1	D	57.0	E
Eastbound Left	51.8	D	54.0	D
Eastbound Through/Right	54.5	D	60.0	E
Westbound Approach	58.4	E	59.2	E
Westbound Left	49.9	D	52.8	D
Westbound Through/Right	62.7	E	63.9	E
Northbound Approach	1.6	A	0.6	A
Northbound Left	4.1	A	3.4	A
Northbound Through/Right	1.4	A	0.3	A
Southbound Approach	0.7	A	0.8	A
Southbound Left	3.9	A	3.4	A
Southbound Through	0.3	A	0.4	A

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2045 Background Plus Project * \$	11.0	B	8.8	A
Eastbound Approach	53.2	D	58.7	E
Eastbound Left	50.5	D	53.1	D
Eastbound Through/Right	55.2	E	63.0	E
Westbound Approach	58.0	E	59.0	E
Westbound Left	48.9	D	52.0	D
Westbound Through/Right	62.3	E	63.9	E
Northbound Approach	2.0	A	1.5	A
Northbound Left	4.4	A	3.7	A
Northbound Through/Right	1.8	A	1.1	A
Southbound Approach	0.7	A	0.9	A
Southbound Left	4.3	A	3.6	A
Southbound Through	0.3	A	0.4	A

= NB Left Turn Lane

* = Signalized with Separate NB/EB/WB Left Turn Lanes

\$ = Two NB and SB Through Lanes

6th Parkway and Gun Club Road

The 6th Parkway and Gun Club Road intersection is a four-leg signalized intersection. This intersection currently operates at LOS C during the morning and afternoon peak hour. It should be noted a southbound right turn lane is planned to be constructed by Lamar Landing at the 6th Parkway and Gun Club Road intersection and was incorporated in the analysis starting in the 2024 background scenario. With the addition of the project traffic in 2024, the intersection is expected to operate at LOS C during the morning peak hour and LOS D during the afternoon peak hour.

By 2045, the City of Aurora ultimate cross sections of three eastbound and westbound through lanes, and two northbound and southbound through lanes should be provided at this intersection as background improvements. In addition, eastbound and westbound dual left turn lanes and an eastbound right turn lane may be needed at this intersection by 2045 as background improvements. It should be noted that these improvements are consistent with the findings in the Aurora Crossroads study. With these improvements by 2045, this intersection is anticipated to operate acceptably during the peak hours. However, some movements are anticipated at LOS E which is typical at signalized intersections. **Table 5** provides the results of the level of service at this intersection.

Table 5 – 6th Parkway & Gun Club Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing	24.8	C	31.0	C
Eastbound Approach	30.7	C	53.0	D
Eastbound Left	29.0	C	31.7	C
Eastbound Through/Right	31.0	C	54.8	D
Westbound Approach	38.8	D	35.4	D
Westbound Left	26.9	C	35.6	D
Westbound Through	42.6	D	35.8	D
Westbound Right	29.0	C	33.8	C
Northbound Approach	15.9	B	18.9	B
Northbound Left	11.2	B	15.5	B
Northbound Through	17.2	B	20.0	C
Northbound Right	12.5	B	17.1	B
Southbound Approach	14.4	B	19.7	B
Southbound Left	12.2	B	15.0	B
Southbound Through/Right	14.9	B	21.0	C

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2024 Background \$	29.6	C	33.9	C
Eastbound Approach	31.2	C	47.4	D
Eastbound Left	32.8	C	35.6	D
Eastbound Through/Right	29.7	C	54.9	D
Westbound Approach	41.3	D	46.2	D
Westbound Left	24.7	C	43.3	D
Westbound Through	49.5	D	48.1	D
Westbound Right	29.3	C	45.6	D
Northbound Approach	24.7	C	22.9	C
Northbound Left	16.4	B	21.5	C
Northbound Through	27.5	C	24.2	C
Northbound Right	16.0	B	19.0	B
Southbound Approach	23.0	C	27.0	C
Southbound Left	17.6	B	17.0	B
Southbound Through/Right	24.8	C	30.9	C
2024 Background Plus Project \$	30.7	C	34.0	C
Eastbound Approach	28.3	C	47.4	D
Eastbound Left	28.3	C	36.8	D
Eastbound Through/Right	28.3	C	54.6	D
Westbound Approach	42.1	D	47.8	D
Westbound Left	24.6	C	44.3	D
Westbound Through	50.8	D	49.9	D
Westbound Right	29.4	C	47.5	D
Northbound Approach	27.3	C	22.8	C
Northbound Left	17.7	B	21.4	C
Northbound Through	30.6	C	24.1	C
Northbound Right	17.0	B	18.8	B
Southbound Approach	25.0	C	26.6	C
Southbound Left	19.0	B	16.9	B
Southbound Through	27.1	C	30.6	C
Southbound Right	18.9	B	18.2	B
2045 Background \$#	38.4	D	42.7	D
Eastbound Approach	40.2	D	50.8	D
Eastbound Left	60.4	E	60.6	E
Eastbound Through	38.1	D	40.5	D
Eastbound Right	41.7	D	75.9	E
Westbound Approach	45.3	D	36.2	D
Westbound Left	61.2	E	60.3	E
Westbound Through/Right	45.0	D	28.6	C
Northbound Approach	25.1	C	32.1	C
Northbound Left	21.9	C	33.2	C
Northbound Through	25.1	C	28.4	C
Northbound Right	27.7	C	35.5	D
Southbound Approach	38.6	D	47.5	D
Southbound Left	24.7	C	32.2	C
Southbound Through	40.9	D	50.1	D
Southbound Right	37.3	D	45.8	D

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2045 Background Plus Project \$#	38.9	D	42.7	D
Eastbound Approach	40.6	D	48.5	D
Eastbound Left	61.3	E	60.2	E
Eastbound Through	38.3	D	39.4	D
Eastbound Right	42.2	D	70.0	E
Westbound Approach	46.2	D	39.0	D
Westbound Left	61.2	E	70.6	E
Westbound Through/Right	46.3	D	29.0	C
Northbound Approach	25.1	C	32.8	C
Northbound Left	22.0	C	34.1	C
Northbound Through	25.1	C	29.1	C
Northbound Right	27.7	C	36.3	D
Southbound Approach	38.6	D	48.0	D
Southbound Left	24.6	C	32.5	C
Southbound Through	40.9	D	50.6	D
Southbound Right	38.0	D	47.0	D

\$ = Separate SB Right Turn Lane

= Includes Dual EB and WB Left Turn Lanes, An EB Right Turn Lane, Three EB and WB Through Lanes, and Two NB and SB Through Lanes

Colfax Avenue and Gun Club Road/I-70 Frontage Road

Colfax Avenue and Gun Club Road/I-70 Frontage Road is a three-leg stop-controlled intersection, with a stop sign on the eastbound approach. The shared eastbound left/right turn movements currently operate with LOS E during the morning peak and is anticipated to operate with LOS F, without project traffic, during the morning peak hour in 2024. However, this intersection is planned to be realigned, and it is recommended that realignment occur prior to any other improvements.

By 2045, this intersection is anticipated to be realigned so that Colfax Avenue extends east-west, and the I-70 Frontage Road extend north-south. With this realignment, the eastbound approach should consist of a left turn lane and two through lanes while the westbound approach should include two through lanes with the outside lane being a shared through/right turn lane as background improvements. The southbound approach should be stop-controlled with a R1-1 STOP sign and provide separate left and right turn lanes as background improvements. It should be noted that these improvements are consistent with the findings in the Aurora Crossroads study. With this configuration, the movements at this intersection are anticipated to operate acceptably throughout 2045 with the addition of project traffic. **Table 6** provides the results of the LOS analysis conducted at this intersection.

Table 6 – Colfax Avenue & Gun Club Road/I-70 Frontage Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing				
Northbound Left	10.6	B	8.1	A
Eastbound Left/Right	46.8	E	14.8	B
Eastbound Right	0.0	A	0.0	A
2024 Background				
Northbound Left	11.2	B	9.5	A
Eastbound Left/Right	58.2	F	33.1	D
Eastbound Right	0.0	A	0.0	A
2024 Background Plus Project				
Northbound Left	11.7	B	9.7	A
Eastbound Left/Right	69.9	F	36.5	E
Eastbound Right	0.0	A	0.0	A
2045 Background #				
Eastbound Left	8.9	A	9.1	A
Southbound Left	13.9	B	14.4	B
Southbound Right	10.5	B	10.7	B
2045 Background Plus Project #				
Eastbound Left	9.0	A	9.2	A
Southbound Left	14.4	B	14.9	B
Southbound Right	10.6	B	10.8	B

= Realignment with a EB Left Turn Lane, Two EB Through Lanes, Two WB Through Lanes with the Outside Lane Being a Shared Through/Right Turn Lane, a Stop-Controlled SB Approach with a Left and Right Turn Lane

5.3 Turn Lane Requirements Analysis

The City of Aurora has directed Kimley-Horn to use the Colorado Department of Transportation (CDOT) State Highway Access Code (SHAC) guidelines to determine if turn lanes are warranted for access into the project accesses. CDOT classifies their state highways based on roadway types. The Non-Rural Arterial Category NR-B (moderate travel speeds and moderate to high volumes) was assigned to 6th Parkway based on matching the characteristics of the CDOT roadways. The Non-Rural Arterial Category NR-C (low to moderate travel speeds and moderate volumes) was assigned to Gun Club Road based on matching the characteristics of the CDOT roadways.

According to the State Highway Access Code for category NR-B and NR-C roadways with speed limits greater than 40 miles per hour, a left turn deceleration lane is required for any access with a projected peak hour left ingress turning volume of 10 vehicles per hour (vph). A right turn deceleration lane is required for any access with a projected peak hour right ingress turning volume of 25 vph.

Based on the 2024 traffic volume projections, turn lane requirements at the study area key intersections are as follows:

6th Avenue and Gun Club Road

- A northbound left turn lane **is** warranted for the Gun Club Road and 6th Avenue intersection based on projected 2024 background plus project traffic volumes being 10 northbound left turns during the peak hour and the threshold being 10 vph.
- A southbound left turn lane **is** warranted for the Gun Club Road and 6th Avenue intersection based on projected 2024 background traffic volumes being 70 southbound left turns during the peak hour and the threshold being 10 vph.
- A southbound right turn lane **is** warranted for the Gun Club Road and 6th Avenue intersection based on projected 2024 background plus project traffic volumes being 33 southbound right turns during the peak hour and the threshold being 25 vph.

5th Avenue and Gun Club Road

- A northbound left turn lane **is** warranted for the Gun Club Road and 5th Avenue intersection based on projected 2024 background traffic volumes being 55 northbound left turns during the peak hour and the threshold being 10 vph. Of note, the Lamar Landing Subdivision development will provide a northbound left turn lane with the buildout of their project in 2022. This improvement has been identified in the Lamar Landing traffic study.
- A southbound right turn lane **is not** warranted for the Gun Club Road and 5th Avenue intersection based on projected 2024 background plus project traffic volumes being 22 southbound right turns during the peak hour and the threshold being greater 25 vph.

6th Parkway and Gun Club Road

- An eastbound left turn lane exists and **is** warranted for the 6th Parkway and Gun Club Road intersection based on projected 2024 background traffic volumes being 250 eastbound left turns during the peak hour and the threshold being 10 vph. This improvement has been identified in the Lamar Landing traffic study.
- A westbound right turn lane exists and **is** warranted for the 6th Parkway and Gun Club Road intersection based on projected 2024 background traffic volumes being 110 westbound right turns during the peak hour and the threshold being 25 vph. This turn lane is currently a continuous lane and modifications to this turn lane are not recommended.

- A southbound left turn lane exists and **is** warranted for the 6th Parkway and Gun Club Road intersection based on projected 2024 background traffic volumes being 170 southbound left turns during the peak hour and the threshold being 10 vph.
- A southbound right turn lane **is** warranted for the 6th Parkway and Gun Club Road intersection based on projected 2024 background traffic volumes being 85 southbound right turns during the peak hour and the threshold being 25 vph. This improvement has been identified in the Lamar Landing traffic study.

5.4 Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the study area intersections. The queuing analysis was performed using Synchro presenting the results of the 95th percentile queue lengths. Results are shown in the following **Table 7** with calculations provided within the level of service operational sheets of **Appendix D** for unsignalized intersections and vehicle queuing analysis worksheets in **Appendix E** for signalized intersections.

Table 7 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length (feet)	2024 Calculated Queue (feet)	2024 Recommended Length (feet)	2045 Calculated Queue (feet)	2045 Recommended Length (feet)
6th Ave & Gun Club Rd					
Eastbound Left	DNE	25'	50'	51'	50'
Westbound Left	DNE	-	DNE	179'	C
Westbound Through/Right	DNE	-	DNE	55'	75'
Northbound Left	DNE	25'	50'	25'	50'
Northbound Right	125'	25'	125'	25'	125'
Southbound Left	DNE	25'	75'	65'	75'
Southbound Right	DNE	25'	50'	25'	50'
5th Ave & Gun Club Rd					
Eastbound Left	DNE	42'	75'	55'	75'
Westbound Left	DNE	48'	75'	68'	75'
Northbound Left	DNE	27'	50'	25'	50'
Southbound Left	125'	26'	125'	32'	125'
6th Pkwy & Gun Club Rd					
Eastbound Left	125'	205'	225'	78'	225' DL
Eastbound Right	DNE	-	DNE	244'	250'
Westbound Left	200'	72'	200'	182'	200' DL
Westbound Right	C	27'	C	-	DNE
Northbound Left	125'	113'	125'	236'	250'
Northbound Right	125'	25'	125'	67'	125'
Southbound Left	150'	123'	150'	82'	150'
Southbound Right	DNE	25'	50'	85'	C
Colfax Ave & Gun Club Rd/I-70 Frontage Rd					
Eastbound Left	DNE	-	DNE	25'	50'
Northbound Left	475'	150'	475'	-	DNE
Southbound Right	125'	25'	125'	25'	50'

DL = Dual Left Turn Lanes; DNE = Does Not Exist; C = Continuous Turn Lane, CDOT = CDOT SHAC; AC = Aurora Crossroads Recommendation

As shown in the queuing table, all vehicle queues are expected to be contained within the existing turn lanes in 2024 with the exception of the eastbound left turn movements at the 6th Parkway and Gun Club Road intersection. By 2024, it is recommended that the eastbound left turn lane at the 6th Parkway and Gun Club Road intersection be extended from 125 feet to 225

feet of length. Additionally, the southbound right turn lanes should be constructed to a length of 50 feet. This improvement is identified in the Lamar Landing traffic study.

In order to comply with CDOT access code requirements, the intersection of 6th Avenue and Gun Club Road should have a southbound right turn lane with the buildout of the project site. In addition, a northbound and southbound left turn lane should be constructed at the 6th Avenue and Gun Club Road intersection. The northbound left turn lane and should be constructed by Vista Creek, whereas the southbound left turn lane is anticipated to be constructed by Cross Creek. In addition, northbound left lane will be constructed by Lamar Landing Subdivision project at the intersection of 5th Avenue and Gun Club Road. All turn lanes are recommended to provide a length of 50 feet with the exception of the southbound left turn lane which is recommended to be 75 feet. The eastbound left turn lane at the intersection of 6th Avenue and Gun Club Road is recommended to be designated to a length of 50 feet. The eastbound and westbound left turn lanes at the intersection of 5th Avenue and Gun Club Road are recommended to be designated to a length of 75 feet to accommodate 2045 queue demands.

Eastbound and westbound dual left turn lanes may be needed at the 6th Parkway and Gun Club Road intersection by 2045 and should be studied further as traffic volumes materialize in the future.

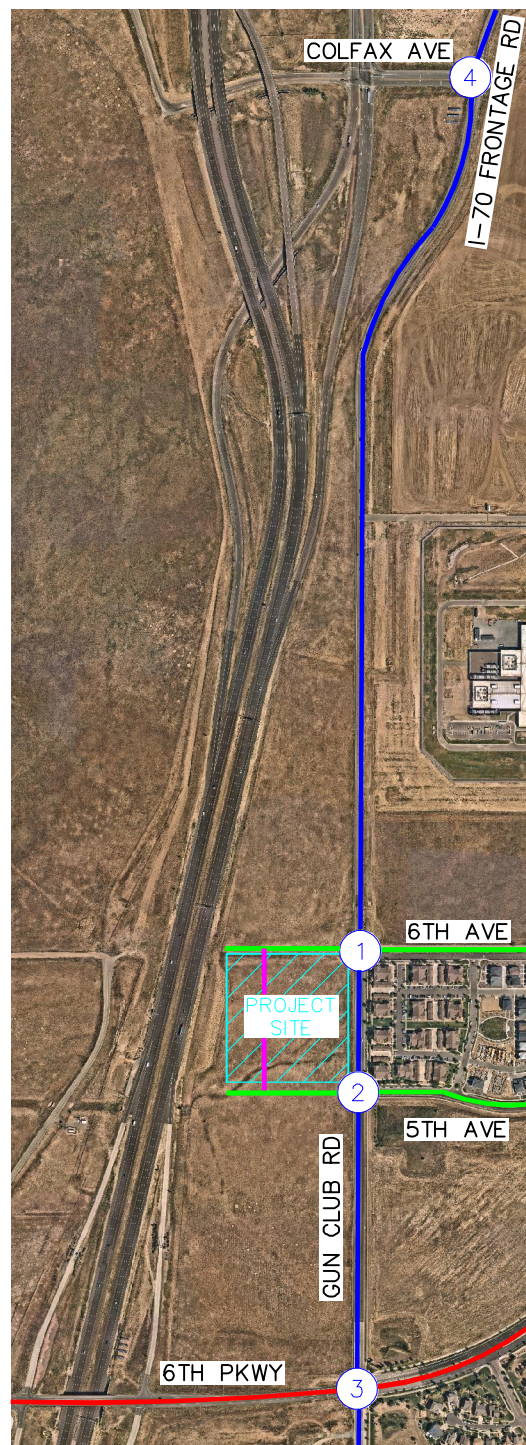
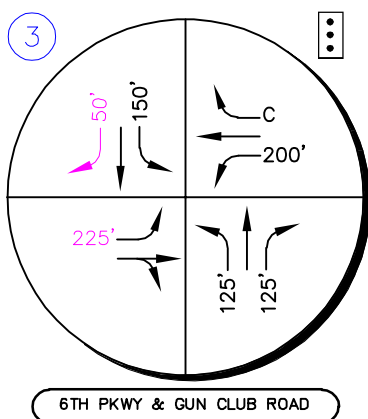
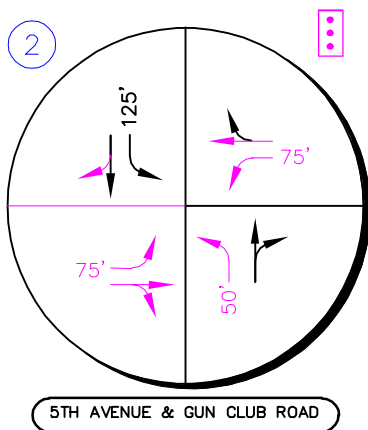
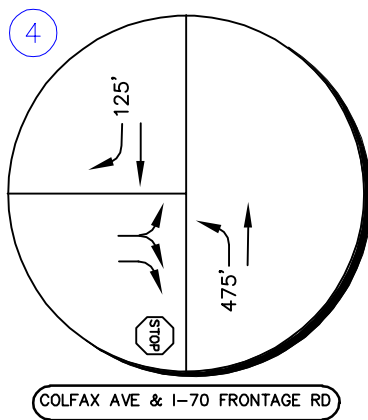
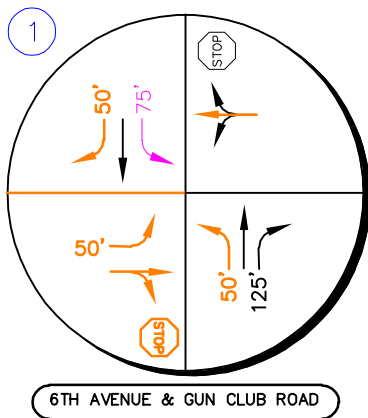
5.5 Multi-Modal Analysis

Within the project area, sidewalks exist on the north and south sides of 6th Parkway east of Gun Club Road. Gun Club Road provides a sidewalk on the east side of the roadway south of 5th Avenue. Sidewalks currently exist on the north and south sides of 5th Avenue adjacent to the project. 6th Avenue currently has a sidewalk on the south side of the roadway. There are no existing sidewalks on Colfax Avenue. The Regional Transportation District (RTD) facilities maps shows no existing bus routes in the site vicinity. Also, no bike lanes are present adjacent to the site.

With project construction, sidewalks are proposed on both sides of the 5th Avenue extension and on the south side of the 6th Avenue extension. Sidewalks will also be provided throughout the project site.

5.6 Improvement Summary

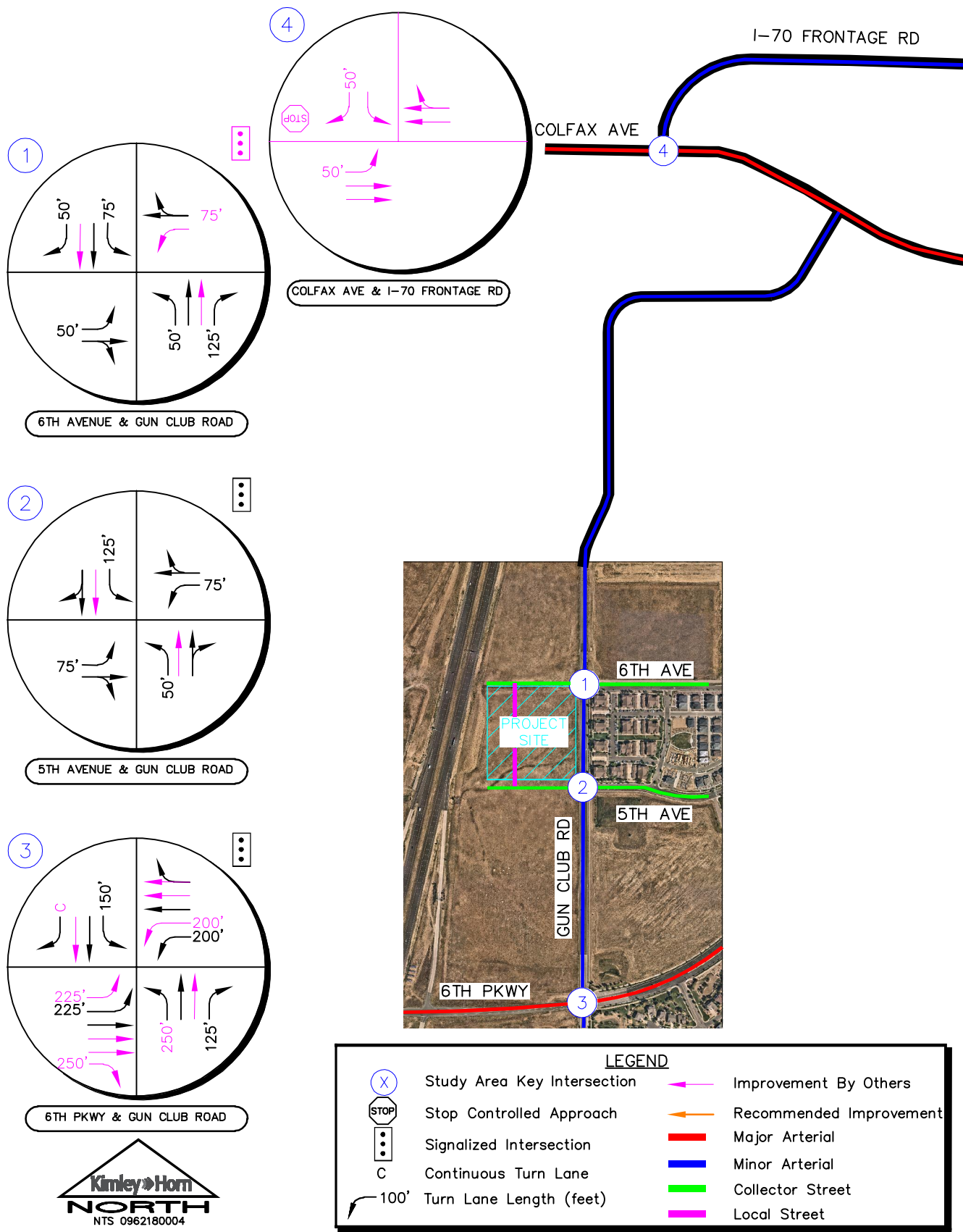
Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 13** for the 2024 project buildout year and **Figure 14** for the long-term 2045 horizon.



LEGEND			
(X)	Study Area Key Intersection	←	Improvement By Others
STOP	Stop Controlled Approach	→	Recommended Improvement
...	Signalized Intersection	—	Major Arterial
C	Continuous Turn Lane	—	Minor Arterial
100'	Turn Lane Length (feet)	—	Collector Street
		—	Local Street

VISTA CREEK MULTI-FAMILY
AURORA, COLORADO
2024 RECOMMENDED GEOMETRY

FIGURE 13



VISTA CREEK MULTI-FAMILY
 AURORA, COLORADO
 2045 RECOMMENDED GEOMETRY

FIGURE 14

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes Vista Creek Multi-Family will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

2024 Recommendations

- With buildout of the project, the west leg will be constructed at the intersection of 6th Avenue and Gun Club Road and will provide access to the project. The eastbound exiting approach of this intersection should provide two egress lanes with a 50-foot eastbound left turn lane and a shared through/right turn lane. It is recommended that a R1-1 “STOP” sign be installed by the project at the eastbound approach of the 6th Avenue and Gun Club Road intersection. A northbound and southbound left turn lane and a southbound right turn lane should be implemented at the 6th Avenue and Gun Club Road intersection. The northbound left turn lane and southbound right turn lane should be constructed by the project, whereas the southbound left turn lane is anticipated to be constructed by Cross Creek. These northbound left and southbound right turn lanes should provide 50 feet of length. The southbound left turn lane should provide a length of 75 feet. The existing southbound left turn volumes warrant a turn lane with City of Aurora standards.
- It is anticipated that the proposed adjacent development to the south, Lamar Landing Subdivision, will be built out prior to the project and will construct the west leg and a northbound left turn lane at the 5th Avenue and Gun Club Road intersection. The intersection of 5th Avenue and Gun Club Road is anticipated to meet four-hour vehicular volume warrants in 2024; therefore, signalization is anticipated to be the appropriate control at this intersection by 2024. If signalized, the eastbound and westbound approaches of this intersection should provide 75-foot designated left turn lanes and a shared through/right turn lane and the northbound approach should consist of a 50-foot designated left turn lane and a shared through/right turn lane. It should be noted that signalization is triggered by traffic volumes on the east leg of this intersection; therefore, it is believed that westbound left turn lane and signalization will be constructed in association with the development of Cross Creek.

- It is recommended that the eastbound left turn lane at the 6th Parkway and Gun Club Road intersection be extended to 225 feet. A southbound right turn should be constructed with a length of 50 feet at this intersection. These turn lane improvements are anticipated with development of the Lamar Landing project.

2045 Recommendations

- By 2045, the City of Aurora six-lane cross section is expected to be provided by others along 6th Parkway within the project limits. Further, Gun Club Road is expected to be constructed by others to the ultimate street section of two through lanes in each direction.
- The intersection of 6th Avenue and Gun Club Road is anticipated to meet four-hour vehicular volume warrants in 2045; therefore, signalization may be needed by 2045 which is consistent with the Aurora Crossroads study. If signalized, the westbound approaches of this intersection should provide a designated left turn lane. It should be noted that signalization is triggered by traffic volumes on the east leg of this intersection; therefore, it is believed that westbound left turn lane and signalization will be constructed in association with the development of Cross Creek.
- Eastbound and westbound dual left turn lanes and an eastbound right turn lane may be needed at the 6th Parkway and Gun Club Road intersection by 2045. It should be noted that these improvements are consistent with the findings in the Aurora Crossroads study and should be provided as a background improvement.
- By 2045, the intersection of Colfax Avenue and I-70 Frontage Road is anticipated to be realigned so that Colfax Avenue extends east-west, and the I-70 Frontage Road extend north-south. With this realignment, the eastbound approach should consist of a left turn lane and two through lanes while the westbound approach should include two through lanes with the outside lane being a shared through/right turn lane. The southbound approach should be stop-controlled with a R1-1 STOP sign and provide separate left and right turn lanes. Of note, these improvements are consistent with the findings in the Aurora Crossroads study and should be provided as a background improvement.

General Recommendations:

- Any on-site and off-site roadway, signing, striping, and signal improvements should be incorporated into the Civil Drawings, and conform to City of Aurora standards as well as the Manual on Uniform Traffic Control Devices – 2009 Edition (MUTCD).

APPENDICES

APPENDIX A

Intersection Count Sheets

Aurora, CO
Vista Creek Multi-Family
AM Peak
6th Ave & Gun Club Rd

File Name : 6th Ave and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

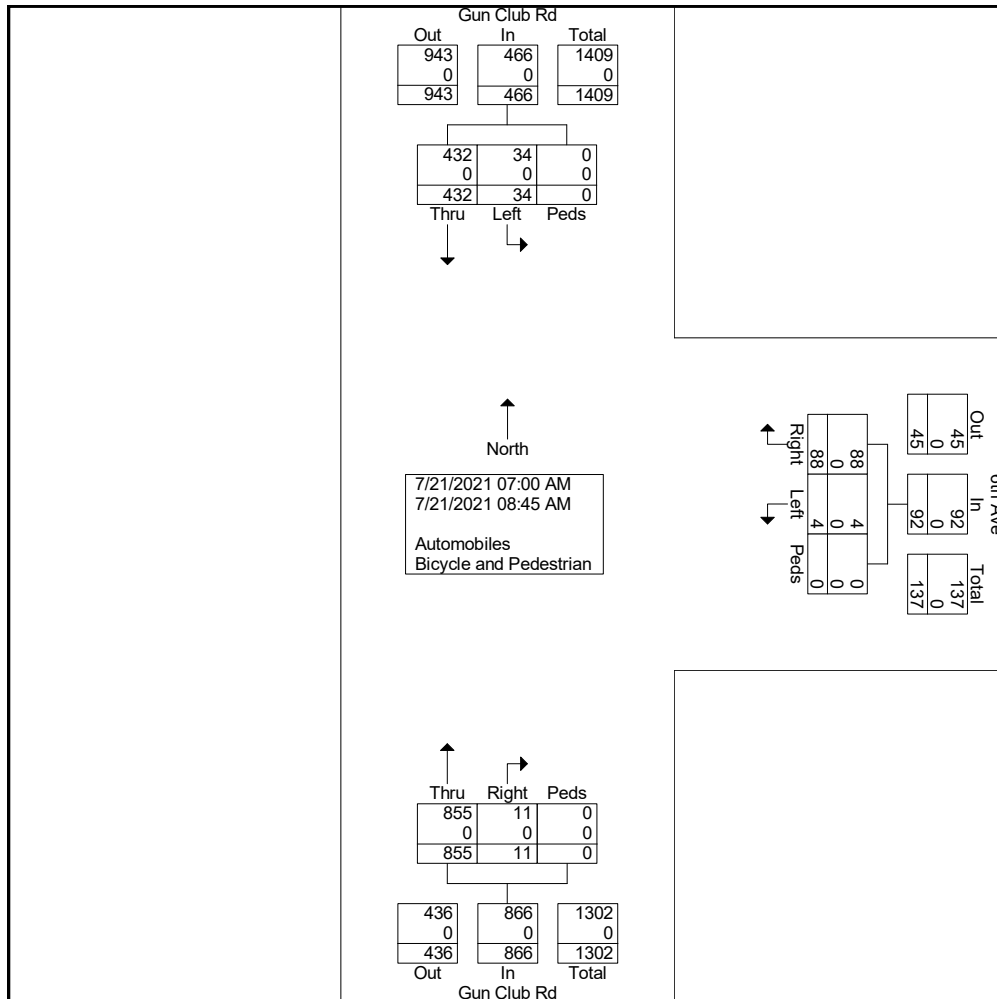
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Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
AM Peak
6th Ave & Gun Club Rd

File Name : 6th Ave and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 2



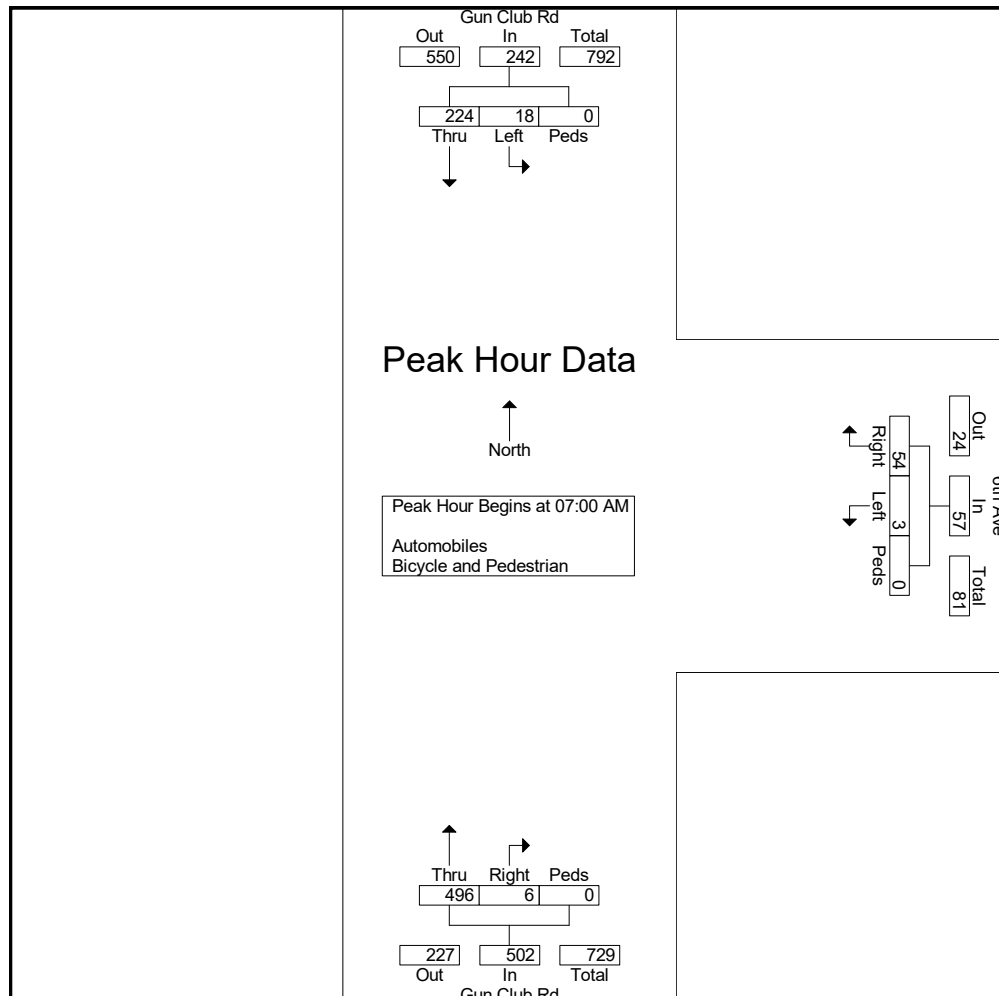


Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
AM Peak
6th Ave & Gun Club Rd

File Name : 6th Ave and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 3

	6th Ave Westbound				Gun Club Rd Northbound				Gun Club Rd Southbound				
Start Time	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	2	14	0	16	137	3	0	140	5	49	0	54	210
07:15 AM	1	14	0	15	122	0	0	122	5	50	0	55	192
07:30 AM	0	12	0	12	116	1	0	117	4	60	0	64	193
07:45 AM	0	14	0	14	121	2	0	123	4	65	0	69	206
Total Volume	3	54	0	57	496	6	0	502	18	224	0	242	801
% App. Total	5.3	94.7	0		98.8	1.2	0		7.4	92.6	0		
PHF	.375	.964	.000	.891	.905	.500	.000	.896	.900	.862	.000	.877	.954



Aurora, CO
Vista Creek Multi-Family
PM Peak
6th Ave & Gun Club Rd

File Name : 6th Ave and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

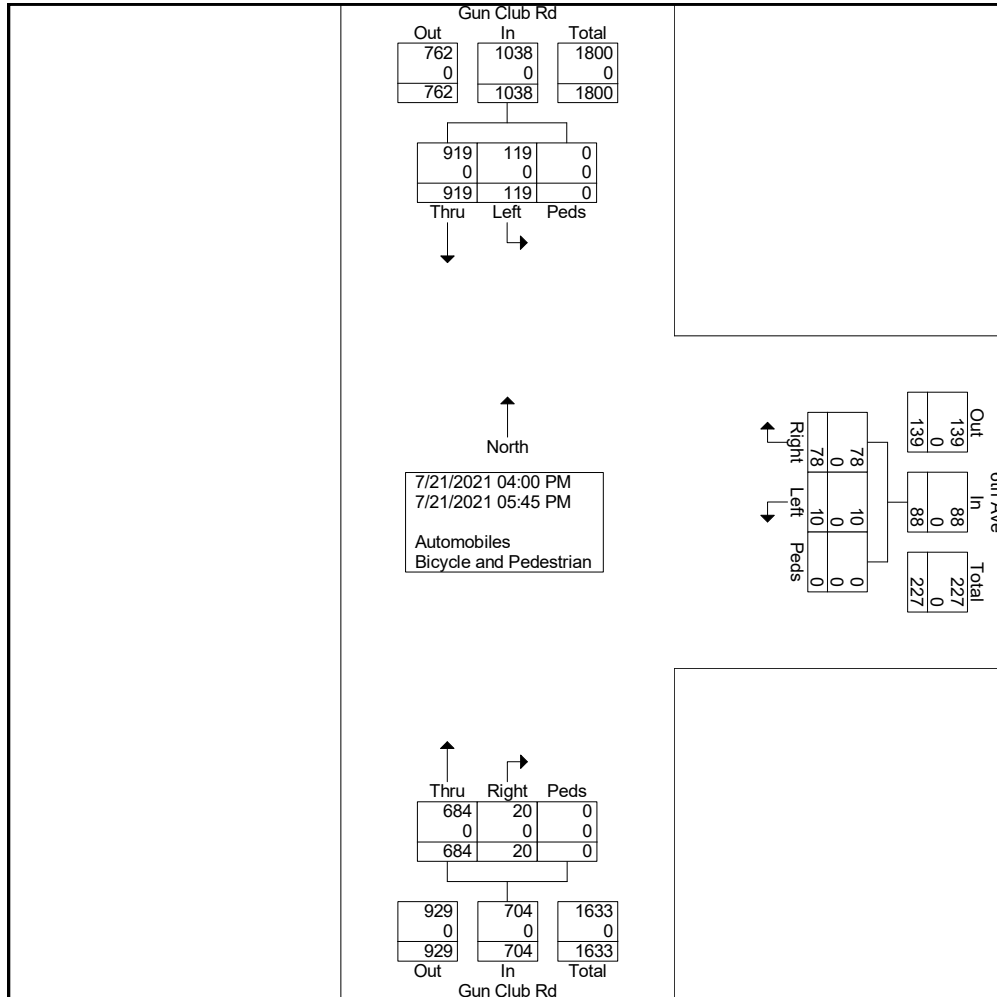
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Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
PM Peak
6th Ave & Gun Club Rd

File Name : 6th Ave and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 2



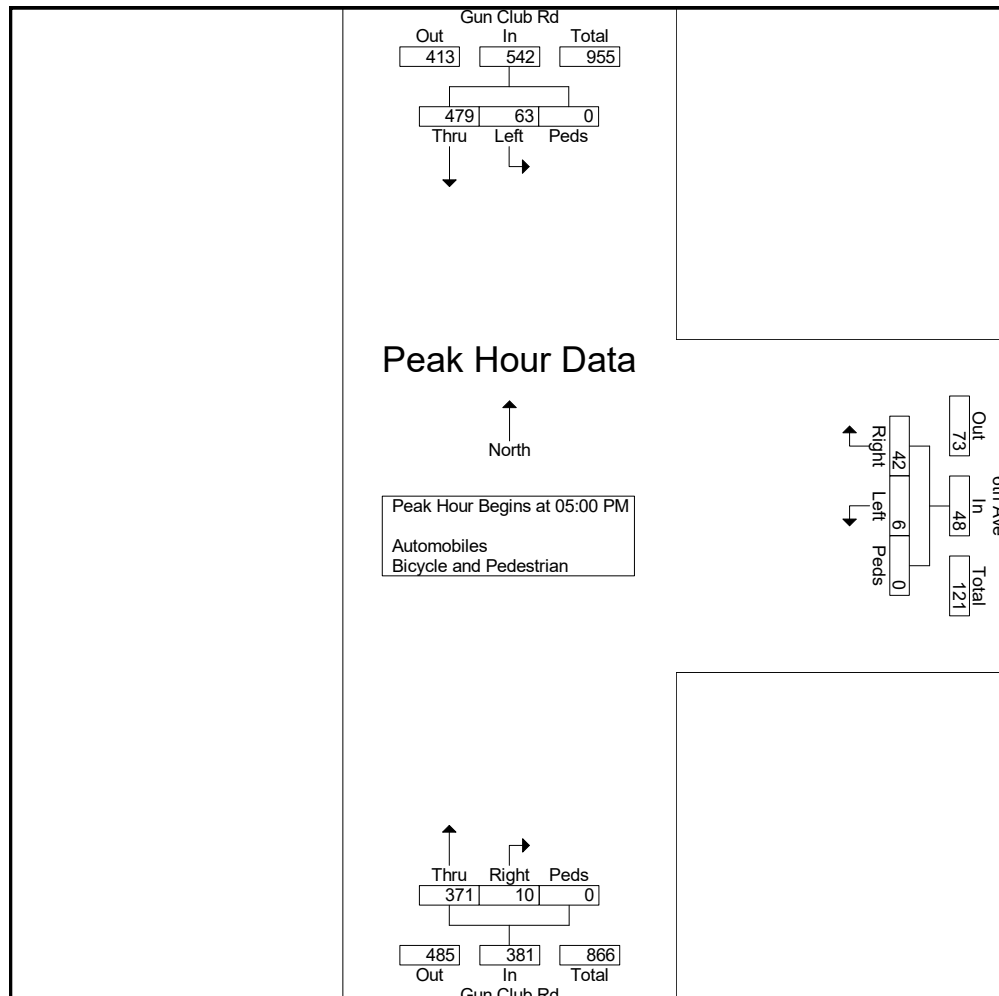


Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
PM Peak
6th Ave & Gun Club Rd

File Name : 6th Ave and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 3

	6th Ave Westbound				Gun Club Rd Northbound				Gun Club Rd Southbound				
Start Time	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	4	12	0	16	77	3	0	80	14	120	0	134	230
05:15 PM	2	9	0	11	94	2	0	96	16	126	0	142	249
05:30 PM	0	6	0	6	83	2	0	85	13	122	0	135	226
05:45 PM	0	15	0	15	117	3	0	120	20	111	0	131	266
Total Volume	6	42	0	48	371	10	0	381	63	479	0	542	971
% App. Total	12.5	87.5	0		97.4	2.6	0		11.6	88.4	0		
PHF	.375	.700	.000	.750	.793	.833	.000	.794	.788	.950	.000	.954	.913



Aurora, CO
Vista Creek Multi-Family
AM Peak
5th Ave & Gun Club Rd

File Name : 5th and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

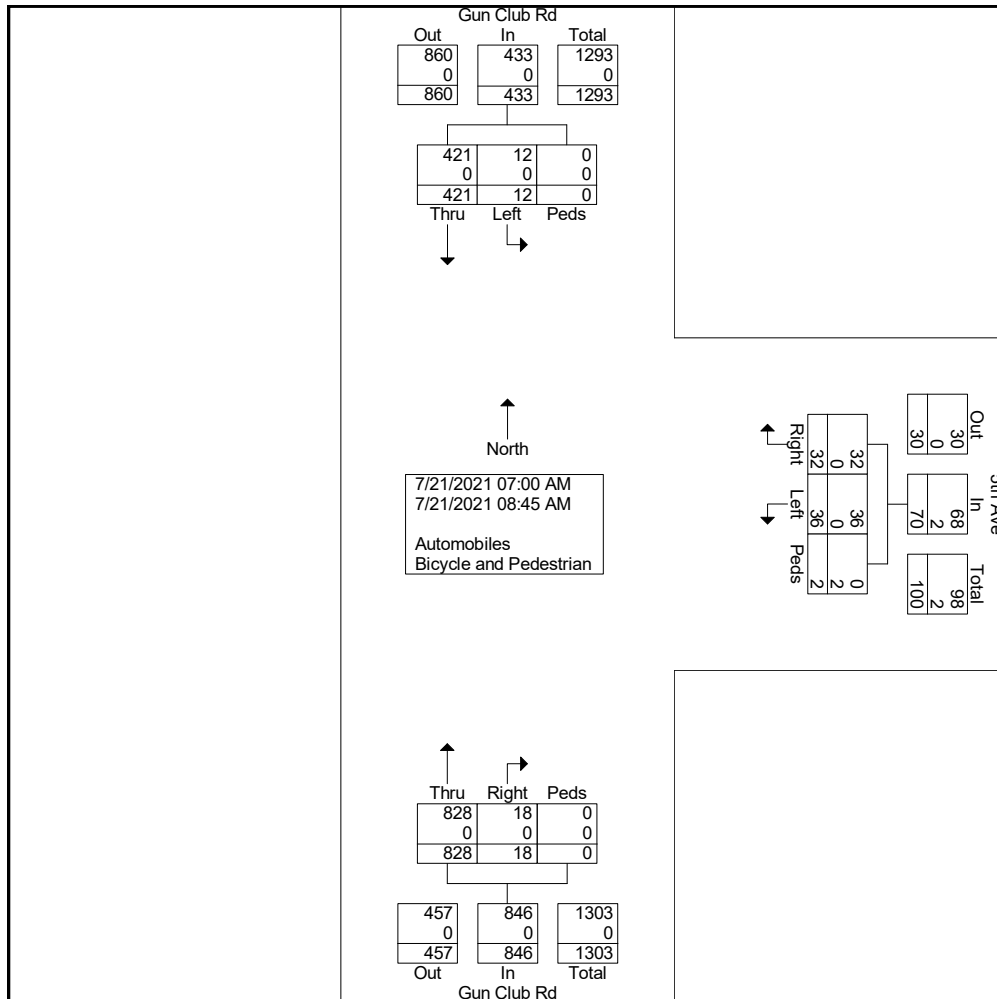
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Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
AM Peak
5th Ave & Gun Club Rd

File Name : 5th and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 2



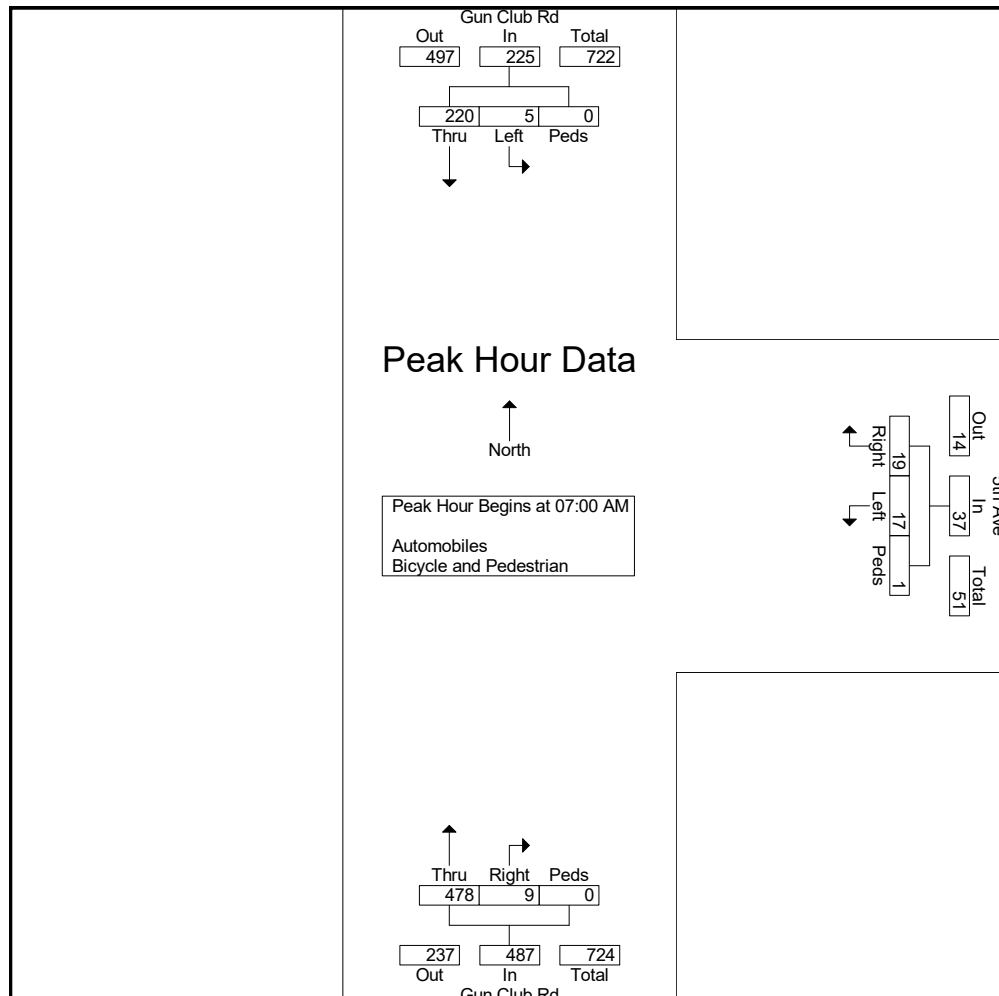


Ridgeview Data
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Aurora, CO
Vista Creek Multi-Family
AM Peak
5th Ave & Gun Club Rd

File Name : 5th and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 3

	5th Ave Westbound				Gun Club Rd Northbound				Gun Club Rd Southbound				
Start Time	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	3	3	0	6	134	4	0	138	1	48	0	49	193
07:15 AM	6	2	1	9	119	3	0	122	1	52	0	53	184
07:30 AM	2	6	0	8	117	0	0	117	1	58	0	59	184
07:45 AM	6	8	0	14	108	2	0	110	2	62	0	64	188
Total Volume	17	19	1	37	478	9	0	487	5	220	0	225	749
% App. Total	45.9	51.4	2.7		98.2	1.8	0		2.2	97.8	0		
PHF	.708	.594	.250	.661	.892	.563	.000	.882	.625	.887	.000	.879	.970



Aurora, CO
Vista Creek Multi-Family
PM Peak
5th Ave & Gun Club Rd

File Name : 5th and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

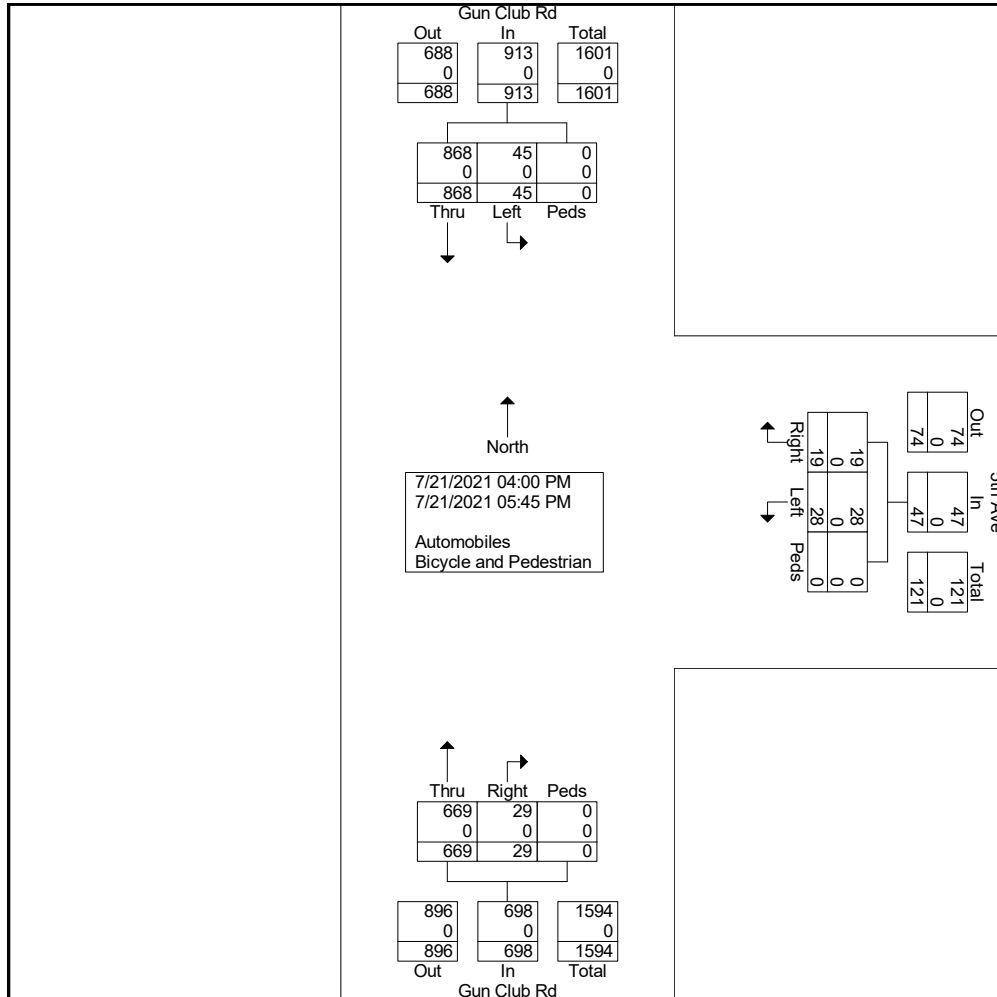
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Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
PM Peak
5th Ave & Gun Club Rd

File Name : 5th and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 2



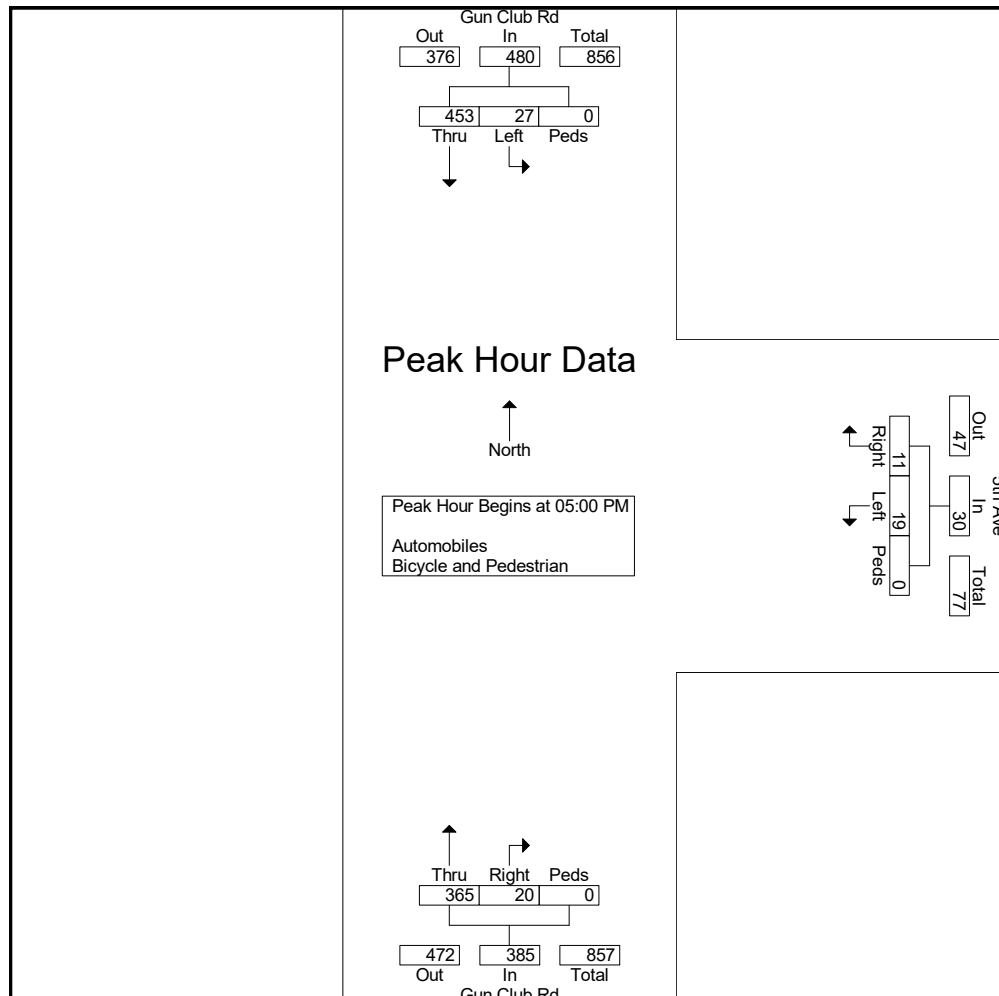


Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
PM Peak
5th Ave & Gun Club Rd

File Name : 5th and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 3

	5th Ave Westbound				Gun Club Rd Northbound				Gun Club Rd Southbound				
Start Time	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	3	2	0	5	77	6	0	83	7	118	0	125	213
05:15 PM	7	3	0	10	93	3	0	96	7	118	0	125	231
05:30 PM	6	3	0	9	80	4	0	84	6	115	0	121	214
05:45 PM	3	3	0	6	115	7	0	122	7	102	0	109	237
Total Volume	19	11	0	30	365	20	0	385	27	453	0	480	895
% App. Total	63.3	36.7	0		94.8	5.2	0		5.6	94.4	0		
PHF	.679	.917	.000	.750	.793	.714	.000	.789	.964	.960	.000	.960	.944



Aurora, CO
Vista Creek Multi-Family
AM Peak
6th Pkwy & Gun Club Rd

File Name : 6th Pkwy and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

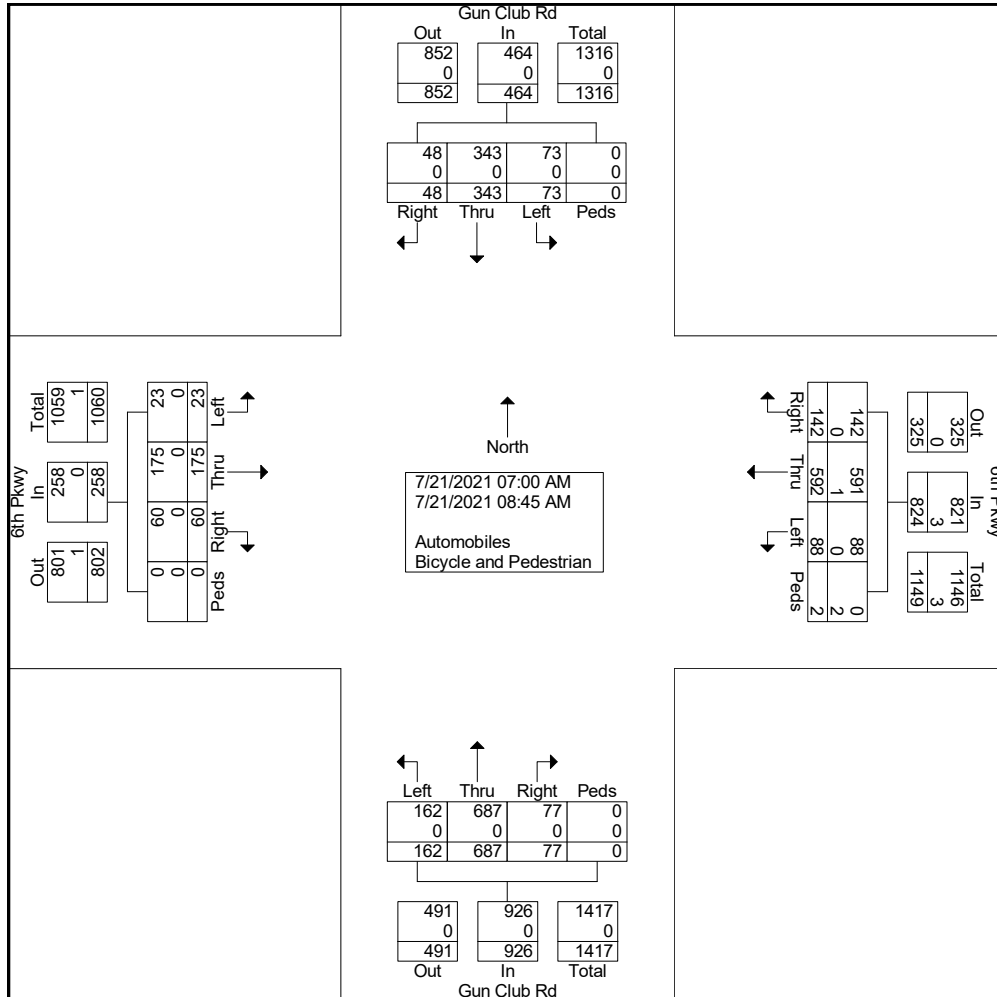
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Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
AM Peak
6th Pkwy & Gun Club Rd

File Name : 6th Pkwy and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 2



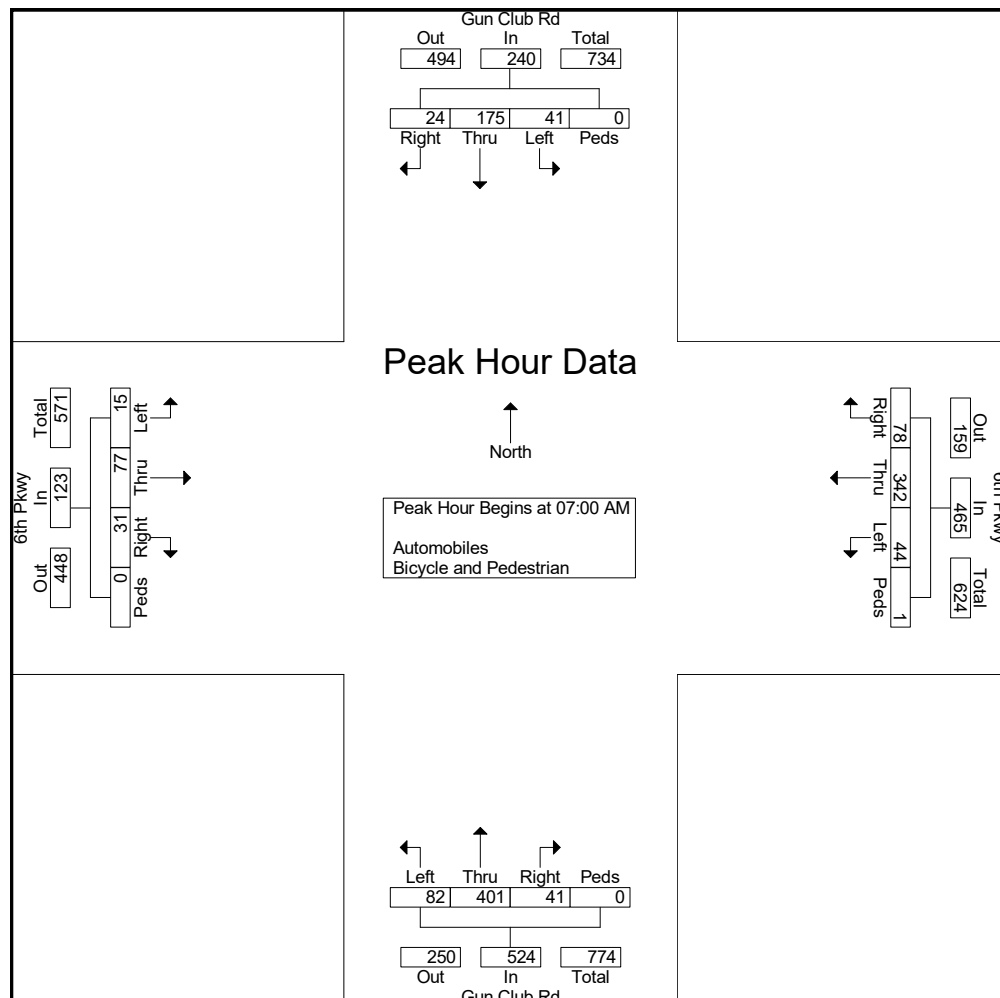


Ridgeview Data
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Aurora, CO
Vista Creek Multi-Family
AM Peak
6th Pkwy & Gun Club Rd

File Name : 6th Pkwy and Gun Club AM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 3

	6th Pkwy Eastbound					6th Pkwy Westbound					Gun Club Rd Northbound					Gun Club Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	7	9	9	0	25	7	84	21	0	112	24	114	9	0	147	11	35	6	0	52	336
07:15 AM	3	20	7	0	30	11	87	23	0	121	17	95	8	0	120	9	42	7	0	58	329
07:30 AM	1	16	4	0	21	15	99	20	0	134	23	99	11	0	133	9	50	5	0	64	352
07:45 AM	4	32	11	0	47	11	72	14	1	98	18	93	13	0	124	12	48	6	0	66	335
Total Volume	15	77	31	0	123	44	342	78	1	465	82	401	41	0	524	41	175	24	0	240	1352
% App. Total	12.2	62.6	25.2	0		9.5	73.5	16.8	0.2		15.6	76.5	7.8	0		17.1	72.9	10	0		
PHF	.536	.602	.705	.000	.654	.733	.864	.848	.250	.868	.854	.879	.788	.000	.891	.854	.875	.857	.000	.909	.960





Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
PM Peak
6th Pkwy & Gun Club Rd

File Name : 6th Pkwy and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
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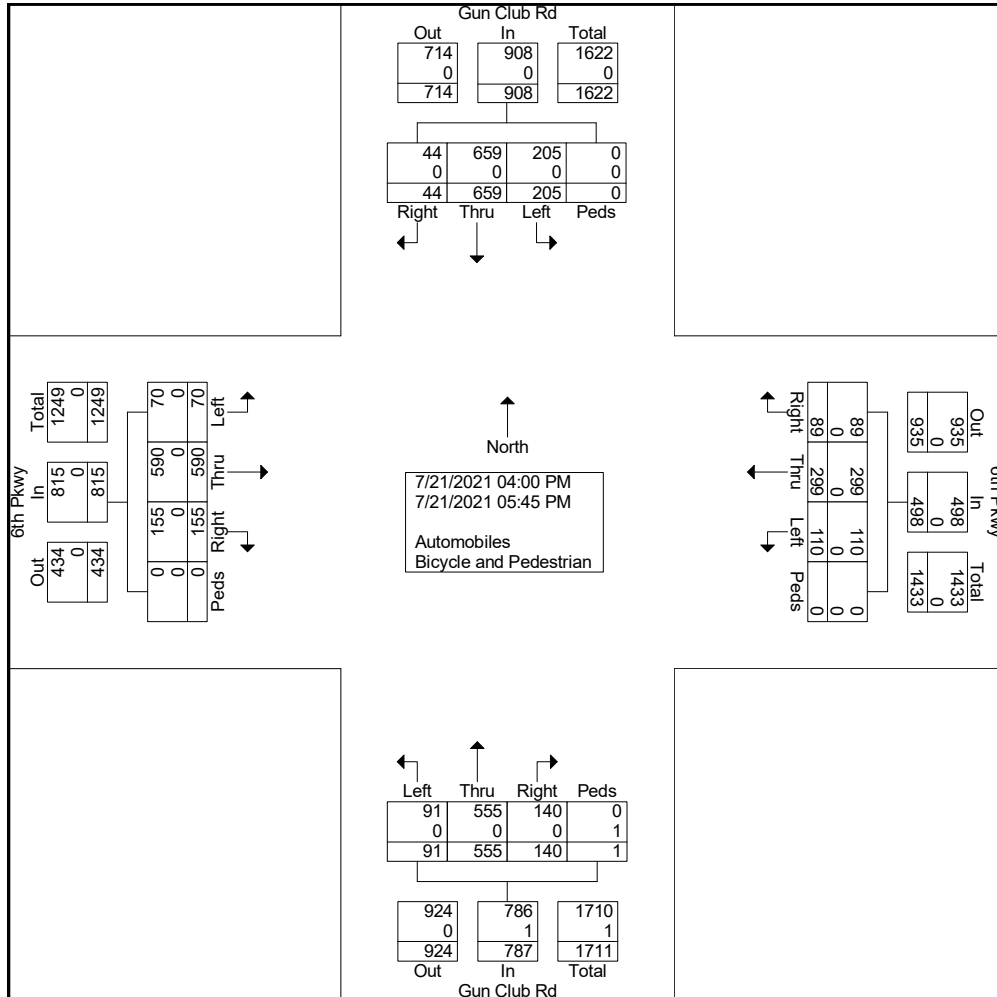
	6th Pkwy Eastbound					6th Pkwy Westbound					Gun Club Rd Northbound					Gun Club Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	9	63	18	0	90	17	35	13	0	65	9	58	17	0	84	16	65	5	0	86	325
04:15 PM	5	72	18	0	95	12	36	17	0	65	7	65	12	0	84	23	83	5	0	111	355
04:30 PM	9	64	22	0	95	13	50	3	0	66	14	53	20	0	87	29	80	4	0	113	361
04:45 PM	8	70	13	0	91	16	38	10	0	64	8	73	23	0	104	28	93	2	0	123	382
Total	31	269	71	0	371	58	159	43	0	260	38	249	72	0	359	96	321	16	0	433	1423
05:00 PM	11	91	19	0	121	9	36	7	0	52	15	69	19	0	103	20	95	6	0	121	397
05:15 PM	11	83	24	0	118	17	32	16	0	65	12	68	11	0	91	27	86	11	0	124	398
05:30 PM	5	80	21	0	106	11	34	11	0	56	17	80	22	0	119	33	91	6	0	130	411
05:45 PM	12	67	20	0	99	15	38	12	0	65	9	89	16	1	115	29	66	5	0	100	379
Total	39	321	84	0	444	52	140	46	0	238	53	306	68	1	428	109	338	28	0	475	1585
Grand Total	70	590	155	0	815	110	299	89	0	498	91	555	140	1	787	205	659	44	0	908	3008
Apprch %	8.6	72.4	19	0		22.1	60	17.9	0		11.6	70.5	17.8	0.1		22.6	72.6	4.8	0		
Total %	2.3	19.6	5.2	0	27.1	3.7	9.9	3	0	16.6	3	18.5	4.7	0	26.2	6.8	21.9	1.5	0	30.2	
Automobiles	70	590	155	0	815	110	299	89	0	498	91	555	140	0	786	205	659	44	0	908	3007
% Automobiles	100	100	100	0	100	100	100	100	0	100	100	100	100	0	99.9	100	100	100	0	100	100
Bicycle and Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
% Bicycle and Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.1	0	0	0	0	0	0



Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
PM Peak
6th Pkwy & Gun Club Rd

File Name : 6th Pkwy and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 2



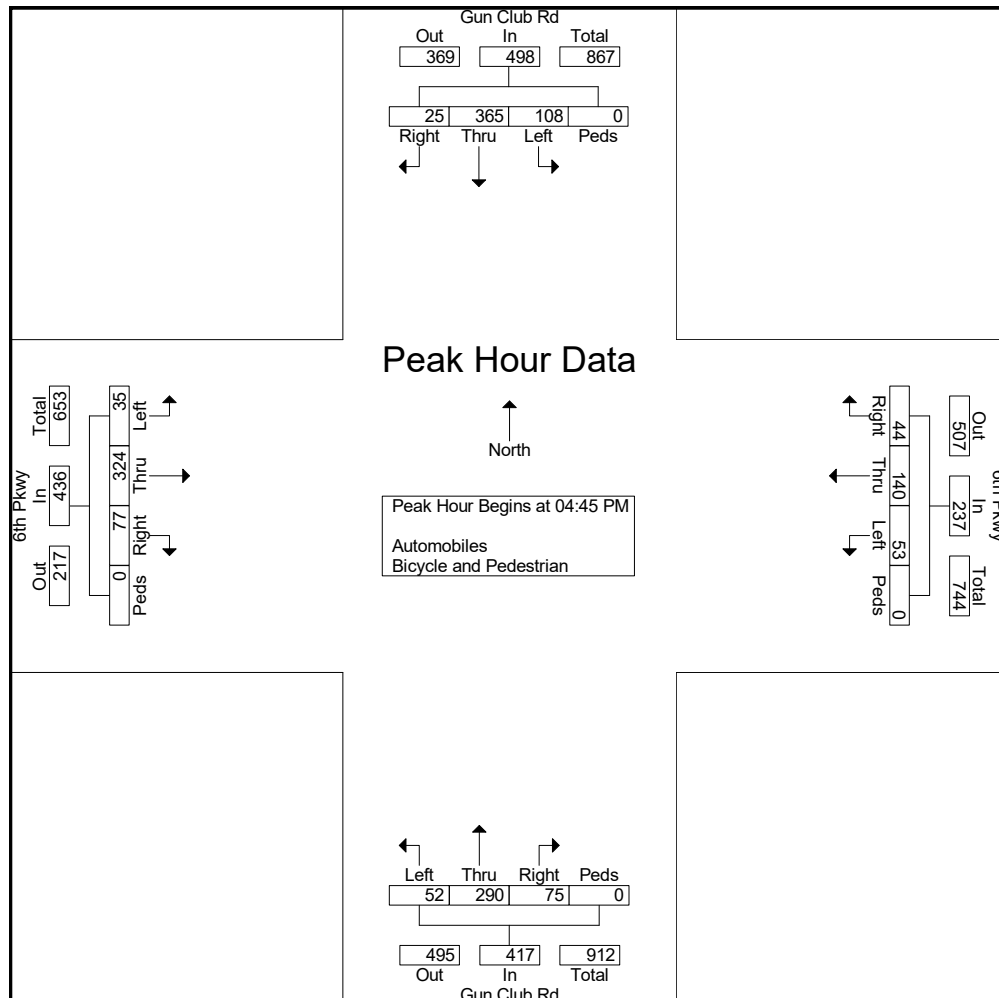


Ridgeview Data
Collection

Aurora, CO
Vista Creek Multi-Family
PM Peak
6th Pkwy & Gun Club Rd

File Name : 6th Pkwy and Gun Club PM
Site Code : IPO 560
Start Date : 7/21/2021
Page No : 3

	6th Pkwy Eastbound					6th Pkwy Westbound					Gun Club Rd Northbound					Gun Club Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	8	70	13	0	91	16	38	10	0	64	8	73	23	0	104	28	93	2	0	123	382
05:00 PM	11	91	19	0	121	9	36	7	0	52	15	69	19	0	103	20	95	6	0	121	397
05:15 PM	11	83	24	0	118	17	32	16	0	65	12	68	11	0	91	27	86	11	0	124	398
05:30 PM	5	80	21	0	106	11	34	11	0	56	17	80	22	0	119	33	91	6	0	130	411
Total Volume	35	324	77	0	436	53	140	44	0	237	52	290	75	0	417	108	365	25	0	498	1588
% App. Total	8	74.3	17.7	0		22.4	59.1	18.6	0		12.5	69.5	18	0		21.7	73.3	5	0		
PHF	.795	.890	.802	.000	.901	.779	.921	.688	.000	.912	.765	.906	.815	.000	.876	.818	.961	.568	.000	.958	.966





Aurora, CO
Aurora Crossroads
AM Peak
Colfax Ave/I-70 Frontage & Gun Club Rd

File Name : Colfax and Gun Club AM
Site Code : IPO 71
Start Date : 2/12/2020
Page No : 1

Groups Printed- Automobiles - Bicycles and Pedestrians

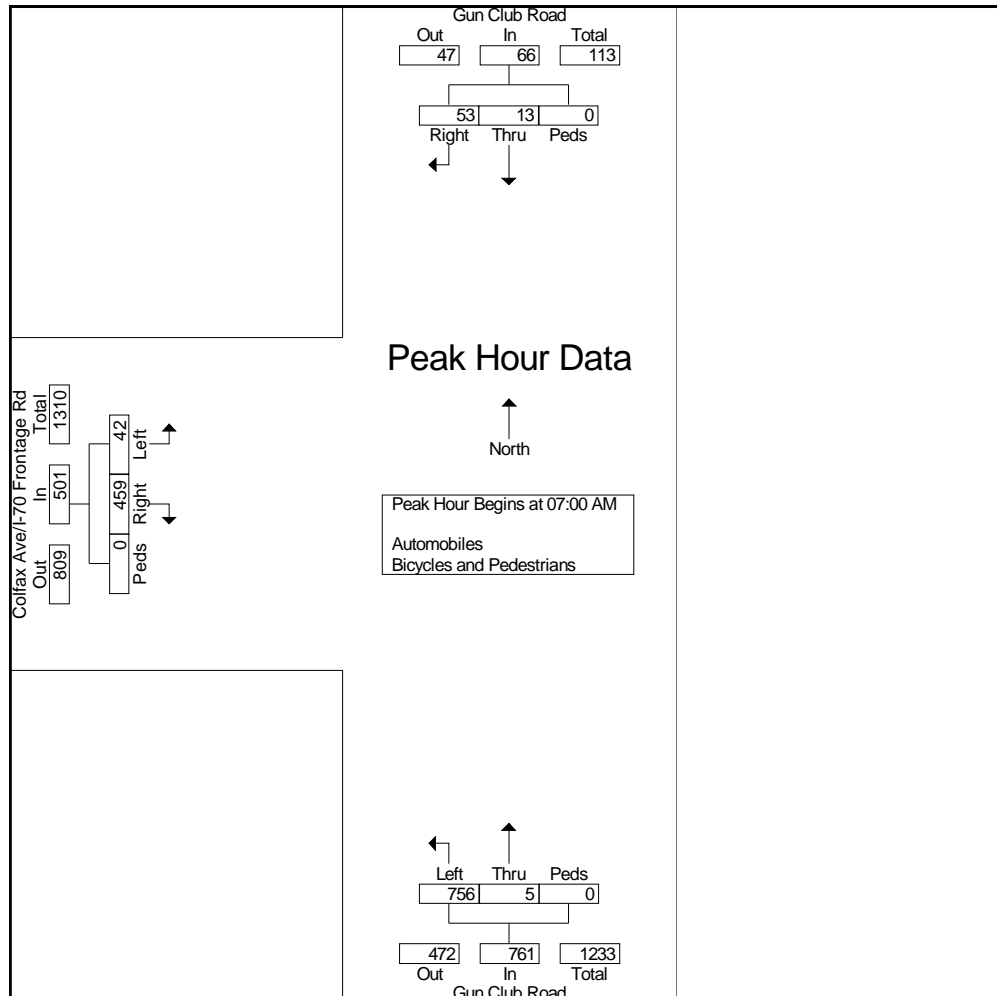
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Aurora, CO
Aurora Crossroads
AM Peak
Colfax Ave/I-70 Frontage & Gun Club Rd

File Name : Colfax and Gun Club AM
Site Code : IPO 71
Start Date : 2/12/2020
Page No : 3

	Colfax Ave/I-70 Frontage Rd Eastbound				Gun Club Road Northbound				Gun Club Road Southbound				
Start Time	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	7	150	0	157	205	2	0	207	3	16	0	19	383
07:15 AM	12	131	0	143	191	1	0	192	3	17	0	20	355
07:30 AM	8	93	0	101	209	1	0	210	5	4	0	9	320
07:45 AM	15	85	0	100	151	1	0	152	2	16	0	18	270
Total Volume	42	459	0	501	756	5	0	761	13	53	0	66	1328
% App. Total	8.4	91.6	0		99.3	0.7	0		19.7	80.3	0		
PHF	.700	.765	.000	.798	.904	.625	.000	.906	.650	.779	.000	.825	.867



Ridgeview Data
Collection

Aurora, CO
Aurora Crossroads
PM Peak
Colfax Ave/I-70 Frontage & Gun Club Rd

File Name : Colfax and Gun Club PM
Site Code : IPO 71
Start Date : 2/12/2020
Page No : 1

Groups Printed- Automobiles - Bicycles and Pedestrians

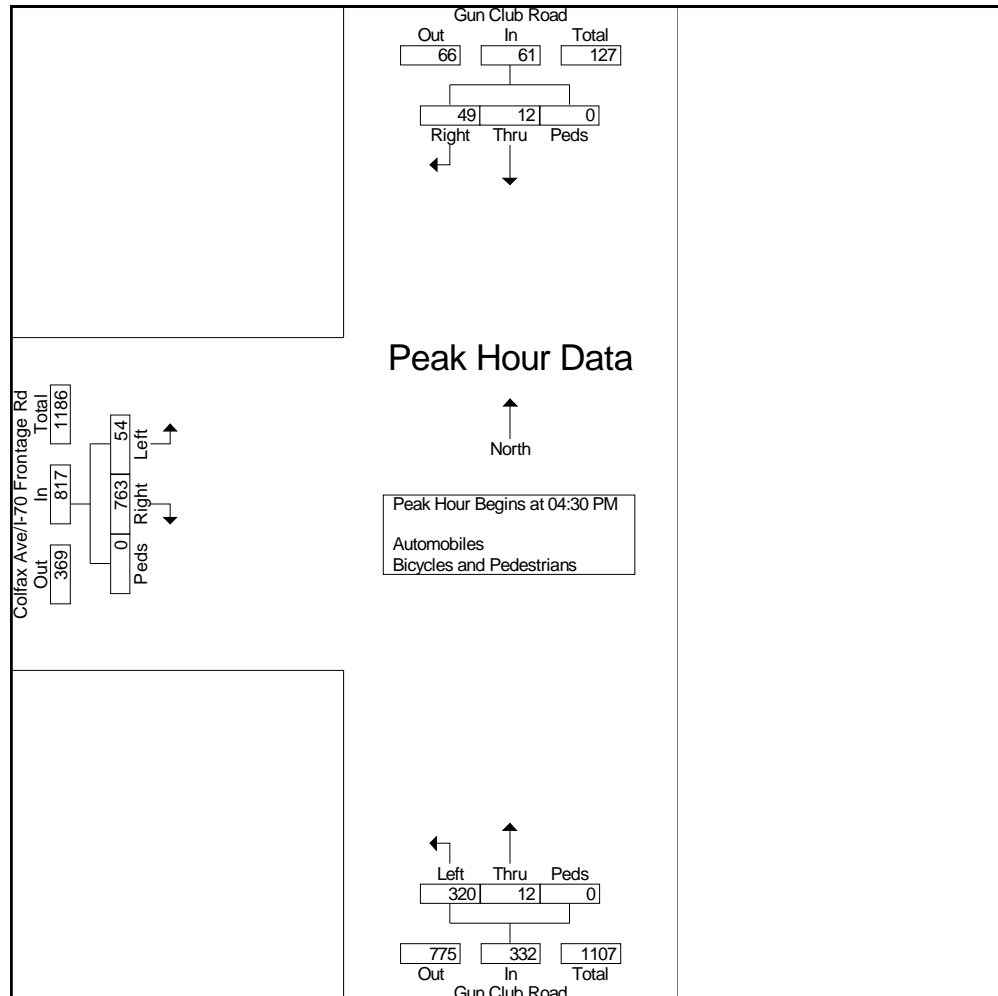
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Aurora, CO
Aurora Crossroads
PM Peak
Colfax Ave/I-70 Frontage & Gun Club Rd

File Name : Colfax and Gun Club PM
Site Code : IPO 71
Start Date : 2/12/2020
Page No : 3

	Colfax Ave/I-70 Frontage Rd Eastbound				Gun Club Road Northbound				Gun Club Road Southbound				
Start Time	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	13	156	0	169	77	3	0	80	5	13	0	18	267
04:45 PM	16	227	0	243	73	3	0	76	4	18	0	22	341
05:00 PM	12	176	0	188	75	1	0	76	3	9	0	12	276
05:15 PM	13	204	0	217	95	5	0	100	0	9	0	9	326
Total Volume	54	763	0	817	320	12	0	332	12	49	0	61	1210
% App. Total	6.6	93.4	0		96.4	3.6	0		19.7	80.3	0		
PHF	.844	.840	.000	.841	.842	.600	.000	.830	.600	.681	.000	.693	.887



APPENDIX B

Background Traffic Information

T R A F F I C I M P A C T S T U D Y

Lamar Landing Subdivision

Aurora, Colorado

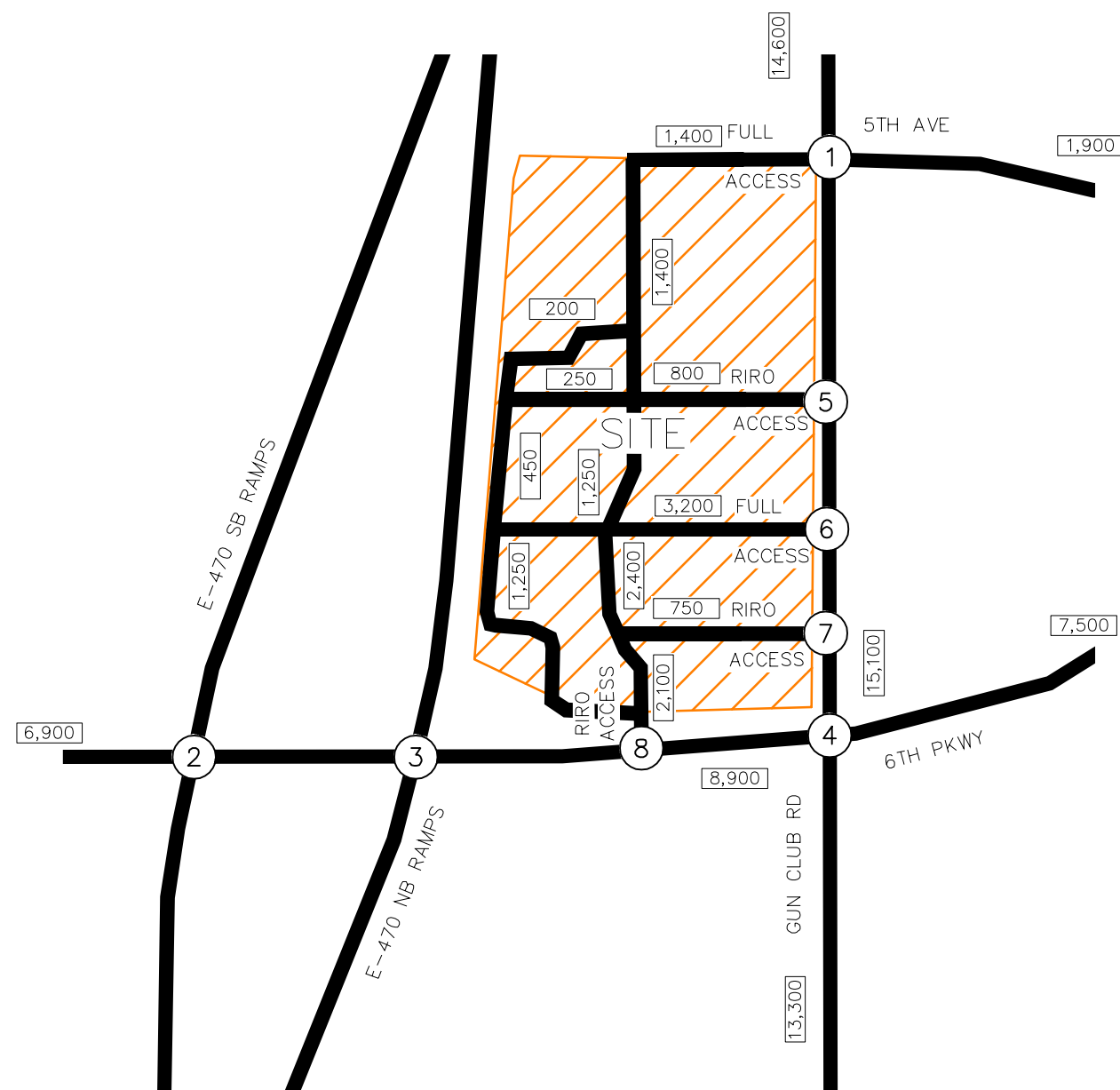
Prepared for
QuikTrip Corporation
4705 South 129th East Avenue
Tulsa, OK 74134-7008

Prepared by
Kimley-Horn and Associates, Inc.
4582 South Ulster Street
Suite 1500
Denver, Colorado 80237
(303) 228-2300



September 2020

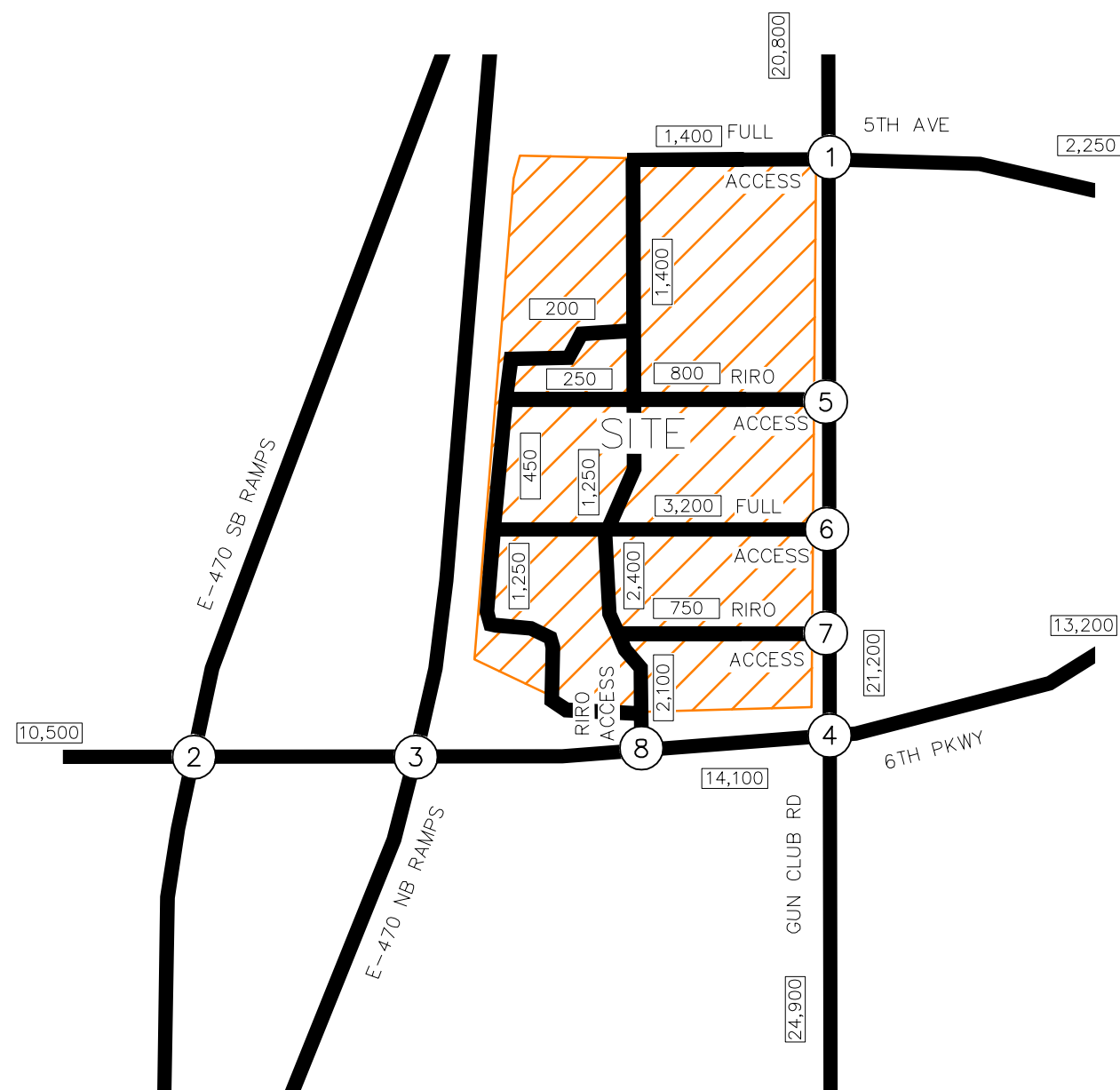
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



<p>1</p> <p>10(10) 440(780) 35(70)</p> <p>65(40) 5(5) 35(30)</p> <p>20(25) 5(5) 15(20)</p> <p>5TH AVE/GUN CLUB RD</p>	<p>2</p> <p>10(10) 70(70)</p> <p>325(250) 145(135)</p> <p>180(385) 35(45)</p> <p>6TH PKWY/E-470 SB RAMP</p>	<p>3</p> <p>80(70) 410(355)</p> <p>20(20) 225(435)</p> <p>60(25) 0(5) 80(140)</p> <p>6TH PKWY/E-470 NB RAMP</p>	<p>4</p> <p>60(80) 400(590) 65(160)</p> <p>105(75) 245(125) 95(80)</p> <p>135(240) 110(230) 45(90)</p> <p>6TH PKWY/GUN CLUB RD</p>
<p>5</p> <p>30(50) 420(730)</p> <p>15(20)</p> <p>680(570)</p> <p>GUN CLUB ROAD NORTH RIRO ACCESS</p>	<p>6</p> <p>10(20) 420(730)</p> <p>40(50) 20(25)</p> <p>95(165) 645(520)</p> <p>GUN CLUB ROAD SOUTH FULL ACCESS</p>	<p>7</p> <p>5(10) 435(745)</p> <p>40(50)</p> <p>735(685)</p> <p>GUN CLUB ROAD SOUTH RIRO ACCESS</p>	<p>8</p> <p>95(125)</p> <p>25(40) 395(285)</p> <p>290(560)</p> <p>6TH PARKWAY RIRO ACCESS</p>

LEGEND	
(X)	Study Area Key Intersection
xxx(yyy)	Weekday AM(PM) Peak Hour Traffic Volumes
xx,x00	Estimated Daily Traffic Volume

FIGURE 9



1 10(10) ↓ 625(1125) ↓ 45(85) ↓ 85(45) ↑ 5(5) ↑ 45(35) ↑ 5TH AVE/GUN CLUB RD	2 15(10) ↓ 95(105) ↓ 450(395) ← 175(215) ← 265(580) → 50(65) → 6TH PKWY/E-470 SB RAMPS	3 30(25) → 330(655) → 85(40) → 0(5) → 115(215) → 6TH PKWY/E-470 NB RAMPS	4 65(90) ↓ 580(880) ↓ 85(215) ↓ 145(100) ↑ 280(120) ↑ 260(305) ↑ 6TH PKWY/GUN CLUB RD
5 30(50) ↓ 610(1085) ↓ 15(20) ↓ 945(840) → GUN CLUB ROAD NORTH RIRO ACCESS	6 10(20) ↓ 610(1085) ↓ 40(50) → 20(25) → 95(165) → 910(790) → GUN CLUB ROAD SOUTH FULL ACCESS	7 5(10) ↓ 625(1100) ↓ 40(50) → 1000(955) → GUN CLUB ROAD SOUTH RIRO ACCESS	8 95(125) ↓ 25(40) ↑ 570(530) ← 400(835) → 6TH PARKWAY RIRO ACCESS

LEGEND	
(X)	Study Area Key Intersection
xxx(xxx)	Weekday AM(PM) Peak Hour Traffic Volumes
xx,x00	Estimated Daily Traffic Volume

LAMAR LANDING SUBDIVISION
 AURORA, CO
 2040 TOTAL TRAFFIC VOLUMES

FIGURE 10



LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com

April 10, 2019

Mr. James Spehalski
Marathon Land Company
9750 W. Cambridge Place
Littleton, CO 80127

Re: E-470 and 6th Pkwy FDP
Aurora, CO
LSC #180220

Dear Mr. Spehalski:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed E-470 and 6th Pkwy FDP development to respond to comments from the City of Aurora. As shown on Figure 1, the site is located south of E. 6th Parkway and west of North Gun Club Road in Aurora, Colorado.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected Phase 1 and Buildout short-term and Buildout long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the site's traffic impacts.

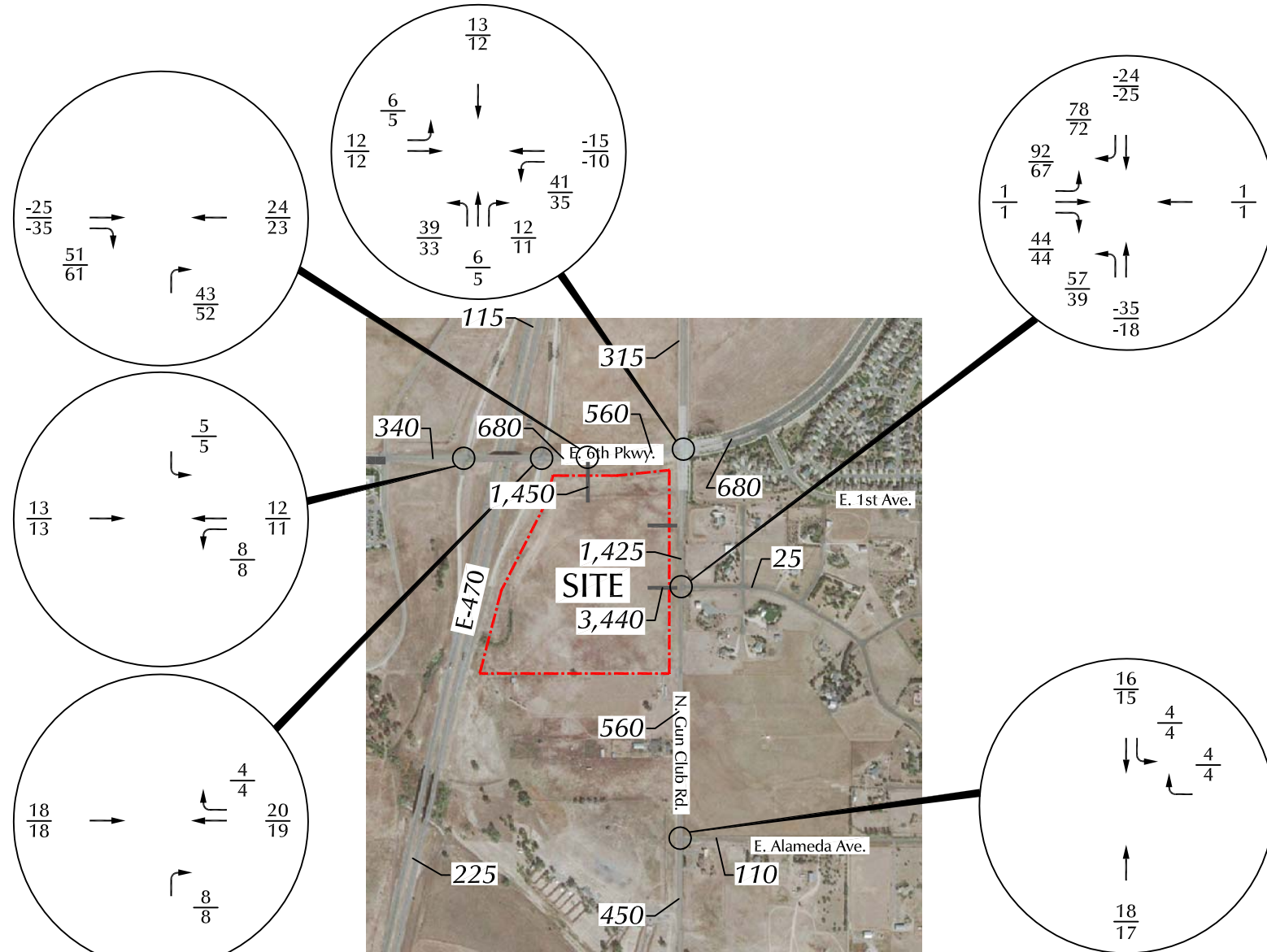
LAND USE AND ACCESS

The site is proposed to include a grocery store with about 90,000 square feet, about 95,790 square feet of retail shopping center space, about 6,030 square feet of fast-food restaurant, about 27,000 square feet of office space, and two gas stations. Access is proposed from one right-in/right-out access to E. 6th Parkway and one full movement and one three-quarter movement access locations to N. Gun Club Road. Figure 2 shows the conceptual site plan.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.



LEGEND:

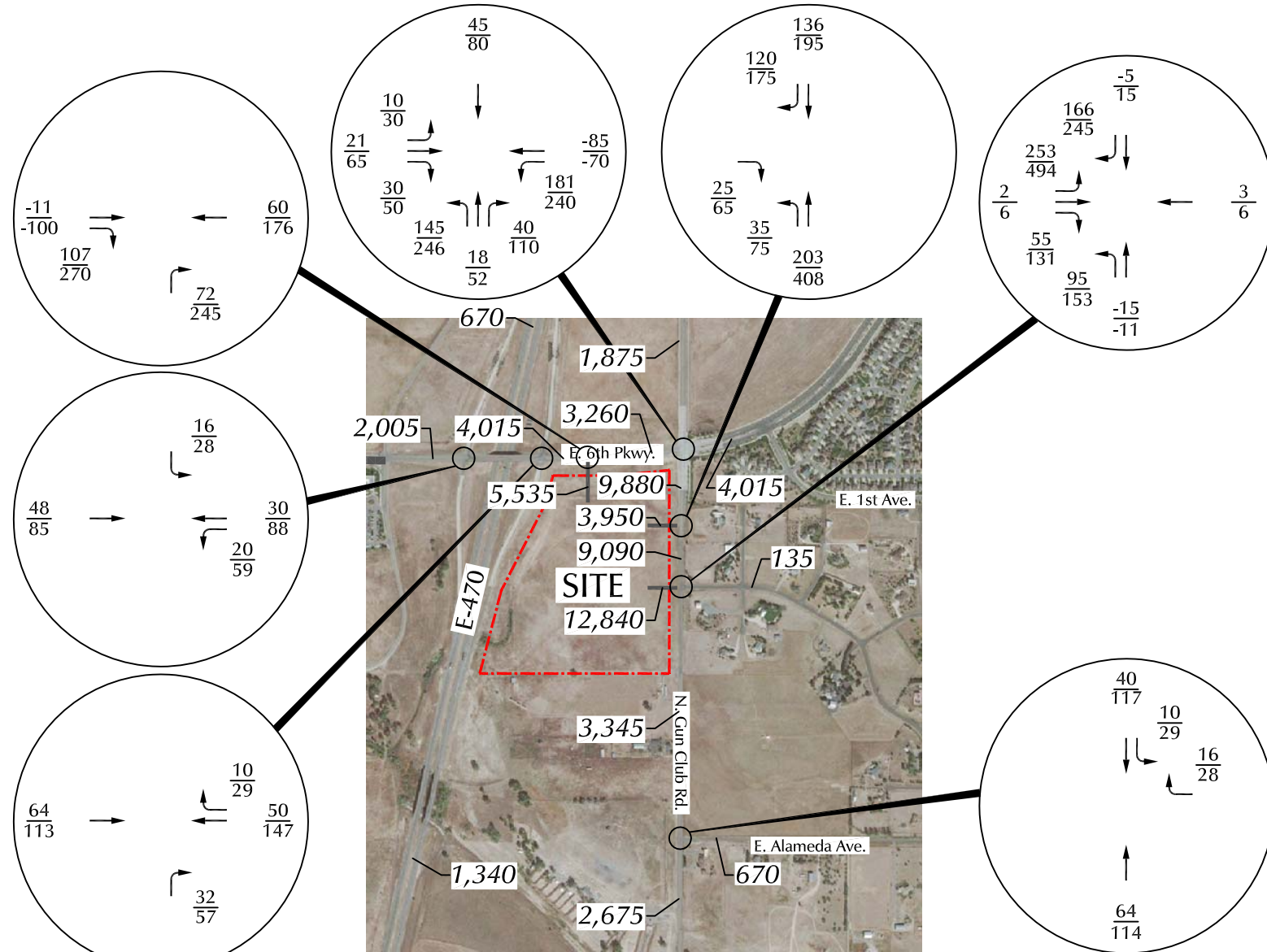
$\frac{26}{35}$ = AM Peak Hour Traffic
PM Peak Hour Traffic

1,000 = Average Daily Traffic

*Assignment of Phase 1
Total Site-Generated Traffic*

E-470 and 6th Parkway FDP (LSC #180220)

Figure 7c



Aurora Crossroads Traffic Impact Study



Source: CBRE

1st Submittal Date: April 13, 2020

2nd Submittal Date: July 17, 2020

3rd Submittal Date: September 29, 2020

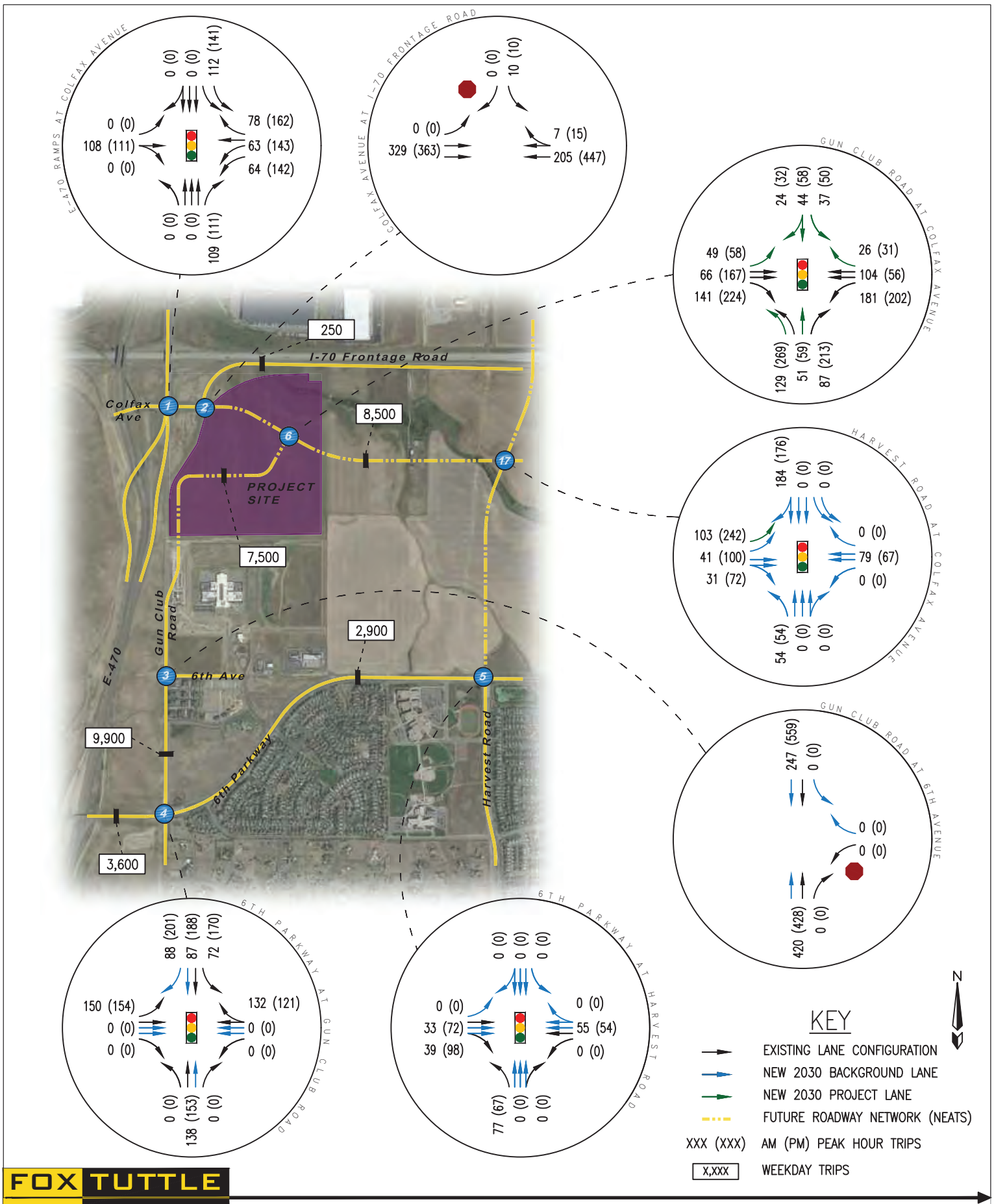
Updated Date: November 25, 2020

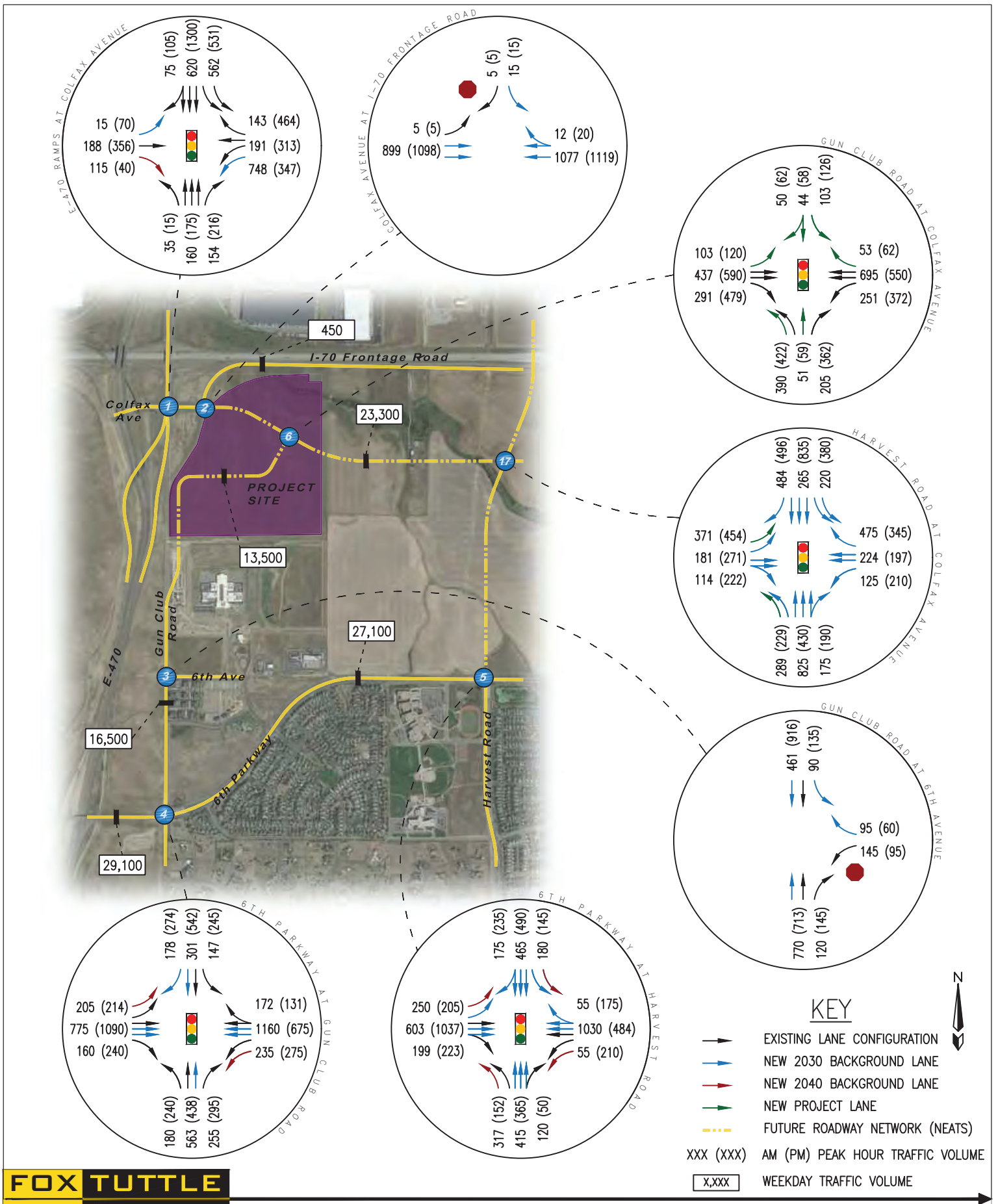
Submitted To:

Westside Investment Partners, Inc.
4100 East Mississippi Avenue, Suite 500
Denver, CO 80246

Submitted By:

Fox Tuttle Transportation Group, LLC
1624 Market Street, Suite 202
Denver, CO 80202





MASTER TRAFFIC IMPACT STUDY

For

**Cross Creek
Aurora, Colorado**

September 2020

Revised:

January 2021

Prepared for:

Sunrise Partners, LP
100 Sheppard Avenue E, Suite 720
North York, Ontario M2N 6N5, Canada

Prepared by:



SM ROCHA, LLC

TRAFFIC AND TRANSPORTATION CONSULTANTS

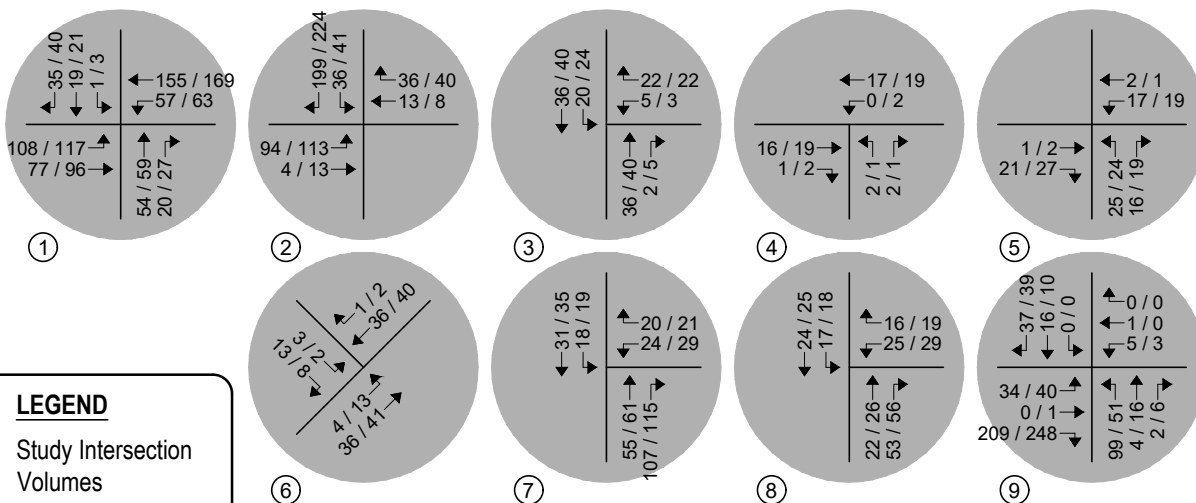
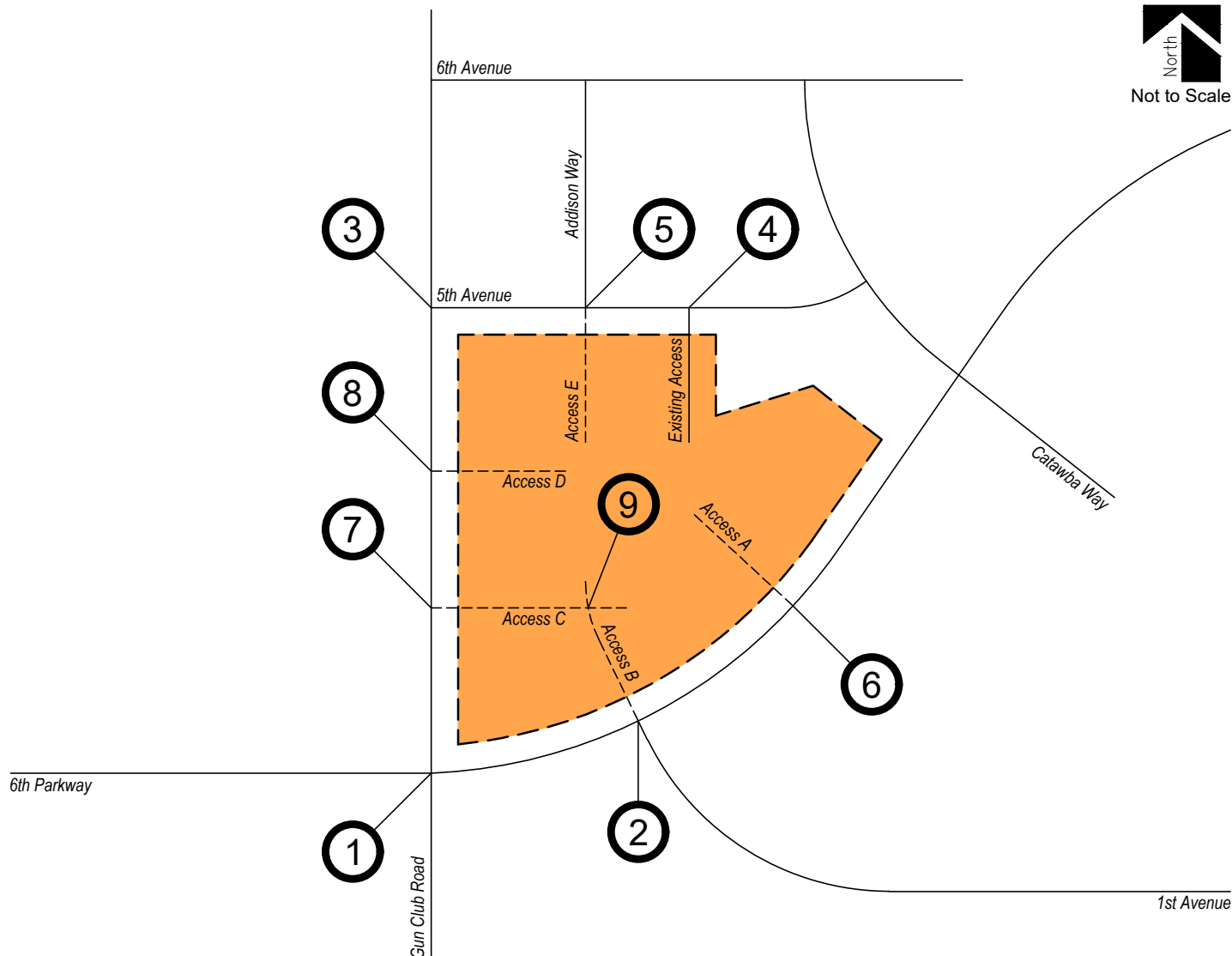
8703 Yates Drive, Suite 210
Westminster, Colorado 80031
(303) 458-9798

Project Engineer:
Brandon Wilson

Engineer in Responsible Charge:
Fred Lantz, PE



19-071033



LEGEND



Study Intersection
Volumes



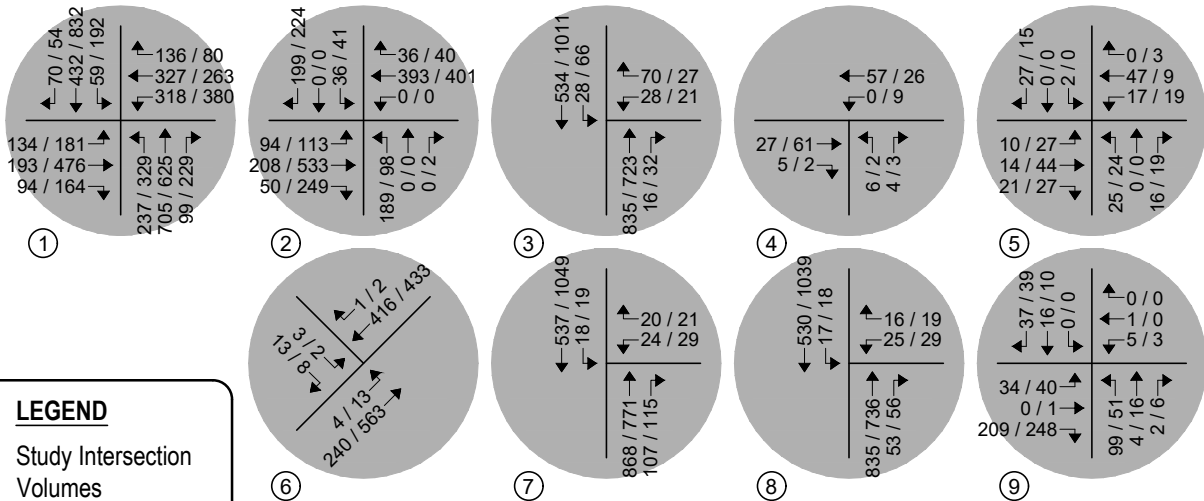
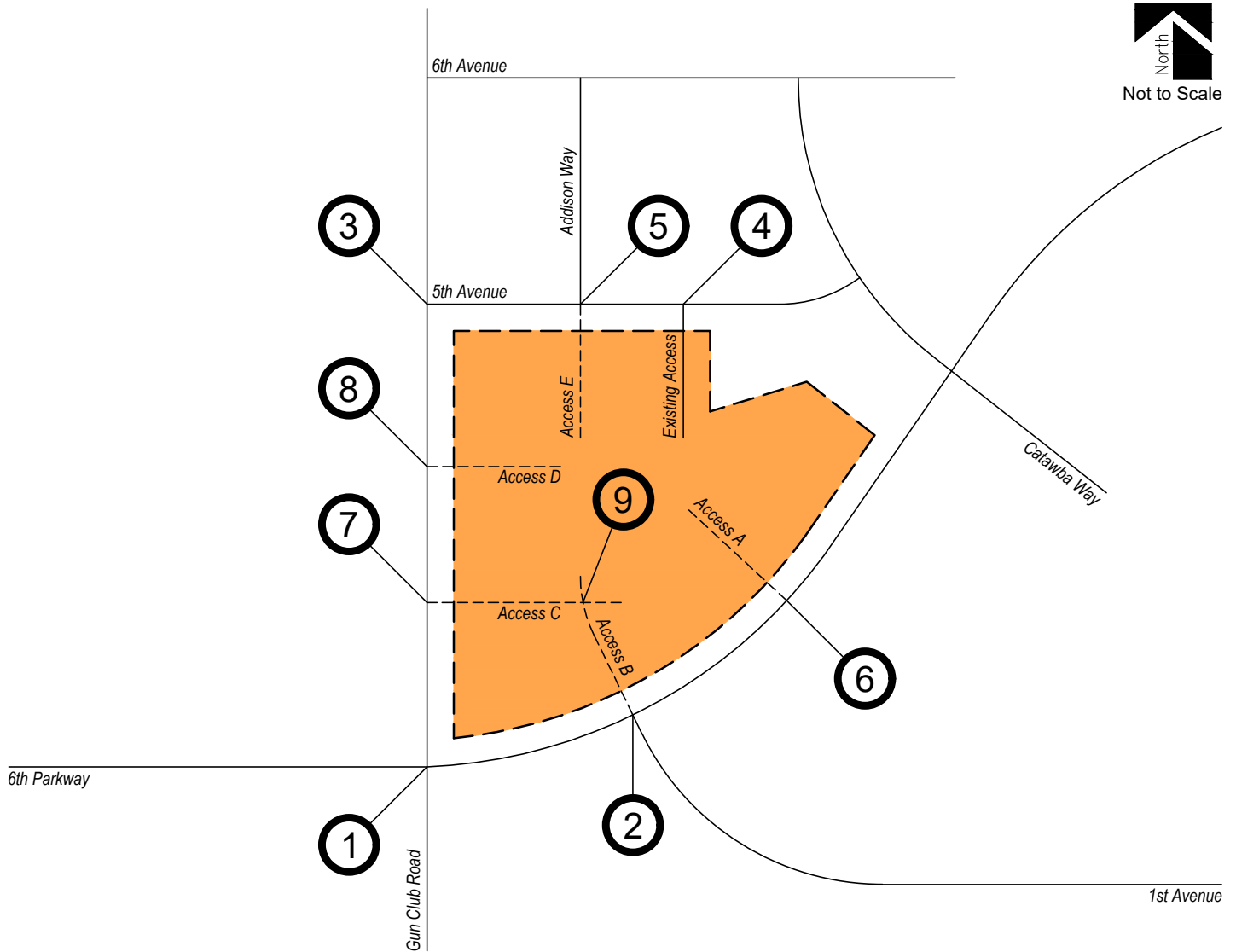
Development Site

Figure 9
SITE DEVELOPMENT DISTRIBUTION
(%) : Overall
SITE-GENERATED
AM / PM Peak Hour



CROSS CREEK
Master Traffic Impact Study

SM ROCHA, LLC
Traffic and Transportation Consultants

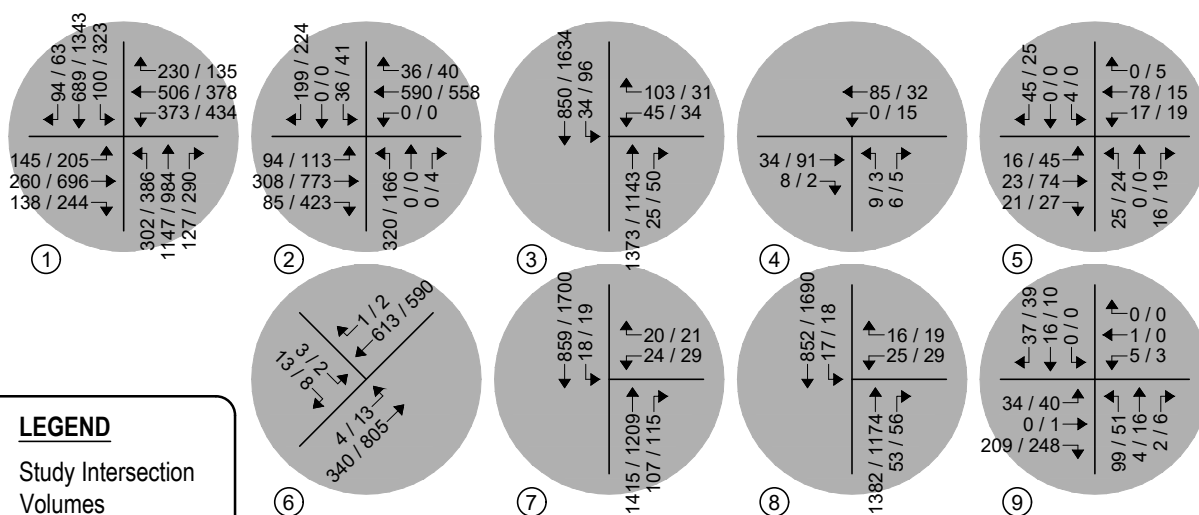
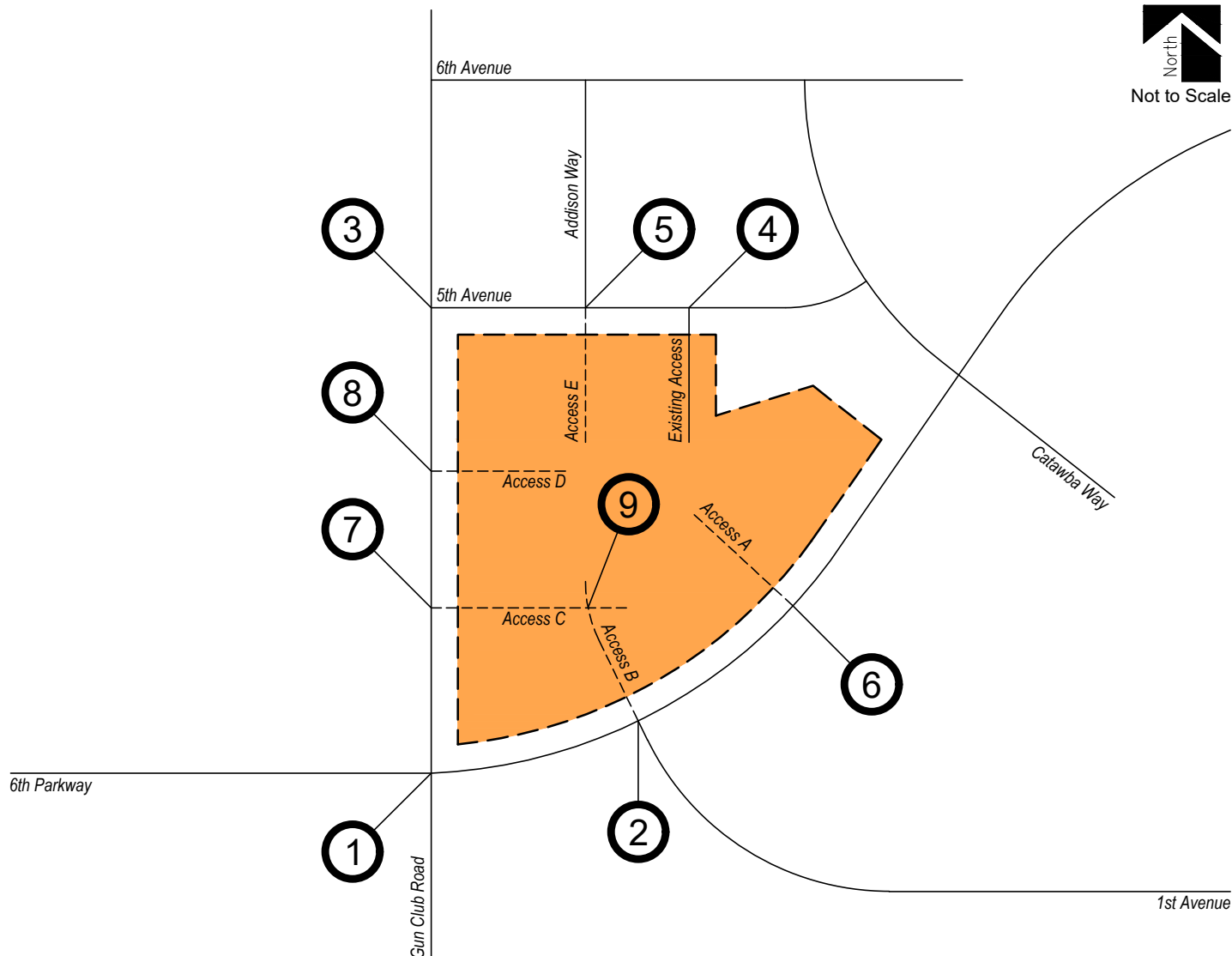


LEGEND

- Study Intersection Volumes
- Development Site

Figure 10
TOTAL TRAFFIC - YEAR 2022
Volumes
AM / PM Peak Hour
(ADT) : Average Daily Traffic





LEGEND

- Study Intersection Volumes
- Development Site

Figure 12
TOTAL TRAFFIC - YEAR 2040
Volumes
AM / PM Peak Hour
(ADT) : Average Daily Traffic



APPENDIX C

Trip Generation Worksheets

Project	Vista Creeek Multi-Family		
Subject	Trip Generation for Multifamily Housing (Mid-Rise)		
Designed by	MAG	Date	July 30, 2021
Job No.	096218004		
Checked by		Date	
Sheet No.	1	of	1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independent Variable - Dwelling Units (X)

$$X = 321$$

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 74)

$$\ln(T) = 0.98 \ln(X) - 0.98$$

$$\ln(T) = 0.98 * \ln(321.0) - 0.98$$

Directional Distribution: 26% ent. 74% exit.

T = 107 Average Vehicle Trip Ends

28 entering 79 exiting

$$28 + 79 = 107$$

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 Page 75)

$$\ln(T) = 0.96 \ln(X) - 0.63$$

$$\ln(T) = 0.96 * \ln(321.0) - 0.63$$

Directional Distribution: 61% ent. 39% exit.

T = 136 Average Vehicle Trip Ends

83 entering 53 exiting

$$83 + 53 = 136$$

Weekday (Series 200 Page 73)

$$(T) = 5.45(X) - 1.75$$

$$(T) = 5.45 * 321 - 1.75$$

Directional Distribution: 50% ent. 50% exit.

T = 1748 Average Vehicle Trip Ends

874 entering 874 exiting

$$874 + 874 = 1748$$

Peak Hour of Generator, Saturday (Series 200 Page 79)

$$(T) = 0.42(X) + 6.73$$

$$(T) = 0.42 * 321 + 6.73$$

Directional Distribution: 49% ent. 51% exit.

T = 142 Average Vehicle Trip Ends

70 entering 72 exiting

$$70 + 72 = 142$$

Project Vista Creeek Multi-Family
 Subject Trip Generation for Multifamily Housing (Mid-Rise)
 Designed by TES Date January 26, 2022 Job No. 096218004
 Checked by _____ Date _____ Sheet No. _____ of _____

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independant Variable - Dwelling Units (X)

$$X = 321$$

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 74)

		Directional Distribution: 26% ent. 74% exit.			
T = 0.36 * X		T =	116	Average Vehicle Trip Ends	
T = 0.36 *	321.0	30	entering	86	exiting
		30	+	86	= 116

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 page 75)

		Directional Distribution: 61% ent. 39% exit.			
T = 0.44 * X		T =	141	Average Vehicle Trip Ends	
T = 0.44 *	321.0	86	entering	55	exiting
		86	+	55	= 141

Weekday (Series 200 Page 73)

Daily Weekday		Directional Distribution: 50% entering, 50% exiting			
T = 5.44 * X		T =	1746	Average Vehicle Trip Ends	
T = 5.44 *	321.0	873	entering	873	exiting
		873	+	873	= 1746

Peak Hour of Generator, Saturday (Series 200 Page 79)





Daily Weekday		Directional Distribution: 49% ent. 51% exit.			
T = 0.44 * X		T =	141	Average Vehicle Trip Ends	
T = 0.44 *	321.0	69	entering	72	exiting
		69	+	72	= 141

APPENDIX D

Intersection Analysis Worksheets

Intersection

Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	54	496	6	18	224
Future Vol, veh/h	3	54	496	6	18	224
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	-	-	150	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	57	522	6	19	236





Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	796	522	0
Stage 1	522	-	-
Stage 2	274	-	-
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	-
Pot Cap-1 Maneuver	356	555	-
Stage 1	595	-	-
Stage 2	772	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	349	555	-
Mov Cap-2 Maneuver	459	-	-
Stage 1	595	-	-
Stage 2	756	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	549	1039
HCM Lane V/C Ratio	-	-	0.109	0.018
HCM Control Delay (s)	-	-	12.4	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection






Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	42	371	10	63	479
Future Vol, veh/h	6	42	371	10	63	479
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	-	-	150	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	46	408	11	69	526

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1072	408	0
Stage 1	408	-	-
Stage 2	664	-	-
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	-
Pot Cap-1 Maneuver	244	643	-
Stage 1	671	-	-
Stage 2	512	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	223	643	-
Mov Cap-2 Maneuver	348	-	-
Stage 1	671	-	-
Stage 2	468	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	581	1140
HCM Lane V/C Ratio	-	-	0.091	0.061
HCM Control Delay (s)	-	-	11.8	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	60	790	10	20	505
Future Vol, veh/h	5	60	790	10	20	505
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	-	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	63	832	11	21	532
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1406	832	0	0	843	0
Stage 1	832	-	-	-	-	-
Stage 2	574	-	-	-	-	-
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	153	369	-	-	793	-
Stage 1	427	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	149	369	-	-	793	-
Mov Cap-2 Maneuver	286	-	-	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	17.3	0		0.4		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	361	793	-	
HCM Lane V/C Ratio	-	-	0.19	0.027	-	
HCM Control Delay (s)	-	-	17.3	9.7	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-	










Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↑	↔	↑
Traffic Vol, veh/h	10	45	620	15	70	895
Future Vol, veh/h	10	45	620	15	70	895
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	-	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	49	681	16	77	984

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1819	681	0
Stage 1	681	-	-
Stage 2	1138	-	-
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	-
Pot Cap-1 Maneuver	*28	*555	-
Stage 1	*523	-	-
Stage 2	*306	-	-
Platoon blocked, %	1	1	-
Mov Cap-1 Maneuver	*26	*555	-
Mov Cap-2 Maneuver	*176	-	-
Stage 1	*523	-	-
Stage 2	*278	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	399	* 830
HCM Lane V/C Ratio	-	-	0.151	0.093
HCM Control Delay (s)	-	-	15.6	9.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3










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

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	2	9	5	1	60	3	802	10	20	509	13
Future Vol, veh/h	35	2	9	5	1	60	3	802	10	20	509	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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	150	-	150	150	-	150
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	95	92	95	92	95	95	95	95	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	2	10	5	1	63	3	844	11	21	536	14

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1466	1439	536	1441	1442	844	550	0	0	855	0	0
Stage 1	578	578	-	850	850	-	-	-	-	-	-	-
Stage 2	888	861	-	591	592	-	-	-	-	-	-	-
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	106	133	545	110	132	363	1020	-	-	785	-	-
Stage 1	501	501	-	355	377	-	-	-	-	-	-	-
Stage 2	338	372	-	493	494	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	85	129	545	105	128	363	1020	-	-	785	-	-
Mov Cap-2 Maneuver	226	292	-	284	303	-	-	-	-	-	-	-
Stage 1	499	487	-	354	376	-	-	-	-	-	-	-
Stage 2	278	371	-	469	481	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.4		17.6		0		0.4	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1020	-	-	226	471	354	785	-	-
HCM Lane V/C Ratio	0.003	-	-	0.168	0.025	0.196	0.027	-	-
HCM Control Delay (s)	8.5	-	-	24.1	12.8	17.6	9.7	-	-
HCM Lane LOS	A	-	-	C	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.1	0.7	0.1	-	-

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	1	6	10	2	45	10	628	15	70	907	37
Future Vol, veh/h	24	1	6	10	2	45	10	628	15	70	907	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	150	-	150	150	-	150
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	91	92	91	92	91	91	91	91	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	1	7	11	2	49	11	690	16	77	997	40

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1897	1879	997	1887	1903	690	1037	0	0	706	0	0
Stage 1	1151	1151	-	712	712	-	-	-	-	-	-	-
Stage 2	746	728	-	1175	1191	-	-	-	-	-	-	-
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	53	71	296	54	69	445	670	-	-	892	-	-
Stage 1	241	272	-	423	436	-	-	-	-	-	-	-
Stage 2	405	429	-	233	261	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	43	64	296	48	62	445	670	-	-	892	-	-
Mov Cap-2 Maneuver	174	200	-	171	197	-	-	-	-	-	-	-
Stage 1	237	249	-	416	429	-	-	-	-	-	-	-
Stage 2	352	422	-	207	239	-	-	-	-	-	-	-













Approach	EB		WB		NB		SB	
HCM Control Delay, s	26.8		18.2		0.2		0.7	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	670	-	-	174	277	336	892	-	-
HCM Lane V/C Ratio	0.016	-	-	0.15	0.027	0.186	0.086	-	-
HCM Control Delay (s)	10.5	-	-	29.3	18.4	18.2	9.4	-	-
HCM Lane LOS	B	-	-	D	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0.7	0.3	-	-

Timings
1: Gun Club Rd & 6th Ave

2045 Background AM.syn

03/24/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	165	105	525	135	100	325
Future Volume (vph)	165	105	525	135	100	325
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	30.0	30.0	90.0	90.0	90.0	90.0
Total Split (%)	25.0%	25.0%	75.0%	75.0%	75.0%	75.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	17.0	17.0	94.0	94.0	94.0	94.0
Actuated g/C Ratio	0.14	0.14	0.78	0.78	0.78	0.78
v/c Ratio	0.69	0.35	0.20	0.11	0.16	0.12
Control Delay	62.8	10.8	1.6	0.3	4.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	10.8	1.6	0.3	4.5	3.6
LOS	E	B	A	A	A	A
Approach Delay	42.6		1.3			3.8
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 10.3

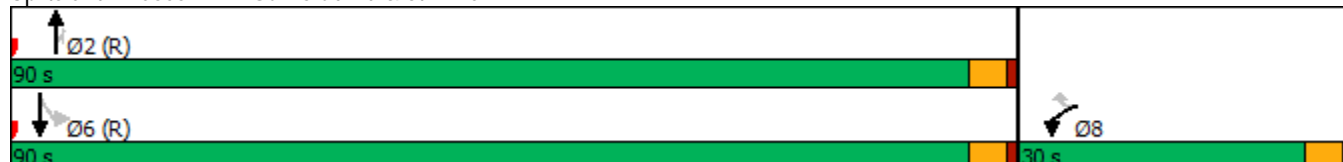
Intersection LOS: B

Intersection Capacity Utilization 40.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Gun Club Rd & 6th Ave















HCM 6th Signalized Intersection Summary

2045 Background AM.syn

03/24/2022













1: Gun Club Rd & 6th Ave

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	165	105	525	135	100	325
Future Volume (veh/h)	165	105	525	135	100	325
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	174	111	553	142	105	342
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	210	187	2869	1279	665	2869
Arrive On Green	0.12	0.12	1.00	1.00	0.81	0.81
Sat Flow, veh/h	1781	1585	3647	1585	750	3647
Grp Volume(v), veh/h	174	111	553	142	105	342
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	750	1777
Q Serve(g_s), s	11.5	8.0	0.0	0.0	3.8	2.5
Cycle Q Clear(g_c), s	11.5	8.0	0.0	0.0	3.8	2.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	210	187	2869	1279	665	2869
V/C Ratio(X)	0.83	0.59	0.19	0.11	0.16	0.12
Avail Cap(c_a), veh/h	379	337	2869	1279	665	2869
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	51.8	50.2	0.0	0.0	2.6	2.5
Incr Delay (d2), s/veh	8.1	3.0	0.1	0.2	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	3.3	0.1	0.1	0.5	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.9	53.2	0.1	0.2	3.1	2.6
LnGrp LOS	E	D	A	A	A	A
Approach Vol, veh/h	285		695			447
Approach Delay, s/veh	57.3		0.2			2.7
Approach LOS	E		A			A
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	101.4		101.4		18.6	
Change Period (Y+Rc), s	4.5		4.5		4.5	
Max Green Setting (Gmax), s	85.5		85.5		25.5	
Max Q Clear Time (g_c+I1), s	2.0		5.8		13.5	
Green Ext Time (p_c), s	4.9		3.5		0.7	
Intersection Summary						
HCM 6th Ctrl Delay			12.4			
HCM 6th LOS			B			

Timings
1: Gun Club Rd & 6th Ave

2045 Background PM.syn

03/24/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	70	325	165	150	560
Future Volume (vph)	105	70	325	165	150	560
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	94.0	94.0	94.0	94.0
Total Split (%)	21.7%	21.7%	78.3%	78.3%	78.3%	78.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	13.0	13.0	98.0	98.0	98.0	98.0
Actuated g/C Ratio	0.11	0.11	0.82	0.82	0.82	0.82
v/c Ratio	0.59	0.32	0.12	0.14	0.20	0.21
Control Delay	63.1	13.8	0.6	0.2	3.4	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	13.8	0.6	0.2	3.4	2.9
LOS	E	B	A	A	A	A
Approach Delay	43.4		0.5			3.0
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 7.2
Intersection Capacity Utilization 34.4%
Analysis Period (min) 15
Intersection LOS: A
ICU Level of Service A

Splits and Phases: 1: Gun Club Rd & 6th Ave















HCM 6th Signalized Intersection Summary

2045 Background PM.syn

03/24/2022











1: Gun Club Rd & 6th Ave

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	105	70	325	165	150	560
Future Volume (veh/h)	105	70	325	165	150	560
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	76	353	179	163	609
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	147	131	2994	1335	794	2994
Arrive On Green	0.08	0.08	1.00	1.00	0.84	0.84
Sat Flow, veh/h	1781	1585	3647	1585	872	3647
Grp Volume(v), veh/h	114	76	353	179	163	609
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	872	1777
Q Serve(g_s), s	7.5	5.5	0.0	0.0	4.3	3.9
Cycle Q Clear(g_c), s	7.5	5.5	0.0	0.0	4.3	3.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	147	131	2994	1335	794	2994
V/C Ratio(X)	0.77	0.58	0.12	0.13	0.21	0.20
Avail Cap(c_a), veh/h	319	284	2994	1335	794	2994
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	53.9	53.0	0.0	0.0	1.8	1.8
Incr Delay (d2), s/veh	8.4	4.0	0.1	0.2	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.4	0.0	0.1	0.6	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.3	57.1	0.1	0.2	2.4	2.0
LnGrp LOS	E	E	A	A	A	A
Approach Vol, veh/h	190		532			772
Approach Delay, s/veh	60.2		0.1			2.1
Approach LOS	E		A			A
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	105.6		105.6		14.4	
Change Period (Y+Rc), s	4.5		4.5		4.5	
Max Green Setting (Gmax), s	89.5		89.5		21.5	
Max Q Clear Time (g_c+l1), s	2.0		6.3		9.5	
Green Ext Time (p_c), s	3.2		6.3		0.4	
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Timings
1: Gun Club Rd & 6th Ave

2045 Background AM - NBTR.syn

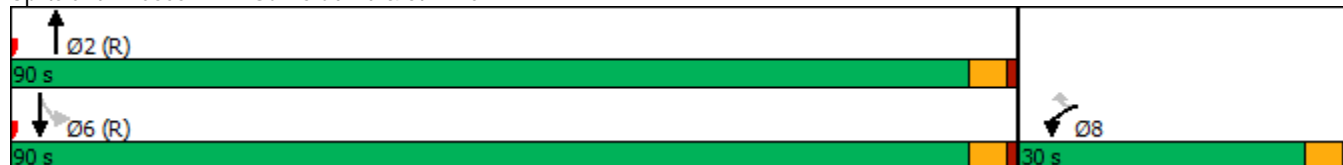
11/21/2022

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	165	105	525	100	325
Future Volume (vph)	165	105	525	100	325
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	30.0	30.0	90.0	90.0	90.0
Total Split (%)	25.0%	25.0%	75.0%	75.0%	75.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	17.0	17.0	94.0	94.0	94.0
Actuated g/C Ratio	0.14	0.14	0.78	0.78	0.78
v/c Ratio	0.69	0.35	0.26	0.19	0.12
Control Delay	62.8	10.8	1.4	4.9	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	10.8	1.4	4.9	3.6
LOS	E	B	A	A	A
Approach Delay	42.6		1.4		3.9
Approach LOS	D		A		A

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 10.4
Intersection Capacity Utilization 44.8%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service A

Splits and Phases: 1: Gun Club Rd & 6th Ave














HCM 6th Signalized Intersection Summary

2045 Background AM - NBTR.syn

11/21/2022

1: Gun Club Rd & 6th Ave











						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	165	105	525	135	100	325
Future Volume (veh/h)	165	105	525	135	100	325
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	174	111	553	142	105	342
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	210	187	2261	579	665	2869
Arrive On Green	0.12	0.12	1.00	1.00	0.81	0.81
Sat Flow, veh/h	1781	1585	2895	717	750	3647
Grp Volume(v), veh/h	174	111	350	345	105	342
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1741	750	1777
Q Serve(g_s), s	11.5	8.0	0.0	0.0	3.8	2.5
Cycle Q Clear(g_c), s	11.5	8.0	0.0	0.0	3.8	2.5
Prop In Lane	1.00	1.00		0.41	1.00	
Lane Grp Cap(c), veh/h	210	187	1434	1406	665	2869
V/C Ratio(X)	0.83	0.59	0.24	0.25	0.16	0.12
Avail Cap(c_a), veh/h	379	337	1434	1406	665	2869
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	51.8	50.2	0.0	0.0	2.6	2.5
Incr Delay (d2), s/veh	8.1	3.0	0.4	0.4	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	3.3	0.2	0.2	0.5	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.9	53.2	0.4	0.4	3.1	2.6
LnGrp LOS	E	D	A	A	A	A
Approach Vol, veh/h	285		695			447
Approach Delay, s/veh	57.3		0.4			2.7
Approach LOS	E		A			A
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	101.4		101.4		18.6	
Change Period (Y+Rc), s	4.5		4.5		4.5	
Max Green Setting (Gmax), s	85.5		85.5		25.5	
Max Q Clear Time (g_c+I1), s	2.0		5.8		13.5	
Green Ext Time (p_c), s	5.2		3.5		0.7	
Intersection Summary						
HCM 6th Ctrl Delay			12.5			
HCM 6th LOS			B			

Timings

1: Gun Club Rd & 6th Ave

2045 Background PM - NBTR.syn

11/21/2022

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	105	70	325	150	560
Future Volume (vph)	105	70	325	150	560
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	94.0	94.0	94.0
Total Split (%)	21.7%	21.7%	78.3%	78.3%	78.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	13.0	13.0	98.0	98.0	98.0
Actuated g/C Ratio	0.11	0.11	0.82	0.82	0.82
v/c Ratio	0.59	0.32	0.19	0.24	0.21
Control Delay	63.1	13.8	0.2	3.8	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	13.8	0.2	3.8	2.9
LOS	E	B	A	A	A
Approach Delay	43.4		0.2		3.1
Approach LOS	D		A		A
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 120					
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green					
Natural Cycle: 45					
Control Type: Actuated-Coordinated					
Maximum v/c Ratio: 0.59					
Intersection Signal Delay: 7.2			Intersection LOS: A		
Intersection Capacity Utilization 39.6%			ICU Level of Service A		
Analysis Period (min) 15					

Splits and Phases: 1: Gun Club Rd & 6th Ave








HCM 6th Signalized Intersection Summary

2045 Background PM - NBTR.syn

11/21/2022





















1: Gun Club Rd & 6th Ave



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	105	70	325	165	150	560
Future Volume (veh/h)	105	70	325	165	150	560
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	76	353	179	163	609
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	147	131	1935	964	794	2994
Arrive On Green	0.08	0.08	1.00	1.00	0.84	0.84
Sat Flow, veh/h	1781	1585	2390	1144	872	3647
Grp Volume(v), veh/h	114	76	272	260	163	609
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1664	872	1777
Q Serve(g_s), s	7.5	5.5	0.0	0.0	4.3	3.9
Cycle Q Clear(g_c), s	7.5	5.5	0.0	0.0	4.3	3.9
Prop In Lane	1.00	1.00		0.69	1.00	
Lane Grp Cap(c), veh/h	147	131	1497	1402	794	2994
V/C Ratio(X)	0.77	0.58	0.18	0.19	0.21	0.20
Avail Cap(c_a), veh/h	319	284	1497	1402	794	2994
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	53.9	53.0	0.0	0.0	1.8	1.8
Incr Delay (d2), s/veh	8.4	4.0	0.3	0.3	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.4	0.1	0.1	0.6	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.3	57.1	0.3	0.3	2.4	2.0
LnGrp LOS	E	E	A	A	A	A
Approach Vol, veh/h	190		532			772
Approach Delay, s/veh	60.2		0.3			2.1
Approach LOS	E		A			A
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	105.6		105.6		14.4	
Change Period (Y+Rc), s	4.5		4.5		4.5	
Max Green Setting (Gmax), s	89.5		89.5		21.5	
Max Q Clear Time (g_c+l1), s	2.0		6.3		9.5	
Green Ext Time (p_c), s	3.8		6.3		0.4	
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Timings
1: Gun Club Rd & 6th Ave

2045 Total AM.syn
03/24/2022



										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	35	5	165	5	5	540	135	100	330	15
Future Volume (vph)	35	5	165	5	5	540	135	100	330	15
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	23.0	36.0	9.5	60.1	60.1	14.4	65.0	65.0
Total Split (%)	7.9%	18.8%	19.2%	30.0%	7.9%	50.1%	50.1%	12.0%	54.2%	54.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	7.9	6.3	20.4	14.7	84.1	78.5	78.5	90.5	88.5	88.5
Actuated g/C Ratio	0.07	0.05	0.17	0.12	0.70	0.65	0.65	0.75	0.74	0.74
v/c Ratio	0.32	0.16	0.64	0.40	0.01	0.25	0.13	0.17	0.13	0.01
Control Delay	49.3	35.7	55.1	13.1	5.0	7.4	0.8	5.8	6.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	35.7	55.1	13.1	5.0	7.4	0.8	5.8	6.3	0.0
LOS	D	D	E	B	A	A	A	A	A	A
Approach Delay		45.3		38.3		6.1			6.0	
Approach LOS		D		D		A			A	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 13.6
 Intersection Capacity Utilization 47.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 1: Gun Club Rd & 6th Ave























 Ø1	 Ø2 (R)	 Ø3	 Ø4
14.4 s	60.1 s	23 s	22.5 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
9.5 s	65 s	9.5 s	36 s

HCM 6th Signalized Intersection Summary

2045 Total AM.syn





















1: Gun Club Rd & 6th Ave

03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	10	165	5	105	5	540	135	100	330	15
Future Volume (veh/h)	35	5	10	165	5	105	5	540	135	100	330	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	11	174	5	111	5	568	142	105	347	16
Peak Hour Factor	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.95	0.95	0.95	0.95	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	22	48	299	8	184	743	2343	1045	619	2464	1099
Arrive On Green	0.03	0.04	0.04	0.11	0.12	0.12	0.01	1.00	1.00	0.04	0.69	0.69
Sat Flow, veh/h	1781	520	1144	1781	69	1527	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	38	0	16	174	0	116	5	568	142	105	347	16
Grp Sat Flow(s),veh/h/ln	1781	0	1664	1781	0	1596	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	0.0	1.1	10.8	0.0	8.3	0.1	0.0	0.0	2.2	4.0	0.4
Cycle Q Clear(g_c), s	2.4	0.0	1.1	10.8	0.0	8.3	0.1	0.0	0.0	2.2	4.0	0.4
Prop In Lane	1.00		0.69	1.00		0.96	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	166	0	69	299	0	192	743	2343	1045	619	2464	1099
V/C Ratio(X)	0.23	0.00	0.23	0.58	0.00	0.60	0.01	0.24	0.14	0.17	0.14	0.01
Avail Cap(c_a), veh/h	187	0	250	380	0	419	806	2343	1045	694	2464	1099
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	0.0	55.7	46.2	0.0	50.1	6.7	0.0	0.0	5.3	6.2	5.7
Incr Delay (d2), s/veh	0.7	0.0	1.7	1.8	0.0	3.0	0.0	0.2	0.3	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.5	4.9	0.0	3.5	0.0	0.1	0.1	0.8	1.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	0.0	57.3	48.0	0.0	53.1	6.7	0.2	0.3	5.4	6.4	5.7
LnGrp LOS	D	A	E	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		54			290			715			468	
Approach Delay, s/veh		54.7			50.1			0.3			6.1	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	83.6	17.5	9.5	5.3	87.7	8.1	18.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.9	55.6	18.5	18.0	5.0	60.5	5.0	31.5				
Max Q Clear Time (g_c+I1), s	4.2	2.0	12.8	3.1	2.1	6.0	4.4	10.3				
Green Ext Time (p_c), s	0.1	5.0	0.2	0.0	0.0	2.6	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									

Timings
1: Gun Club Rd & 6th Ave

2045 Total PM.syn
03/24/2022


										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	5	105	5	10	335	165	150	575	40
Future Volume (vph)	25	5	105	5	10	335	165	150	575	40
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	35.5	9.5	57.3	57.3	17.7	65.5	65.5
Total Split (%)	7.9%	18.8%	18.8%	29.6%	7.9%	47.8%	47.8%	14.8%	54.6%	54.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	7.9	6.3	17.7	12.0	86.0	80.3	80.3	93.3	91.2	91.2
Actuated g/C Ratio	0.07	0.05	0.15	0.10	0.72	0.67	0.67	0.78	0.76	0.76
v/c Ratio	0.23	0.16	0.49	0.36	0.02	0.15	0.16	0.21	0.23	0.03
Control Delay	47.1	35.7	51.6	15.9	6.2	9.2	3.2	5.0	6.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	35.7	51.6	15.9	6.2	9.2	3.2	5.0	6.0	0.1
LOS	D	D	D	B	A	A	A	A	A	A
Approach Delay		42.9		36.8		7.2			5.5	
Approach LOS		D		D		A			A	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 10.8
 Intersection Capacity Utilization 43.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 1: Gun Club Rd & 6th Ave























			
Ø1	Ø2 (R)	Ø3	Ø4
17.7 s	57.3 s	22.5 s	22.5 s
			
Ø5	Ø6 (R)	Ø7	Ø8
9.5 s	65.5 s	9.5 s	35.5 s

HCM 6th Signalized Intersection Summary

2045 Total PM.syn



















1: Gun Club Rd & 6th Ave

03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	10	105	5	70	10	335	165	150	575	40
Future Volume (veh/h)	25	5	10	105	5	70	10	335	165	150	575	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	11	114	5	76	11	364	179	163	625	43
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	158	21	47	242	9	140	589	2443	1090	733	2555	1140
Arrive On Green	0.02	0.04	0.04	0.08	0.09	0.09	0.03	1.00	1.00	0.04	0.72	0.72
Sat Flow, veh/h	1781	520	1144	1781	99	1501	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	0	16	114	0	81	11	364	179	163	625	43
Grp Sat Flow(s),veh/h/ln	1781	0	1664	1781	0	1600	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.7	0.0	1.1	7.1	0.0	5.8	0.2	0.0	0.0	3.1	7.2	0.9
Cycle Q Clear(g_c), s	1.7	0.0	1.1	7.1	0.0	5.8	0.2	0.0	0.0	3.1	7.2	0.9
Prop In Lane	1.00		0.69	1.00		0.94	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	0	68	242	0	149	589	2443	1090	733	2555	1140
V/C Ratio(X)	0.17	0.00	0.23	0.47	0.00	0.54	0.02	0.15	0.16	0.22	0.24	0.04
Avail Cap(c_a), veh/h	188	0	250	371	0	413	641	2443	1090	849	2555	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	0.0	55.7	48.0	0.0	51.9	5.4	0.0	0.0	4.4	5.7	4.9
Incr Delay (d2), s/veh	0.5	0.0	1.7	1.4	0.0	3.0	0.0	0.1	0.3	0.2	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.5	3.2	0.0	2.5	0.1	0.0	0.1	1.0	2.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	0.0	57.5	49.5	0.0	55.0	5.4	0.1	0.3	4.5	6.0	4.9
LnGrp LOS	D	A	E	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		43			195			554			831	
Approach Delay, s/veh		55.1			51.8			0.3			5.6	
Approach LOS		E			D			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	87.0	13.8	9.4	6.0	90.8	7.5	15.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.2	52.8	18.0	18.0	5.0	61.0	5.0	31.0				
Max Q Clear Time (g_c+I1), s	5.1	2.0	9.1	3.1	2.2	9.2	3.7	7.8				
Green Ext Time (p_c), s	0.3	3.3	0.2	0.0	0.0	5.2	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay				10.7								
HCM 6th LOS				B								

Timings 1: Gun Club Rd & 6th Ave

2045 Total AM - NBTR.syn
11/21/2022

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	35	5	165	5	5	540	100	330	15
Future Volume (vph)	35	5	165	5	5	540	100	330	15
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	23.0	36.0	9.5	60.1	14.4	65.0	65.0
Total Split (%)	7.9%	18.8%	19.2%	30.0%	7.9%	50.1%	12.0%	54.2%	54.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effect Green (s)	7.9	6.3	20.4	14.7	84.1	78.5	90.5	88.5	88.5
Actuated g/C Ratio	0.07	0.05	0.17	0.12	0.70	0.65	0.75	0.74	0.74
v/c Ratio	0.32	0.16	0.64	0.40	0.01	0.31	0.20	0.13	0.01
Control Delay	49.3	35.7	55.1	13.1	5.6	7.9	6.0	6.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	35.7	55.1	13.1	5.6	7.9	6.0	6.3	0.0
LOS	D	D	E	B	A	A	A	A	A
Approach Delay		45.3		38.3		7.9		6.0	
Approach LOS		D		D		A		A	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 14.4

Intersection LOS: B

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Gun Club Rd & 6th Ave












HCM 6th Signalized Intersection Summary

2045 Total AM - NBTR.syn

1: Gun Club Rd & 6th Ave

11/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	10	165	5	105	5	540	135	100	330	15
Future Volume (veh/h)	35	5	10	165	5	105	5	540	135	100	330	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	11	174	5	111	5	568	142	105	347	16
Peak Hour Factor	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.95	0.95	0.95	0.95	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	22	48	299	8	184	743	1859	463	619	2464	1099
Arrive On Green	0.03	0.04	0.04	0.11	0.12	0.12	0.01	1.00	1.00	0.04	0.69	0.69
Sat Flow, veh/h	1781	520	1144	1781	69	1527	1781	2818	702	1781	3554	1585
Grp Volume(v), veh/h	38	0	16	174	0	116	5	357	353	105	347	16
Grp Sat Flow(s),veh/h/ln	1781	0	1664	1781	0	1596	1781	1777	1744	1781	1777	1585
Q Serve(g_s), s	2.4	0.0	1.1	10.8	0.0	8.3	0.1	0.0	0.0	2.2	4.0	0.4
Cycle Q Clear(g_c), s	2.4	0.0	1.1	10.8	0.0	8.3	0.1	0.0	0.0	2.2	4.0	0.4
Prop In Lane	1.00		0.69	1.00		0.96	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	166	0	69	299	0	192	743	1172	1150	619	2464	1099
V/C Ratio(X)	0.23	0.00	0.23	0.58	0.00	0.60	0.01	0.31	0.31	0.17	0.14	0.01
Avail Cap(c_a), veh/h	187	0	250	380	0	419	806	1172	1150	694	2464	1099
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	0.0	55.7	46.2	0.0	50.1	6.7	0.0	0.0	5.3	6.2	5.7
Incr Delay (d2), s/veh	0.7	0.0	1.7	1.8	0.0	3.0	0.0	0.7	0.7	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.5	4.9	0.0	3.5	0.0	0.2	0.2	0.8	1.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	0.0	57.3	48.0	0.0	53.1	6.7	0.7	0.7	5.4	6.4	5.7
LnGrp LOS	D	A	E	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	54			290			715			468		
Approach Delay, s/veh	54.7			50.1			0.7			6.1		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	83.6	17.5	9.5	5.3	87.7	8.1	18.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.9	55.6	18.5	18.0	5.0	60.5	5.0	31.5				
Max Q Clear Time (g_c+I1), s	4.2	2.0	12.8	3.1	2.1	6.0	4.4	10.3				
Green Ext Time (p_c), s	0.1	5.3	0.2	0.0	0.0	2.6	0.0	0.6				



















Intersection Summary

HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Timings
1: Gun Club Rd & 6th Ave

2045 Total PM - NBTR.syn

11/21/2022

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	25	5	105	5	10	335	150	575	40
Future Volume (vph)	25	5	105	5	10	335	150	575	40
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	35.5	9.5	57.3	17.7	65.5	65.5
Total Split (%)	7.9%	18.8%	18.8%	29.6%	7.9%	47.8%	14.8%	54.6%	54.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effect Green (s)	7.9	6.3	17.7	12.0	86.0	80.3	93.3	91.2	91.2
Actuated g/C Ratio	0.07	0.05	0.15	0.10	0.72	0.67	0.78	0.76	0.76
v/c Ratio	0.23	0.16	0.49	0.36	0.02	0.24	0.25	0.23	0.03
Control Delay	47.1	35.7	51.6	15.9	6.4	8.0	5.3	6.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	35.7	51.6	15.9	6.4	8.0	5.3	6.0	0.1
LOS	D	D	D	B	A	A	A	A	A
Approach Delay		42.9		36.8		8.0		5.5	
Approach LOS		D		D		A		A	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 46.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Gun Club Rd & 6th Ave












HCM 6th Signalized Intersection Summary

2045 Total PM - NBTR.syn

1: Gun Club Rd & 6th Ave





11/21/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	10	105	5	70	10	335	165	150	575	40
Future Volume (veh/h)	25	5	10	105	5	70	10	335	165	150	575	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	11	114	5	76	11	364	179	163	625	43
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	158	21	47	242	9	140	589	1596	772	733	2555	1140
Arrive On Green	0.02	0.04	0.04	0.08	0.09	0.09	0.03	1.00	1.00	0.04	0.72	0.72
Sat Flow, veh/h	1781	520	1144	1781	99	1501	1781	2322	1123	1781	3554	1585
Grp Volume(v), veh/h	27	0	16	114	0	81	11	277	266	163	625	43
Grp Sat Flow(s),veh/h/ln	1781	0	1664	1781	0	1600	1781	1777	1668	1781	1777	1585
Q Serve(g_s), s	1.7	0.0	1.1	7.1	0.0	5.8	0.2	0.0	0.0	3.1	7.2	0.9
Cycle Q Clear(g_c), s	1.7	0.0	1.1	7.1	0.0	5.8	0.2	0.0	0.0	3.1	7.2	0.9
Prop In Lane	1.00		0.69	1.00		0.94	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	158	0	68	242	0	149	589	1221	1147	733	2555	1140
V/C Ratio(X)	0.17	0.00	0.23	0.47	0.00	0.54	0.02	0.23	0.23	0.22	0.24	0.04
Avail Cap(c_a), veh/h	188	0	250	371	0	413	641	1221	1147	849	2555	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	0.0	55.7	48.0	0.0	51.9	5.4	0.0	0.0	4.4	5.7	4.9
Incr Delay (d2), s/veh	0.5	0.0	1.7	1.4	0.0	3.0	0.0	0.4	0.5	0.2	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.5	3.2	0.0	2.5	0.1	0.1	0.1	1.0	2.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	0.0	57.5	49.5	0.0	55.0	5.4	0.4	0.5	4.5	6.0	4.9
LnGrp LOS	D	A	E	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	43		195				554		831			
Approach Delay, s/veh	55.1		51.8				0.5		5.6			
Approach LOS	E		D				A		A			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	87.0	13.8	9.4	6.0	90.8	7.5	15.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.2	52.8	18.0	18.0	5.0	61.0	5.0	31.0				
Max Q Clear Time (g_c+I1), s	5.1	2.0	9.1	3.1	2.2	9.2	3.7	7.8				
Green Ext Time (p_c), s	0.3	3.9	0.2	0.0	0.0	5.2	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B





Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	19	478	9	5	220
Future Vol, veh/h	17	19	478	9	5	220
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	-	-	-	100	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	20	493	9	5	227







Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	735	498	0	0	502	0
Stage 1	498	-	-	-	-	-
Stage 2	237	-	-	-	-	-
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	*441	*692	-	-	*1035	-
Stage 1	*652	-	-	-	-	-
Stage 2	*802	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*439	*692	-	-	*1035	-
Mov Cap-2 Maneuver	*523	-	-	-	-	-
Stage 1	*652	-	-	-	-	-
Stage 2	*798	-	-	-	-	-







Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.2
HCM LOS	B		







Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	600	* 1035
HCM Lane V/C Ratio	-	-	0.062	0.005
HCM Control Delay (s)	-	-	11.4	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

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

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	11	365	20	27	453
Future Vol, veh/h	19	11	365	20	27	453
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	-	-	-	100	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	12	388	21	29	482
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	939	399	0	0	409	0
Stage 1	399	-	-	-	-	-
Stage 2	540	-	-	-	-	-
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	*283	*790	-	-	1180	-
Stage 1	*744	-	-	-	-	-
Stage 2	*584	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*276	*790	-	-	1180	-
Mov Cap-2 Maneuver	*416	-	-	-	-	-
Stage 1	*744	-	-	-	-	-
Stage 2	*569	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.6	0		0.5		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	503	1180	-	
HCM Lane V/C Ratio	-	-	0.063	0.024	-	
HCM Control Delay (s)	-	-	12.6	8.1	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	5	15	40	5	70	35	700	30	40	460	10
Future Vol, veh/h	20	5	15	40	5	70	35	700	30	40	460	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	97	92	97	92	97	97	97	97	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	5	16	41	5	72	38	722	31	41	474	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1414	1391	480	1386	1381	738	485	0	0	753	0	0
Stage 1	562	562	-	814	814	-	-	-	-	-	-	-
Stage 2	852	829	-	572	567	-	-	-	-	-	-	-
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	61	*76	586	*67	*79	*483	1078	-	-	*723	-	-
Stage 1	512	*510	-	*455	*399	-	-	-	-	-	-	-
Stage 2	431	*399	-	*505	*507	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	47	*69	586	*60	*72	*483	1078	-	-	*723	-	-
Mov Cap-2 Maneuver	193	*214	-	*223	*220	-	-	-	-	-	-	-
Stage 1	494	*481	-	*439	*385	-	-	-	-	-	-	-
Stage 2	349	*385	-	*458	*478	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	21.5		21.8		0.4		0.8					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1078	-	-	262	331	*723	-	-				
HCM Lane V/C Ratio	0.035	-	-	0.166	0.359	0.057	-	-				
HCM Control Delay (s)	8.5	-	-	21.5	21.8	10.3	-	-				
HCM Lane LOS	A	-	-	C	C	B	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.6	1.6	0.2	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	5	20	40	5	50	55	555	45	75	815	10
Future Vol, veh/h	25	5	20	40	5	50	55	555	45	75	815	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	92	94	92	94	94	94	94	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	5	22	43	5	53	60	590	48	80	867	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1796	1791	873	1780	1772	614	878	0	0	638	0	0
Stage 1	1033	1033	-	734	734	-	-	-	-	-	-	-
Stage 2	763	758	-	1046	1038	-	-	-	-	-	-	-
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	~ 24	32	349	~ 25	34	*607	769	-	-	*908	-	-
Stage 1	281	310	-	488	441	-	-	-	-	-	-	-
Stage 2	458	422	-	276	308	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	~ 19	27	349	~ 20	29	*607	769	-	-	*908	-	-
Mov Cap-2 Maneuver	135	147	-	120	143	-	-	-	-	-	-	-
Stage 1	259	283	-	450	406	-	-	-	-	-	-	-
Stage 2	380	389	-	231	281	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	33.2		36.8		0.9		0.8					
HCM LOS	D		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	769	-	-	181	211	* 908	-	-				
HCM Lane V/C Ratio	0.078	-	-	0.3	0.48	0.088	-	-				
HCM Control Delay (s)	10.1	-	-	33.2	36.8	9.3	-	-				
HCM Lane LOS	B	-	-	D	E	A	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	1.2	2.4	0.3	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined					*: All major volume in platoon			

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	7	35	40	6	70	42	703	30	40	469	14
Future Vol, veh/h	32	7	35	40	6	70	42	703	30	40	469	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	97	92	97	92	97	97	97	97	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	8	38	41	7	72	46	725	31	41	484	15
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1446	1422	492	1430	1414	741	499	0	0	756	0	0
Stage 1	574	574	-	833	833	-	-	-	-	-	-	-
Stage 2	872	848	-	597	581	-	-	-	-	-	-	-
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	54	69	577	57	71	*483	1065	-	-	*723	-	-
Stage 1	504	503	-	454	398	-	-	-	-	-	-	-
Stage 2	409	385	-	490	500	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	42	63	577	48	64	*483	1065	-	-	*723	-	-
Mov Cap-2 Maneuver	182	205	-	207	213	-	-	-	-	-	-	-
Stage 1	482	474	-	435	381	-	-	-	-	-	-	-
Stage 2	327	369	-	425	472	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	23.6		23.2		0.5		0.8					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1065	-	-	273	316	*723	-	-				
HCM Lane V/C Ratio	0.043	-	-	0.295	0.38	0.057	-	-				
HCM Control Delay (s)	8.5	-	-	23.6	23.2	10.3	-	-				
HCM Lane LOS	A	-	-	C	C	B	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	1.2	1.7	0.2	-	-				
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	33	6	33	40	7	50	76	564	45	75	821	22
Future Vol, veh/h	33	6	33	40	7	50	76	564	45	75	821	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	100	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	92	94	92	94	94	94	94	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	7	36	43	8	53	83	600	48	80	873	24

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1866	1859	885	1857	1847	624	897	0	0	648	0	0
Stage 1	1045	1045	-	790	790	-	-	-	-	-	-	-
Stage 2	821	814	-	1067	1057	-	-	-	-	-	-	-
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	~ 20	27	344	~ 20	28	*607	757	-	-	*908	-	-
Stage 1	276	306	-	432	399	-	-	-	-	-	-	-
Stage 2	403	382	-	269	302	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	~ 15	22	344	~ 15	23	*607	757	-	-	*908	-	-
Mov Cap-2 Maneuver	118	133	-	95	123	-	-	-	-	-	-	-
Stage 1	246	279	-	384	355	-	-	-	-	-	-	-
Stage 2	321	340	-	215	275	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	42.7		52.7		1.2		0.8	
HCM LOS	E		F					

















Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	757	-	-	171	173	* 908	-
HCM Lane V/C Ratio	0.109	-	-	0.458	0.597	0.088	-
HCM Control Delay (s)	10.3	-	-	42.7	52.7	9.3	-
HCM Lane LOS	B	-	-	E	F	A	-
HCM 95th %tile Q(veh)	0.4	-	-	2.1	3.2	0.3	-

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

Timings 2: Gun Club Rd & 5th Ave

2024 Total AM_Modified.syn

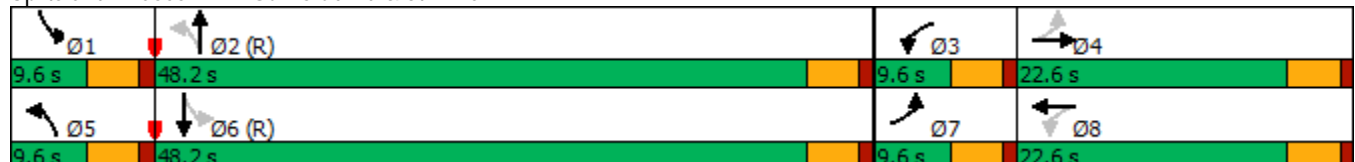
12/07/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	7	40	6	42	703	40	469
Future Volume (vph)	32	7	40	6	42	703	40	469
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.6	22.6	9.6	22.6	9.6	48.2	9.6	48.2
Total Split (%)	10.7%	25.1%	10.7%	25.1%	10.7%	53.6%	10.7%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	9.9	6.9	9.9	6.9	67.7	64.7	67.6	64.6
Actuated g/C Ratio	0.11	0.08	0.11	0.08	0.75	0.72	0.75	0.72
v/c Ratio	0.21	0.29	0.24	0.42	0.07	0.57	0.09	0.38
Control Delay	33.5	20.5	34.3	18.5	2.8	6.0	4.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	20.5	34.3	18.5	2.8	6.0	4.5	9.3
LOS	C	C	C	B	A	A	A	A
Approach Delay		26.2		23.9		5.8		9.0
Approach LOS		C		C		A		A

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 9.4
Intersection Capacity Utilization 55.2%
Analysis Period (min) 15
Intersection LOS: A
ICU Level of Service B

Splits and Phases: 2: Gun Club Rd & 5th Ave
























HCM 6th Signalized Intersection Summary

2024 Total AM_Modified.syn

2: Gun Club Rd & 5th Ave

















12/07/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	7	35	40	6	70	42	703	30	40	469	14
Future Volume (veh/h)	32	7	35	40	6	70	42	703	30	40	469	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	8	38	41	7	72	46	725	31	41	484	15
Peak Hour Factor	0.92	0.92	0.92	0.97	0.92	0.97	0.92	0.97	0.97	0.97	0.97	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	19	92	200	10	105	626	1176	50	534	1187	37
Arrive On Green	0.03	0.07	0.07	0.04	0.07	0.07	0.05	0.88	0.88	0.04	0.66	0.66
Sat Flow, veh/h	1781	283	1345	1781	142	1464	1781	1781	76	1781	1804	56
Grp Volume(v), veh/h	35	0	46	41	0	79	46	0	756	41	0	499
Grp Sat Flow(s),veh/h/ln	1781	0	1628	1781	0	1607	1781	0	1857	1781	0	1860
Q Serve(g_s), s	1.6	0.0	2.4	1.9	0.0	4.3	0.7	0.0	9.7	0.6	0.0	11.3
Cycle Q Clear(g_c), s	1.6	0.0	2.4	1.9	0.0	4.3	0.7	0.0	9.7	0.6	0.0	11.3
Prop In Lane	1.00		0.83	1.00		0.91	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	169	0	112	200	0	115	626	0	1226	534	0	1224
V/C Ratio(X)	0.21	0.00	0.41	0.21	0.00	0.68	0.07	0.00	0.62	0.08	0.00	0.41
Avail Cap(c_a), veh/h	212	0	327	237	0	323	660	0	1226	572	0	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.72	0.00	0.72	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.2	0.0	40.2	37.0	0.0	40.8	5.0	0.0	2.5	4.9	0.0	7.2
Incr Delay (d2), s/veh	0.6	0.0	2.4	0.5	0.0	7.0	0.0	0.0	1.7	0.1	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.0	0.8	0.0	1.9	0.2	0.0	2.4	0.2	0.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	42.6	37.5	0.0	47.8	5.0	0.0	4.1	4.9	0.0	8.2
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	81			120			802			540		
Approach Delay, s/veh	40.5			44.3			4.2			8.0		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	63.9	7.7	10.7	7.9	63.7	7.4	11.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	43.7	5.1	18.1	5.1	43.7	5.1	18.1				
Max Q Clear Time (g_c+I1), s	2.6	11.7	3.9	4.4	2.7	13.3	3.6	6.3				
Green Ext Time (p_c), s	0.0	6.4	0.0	0.1	0.0	3.5	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	10.5											
HCM 6th LOS	B											

Timings 2: Gun Club Rd & 5th Ave

2024 Total PM_Modified.syn

12/07/2021

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	33	6	40	7	76	564	75	821
Future Volume (vph)	33	6	40	7	76	564	75	821
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.6	22.6	9.6	22.6	9.6	48.2	9.6	48.2
Total Split (%)	10.7%	25.1%	10.7%	25.1%	10.7%	53.6%	10.7%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	9.7	6.7	9.7	6.7	67.0	62.3	66.9	62.2
Actuated g/C Ratio	0.11	0.07	0.11	0.07	0.74	0.69	0.74	0.69
v/c Ratio	0.21	0.28	0.25	0.36	0.24	0.51	0.15	0.70
Control Delay	34.0	20.6	35.0	19.9	5.5	11.8	4.5	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	20.6	35.0	19.9	5.5	11.8	4.5	17.0
LOS	C	C	C	B	A	B	A	B
Approach Delay		26.7		26.2		11.1		16.0
Approach LOS		C		C		B		B

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 15.1
Intersection Capacity Utilization 68.9%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service C

Splits and Phases: 2: Gun Club Rd & 5th Ave























HCM 6th Signalized Intersection Summary

2024 Total PM_Modified.syn

2: Gun Club Rd & 5th Ave

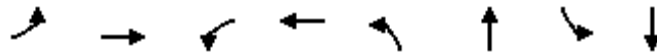
12/07/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	6	33	40	7	50	76	564	45	75	821	22
Future Volume (veh/h)	33	6	33	40	7	50	76	564	45	75	821	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	7	36	43	8	53	83	600	48	80	873	24
Peak Hour Factor	0.92	0.92	0.92	0.94	0.92	0.94	0.92	0.94	0.94	0.94	0.94	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	15	76	186	13	84	379	1127	90	538	1194	33
Arrive On Green	0.03	0.06	0.06	0.04	0.06	0.06	0.05	0.66	0.66	0.05	0.66	0.66
Sat Flow, veh/h	1781	265	1361	1781	212	1405	1781	1709	137	1781	1812	50
Grp Volume(v), veh/h	36	0	43	43	0	61	83	0	648	80	0	897
Grp Sat Flow(s),veh/h/ln	1781	0	1625	1781	0	1617	1781	0	1846	1781	0	1861
Q Serve(g_s), s	1.7	0.0	2.3	2.0	0.0	3.3	1.3	0.0	16.6	1.2	0.0	28.5
Cycle Q Clear(g_c), s	1.7	0.0	2.3	2.0	0.0	3.3	1.3	0.0	16.6	1.2	0.0	28.5
Prop In Lane	1.00		0.84	1.00		0.87	1.00		0.07	1.00		0.03
Lane Grp Cap(c), veh/h	169	0	91	186	0	96	379	0	1217	538	0	1227
V/C Ratio(X)	0.21	0.00	0.47	0.23	0.00	0.63	0.22	0.00	0.53	0.15	0.00	0.73
Avail Cap(c_a), veh/h	211	0	327	222	0	325	393	0	1217	553	0	1227
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	1.00	1.00	0.00	1.00	0.85	0.00	0.85	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.2	0.0	41.2	38.0	0.0	41.4	9.3	0.0	8.0	5.7	0.0	10.1
Incr Delay (d2), s/veh	0.6	0.0	3.8	0.6	0.0	6.7	0.2	0.0	1.4	0.1	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.0	0.9	0.0	1.5	0.5	0.0	6.1	0.4	0.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	0.0	45.0	38.6	0.0	48.1	9.5	0.0	9.5	5.9	0.0	14.0
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	B
Approach Vol, veh/h	79			104			731			977		
Approach Delay, s/veh	42.2			44.2			9.5			13.3		
Approach LOS	D			D			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	63.9	7.8	9.5	8.9	63.8	7.5	9.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	43.7	5.1	18.1	5.1	43.7	5.1	18.1				
Max Q Clear Time (g_c+I1), s	3.2	18.6	4.0	4.3	3.3	30.5	3.7	5.3				
Green Ext Time (p_c), s	0.0	4.8	0.0	0.1	0.0	5.7	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	14.7											
HCM 6th LOS	B											

Timings 2: Gun Club Rd & 5th Ave

2045 Background AM.syn

03/24/2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	5	50	5	35	545	50	430
Future Volume (vph)	20	5	50	5	35	545	50	430
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	11.0	23.0	24.0	36.0	11.0	61.0	12.0	62.0
Total Split (%)	9.2%	19.2%	20.0%	30.0%	9.2%	50.8%	10.0%	51.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	9.2	6.3	14.7	8.4	92.2	87.2	93.5	89.4
Actuated g/C Ratio	0.08	0.05	0.12	0.07	0.77	0.73	0.78	0.74
v/c Ratio	0.16	0.21	0.28	0.51	0.05	0.23	0.08	0.17
Control Delay	46.7	32.3	47.7	20.2	0.7	1.1	2.7	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	32.3	47.7	20.2	0.7	1.1	2.7	3.9
LOS	D	C	D	C	A	A	A	A
Approach Delay		39.7		29.5		1.1		3.8
Approach LOS		D		C		A		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 6.6
 Intersection Capacity Utilization 41.0%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: Gun Club Rd & 5th Ave






















	Ø1		Ø2 (R)		Ø3		Ø4
12 s		61 s		24 s		23 s	
	Ø5		Ø6 (R)		Ø7		Ø8
11 s		62 s		11 s		36 s	

HCM 6th Signalized Intersection Summary

2: Gun Club Rd & 5th Ave

2045 Background AM.syn

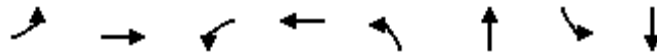
03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	15	50	5	95	35	545	35	50	430	10
Future Volume (veh/h)	20	5	15	50	5	95	35	545	35	50	430	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	5	16	52	5	98	38	562	36	52	443	11
Peak Hour Factor	0.92	0.92	0.92	0.97	0.92	0.97	0.92	0.97	0.97	0.97	0.97	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	24	77	207	7	128	779	2408	154	694	2532	63
Arrive On Green	0.02	0.06	0.06	0.04	0.08	0.08	0.04	0.94	0.94	0.07	1.00	1.00
Sat Flow, veh/h	1781	392	1253	1781	78	1519	1781	3391	217	1781	3544	88
Grp Volume(v), veh/h	22	0	21	52	0	103	38	294	304	52	222	232
Grp Sat Flow(s),veh/h/ln	1781	0	1645	1781	0	1597	1781	1777	1831	1781	1777	1855
Q Serve(g_s), s	1.4	0.0	1.5	3.2	0.0	7.6	0.7	1.4	1.4	0.9	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	1.5	3.2	0.0	7.6	0.7	1.4	1.4	0.9	0.0	0.0
Prop In Lane	1.00		0.76	1.00		0.95	1.00		0.12	1.00		0.05
Lane Grp Cap(c), veh/h	125	0	101	207	0	134	779	1262	1300	694	1270	1325
V/C Ratio(X)	0.18	0.00	0.21	0.25	0.00	0.77	0.05	0.23	0.23	0.07	0.17	0.18
Avail Cap(c_a), veh/h	183	0	254	418	0	419	822	1262	1300	744	1270	1325
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	0.96	0.96	0.96
Uniform Delay (d), s/veh	51.2	0.0	53.5	49.3	0.0	53.8	4.1	1.0	1.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	1.0	0.6	0.0	8.9	0.0	0.4	0.4	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.6	1.5	0.0	3.4	0.2	0.5	0.5	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	0.0	54.5	49.9	0.0	62.7	4.1	1.4	1.4	3.9	0.3	0.3
LnGrp LOS	D	A	D	D	A	E	A	A	A	A	A	A
Approach Vol, veh/h		43			155			636			506	
Approach Delay, s/veh		53.1			58.4			1.6			0.7	
Approach LOS		D			E			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	89.7	9.8	11.9	8.1	90.2	7.1	14.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	56.5	19.5	18.5	6.5	57.5	6.5	31.5				
Max Q Clear Time (g_c+I1), s	2.9	3.4	5.2	3.5	2.7	2.0	3.4	9.6				
Green Ext Time (p_c), s	0.0	4.2	0.1	0.0	0.0	3.0	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Timings 2: Gun Club Rd & 5th Ave

2045 Background PM.syn

03/24/2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	5	45	5	55	410	95	560
Future Volume (vph)	25	5	45	5	55	410	95	560
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	10.0	23.0	23.0	36.0	12.0	59.0	15.0	62.0
Total Split (%)	8.3%	19.2%	19.2%	30.0%	10.0%	49.2%	12.5%	51.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	9.7	6.4	14.8	9.2	92.6	86.2	94.8	89.7
Actuated g/C Ratio	0.08	0.05	0.12	0.08	0.77	0.72	0.79	0.75
v/c Ratio	0.19	0.25	0.28	0.36	0.09	0.20	0.14	0.23
Control Delay	45.6	30.1	47.4	20.1	1.1	1.3	3.4	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6	30.1	47.4	20.1	1.1	1.3	3.4	5.7
LOS	D	C	D	C	A	A	A	A
Approach Delay		37.8		31.8		1.3		5.4
Approach LOS		D		C		A		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 7.1

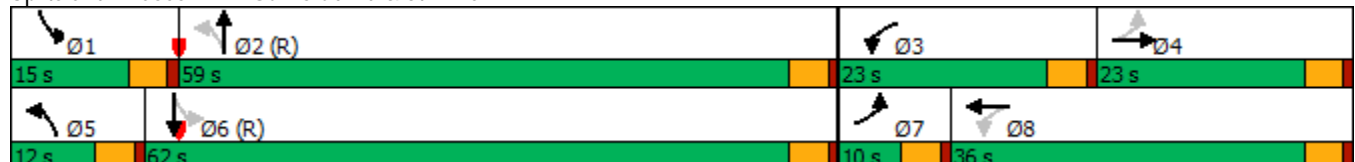
Intersection LOS: A

Intersection Capacity Utilization 40.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Gun Club Rd & 5th Ave























HCM 6th Signalized Intersection Summary

2045 Background PM.syn

03/24/2022

















2: Gun Club Rd & 5th Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	20	45	5	55	55	410	60	95	560	10
Future Volume (veh/h)	25	5	20	45	5	55	55	410	60	95	560	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	22	48	5	59	60	436	64	101	596	11
Peak Hour Factor	0.92	0.92	0.92	0.94	0.92	0.94	0.92	0.94	0.94	0.94	0.94	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	12	54	169	7	86	715	2261	330	784	2609	48
Arrive On Green	0.02	0.04	0.04	0.04	0.06	0.06	0.07	1.00	1.00	0.08	1.00	1.00
Sat Flow, veh/h	1781	302	1329	1781	125	1479	1781	3111	454	1781	3569	66
Grp Volume(v), veh/h	27	0	27	48	0	64	60	248	252	101	297	310
Grp Sat Flow(s),veh/h/ln	1781	0	1631	1781	0	1604	1781	1777	1789	1781	1777	1859
Q Serve(g_s), s	1.7	0.0	1.9	3.0	0.0	4.7	1.0	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	1.7	0.0	1.9	3.0	0.0	4.7	1.0	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.81	1.00		0.92	1.00		0.25	1.00		0.04
Lane Grp Cap(c), veh/h	130	0	67	169	0	93	715	1291	1300	784	1299	1359
V/C Ratio(X)	0.21	0.00	0.41	0.28	0.00	0.68	0.08	0.19	0.19	0.13	0.23	0.23
Avail Cap(c_a), veh/h	167	0	251	369	0	421	763	1291	1300	869	1299	1359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.94	0.94	0.94	0.97	0.97	0.97
Uniform Delay (d), s/veh	53.2	0.0	56.1	51.9	0.0	55.4	3.4	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	3.9	0.9	0.0	8.5	0.0	0.3	0.3	0.1	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.9	1.4	0.0	2.1	0.3	0.1	0.1	0.5	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	0.0	60.0	52.8	0.0	63.9	3.4	0.3	0.3	3.4	0.4	0.4
LnGrp LOS	D	A	E	D	A	E	A	A	A	A	A	A
Approach Vol, veh/h	54			112			560			708		
Approach Delay, s/veh	57.0			59.2			0.6			0.8		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	91.7	9.6	9.4	8.8	92.2	7.5	11.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	54.5	18.5	18.5	7.5	57.5	5.5	31.5				
Max Q Clear Time (g_c+I1), s	3.7	2.0	5.0	3.9	3.0	2.0	3.7	6.7				
Green Ext Time (p_c), s	0.1	3.4	0.1	0.1	0.0	4.2	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	7.4											
HCM 6th LOS	A											

Timings 2: Gun Club Rd & 5th Ave

2045 Total AM.syn






03/24/2022

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	10	50	10	45	550	50	440
Future Volume (vph)	35	10	50	10	45	550	50	440
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.6	22.6	22.6	35.6	9.6	63.8	11.0	65.2
Total Split (%)	8.0%	18.8%	18.8%	29.7%	8.0%	53.2%	9.2%	54.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	11.0	7.0	17.7	12.2	89.4	84.1	89.5	84.2
Actuated g/C Ratio	0.09	0.06	0.15	0.10	0.74	0.70	0.75	0.70
v/c Ratio	0.28	0.37	0.27	0.43	0.07	0.25	0.08	0.19
Control Delay	46.3	30.1	45.0	17.5	1.0	1.4	4.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	30.1	45.0	17.5	1.0	1.4	4.7	9.0
LOS	D	C	D	B	A	A	A	A
Approach Delay		37.2		26.4		1.3		8.5
Approach LOS		D		C		A		A

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 9.0
Intersection Capacity Utilization 41.2%
Analysis Period (min) 15
Intersection LOS: A
ICU Level of Service A

Splits and Phases: 2: Gun Club Rd & 5th Ave






















							
Ø1	Ø2 (R)	Ø3	Ø4	Ø5	Ø6 (R)	Ø7	Ø8
11 s	63.8 s	22.6 s	22.6 s	9.6 s	65.2 s	9.6 s	35.6 s

HCM 6th Signalized Intersection Summary

2: Gun Club Rd & 5th Ave

2045 Total AM.syn

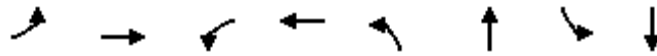
03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	35	50	10	95	45	550	35	50	440	15
Future Volume (veh/h)	35	10	35	50	10	95	45	550	35	50	440	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	38	52	11	98	49	567	36	52	454	16
Peak Hour Factor	0.92	0.92	0.92	0.97	0.92	0.97	0.92	0.97	0.97	0.97	0.97	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	27	94	199	14	127	764	2370	150	679	2448	86
Arrive On Green	0.03	0.07	0.07	0.04	0.09	0.09	0.04	0.93	0.93	0.07	1.00	1.00
Sat Flow, veh/h	1781	368	1273	1781	162	1447	1781	3393	215	1781	3502	123
Grp Volume(v), veh/h	38	0	49	52	0	109	49	296	307	52	230	240
Grp Sat Flow(s),veh/h/ln	1781	0	1641	1781	0	1610	1781	1777	1832	1781	1777	1848
Q Serve(g_s), s	2.3	0.0	3.4	3.2	0.0	8.0	0.9	1.8	1.8	1.0	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	3.4	3.2	0.0	8.0	0.9	1.8	1.8	1.0	0.0	0.0
Prop In Lane	1.00		0.78	1.00		0.90	1.00		0.12	1.00		0.07
Lane Grp Cap(c), veh/h	140	0	121	199	0	141	764	1241	1279	679	1242	1292
V/C Ratio(X)	0.27	0.00	0.41	0.26	0.00	0.77	0.06	0.24	0.24	0.08	0.19	0.19
Avail Cap(c_a), veh/h	163	0	248	390	0	417	780	1241	1279	714	1242	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	0.96	0.96	0.96
Uniform Delay (d), s/veh	49.4	0.0	53.1	48.2	0.0	53.6	4.4	1.4	1.4	4.3	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	2.2	0.7	0.0	8.7	0.0	0.4	0.4	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.5	1.5	0.0	3.6	0.3	0.7	0.7	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5	0.0	55.2	48.9	0.0	62.3	4.4	1.8	1.8	4.3	0.3	0.3
LnGrp LOS	D	A	E	D	A	E	A	A	A	A	A	A
Approach Vol, veh/h	87			161			652			522		
Approach Delay, s/veh	53.2			58.0			2.0			0.7		
Approach LOS	D			E			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	88.3	9.7	13.3	8.5	88.4	8.1	15.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	59.3	18.1	18.1	5.1	60.7	5.1	31.1				
Max Q Clear Time (g_c+I1), s	3.0	3.8	5.2	5.4	2.9	2.0	4.3	10.0				
Green Ext Time (p_c), s	0.0	4.2	0.1	0.1	0.0	3.1	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	11.0											
HCM 6th LOS	B											

Timings 2: Gun Club Rd & 5th Ave

2045 Total PM.syn

03/24/2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	10	45	10	80	420	95	570
Future Volume (vph)	35	10	45	10	80	420	95	570
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.6	22.5	22.5	35.4	10.6	60.7	14.3	64.4
Total Split (%)	8.0%	18.8%	18.8%	29.5%	8.8%	50.6%	11.9%	53.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	11.0	7.0	17.4	12.0	90.5	83.5	91.0	83.8
Actuated g/C Ratio	0.09	0.06	0.14	0.10	0.75	0.70	0.76	0.70
v/c Ratio	0.27	0.37	0.26	0.33	0.14	0.21	0.15	0.26
Control Delay	46.4	30.1	45.0	20.1	1.5	1.5	4.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	30.1	45.0	20.1	1.5	1.5	4.1	7.0
LOS	D	C	D	C	A	A	A	A
Approach Delay		37.2		30.2		1.5		6.6
Approach LOS		D		C		A		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 8.2

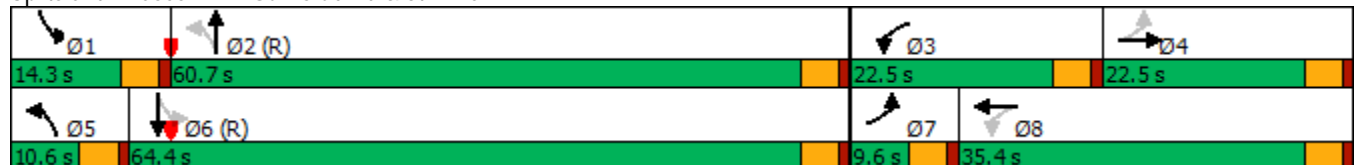
Intersection LOS: A

Intersection Capacity Utilization 41.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Gun Club Rd & 5th Ave
























HCM 6th Signalized Intersection Summary

2: Gun Club Rd & 5th Ave

2045 Total PM.syn





















03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	35	45	10	55	80	420	60	95	570	25
Future Volume (veh/h)	35	10	35	45	10	55	80	420	60	95	570	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	38	48	11	59	87	447	64	101	606	27
Peak Hour Factor	0.92	0.92	0.92	0.94	0.92	0.94	0.92	0.94	0.94	0.94	0.94	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	18	63	162	16	84	701	2243	319	763	2493	111
Arrive On Green	0.03	0.05	0.05	0.04	0.06	0.06	0.05	0.96	0.96	0.08	1.00	1.00
Sat Flow, veh/h	1781	368	1273	1781	255	1369	1781	3123	445	1781	3465	154
Grp Volume(v), veh/h	38	0	49	48	0	70	87	253	258	101	310	323
Grp Sat Flow(s),veh/h/ln	1781	0	1641	1781	0	1624	1781	1777	1790	1781	1777	1843
Q Serve(g_s), s	2.4	0.0	3.5	3.0	0.0	5.1	1.5	0.9	0.9	1.8	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	3.5	3.0	0.0	5.1	1.5	0.9	0.9	1.8	0.0	0.0
Prop In Lane	1.00		0.78	1.00		0.84	1.00		0.25	1.00		0.08
Lane Grp Cap(c), veh/h	139	0	81	162	0	100	701	1277	1286	763	1278	1325
V/C Ratio(X)	0.27	0.00	0.61	0.30	0.00	0.70	0.12	0.20	0.20	0.13	0.24	0.24
Avail Cap(c_a), veh/h	161	0	246	354	0	418	721	1277	1286	837	1278	1325
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.94	0.94	0.94	0.97	0.97	0.97
Uniform Delay (d), s/veh	52.0	0.0	55.9	51.0	0.0	55.2	3.7	0.8	0.8	3.6	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	7.1	1.0	0.0	8.6	0.1	0.3	0.3	0.1	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.6	1.4	0.0	2.3	0.5	0.4	0.4	0.5	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	0.0	63.0	52.0	0.0	63.9	3.7	1.1	1.1	3.6	0.4	0.4
LnGrp LOS	D	A	E	D	A	E	A	A	A	A	A	A
Approach Vol, veh/h	87			118			598			734		
Approach Delay, s/veh	58.7			59.0			1.5			0.9		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	90.7	9.6	10.4	9.2	90.8	8.1	11.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.8	56.2	18.0	18.0	6.1	59.9	5.1	30.9				
Max Q Clear Time (g_c+I1), s	3.8	2.9	5.0	5.5	3.5	2.0	4.4	7.1				
Green Ext Time (p_c), s	0.1	3.5	0.1	0.1	0.0	4.5	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	8.8											
HCM 6th LOS	A											

Timings
3: Gun Club Rd & 6th Pkwy

2021 Existing AM.syn

12/06/2021

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	15	77	44	342	78	82	401	41	41	175
Future Volume (vph)	15	77	44	342	78	82	401	41	41	175
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4	3	8		5	2		1	6
Permitted Phases	4		8		8	2		2	6	
Detector Phase	7	4	3	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	9.5	24.5	24.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	9.5	33.9	9.6	34.0	34.0	9.6	37.0	37.0	9.5	36.9
Total Split (%)	10.6%	37.7%	10.7%	37.8%	37.8%	10.7%	41.1%	41.1%	10.6%	41.0%
Yellow Time (s)	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	4.5	6.5	6.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effect Green (s)	23.2	19.2	25.1	22.1	22.1	52.7	47.2	47.2	50.9	44.6
Actuated g/C Ratio	0.26	0.21	0.28	0.25	0.25	0.59	0.52	0.52	0.57	0.50
v/c Ratio	0.07	0.28	0.13	0.78	0.16	0.12	0.43	0.05	0.08	0.23
Control Delay	19.6	24.3	21.0	43.6	1.2	10.0	18.3	0.1	10.2	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	24.3	21.0	43.6	1.2	10.0	18.3	0.1	10.2	16.3
LOS	B	C	C	D	A	A	B	A	B	B
Approach Delay		23.7		34.3			15.6			15.2
Approach LOS		C		C			B			B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 22.7









Intersection LOS: C

Intersection Capacity Utilization 57.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy
























			
Ø1	Ø2 (R)	Ø3	Ø4
9.5 s	37 s	9.6 s	33.9 s
			
Ø5	Ø6 (R)	Ø7	Ø8
9.6 s	36.9 s	9.5 s	34 s

HCM 6th Signalized Intersection Summary

3: Gun Club Rd & 6th Pkwy

2021 Existing AM.syn





















12/06/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	77	31	44	342	78	82	401	41	41	175	24
Future Volume (veh/h)	15	77	31	44	342	78	82	401	41	41	175	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	80	32	46	356	81	85	418	43	43	182	25
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	258	103	339	417	353	641	904	766	457	758	104
Arrive On Green	0.02	0.20	0.20	0.04	0.22	0.22	0.05	0.48	0.48	0.04	0.47	0.47
Sat Flow, veh/h	1781	1271	508	1781	1870	1585	1781	1870	1585	1781	1609	221
Grp Volume(v), veh/h	16	0	112	46	356	81	85	418	43	43	0	207
Grp Sat Flow(s),veh/h/ln	1781	0	1779	1781	1870	1585	1781	1870	1585	1781	0	1831
Q Serve(g_s), s	0.6	0.0	4.8	1.8	16.4	3.8	2.2	13.4	1.3	1.1	0.0	6.1
Cycle Q Clear(g_c), s	0.6	0.0	4.8	1.8	16.4	3.8	2.2	13.4	1.3	1.1	0.0	6.1
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	151	0	362	339	417	353	641	904	766	457	0	862
V/C Ratio(X)	0.11	0.00	0.31	0.14	0.85	0.23	0.13	0.46	0.06	0.09	0.00	0.24
Avail Cap(c_a), veh/h	217	0	561	373	571	484	655	904	766	490	0	862
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	30.5	26.7	33.6	28.6	11.1	15.5	12.4	12.1	0.0	14.2
Incr Delay (d2), s/veh	0.3	0.0	0.5	0.2	9.0	0.3	0.1	1.7	0.1	0.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.1	0.8	8.3	1.4	0.8	5.8	0.5	0.4	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	31.0	26.9	42.6	29.0	11.2	17.2	12.5	12.2	0.0	14.9
LnGrp LOS	C	A	C	C	D	C	B	B	B	B	A	B
Approach Vol, veh/h		128			483			546			250	
Approach Delay, s/veh		30.7			38.8			15.9			14.4	
Approach LOS		C			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	49.5	7.9	24.8	8.9	48.4	6.1	26.6				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	5.0	31.0	5.1	* 28	5.1	30.9	5.0	27.5				
Max Q Clear Time (g_c+I1), s	3.1	15.4	3.8	6.8	4.2	8.1	2.6	18.4				
Green Ext Time (p_c), s	0.0	2.4	0.0	0.5	0.0	1.1	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			24.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
3: Gun Club Rd & 6th Pkwy

2021 Existing PM.syn

12/06/2021









										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	35	324	53	140	44	52	290	75	108	365
Future Volume (vph)	35	324	53	140	44	52	290	75	108	365
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4	3	8		5	2		1	6
Permitted Phases	4		8		8	2		2	6	
Detector Phase	7	4	3	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	9.5	24.5	24.5	9.5	24.0	24.0	9.5	24.0
Total Split (s)	10.0	48.0	11.0	49.0	49.0	10.0	49.6	49.6	11.4	51.0
Total Split (%)	8.3%	40.0%	9.2%	40.8%	40.8%	8.3%	41.3%	41.3%	9.5%	42.5%
Yellow Time (s)	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	4.5	6.5	6.5	4.5	6.0	6.0	4.5	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effect Green (s)	38.0	32.6	40.3	34.4	34.4	62.6	54.4	54.4	66.5	58.0
Actuated g/C Ratio	0.32	0.27	0.34	0.29	0.29	0.52	0.45	0.45	0.55	0.48
v/c Ratio	0.09	0.83	0.29	0.27	0.08	0.12	0.35	0.10	0.20	0.45
Control Delay	22.1	53.8	26.1	33.1	0.3	15.4	25.6	1.9	15.3	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	53.8	26.1	33.1	0.3	15.4	25.6	1.9	15.3	25.8
LOS	C	D	C	C	A	B	C	A	B	C
Approach Delay		51.3		25.5			20.1			23.5
Approach LOS		D		C			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 30.5
 Intersection Capacity Utilization 67.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 3: Gun Club Rd & 6th Pkwy
























			
Ø1	Ø2 (R)	Ø3	Ø4
11.4 s	49.6 s	11 s	48 s
			
Ø5	Ø6 (R)	Ø7	Ø8
10 s	51 s	10 s	49 s

HCM 6th Signalized Intersection Summary

3: Gun Club Rd & 6th Pkwy

2021 Existing PM.syn























12/06/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	324	77	53	140	44	52	290	75	108	365	25
Future Volume (veh/h)	35	324	77	53	140	44	52	290	75	108	365	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	334	79	55	144	45	54	299	77	111	376	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	374	88	156	489	414	471	904	766	531	857	59
Arrive On Green	0.03	0.26	0.26	0.04	0.26	0.26	0.03	0.48	0.48	0.05	0.50	0.50
Sat Flow, veh/h	1781	1462	346	1781	1870	1585	1781	1870	1585	1781	1729	120
Grp Volume(v), veh/h	36	0	413	55	144	45	54	299	77	111	0	402
Grp Sat Flow(s),veh/h/ln	1781	0	1808	1781	1870	1585	1781	1870	1585	1781	0	1849
Q Serve(g_s), s	1.8	0.0	26.4	2.7	7.4	2.6	1.8	11.8	3.2	3.7	0.0	16.8
Cycle Q Clear(g_c), s	1.8	0.0	26.4	2.7	7.4	2.6	1.8	11.8	3.2	3.7	0.0	16.8
Prop In Lane	1.00		0.19	1.00		1.00	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	350	0	462	156	489	414	471	904	766	531	0	916
V/C Ratio(X)	0.10	0.00	0.89	0.35	0.29	0.11	0.11	0.33	0.10	0.21	0.00	0.44
Avail Cap(c_a), veh/h	380	0	640	191	662	561	491	904	766	550	0	916
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	43.1	34.3	35.5	33.7	15.4	19.1	16.8	14.8	0.0	19.5
Incr Delay (d2), s/veh	0.1	0.0	11.7	1.3	0.3	0.1	0.1	1.0	0.3	0.2	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	13.2	1.2	3.4	1.0	0.7	5.3	1.2	1.5	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	54.8	35.6	35.8	33.8	15.5	20.0	17.1	15.0	0.0	21.0
LnGrp LOS	C	A	D	D	D	C	B	C	B	B	A	C
Approach Vol, veh/h	449			244			430			513		
Approach Delay, s/veh	53.0			35.4			18.9			19.7		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	64.0	8.7	37.2	8.7	65.5	8.0	37.9				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	6.9	43.6	6.5	* 43	5.5	45.0	5.5	42.5				
Max Q Clear Time (g_c+I1), s	5.7	13.8	4.7	28.4	3.8	18.8	3.8	9.4				
Green Ext Time (p_c), s	0.0	2.1	0.0	2.2	0.0	2.6	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay	31.0											
HCM 6th LOS	C											
Notes												

Timings 3: Gun Club Rd & 6th Pkwy

2024 Background AM.syn

01/27/2022

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	145	115	100	365	110	135	540	45	70	420	65
Future Volume (vph)	145	115	100	365	110	135	540	45	70	420	65
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		2	6		6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	9.5	24.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	10.6	30.4	10.2	30.0	30.0	10.8	39.9	39.9	9.5	38.6	38.6
Total Split (%)	11.8%	33.8%	11.3%	33.3%	33.3%	12.0%	44.3%	44.3%	10.6%	42.9%	42.9%
Yellow Time (s)	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	4.5	6.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	30.9	25.0	29.3	21.6	21.6	44.3	37.4	37.4	41.1	34.1	34.1
Actuated g/C Ratio	0.34	0.28	0.33	0.24	0.24	0.49	0.42	0.42	0.46	0.38	0.38
v/c Ratio	0.60	0.34	0.24	0.85	0.23	0.39	0.73	0.06	0.26	0.62	0.10
Control Delay	30.1	24.5	19.5	51.2	3.9	15.4	30.5	0.2	14.4	28.0	0.3
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	30.1	24.5	19.5	51.2	3.9	15.4	30.5	0.2	14.4	28.0	0.3
LOS	C	C	B	D	A	B	C	A	B	C	A
Approach Delay		27.1		36.6			25.8			23.0	
Approach LOS		C		D			C			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 28.1

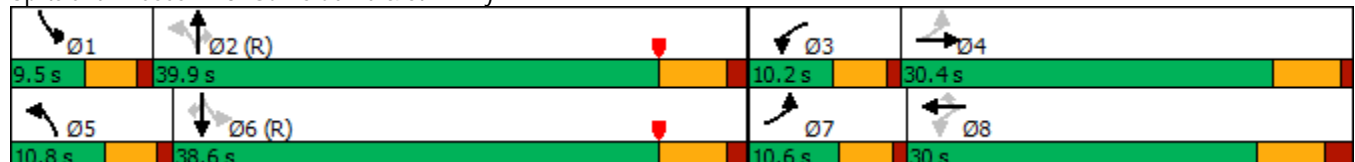
Intersection LOS: C

Intersection Capacity Utilization 77.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy


























HCM 6th Signalized Intersection Summary

2024 Background AM.syn

3: Gun Club Rd & 6th Pkwy























01/27/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	115	50	100	365	110	135	540	45	70	420	65
Future Volume (veh/h)	145	115	50	100	365	110	135	540	45	70	420	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	120	52	104	380	115	141	562	47	73	438	68
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	292	127	376	430	364	388	780	661	298	743	630
Arrive On Green	0.07	0.24	0.24	0.06	0.23	0.23	0.07	0.42	0.42	0.05	0.40	0.40
Sat Flow, veh/h	1781	1238	536	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	151	0	172	104	380	115	141	562	47	73	438	68
Grp Sat Flow(s),veh/h/ln	1781	0	1774	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.9	0.0	7.4	4.0	17.7	5.4	4.1	22.5	1.6	2.1	16.6	2.4
Cycle Q Clear(g_c), s	5.9	0.0	7.4	4.0	17.7	5.4	4.1	22.5	1.6	2.1	16.6	2.4
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	231	0	419	376	430	364	388	780	661	298	743	630
V/C Ratio(X)	0.65	0.00	0.41	0.28	0.88	0.32	0.36	0.72	0.07	0.24	0.59	0.11
Avail Cap(c_a), veh/h	231	0	491	380	488	414	395	780	661	314	743	630
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	29.1	24.3	33.5	28.8	15.9	21.9	15.8	17.1	21.3	17.1
Incr Delay (d2), s/veh	6.5	0.0	0.6	0.4	16.0	0.5	0.6	5.7	0.2	0.4	3.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	3.2	1.7	9.7	2.1	1.7	10.6	0.6	0.9	7.7	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	0.0	29.7	24.7	49.5	29.3	16.4	27.5	16.0	17.6	24.8	17.4
LnGrp LOS	C	A	C	C	D	C	B	C	B	B	C	B
Approach Vol, veh/h		323			599			750			579	
Approach Delay, s/veh		31.2			41.3			24.7			23.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	43.5	10.0	27.8	10.5	41.8	10.6	27.2				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	5.0	33.9	5.7	* 25	6.3	32.6	6.1	23.5				
Max Q Clear Time (g_c+I1), s	4.1	24.5	6.0	9.4	6.1	18.6	7.9	19.7				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.8	0.0	2.5	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay			29.6									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings 3: Gun Club Rd & 6th Pkwy

2024 Background PM.syn

01/27/2022

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	250	345	85	150	80	135	380	80	170	615	85
Future Volume (vph)	250	345	85	150	80	135	380	80	170	615	85
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		2	6		6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	9.5	24.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	32.6	47.4	10.0	24.8	24.8	12.0	48.0	48.0	14.6	50.6	50.6
Total Split (%)	27.2%	39.5%	8.3%	20.7%	20.7%	10.0%	40.0%	40.0%	12.2%	42.2%	42.2%
Yellow Time (s)	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	4.5	6.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	45.5	34.5	28.5	21.0	21.0	59.9	49.2	49.2	62.0	50.2	50.2
Actuated g/C Ratio	0.38	0.29	0.24	0.18	0.18	0.50	0.41	0.41	0.52	0.42	0.42
v/c Ratio	0.55	0.86	0.53	0.48	0.20	0.53	0.51	0.11	0.39	0.81	0.12
Control Delay	30.8	55.3	37.2	49.2	1.2	24.3	31.3	0.3	17.9	42.1	0.3
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	30.8	55.3	37.2	49.2	1.2	24.3	31.3	0.3	17.9	42.1	0.3
LOS	C	E	D	D	A	C	C	A	B	D	A
Approach Delay		46.4		33.9			25.6			33.3	
Approach LOS		D		C			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 35.2

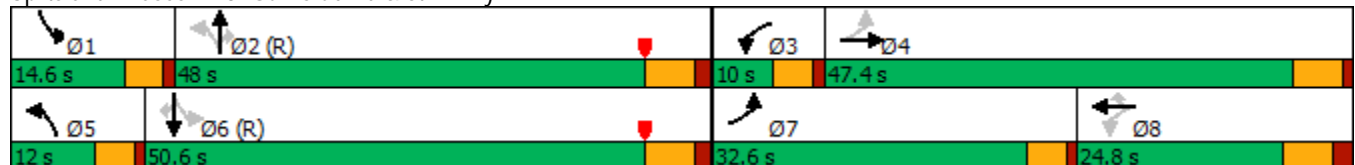
Intersection LOS: D

Intersection Capacity Utilization 85.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy

























HCM 6th Signalized Intersection Summary

2024 Background PM.syn

3: Gun Club Rd & 6th Pkwy

01/27/2022























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	345	95	85	150	80	135	380	80	170	615	85
Future Volume (veh/h)	250	345	95	85	150	80	135	380	80	170	615	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	258	356	52	88	155	82	139	392	82	175	634	88
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	399	399	58	175	295	250	304	853	723	470	874	741
Arrive On Green	0.14	0.25	0.25	0.05	0.16	0.16	0.06	0.46	0.46	0.07	0.47	0.47
Sat Flow, veh/h	1781	1595	233	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	258	0	408	88	155	82	139	392	82	175	634	88
Grp Sat Flow(s),veh/h/ln	1781	0	1828	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	14.0	0.0	25.9	5.0	9.1	5.5	4.9	17.3	3.6	6.2	32.8	3.8
Cycle Q Clear(g_c), s	14.0	0.0	25.9	5.0	9.1	5.5	4.9	17.3	3.6	6.2	32.8	3.8
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	399	0	457	175	295	250	304	853	723	470	874	741
V/C Ratio(X)	0.65	0.00	0.89	0.50	0.52	0.33	0.46	0.46	0.11	0.37	0.73	0.12
Avail Cap(c_a), veh/h	571	0	638	175	295	250	313	853	723	497	874	741
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	0.0	43.4	41.0	46.4	44.9	20.5	22.5	18.7	16.6	25.7	18.0
Incr Delay (d2), s/veh	1.8	0.0	11.5	2.2	1.7	0.8	1.1	1.8	0.3	0.5	5.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	13.1	2.3	4.4	2.2	2.1	8.0	1.4	2.6	15.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	0.0	54.9	43.3	48.1	45.6	21.5	24.2	19.0	17.0	30.9	18.3
LnGrp LOS	D	A	D	D	D	D	C	C	B	B	C	B
Approach Vol, veh/h	666			325			613			897		
Approach Delay, s/veh	47.4			46.2			22.9			27.0		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	60.7	10.0	36.5	11.4	62.1	21.1	25.4				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	10.1	42.0	5.5	* 42	7.5	44.6	28.1	18.3				
Max Q Clear Time (g_c+I1), s	8.2	19.3	7.0	27.9	6.9	34.8	16.0	11.1				
Green Ext Time (p_c), s	0.1	2.7	0.0	2.2	0.0	3.3	0.6	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			33.9									
HCM 6th LOS			C									
Notes												

Timings

3: Gun Club Rd & 6th Pkwy

2024 Total AM.syn

12/06/2021

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	151	115	100	365	112	135	543	45	75	428	81
Future Volume (vph)	151	115	100	365	112	135	543	45	75	428	81
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		2	6		6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	9.5	24.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	13.1	30.4	12.1	29.4	29.4	11.4	38.0	38.0	9.5	36.1	36.1
Total Split (%)	14.6%	33.8%	13.4%	32.7%	32.7%	12.7%	42.2%	42.2%	10.6%	40.1%	40.1%
Yellow Time (s)	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	4.5	6.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	33.5	25.6	30.6	21.3	21.3	42.6	35.3	35.3	38.6	31.6	31.6
Actuated g/C Ratio	0.37	0.28	0.34	0.24	0.24	0.47	0.39	0.39	0.43	0.35	0.35
v/c Ratio	0.54	0.33	0.23	0.86	0.24	0.43	0.78	0.07	0.32	0.68	0.13
Control Delay	24.4	24.3	17.9	53.2	4.2	17.4	34.5	0.2	16.6	31.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	24.3	17.9	53.2	4.2	17.4	34.5	0.2	16.6	31.9	0.7
LOS	C	C	B	D	A	B	C	A	B	C	A
Approach Delay		24.4		37.5			29.2			25.6	
Approach LOS		C		D			C			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 29.7









Intersection LOS: C

Intersection Capacity Utilization 78.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy
























			
Ø1	Ø2 (R)	Ø3	Ø4
9.5 s	38 s	12.1 s	30.4 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11.4 s	36.1 s	13.1 s	29.4 s

HCM 6th Signalized Intersection Summary

2024 Total AM.syn

3: Gun Club Rd & 6th Pkwy























12/06/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	115	50	100	365	112	135	543	45	75	428	81
Future Volume (veh/h)	151	115	50	100	365	112	135	543	45	75	428	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	157	120	52	104	380	117	141	566	47	78	446	84
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	314	136	400	427	362	361	745	631	276	706	599
Arrive On Green	0.09	0.25	0.25	0.06	0.23	0.23	0.07	0.40	0.40	0.05	0.38	0.38
Sat Flow, veh/h	1781	1238	536	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	157	0	172	104	380	117	141	566	47	78	446	84
Grp Sat Flow(s),veh/h/ln	1781	0	1774	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.0	0.0	7.2	4.0	17.7	5.5	4.3	23.5	1.7	2.4	17.5	3.1
Cycle Q Clear(g_c), s	6.0	0.0	7.2	4.0	17.7	5.5	4.3	23.5	1.7	2.4	17.5	3.1
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	0	450	400	427	362	361	745	631	276	706	599
V/C Ratio(X)	0.60	0.00	0.38	0.26	0.89	0.32	0.39	0.76	0.07	0.28	0.63	0.14
Avail Cap(c_a), veh/h	279	0	491	441	476	403	376	745	631	290	706	599
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	27.8	24.2	33.6	28.9	17.1	23.4	16.8	18.4	22.9	18.4
Incr Delay (d2), s/veh	3.1	0.0	0.5	0.3	17.2	0.5	0.7	7.2	0.2	0.6	4.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	3.1	1.7	9.9	2.1	1.7	11.4	0.6	1.0	8.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	0.0	28.3	24.6	50.8	29.4	17.7	30.6	17.0	19.0	27.1	18.9
LnGrp LOS	C	A	C	C	D	C	B	C	B	B	C	B
Approach Vol, veh/h		329			601			754			608	
Approach Delay, s/veh		28.3			42.1			27.3			25.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	41.8	10.0	29.3	10.6	40.0	12.3	27.1				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	5.0	32.0	7.6	* 25	6.9	30.1	8.6	22.9				
Max Q Clear Time (g_c+I1), s	4.4	25.5	6.0	9.2	6.3	19.5	8.0	19.7				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.8	0.0	2.3	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			30.7									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
3: Gun Club Rd & 6th Pkwy

2024 Total PM.syn

12/06/2021

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	266	345	85	150	85	135	388	80	173	620	96
Future Volume (vph)	266	345	85	150	85	135	388	80	173	620	96
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4		8		8	2		2	6		6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	9.5	24.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	31.7	47.6	10.0	25.9	25.9	11.4	48.0	48.0	14.4	51.0	51.0
Total Split (%)	26.4%	39.7%	8.3%	21.6%	21.6%	9.5%	40.0%	40.0%	12.0%	42.5%	42.5%
Yellow Time (s)	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	4.5	6.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	45.6	34.6	27.6	20.1	20.1	59.9	49.1	49.1	61.9	50.1	50.1
Actuated g/C Ratio	0.38	0.29	0.23	0.17	0.17	0.50	0.41	0.41	0.52	0.42	0.42
v/c Ratio	0.58	0.86	0.52	0.50	0.23	0.54	0.52	0.11	0.40	0.82	0.13
Control Delay	31.6	55.0	36.9	50.7	1.7	25.5	31.6	0.3	18.2	42.7	1.0
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	31.6	55.0	36.9	50.7	1.7	25.5	31.6	0.3	18.2	42.7	1.0
LOS	C	E	D	D	A	C	C	A	B	D	A
Approach Delay		46.2		34.0			26.1			33.5	
Approach LOS		D		C			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 35.3

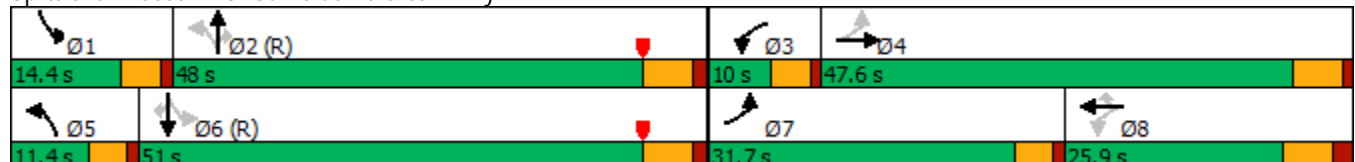
Intersection LOS: D

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy


























HCM 6th Signalized Intersection Summary

2024 Total PM.syn

3: Gun Club Rd & 6th Pkwy























12/06/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	345	95	85	150	85	135	388	80	173	620	96
Future Volume (veh/h)	266	345	95	85	150	85	135	388	80	173	620	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	274	356	46	88	155	88	139	400	82	178	639	99
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	399	400	52	176	271	230	304	859	728	469	882	747
Arrive On Green	0.15	0.25	0.25	0.05	0.15	0.15	0.06	0.46	0.46	0.07	0.47	0.47
Sat Flow, veh/h	1781	1623	210	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	274	0	402	88	155	88	139	400	82	178	639	99
Grp Sat Flow(s),veh/h/ln	1781	0	1833	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	15.1	0.0	25.4	5.0	9.3	6.0	4.9	17.7	3.5	6.3	32.9	4.2
Cycle Q Clear(g_c), s	15.1	0.0	25.4	5.0	9.3	6.0	4.9	17.7	3.5	6.3	32.9	4.2
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	399	0	452	176	271	230	304	859	728	469	882	747
V/C Ratio(X)	0.69	0.00	0.89	0.50	0.57	0.38	0.46	0.47	0.11	0.38	0.72	0.13
Avail Cap(c_a), veh/h	541	0	643	176	302	256	305	859	728	492	882	747
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	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	34.6	0.0	43.6	42.1	47.8	46.4	20.3	22.3	18.5	16.4	25.5	17.9
Incr Delay (d2), s/veh	2.2	0.0	10.9	2.2	2.1	1.0	1.1	1.8	0.3	0.5	5.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	12.8	2.3	4.5	2.5	2.1	8.1	1.4	2.6	15.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	0.0	54.6	44.3	49.9	47.5	21.4	24.1	18.8	16.9	30.6	18.2
LnGrp LOS	D	A	D	D	D	D	C	C	B	B	C	B
Approach Vol, veh/h		676			331			621			916	
Approach Delay, s/veh		47.4			47.8			22.8			26.6	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	61.1	10.0	36.1	11.3	62.6	22.2	23.9				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	9.9	42.0	5.5	* 42	6.9	45.0	27.2	19.4				
Max Q Clear Time (g_c+I1), s	8.3	19.7	7.0	27.4	6.9	34.9	17.1	11.3				
Green Ext Time (p_c), s	0.1	2.8	0.0	2.2	0.0	3.4	0.6	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			34.0									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings 3: Gun Club Rd & 6th Pkwy

2045 Background AM.syn

03/24/2022

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	920	315	230	1380	230	510	280	55	375	65
Future Volume (vph)	70	920	315	230	1380	230	510	280	55	375	65
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4			2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	23.5	9.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	17.0	49.2	49.2	18.8	51.0	19.0	35.0	35.0	17.0	33.0	33.0
Total Split (%)	14.2%	41.0%	41.0%	15.7%	42.5%	15.8%	29.2%	29.2%	14.2%	27.5%	27.5%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	5.5	4.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	7.9	39.1	39.1	12.8	45.1	53.5	41.7	41.7	43.2	33.9	33.9
Actuated g/C Ratio	0.07	0.33	0.33	0.11	0.38	0.45	0.35	0.35	0.36	0.28	0.28
v/c Ratio	0.32	0.58	0.45	0.65	0.77	0.55	0.43	0.39	0.16	0.39	0.13
Control Delay	56.8	34.6	5.9	60.1	36.0	28.5	34.3	5.7	33.6	49.7	14.2
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	56.8	34.6	5.9	60.1	36.0	28.5	34.3	5.7	33.6	49.7	14.2
LOS	E	C	A	E	D	C	C	A	C	D	B
Approach Delay		28.9			39.4		25.1			43.3	
Approach LOS		C			D		C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 33.5













Intersection LOS: C

Intersection Capacity Utilization 72.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy
































											
Ø1	Ø2 (R)		Ø3	Ø4		Ø5	Ø6 (R)	Ø7	Ø8		
17 s	35 s		18.8 s	49.2 s		19 s	33 s	17 s	51 s		

HCM 6th Signalized Intersection Summary

3: Gun Club Rd & 6th Pkwy

2045 Background AM.syn























03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  			 			 	
Traffic Volume (veh/h)	70	920	315	230	1380	35	230	510	280	55	375	65
Future Volume (veh/h)	70	920	315	230	1380	35	230	510	280	55	375	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	958	328	240	1438	36	240	531	292	57	391	68
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	1464	454	302	1721	43	469	1462	652	328	1227	547
Arrive On Green	0.04	0.29	0.29	0.09	0.34	0.34	0.10	0.41	0.41	0.01	0.11	0.11
Sat Flow, veh/h	3456	5106	1585	3456	5123	128	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	73	958	328	240	955	519	240	531	292	57	391	68
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1847	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.5	19.8	22.3	8.2	31.1	31.1	10.0	12.4	16.0	2.5	12.1	4.6
Cycle Q Clear(g_c), s	2.5	19.8	22.3	8.2	31.1	31.1	10.0	12.4	16.0	2.5	12.1	4.6
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	1464	454	302	1144	621	469	1462	652	328	1227	547
V/C Ratio(X)	0.56	0.65	0.72	0.80	0.84	0.84	0.51	0.36	0.45	0.17	0.32	0.12
Avail Cap(c_a), veh/h	360	1859	577	412	1262	685	503	1462	652	450	1227	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	56.7	37.6	38.5	53.7	36.8	36.8	21.1	24.4	25.5	24.5	40.2	36.9
Incr Delay (d2), s/veh	3.6	0.6	3.2	7.4	4.7	8.2	0.9	0.7	2.2	0.2	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	8.3	9.0	3.9	13.5	15.3	4.3	5.4	6.4	1.1	5.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	38.1	41.7	61.2	41.4	45.0	21.9	25.1	27.7	24.7	40.9	37.3
LnGrp LOS	E	D	D	E	D	D	C	C	C	C	D	D
Approach Vol, veh/h	1359			1714			1063			516		
Approach Delay, s/veh	40.2			45.3			25.1			38.6		
Approach LOS	D			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	55.4	15.0	40.9	16.7	47.4	9.1	46.8				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	12.5	29.0	14.3	* 44	14.5	27.0	12.5	44.5				
Max Q Clear Time (g_c+I1), s	4.5	18.0	10.2	24.3	12.0	14.1	4.5	33.1				
Green Ext Time (p_c), s	0.1	3.5	0.3	8.0	0.2	2.3	0.1	7.2				
Intersection Summary												
HCM 6th Ctrl Delay	38.4											
HCM 6th LOS	D											
Notes												

Timings 3: Gun Club Rd & 6th Pkwy

2045 Background PM.syn

03/24/2022

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	100	1285	485	270	810	310	400	325	65	460	100
Future Volume (vph)	100	1285	485	270	810	310	400	325	65	460	100
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4			2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	23.5	9.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	22.2	44.0	44.0	21.0	42.8	24.0	29.8	29.8	25.2	31.0	31.0
Total Split (%)	18.5%	36.7%	36.7%	17.5%	35.7%	20.0%	24.8%	24.8%	21.0%	25.8%	25.8%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	5.5	4.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	9.0	39.4	39.4	14.4	43.8	51.7	39.5	39.5	36.8	27.1	27.1
Actuated g/C Ratio	0.08	0.33	0.33	0.12	0.36	0.43	0.33	0.33	0.31	0.23	0.23
v/c Ratio	0.40	0.79	0.68	0.67	0.47	0.77	0.35	0.45	0.19	0.59	0.23
Control Delay	57.1	41.0	17.4	58.8	30.0	38.1	33.1	5.6	32.3	56.7	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	41.0	17.4	58.8	30.0	38.1	33.1	5.6	32.3	56.7	22.6
LOS	E	D	B	E	C	D	C	A	C	E	C
Approach Delay		35.7			37.0		26.0			48.7	
Approach LOS		D			D		C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 35.6

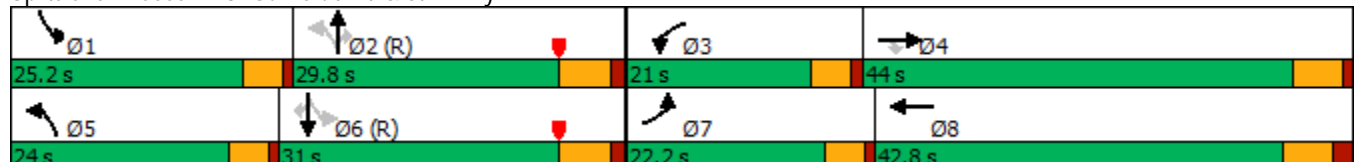
Intersection LOS: D

Intersection Capacity Utilization 79.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy



























HCM 6th Signalized Intersection Summary

3: Gun Club Rd & 6th Pkwy

2045 Background PM.syn

03/24/2022























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1285	485	270	810	25	310	400	325	65	460	100
Future Volume (veh/h)	100	1285	485	270	810	25	310	400	325	65	460	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	1325	500	278	835	26	320	412	335	67	474	103
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	1638	509	342	1902	59	427	1281	572	314	905	404
Arrive On Green	0.05	0.32	0.32	0.10	0.37	0.37	0.15	0.36	0.36	0.01	0.08	0.08
Sat Flow, veh/h	3456	5106	1585	3456	5088	158	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	103	1325	500	278	558	303	320	412	335	67	474	103
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1842	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.5	28.6	37.6	9.5	14.7	14.8	15.3	10.1	20.6	3.3	15.3	7.3
Cycle Q Clear(g_c), s	3.5	28.6	37.6	9.5	14.7	14.8	15.3	10.1	20.6	3.3	15.3	7.3
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	1638	509	342	1272	688	427	1281	572	314	905	404
V/C Ratio(X)	0.65	0.81	0.98	0.81	0.44	0.44	0.75	0.32	0.59	0.21	0.52	0.26
Avail Cap(c_a), veh/h	510	1638	509	475	1272	688	456	1281	572	549	905	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	56.3	37.4	40.4	53.0	28.1	28.2	26.8	27.7	31.1	31.9	48.0	44.3
Incr Delay (d2), s/veh	4.3	3.1	35.5	7.3	0.2	0.4	6.4	0.7	4.4	0.3	2.1	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	12.3	19.4	4.5	6.1	6.6	7.2	4.4	8.5	1.5	7.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	40.5	75.9	60.3	28.4	28.6	33.2	28.4	35.5	32.2	50.1	45.8
LnGrp LOS	E	D	E	E	C	C	C	C	D	C	D	D
Approach Vol, veh/h		1928			1139			1067			644	
Approach Delay, s/veh		50.8			36.2			32.1			47.5	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	49.3	16.4	45.0	22.0	36.6	10.0	51.4				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	20.7	23.8	16.5	* 39	19.5	25.0	17.7	36.3				
Max Q Clear Time (g_c+I1), s	5.3	22.6	11.5	39.6	17.3	17.3	5.5	16.8				
Green Ext Time (p_c), s	0.1	0.5	0.4	0.0	0.2	2.1	0.2	5.6				
Intersection Summary												
HCM 6th Ctrl Delay			42.7									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

3: Gun Club Rd & 6th Pkwy

2045 Total AM.syn

03/24/2022

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	80	920	315	230	1380	230	515	280	60	385	85
Future Volume (vph)	80	920	315	230	1380	230	515	280	60	385	85
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4			2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	23.5	9.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	17.0	48.2	48.2	18.8	50.0	18.6	36.0	36.0	17.0	34.4	34.4
Total Split (%)	14.2%	40.2%	40.2%	15.7%	41.7%	15.5%	30.0%	30.0%	14.2%	28.7%	28.7%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	5.5	4.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	8.3	39.1	39.1	12.8	44.8	53.3	41.5	41.5	44.0	34.4	34.4
Actuated g/C Ratio	0.07	0.33	0.33	0.11	0.37	0.44	0.35	0.35	0.37	0.29	0.29
v/c Ratio	0.35	0.58	0.45	0.65	0.78	0.56	0.44	0.40	0.18	0.40	0.17
Control Delay	56.9	34.7	6.2	60.1	36.5	28.7	34.5	5.6	34.2	49.5	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	34.7	6.2	60.1	36.5	28.7	34.5	5.6	34.2	49.5	20.7
LOS	E	C	A	E	D	C	C	A	C	D	C
Approach Delay		29.2			39.8		25.3			43.2	
Approach LOS		C			D		C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 33.8













Intersection LOS: C

Intersection Capacity Utilization 73.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Gun Club Rd & 6th Pkwy

























											
Ø1	Ø2 (R)		Ø3	Ø4		Ø5	Ø6 (R)	Ø7	Ø8		
17 s	36 s		18.8 s	48.2 s		18.6 s	34.4 s	17 s	50 s		

HCM 6th Signalized Intersection Summary

2045 Total AM.syn

3: Gun Club Rd & 6th Pkwy

03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	920	315	230	1380	40	230	515	280	60	385	85
Future Volume (veh/h)	80	920	315	230	1380	40	230	515	280	60	385	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	83	958	328	240	1438	42	240	536	292	62	401	89
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	1457	452	302	1701	50	461	1464	653	328	1233	550
Arrive On Green	0.04	0.29	0.29	0.09	0.33	0.33	0.10	0.41	0.41	0.01	0.11	0.11
Sat Flow, veh/h	3456	5106	1585	3456	5099	149	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	83	958	328	240	960	520	240	536	292	62	401	89
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1844	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.8	19.8	22.4	8.2	31.4	31.4	10.0	12.5	15.9	2.7	12.5	6.1
Cycle Q Clear(g_c), s	2.8	19.8	22.4	8.2	31.4	31.4	10.0	12.5	15.9	2.7	12.5	6.1
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	1457	452	302	1135	615	461	1464	653	328	1233	550
V/C Ratio(X)	0.62	0.66	0.73	0.80	0.85	0.85	0.52	0.37	0.45	0.19	0.33	0.16
Avail Cap(c_a), veh/h	360	1817	564	412	1234	668	490	1464	653	449	1233	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	56.8	37.7	38.6	53.7	37.1	37.1	21.0	24.4	25.4	24.3	40.2	37.4
Incr Delay (d2), s/veh	4.5	0.6	3.5	7.4	5.3	9.2	0.9	0.7	2.2	0.3	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	8.3	9.1	3.9	13.8	15.6	4.3	5.4	6.4	1.2	6.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.3	38.3	42.2	61.2	42.4	46.3	22.0	25.1	27.7	24.6	40.9	38.0
LnGrp LOS	E	D	D	E	D	D	C	C	C	C	D	D
Approach Vol, veh/h	1369				1720				1068			
Approach Delay, s/veh	40.6				46.2				25.1			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	55.4	15.0	40.7	16.6	47.6	9.2	46.5				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	12.5	30.0	14.3	* 43	14.1	28.4	12.5	43.5				
Max Q Clear Time (g_c+I1), s	4.7	17.9	10.2	24.4	12.0	14.5	4.8	33.4				
Green Ext Time (p_c), s	0.1	3.7	0.3	7.8	0.1	2.5	0.1	6.6				

Intersection Summary

HCM 6th Ctrl Delay 38.9

HCM 6th LOS D


Notes

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

Timings 3: Gun Club Rd & 6th Pkwy

2045 Total PM.syn



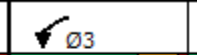



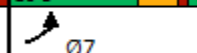

03/24/2022

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↑↑	↗	↗	↑↑	↗
Traffic Volume (vph)	120	1285	485	270	810	310	410	325	70	465	115
Future Volume (vph)	120	1285	485	270	810	310	410	325	70	465	115
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4			2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.5	23.5	9.5	24.5	9.5	24.0	24.0	9.5	24.0	24.0
Total Split (s)	19.8	44.8	44.8	16.0	41.0	24.2	34.0	34.0	25.2	35.0	35.0
Total Split (%)	16.5%	37.3%	37.3%	13.3%	34.2%	20.2%	28.3%	28.3%	21.0%	29.2%	29.2%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	1.5	1.5	1.0	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
Total Lost Time (s)	4.5	5.5	5.5	4.5	6.5	4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	9.7	39.0	39.0	11.5	39.9	55.0	42.8	42.8	40.8	31.0	31.0
Actuated g/C Ratio	0.08	0.32	0.32	0.10	0.33	0.46	0.36	0.36	0.34	0.26	0.26
v/c Ratio	0.45	0.80	0.68	0.85	0.51	0.73	0.34	0.43	0.19	0.52	0.24
Control Delay	57.4	41.4	17.2	76.6	33.6	32.5	30.2	5.0	30.4	54.7	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	41.4	17.2	76.6	33.6	32.5	30.2	5.0	30.4	54.7	24.8
LOS	E	D	B	E	C	C	C	A	C	D	C
Approach Delay		36.2			44.1		23.1			46.8	
Approach LOS		D			D		C			D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 36.6
Intersection Capacity Utilization 79.6%
Analysis Period (min) 15
Intersection LOS: D
ICU Level of Service D

Splits and Phases: 3: Gun Club Rd & 6th Pkwy

























 <p>Ø1</p>	 <p>Ø2 (R)</p>	 <p>Ø3</p>	 <p>Ø4</p>
25.2 s	34 s	16 s	44.8 s
 <p>Ø5</p>	 <p>Ø6 (R)</p>	 <p>Ø7</p>	 <p>Ø8</p>
24.2 s	35 s	19.8 s	41 s

HCM 6th Signalized Intersection Summary

2045 Total PM.syn

3: Gun Club Rd & 6th Pkwy

03/24/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1285	485	270	810	30	310	410	325	70	465	115
Future Volume (veh/h)	120	1285	485	270	810	30	310	410	325	70	465	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	1325	500	278	835	31	320	423	335	72	479	119
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	1672	519	331	1871	69	421	1260	562	314	891	397
Arrive On Green	0.05	0.33	0.33	0.10	0.37	0.37	0.15	0.35	0.35	0.01	0.08	0.08
Sat Flow, veh/h	3456	5106	1585	3456	5053	187	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	1325	500	278	562	304	320	423	335	72	479	119
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1837	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.2	28.3	37.2	9.5	14.9	15.0	15.4	10.5	20.8	3.6	15.5	8.5
Cycle Q Clear(g_c), s	4.2	28.3	37.2	9.5	14.9	15.0	15.4	10.5	20.8	3.6	15.5	8.5
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	183	1672	519	331	1261	680	421	1260	562	314	891	397
V/C Ratio(X)	0.68	0.79	0.96	0.84	0.45	0.45	0.76	0.34	0.60	0.23	0.54	0.30
Avail Cap(c_a), veh/h	441	1672	519	331	1261	680	452	1260	562	544	891	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	55.8	36.7	39.7	53.3	28.5	28.5	27.2	28.4	31.7	32.1	48.4	45.1
Incr Delay (d2), s/veh	4.4	2.7	30.3	17.2	0.2	0.5	6.9	0.7	4.6	0.4	2.3	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	12.1	18.6	4.9	6.1	6.7	7.3	4.6	8.6	1.6	7.7	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	39.4	70.0	70.6	28.7	29.0	34.1	29.1	36.3	32.5	50.6	47.0
LnGrp LOS	E	D	E	E	C	C	C	C	D	C	D	D
Approach Vol, veh/h	1949			1144			1078			670		
Approach Delay, s/veh	48.5			39.0			32.8			48.0		
Approach LOS	D			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	48.5	16.0	45.8	22.1	36.1	10.8	50.9				
Change Period (Y+Rc), s	4.5	6.0	4.5	* 6.5	4.5	6.0	4.5	6.5				
Max Green Setting (Gmax), s	20.7	28.0	11.5	* 39	19.7	29.0	15.3	34.5				
Max Q Clear Time (g_c+I1), s	5.6	22.8	11.5	39.2	17.4	17.5	6.2	17.0				
Green Ext Time (p_c), s	0.1	1.9	0.0	0.1	0.2	2.8	0.2	5.4				

Intersection Summary

HCM 6th Ctrl Delay 42.7







HCM 6th LOS D

Notes

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

HCM 6th TWSC
4: Gun Club Rd/I-70 Frontage Rd & Colfax Ave

2021 Existing AM.syn
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Intersection						
Int Delay, s/veh	11.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	468	771	5	13	54
Future Vol, veh/h	43	468	771	5	13	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	475	-	-	125
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	538	886	6	15	62
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1793	- 77	0 -	0	-	0
Stage 1	15	- -	- -	-	-	-
Stage 2	1778	- -	- -	-	-	-
Critical Hdwy	6.42	- 4.12	- -	-	-	-
Critical Hdwy Stg 1	5.42	- -	- -	-	-	-
Critical Hdwy Stg 2	5.42	- -	- -	-	-	-
Follow-up Hdwy	3.518	- 2.218	- -	-	-	-
Pot Cap-1 Maneuver	89	0 1522	- -	-	-	-
Stage 1	1008	0 -	- -	-	-	-
Stage 2	148	0 -	- -	-	-	-
Platoon blocked, %			- -	-	-	-
Mov Cap-1 Maneuver	~ 37	- 1522	- -	-	-	-
Mov Cap-2 Maneuver	134	- -	- -	-	-	-
Stage 1	421	- -	- -	-	-	-
Stage 2	148	- -	- -	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	46.8	10.5	0			
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1522	- 134	-	-	-	-
HCM Lane V/C Ratio	0.582	- 0.369	-	-	-	-
HCM Control Delay (s)	10.6	- 46.8	0	-	-	-
HCM Lane LOS	B	- E	A	-	-	-
HCM 95th %tile Q(veh)	4	- 1.5	-	-	-	-
Notes						
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

HCM 6th TWSC
4: Gun Club Road/I-70 Frontage Rd & Colfax Ave

2021 Existing PM.syn
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Intersection

Int Delay, s/veh 7.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	778	326	12	12	50
Future Vol, veh/h	55	778	326	12	12	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	475	-	-	125
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	874	366	13	13	56







Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	758	- 69	0 - 0
Stage 1	13	- -	- - -
Stage 2	745	- -	- - -
Critical Hdwy	6.42	- 4.12	- - -
Critical Hdwy Stg 1	5.42	- -	- - -
Critical Hdwy Stg 2	5.42	- -	- - -
Follow-up Hdwy	3.518	- 2.218	- - -
Pot Cap-1 Maneuver	375	0 1532	- - -
Stage 1	1010	0 -	- - -
Stage 2	469	0 -	- - -
Platoon blocked, %			- - -
Mov Cap-1 Maneuver	285	- 1532	- - -
Mov Cap-2 Maneuver	429	- -	- - -
Stage 1	769	- -	- - -
Stage 2	469	- -	- - -

Approach	EB	NB	SB
HCM Control Delay, s	14.8	7.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1532	- 429	-	-	-	-
HCM Lane V/C Ratio	0.239	- 0.144	-	-	-	-
HCM Control Delay (s)	8.1	- 14.8	0	-	-	-
HCM Lane LOS	A	- B	A	-	-	-
HCM 95th %tile Q(veh)	0.9	- 0.5	-	-	-	-

Intersection

Int Delay, s/veh 12.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	497	818	5	14	57
Future Vol, veh/h	46	497	818	5	14	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	475	-	-	125
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	571	940	6	16	66







Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1902	- 82	0 - 0
Stage 1	16	- -	- - -
Stage 2	1886	- -	- - -
Critical Hdwy	6.42	- 4.12	- - -
Critical Hdwy Stg 1	5.42	- -	- - -
Critical Hdwy Stg 2	5.42	- -	- - -
Follow-up Hdwy	3.518	- 2.218	- - -
Pot Cap-1 Maneuver	76	0 1515	- - -
Stage 1	1007	0 -	- - -
Stage 2	131	0 -	- - -
Platoon blocked, %			- - -
Mov Cap-1 Maneuver	~ 29	- 1515	- - -
Mov Cap-2 Maneuver	118	- -	- - -
Stage 1	383	- -	- - -
Stage 2	131	- -	- - -

Approach	EB	NB	SB
HCM Control Delay, s	58.2	11.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1515	- 118	-	-	-	-
HCM Lane V/C Ratio	0.621	- 0.448	-	-	-	-
HCM Control Delay (s)	11.2	- 58.2	0	-	-	-
HCM Lane LOS	B	- F	A	-	-	-
HCM 95th %tile Q(veh)	4.6	- 2	-	-	-	-







Notes

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

Intersection						
Int Delay, s/veh	10.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	58	950	641	24	15	53
Future Vol, veh/h	58	950	641	24	15	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	475	-	-	125
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	1067	720	27	17	60
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1484	- 77	0	-	-	0
Stage 1	17	- -	-	-	-	-
Stage 2	1467	- -	-	-	-	-
Critical Hdwy	6.42	- 4.12	-	-	-	-
Critical Hdwy Stg 1	5.42	- -	-	-	-	-
Critical Hdwy Stg 2	5.42	- -	-	-	-	-
Follow-up Hdwy	3.518	- 2.218	-	-	-	-
Pot Cap-1 Maneuver	137	0 1522	-	-	-	-
Stage 1	1006	0 -	-	-	-	-
Stage 2	212	0 -	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	72	- 1522	-	-	-	-
Mov Cap-2 Maneuver	192	- -	-	-	-	-
Stage 1	530	- -	-	-	-	-
Stage 2	212	- -	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	33.1	9.1	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1522	- 192	-	-	-	-
HCM Lane V/C Ratio	0.473	- 0.339	-	-	-	-
HCM Control Delay (s)	9.5	- 33.1	0	-	-	-
HCM Lane LOS	A	- D	A	-	-	-
HCM 95th %tile Q(veh)	2.6	- 1.4	-	-	-	-







HCM 6th TWSC
4: Gun Club Rd/I-70 Frontage Rd & Colfax Ave






2024 Total AM.syn
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Intersection						
Int Delay, s/veh	13.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	512	861	9	15	57
Future Vol, veh/h	46	512	861	9	15	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	475	-	-	125
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	589	990	10	17	66
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2007	-	83	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	1990	-	-	-	-	-
Critical Hdwy	6.42	-	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	2.218	-	-	-
Pot Cap-1 Maneuver	65	0	1514	-	-	-
Stage 1	1006	0	-	-	-	-
Stage 2	116	0	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 22	-	1514	-	-	-
Mov Cap-2 Maneuver	105	-	-	-	-	-
Stage 1	348	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	69.9	11.6		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1514	-	105	-	-	-
HCM Lane V/C Ratio	0.654	-	0.504	-	-	-
HCM Control Delay (s)	11.7	-	69.9	0	-	-
HCM Lane LOS	B	-	F	A	-	-
HCM 95th %tile Q(veh)	5.2	-	2.3	-	-	-
Notes						
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

HCM 6th TWSC
4: Gun Club Rd/I-70 Frontage Rd & Colfax Ave






2024 Total PM.syn
12/06/2021

Intersection						
Int Delay, s/veh	10.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	58	995	670	27	19	53
Future Vol, veh/h	58	995	670	27	19	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	0	475	-	-	125
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	1118	753	30	21	60
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1557	-	81	0	-	0
Stage 1	21	-	-	-	-	-
Stage 2	1536	-	-	-	-	-
Critical Hdwy	6.42	-	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	-	2.218	-	-	-
Pot Cap-1 Maneuver	124	0	1517	-	-	-
Stage 1	1002	0	-	-	-	-
Stage 2	196	0	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 62	-	1517	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	196	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	36.5	9.3		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1517	-	178	-	-	-
HCM Lane V/C Ratio	0.496	-	0.366	-	-	-
HCM Control Delay (s)	9.7	-	36.5	0	-	-
HCM Lane LOS	A	-	E	A	-	-
HCM 95th %tile Q(veh)	2.9	-	1.6	-	-	-
Notes						
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	485	590	15	20	10
Future Vol, veh/h	10	485	590	15	20	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	150
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	527	641	16	22	11
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	657	0	-	0	935	329
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	286	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	926	-	-	-	264	667
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	737	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	926	-	-	-	261	667
Mov Cap-2 Maneuver	-	-	-	-	427	-
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	737	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		12.8		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	926	-	-	-	427	667
HCM Lane V/C Ratio	0.012	-	-	-	0.051	0.016
HCM Control Delay (s)	8.9	-	-	-	13.9	10.5
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1

Intersection






Int Delay, s/veh 0.4






Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	590	615	25	20	10
Future Vol, veh/h	10	590	615	25	20	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	150
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	641	668	27	22	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	695	0	0 1025 348
Stage 1	-	-	- 682 -
Stage 2	-	-	- 343 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	897	-	- 231 648
Stage 1	-	-	- 464 -
Stage 2	-	-	- 690 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	897	-	- 228 648
Mov Cap-2 Maneuver	-	-	- 404 -
Stage 1	-	-	- 458 -
Stage 2	-	-	- 690 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	897	-	-	-	404	648
HCM Lane V/C Ratio	0.012	-	-	-	0.054	0.017
HCM Control Delay (s)	9.1	-	-	-	14.4	10.7
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	495	615	20	25	10
Future Vol, veh/h	10	495	615	20	25	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	150
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	538	668	22	27	11
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	690	0	-	0	970	345
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	900	-	-	-	251	651
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	733	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	900	-	-	-	248	651
Mov Cap-2 Maneuver	-	-	-	-	412	-
Stage 1	-	-	-	-	459	-
Stage 2	-	-	-	-	733	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		13.3		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	900	-	-	-	412	651
HCM Lane V/C Ratio	0.012	-	-	-	0.066	0.017
HCM Control Delay (s)	9	-	-	-	14.4	10.6
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	615	635	30	25	10
Future Vol, veh/h	10	615	635	30	25	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	150
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	668	690	33	27	11
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	723	0	-	0	1063	362
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	875	-	-	-	218	635
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	680	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	875	-	-	-	215	635
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	444	-
Stage 2	-	-	-	-	680	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		13.7		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	875	-	-	-	391	635
HCM Lane V/C Ratio	0.012	-	-	-	0.069	0.017
HCM Control Delay (s)	9.2	-	-	-	14.9	10.8
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1

APPENDIX E

Queues Analysis Worksheets

Queues

2045 Total AM.syn

03/24/2022

1: Gun Club Rd & 6th Ave



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	16	174	116	5	568	142	105	347	16
v/c Ratio	0.32	0.16	0.64	0.40	0.01	0.25	0.13	0.17	0.13	0.01
Control Delay	49.3	35.7	55.1	13.1	5.0	7.4	0.8	5.8	6.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	35.7	55.1	13.1	5.0	7.4	0.8	5.8	6.3	0.0
Queue Length 50th (ft)	29	4	130	4	0	53	1	15	27	0
Queue Length 95th (ft)	51	27	179	55	m0	82	0	46	86	0
Internal Link Dist (ft)		134		327		630			4198	
Turn Bay Length (ft)	150		150		150		150	150		150
Base Capacity (vph)	118	260	311	500	745	2314	1096	634	2609	1202
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.06	0.56	0.23	0.01	0.25	0.13	0.17	0.13	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2045 Total PM.syn

1: Gun Club Rd & 6th Ave

03/24/2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	16	114	81	11	364	179	163	625	43
v/c Ratio	0.23	0.16	0.49	0.36	0.02	0.15	0.16	0.21	0.23	0.03
Control Delay	47.1	35.7	51.6	15.9	6.2	9.2	3.2	5.0	6.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	35.7	51.6	15.9	6.2	9.2	3.2	5.0	6.0	0.1
Queue Length 50th (ft)	21	4	84	4	2	45	0	23	51	0
Queue Length 95th (ft)	41	27	125	48	8	71	5	65	152	0
Internal Link Dist (ft)		134		327		630			4198	
Turn Bay Length (ft)	150		150		150		150	150		150
Base Capacity (vph)	118	260	296	469	601	2367	1118	818	2689	1235
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.06	0.39	0.17	0.02	0.15	0.16	0.20	0.23	0.03
Intersection Summary										

Queues

2045 Total AM - NBTR.syn

1: Gun Club Rd & 6th Ave

11/21/2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	38	16	174	116	5	710	105	347	16
v/c Ratio	0.32	0.16	0.64	0.40	0.01	0.31	0.20	0.13	0.01
Control Delay	49.3	35.7	55.1	13.1	5.6	7.9	6.0	6.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	35.7	55.1	13.1	5.6	7.9	6.0	6.3	0.0
Queue Length 50th (ft)	29	4	130	4	1	72	15	27	0
Queue Length 95th (ft)	51	27	179	55	m0	95	46	86	0
Internal Link Dist (ft)		134		327		630		4198	
Turn Bay Length (ft)	150		150		150		150		150
Base Capacity (vph)	118	260	311	500	745	2256	555	2609	1202
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	0.32	0.06	0.56	0.23	0.01	0.31	0.19	0.13	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2045 Total PM - NBTR.syn

1: Gun Club Rd & 6th Ave

11/21/2022



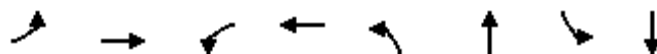
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	27	16	114	81	11	543	163	625	43
v/c Ratio	0.23	0.16	0.49	0.36	0.02	0.24	0.25	0.23	0.03
Control Delay	47.1	35.7	51.6	15.9	6.4	8.0	5.3	6.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	35.7	51.6	15.9	6.4	8.0	5.3	6.0	0.1
Queue Length 50th (ft)	21	4	84	4	2	53	23	51	0
Queue Length 95th (ft)	41	27	125	48	8	95	65	152	0
Internal Link Dist (ft)		134		327		630		4198	
Turn Bay Length (ft)	150		150		150		150		150
Base Capacity (vph)	118	260	296	469	601	2281	699	2689	1235
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	0.23	0.06	0.39	0.17	0.02	0.24	0.23	0.23	0.03
Intersection Summary									

Queues

2024 Total AM_Modified.syn

2: Gun Club Rd & 5th Ave

12/07/2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	46	41	79	46	756	41	499
v/c Ratio	0.21	0.29	0.24	0.42	0.07	0.57	0.09	0.38
Control Delay	33.5	20.5	34.3	18.5	2.8	6.0	4.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	20.5	34.3	18.5	2.8	6.0	4.5	9.3
Queue Length 50th (ft)	17	4	20	4	3	74	5	137
Queue Length 95th (ft)	41	36	46	44	m8	132	16	242
Internal Link Dist (ft)		163		412		1423		630
Turn Bay Length (ft)					150		100	
Base Capacity (vph)	170	358	172	380	656	1331	457	1330
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.13	0.24	0.21	0.07	0.57	0.09	0.38

Intersection Summary

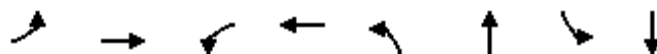
m Volume for 95th percentile queue is metered by upstream signal.

Queues

2024 Total PM_Modified.syn

2: Gun Club Rd & 5th Ave

12/07/2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	43	43	61	83	648	80	897
v/c Ratio	0.21	0.28	0.25	0.36	0.24	0.51	0.15	0.70
Control Delay	34.0	20.6	35.0	19.9	5.5	11.8	4.5	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	20.6	35.0	19.9	5.5	11.8	4.5	17.0
Queue Length 50th (ft)	18	4	21	4	11	204	11	358
Queue Length 95th (ft)	42	35	48	41	27	354	26	#695
Internal Link Dist (ft)		163		412		1423		630
Turn Bay Length (ft)					150		100	
Base Capacity (vph)	168	356	169	368	347	1276	529	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.12	0.25	0.17	0.24	0.51	0.15	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

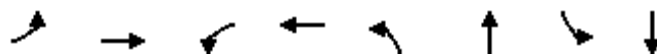
Queue shown is maximum after two cycles.

Queues

2045 Total AM.syn

2: Gun Club Rd & 5th Ave

03/24/2022



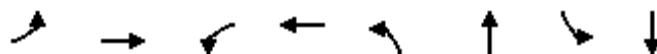
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	49	52	109	49	603	52	470
v/c Ratio	0.28	0.37	0.27	0.43	0.07	0.25	0.08	0.19
Control Delay	46.3	30.1	45.0	17.5	1.0	1.4	4.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	30.1	45.0	17.5	1.0	1.4	4.7	9.0
Queue Length 50th (ft)	26	8	35	8	2	11	11	116
Queue Length 95th (ft)	55	47	68	61	m4	16	m27	107
Internal Link Dist (ft)		163		412		1423		630
Turn Bay Length (ft)	150		150		150		100	
Base Capacity (vph)	138	280	285	490	703	2461	620	2471
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.17	0.18	0.22	0.07	0.25	0.08	0.19

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: Gun Club Rd & 5th Ave

2045 Total PM.syn
03/24/2022














Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	49	48	70	87	511	101	633
v/c Ratio	0.27	0.37	0.26	0.33	0.14	0.21	0.15	0.26
Control Delay	46.4	30.1	45.0	20.1	1.5	1.5	4.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	30.1	45.0	20.1	1.5	1.5	4.1	7.0
Queue Length 50th (ft)	26	8	33	8	3	10	18	127
Queue Length 95th (ft)	55	47	65	51	7	15	32	85
Internal Link Dist (ft)		163		412		1423		630
Turn Bay Length (ft)	150		150		150		100	
Base Capacity (vph)	139	279	282	463	612	2422	727	2456
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.18	0.17	0.15	0.14	0.21	0.14	0.26
Intersection Summary								

Queues

2024 Total AM.syn

3: Gun Club Rd & 6th Pkwy

12/06/2021

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	157	172	104	380	117	141	566	47	78	446	84
v/c Ratio	0.54	0.33	0.23	0.86	0.24	0.43	0.78	0.07	0.32	0.68	0.13
Control Delay	24.4	24.3	17.9	53.2	4.2	17.4	34.5	0.2	16.6	31.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	24.3	17.9	53.2	4.2	17.4	34.5	0.2	16.6	31.9	0.7
Queue Length 50th (ft)	55	66	35	203	0	44	294	0	23	219	0
Queue Length 95th (ft)	97	122	68	#344	27	79	#480	0	48	330	3
Internal Link Dist (ft)		218		656			632			1423	
Turn Bay Length (ft)	125		200			150		250	150		
Base Capacity (vph)	293	530	461	474	510	330	730	712	244	655	655
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.32	0.23	0.80	0.23	0.43	0.78	0.07	0.32	0.68	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.












Queue shown is maximum after two cycles.

Queues

2024 Total PM.syn

3: Gun Club Rd & 6th Pkwy

12/06/2021

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	274	454	88	155	88	139	400	82	178	639	99
v/c Ratio	0.58	0.86	0.52	0.50	0.23	0.54	0.52	0.11	0.40	0.82	0.13
Control Delay	31.6	55.0	36.9	50.7	1.7	25.5	31.6	0.3	18.2	42.7	1.0
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	31.6	55.0	36.9	50.7	1.7	25.5	31.6	0.3	18.2	42.7	1.0
Queue Length 50th (ft)	153	322	44	110	0	51	236	0	67	451	0
Queue Length 95th (ft)	205	418	72	176	4	#113	363	0	123	#694	7
Internal Link Dist (ft)		218		656			632			1423	
Turn Bay Length (ft)	125		200			150		250	150		
Base Capacity (vph)	534	640	169	325	399	256	762	739	452	778	751
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.71	0.52	0.48	0.22	0.54	0.52	0.11	0.39	0.82	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.












Queue shown is maximum after two cycles.

Queues

2045 Total AM.syn

3: Gun Club Rd & 6th Pkwy

03/24/2022

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	83	958	328	240	1480	240	536	292	63	401	89
v/c Ratio	0.35	0.58	0.45	0.65	0.78	0.56	0.44	0.40	0.18	0.40	0.17
Control Delay	56.9	34.7	6.2	60.1	36.5	28.7	34.5	5.6	34.2	49.5	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	34.7	6.2	60.1	36.5	28.7	34.5	5.6	34.2	49.5	20.7
Queue Length 50th (ft)	31	211	11	92	352	126	183	0	40	154	15
Queue Length 95th (ft)	57	258	76	135	423	193	248	67	77	210	48
Internal Link Dist (ft)		218			656		632			1423	
Turn Bay Length (ft)	125		150	200		150		250	150		150
Base Capacity (vph)	357	1815	761	409	1924	439	1223	738	415	1015	535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.53	0.43	0.59	0.77	0.55	0.44	0.40	0.15	0.40	0.17
Intersection Summary											

Queues

2045 Total PM.syn

3: Gun Club Rd & 6th Pkwy

03/24/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	1325	500	278	866	320	423	335	72	479	119
v/c Ratio	0.45	0.80	0.68	0.85	0.51	0.73	0.34	0.43	0.19	0.52	0.24
Control Delay	57.4	41.4	17.2	76.6	33.6	32.5	30.2	5.0	30.4	54.7	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	41.4	17.2	76.6	33.6	32.5	30.2	5.0	30.4	54.7	24.8
Queue Length 50th (ft)	47	340	116	110	195	161	128	0	44	205	23
Queue Length 95th (ft)	78	400	244	#182	246	236	179	66	82	254	85
Internal Link Dist (ft)		218			656		632			1423	
Turn Bay Length (ft)	125		150	200		150		250	150		150
Base Capacity (vph)	437	1665	734	328	1684	456	1261	779	556	915	497
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.80	0.68	0.85	0.51	0.70	0.34	0.43	0.13	0.52	0.24

Intersection Summary

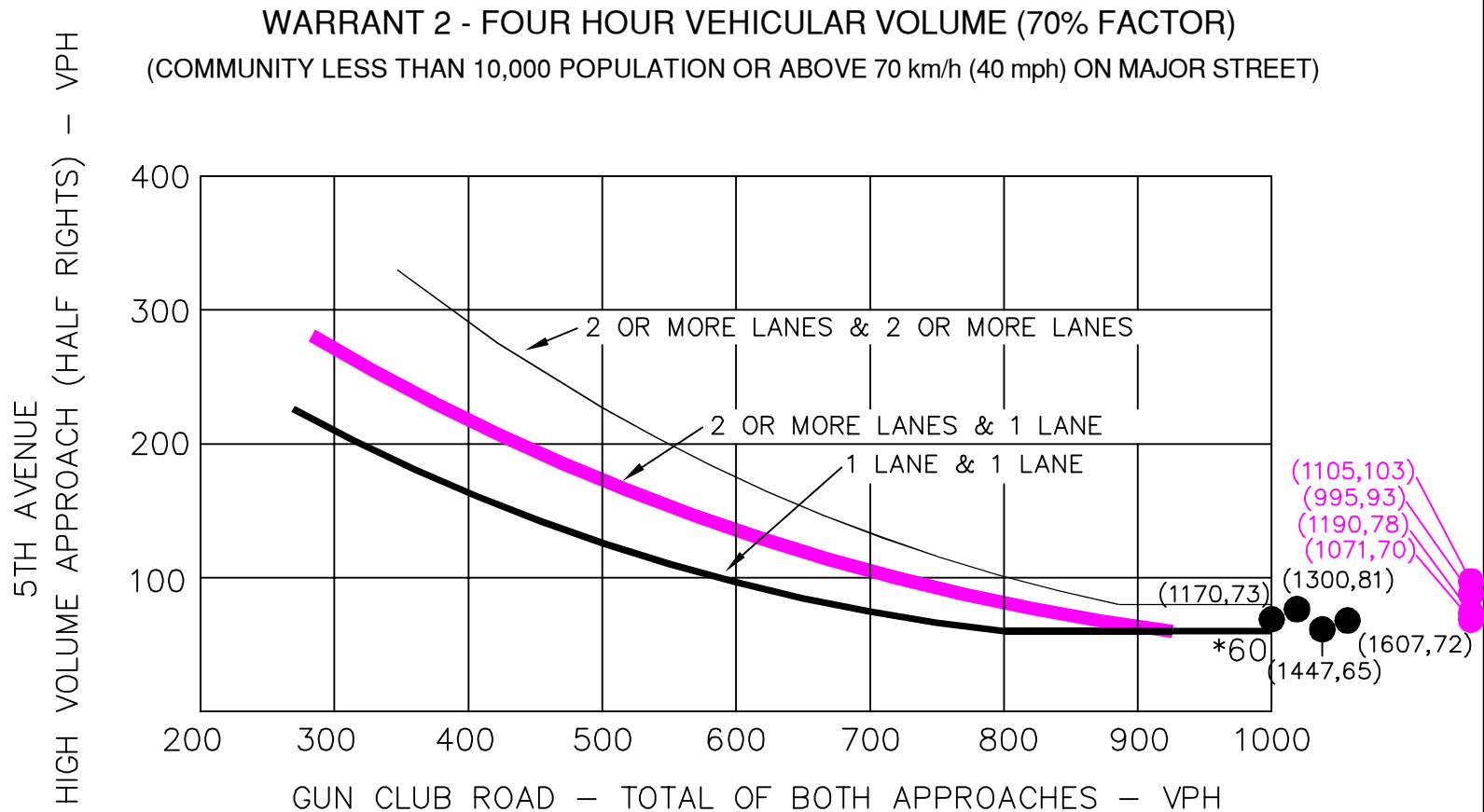
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

APPENDIX F

Signal Warrant Worksheets

Scale: 1=100



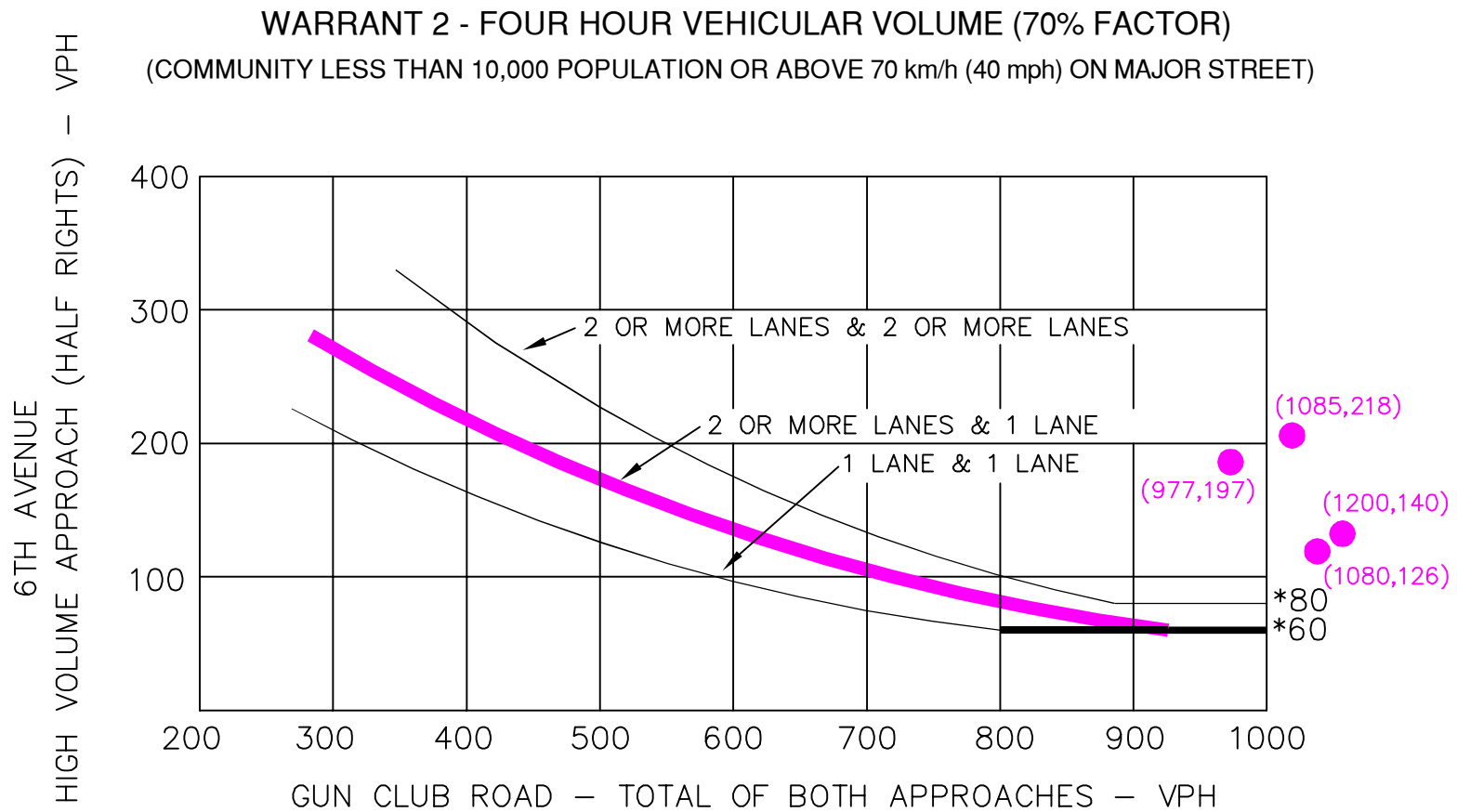
* NOTE: 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 60 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

GUN CLUB ROAD & 5TH AVENUE
SIGNAL WARRANT ANALYSIS
FOUR HOUR VOLUME WARRANT

● 2024 TOTAL TRAFFIC DATA POINT
● 2045 BACKGROUND TRAFFIC DATA POINT

FIGURE 1

Source: Manual of Uniform Traffic Control Devices 2009



* NOTE: 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 60 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

GUN CLUB ROAD & 6TH AVENUE
SIGNAL WARRANT ANALYSIS
FOUR HOUR VOLUME WARRANT

● 2045 BACKGROUND TRAFFIC DATA POINT

Source: Manual of Uniform Traffic Control Devices 2009

FIGURE 2