

TRANSPORTATION IMPACT STUDY

High Point – Dollar General Distribution Center

Prepared for:

M.A. Mortenson Company
1621 18th Street, Suite 400
Denver, CO 80202

Prepared by:

Felsburg Holt & Ullevig
6400 S Fiddlers Green Circle, Suite 1500
Greenwood Village, CO 80111
303.721.1440

Project Manager: Philip Dunham, PE, PTOE
Project Engineer: Faith Kelley, EIT



FHU Reference No. 121386-01

March 2022

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION.....	1
II. EXISTING CONDITIONS.....	4
II.A. Surrounding Land Use.....	4
II.B. Roadway System.....	4
II.C. Existing Traffic Volumes and Operations	4
III. PROPOSED CONDITIONS	5
III.A. Future Road Network	5
III.B. Site Trip Generation.....	5
III.C. Trip Distribution and Traffic Assignment.....	6
IV. FUTURE BACKGROUND CONDITIONS	9
IV.A. Short-Term Future Background	9
IV.B. Long-Term Future Background	11
V. TOTAL TRAFFIC CONDITIONS	13
V.A. Short-Term Future	13
V.B. Long-Term Future.....	13
VI. SUMMARY AND RECOMMENDATIONS.....	19

Appendices

- Appendix A. Signal Warrants
- Appendix B. Background LOS
- Appendix C. Relevant Previous Studies
- Appendix D. Total Traffic LOS

List of Figures

	<u>Page</u>
Figure 1. Vicinity Map.....	2
Figure 2. Site Plan.....	3
Figure 3. Short-Term Site Generated Traffic and Distribution	7
Figure 4. Long-Term Site Generated Traffic and Distribution.....	8
Figure 5. Short-Term Future (2023) Background Traffic Conditions	10
Figure 6. Long-Term Future (2040) Background Traffic Conditions.....	12
Figure 7. Short-Term Future (2023) Total Traffic Conditions.....	14
Figure 8. Long-Term Future (2040) Total Traffic Conditions.....	15

List of Tables

	<u>Page</u>
Table 1. Trip Generation Summary.....	5
Table 2. Long-Term Future Dollar General Distribution Center Queueing	17

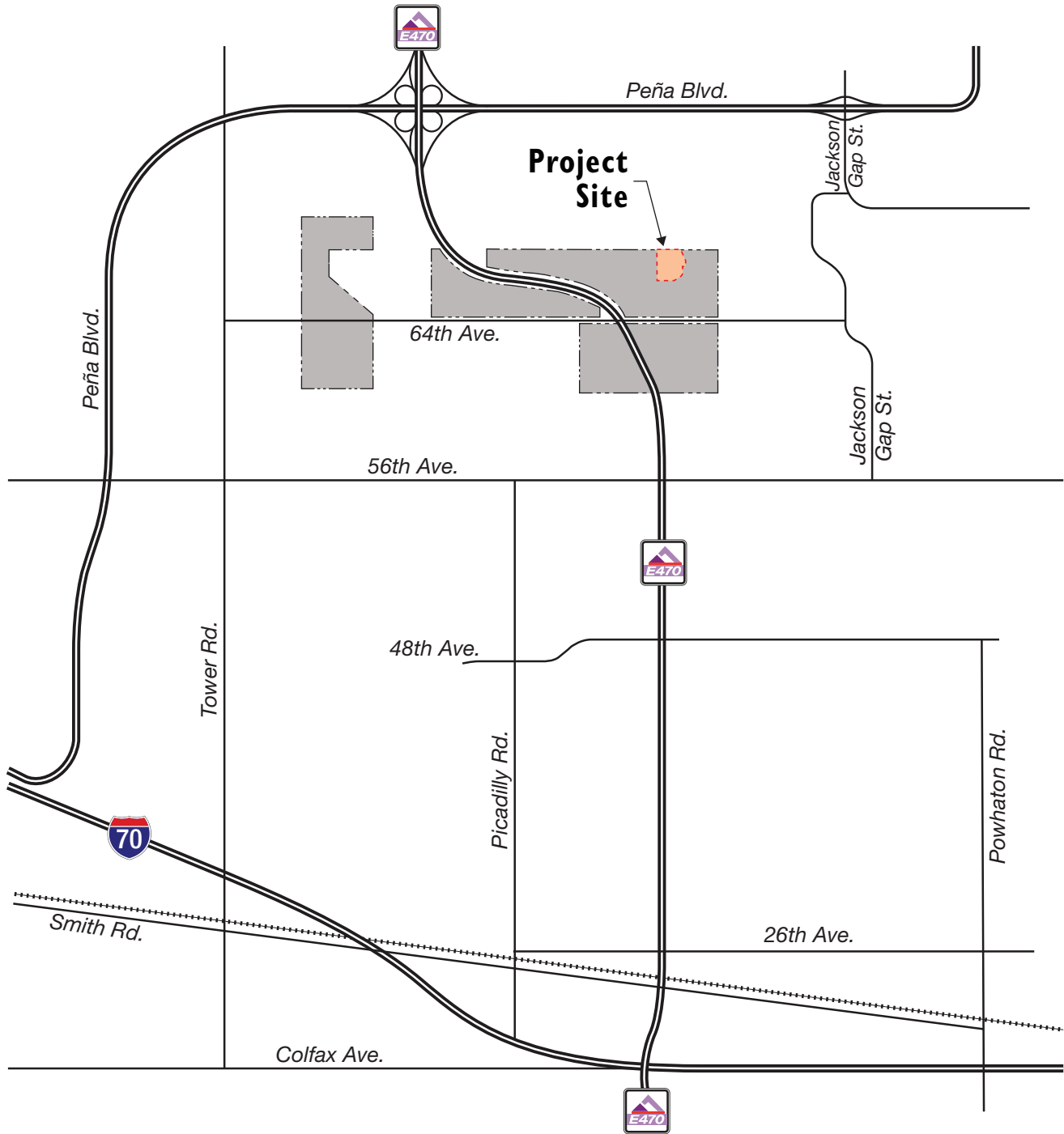
I. INTRODUCTION

M.A. Mortenson Company is proposing to develop an approximately 74-acre site within the High Point development in Aurora, Colorado, encompassing Planning Area (PA) 80 of the master development plan. The site is located along the east side of future Gun Club Road, bounded to the south by the future 65th Avenue and to the north by the future 68th Avenue. **Figure 1** illustrates the location of the site and the adjacent primary roadway network (existing and future planned roadways).

The proposed site would be developed as a 920 thousand square foot (KSF) distribution center. Primary access to the site will be provided onto 65th Avenue via one full movement site driveway, and onto Gun Club Road via one two full movement site driveways. **Figure 2** depicts the current site plan concept.

The purpose of this Transportation Impact Study (TIS) is to estimate the potential traffic impacts specific to the proposed development and to identify potential roadway and/or intersection improvements and traffic control needs. Short- and long-term future scenarios were explored for this site. These scenarios examine the traffic impacts within the context of the year 2023 and 2040 horizon. An existing scenario has been omitted as all roadways within the study area are either under construction at the time of project initiation, November 2021, or are not planned to be constructed until 2022.

This study builds from the *High Point Master Plan Traffic Impact Study Analysis*, January 2020, prepared by Felsburg Holt & Ullevig (FHU), that addressed transportation needs of the 1,180-acre High Point Framework Development Plan (FDP).



LEGEND

 = Aurora Highlands

II. EXISTING CONDITIONS

Existing conditions surrounding the proposed Dollar General Distribution Center site have not changed significantly since the *High Point Master Plan Traffic Impact Study Analysis* was completed.

II.A. Surrounding Land Use

The area around the Dollar General Distribution Center site is mostly vacant. The Gaylord Rockies Resort is located approximately 2 miles to the west of the site. The Green Valley Ranch residential development also exists about 1 mile to the southwest in Denver. Denver International Airport (DEN) is located to the north, and early construction of the first phases of the Hyde development are beginning within High Point to the south.

II.B. Roadway System

Very few roadways exist near the site. 64th Avenue is the one notable roadway that will run east-west to the south of the site. It was under construction between E-470 and Jackson Gap Street as of fall 2021 as a four-lane arterial. West of the E-470 Interchange, 64th Avenue was recently improved in association with the Gaylord Rockies Resort. It extends further west to Tower Road but provides only two lanes for much of this length. Gun Club Road is currently under design and is anticipated to begin construction in spring 2022. E-470 exists west of the site, but site access to the E-470/64th Avenue Interchange does not yet exist to the east.

II.C. Existing Traffic Volumes and Operations

No existing traffic data are available as none of the roadway network in the immediate vicinity of the site exists under current conditions. Hence, no existing conditions operational analyses were completed.

III. PROPOSED CONDITIONS

The area surrounding the Dollar General Distribution Center site is expected to develop over the next 20 to 30 years based on market conditions and regional planning completed by the City of Aurora.

III.A. Future Road Network

In 2018, the City of Aurora completed the NEATS Refresh study, which provides Year 2040 and regional buildout transportation recommendations for the roadways and the multimodal transportation system. The NEATS Refresh study area encompassed a regional area extending from approximately Tower Road east to Schumaker Road, and from Jewell Avenue on the south to 72nd Avenue on the north. Recommendations in the area of the Dollar General Distribution Center site include constructing 64th Avenue to meet major arterial standards, including four through lanes (two per direction), plus turn lanes.

Gun Club Road and 68th Avenue will provide additional access to the site and will ultimately be constructed as three-lane collectors within the High Point development. Construction of both Gun Club Road between 64th Avenue and 68th Avenue and 68th Avenue between Gun Club Road and Denali Street is anticipated in 2022. Construction of 68th Avenue east of Denali Street will likely lag several years due to the need to move a lift station that is located immediately east of Denali Street.

III.B. Site Trip Generation

The current proposed distribution center will consist of 920 KSF of industrial space. The *High Point FDP Master Plan Traffic Study* prepared by FHU and approved in January 2020 had assumed 1,500 KSF of industrial space in PA-80. Trip generation estimates were developed using data provided by Dollar General about employment and operations estimates for the proposed distribution center. Operations of the site plan included two shifts of approximately 300 employees per shift and the loading/unloading of 150 semi-trailers per day. Based on this information, it is assumed that trucks represent approximately 20 percent of the site traffic. **Table I** shows the trip generation for the proposed development, which is estimated to generate 3,000 trips per day when built out.

Table I. Trip Generation Summary

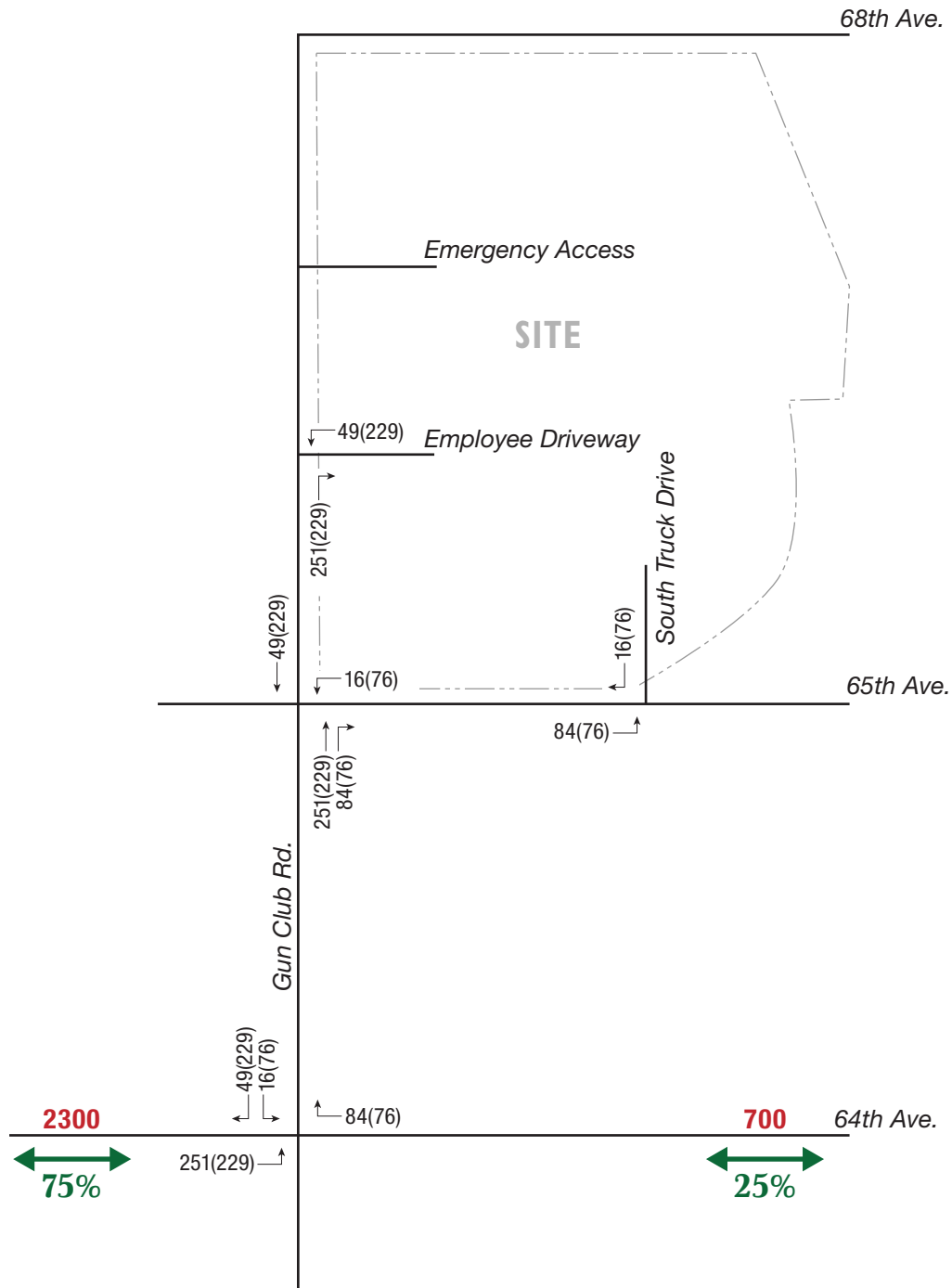
Land Use	Intensity	ITE Code	Daily Trips	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Distribution Center	920 KSF	Custom	3,000	335	65	400	305	305	610
TOTAL			3,000	335	65	400	305	305	610

The *High Point FDP Master Plan Traffic Study* had estimated trip generation as approximately 5,000 daily trips and 600 AM and PM peak hour trips for PA-80. The proposed Dollar General is 920 KSF as compared to the previously estimated 1,500 KSF of industrial space in the FPD. This reduction in size is estimated to reduce daily and AM peak hour volumes by approximately 60 percent. However, due to the shift change between first and second shift, the PM peak hour trip generation total values are similar to those of the FDP study but with a balanced inbound and outbound flow as compared to predominantly outbound in the FDP study.

III.C. Trip Distribution and Traffic Assignment

Trip distribution estimates for this site were based on those used in the High Point FDP Master Plan. Independent distributions were created for each Traffic Analysis Zone (TAZ) within the master study. The Dollar General Distribution Center lies in TAZ 10 from the master study, and those corresponding distributions were used for this study. The greatest component of site traffic will be toward the west via 64th Avenue to access E-470 and other arterials such as Tibet Street and Picadilly Road for more regional connectivity as the roadway network in the area is built out. Gun Club Road is estimated to serve the greatest amount of site traffic reaching the entire site generated traffic of 3,000 vehicles per day (VPD) south of the site in the short term and 2,700 VPD in the long term. Gun Club Road south of the site is projected to serve less traffic in the long term as 68th Avenue is anticipated to be built out providing additional connectivity east and west of the site.

Figure 3 and **Figure 4** show the site-trip distribution percentages and the trip assignment resulting from applying the percentages for site traffic for short- and long-term scenarios. These vary between the two scenarios due to a more limited roadway network in the short term. As indicated, Gun Club Road will see the largest percentage of site traffic.

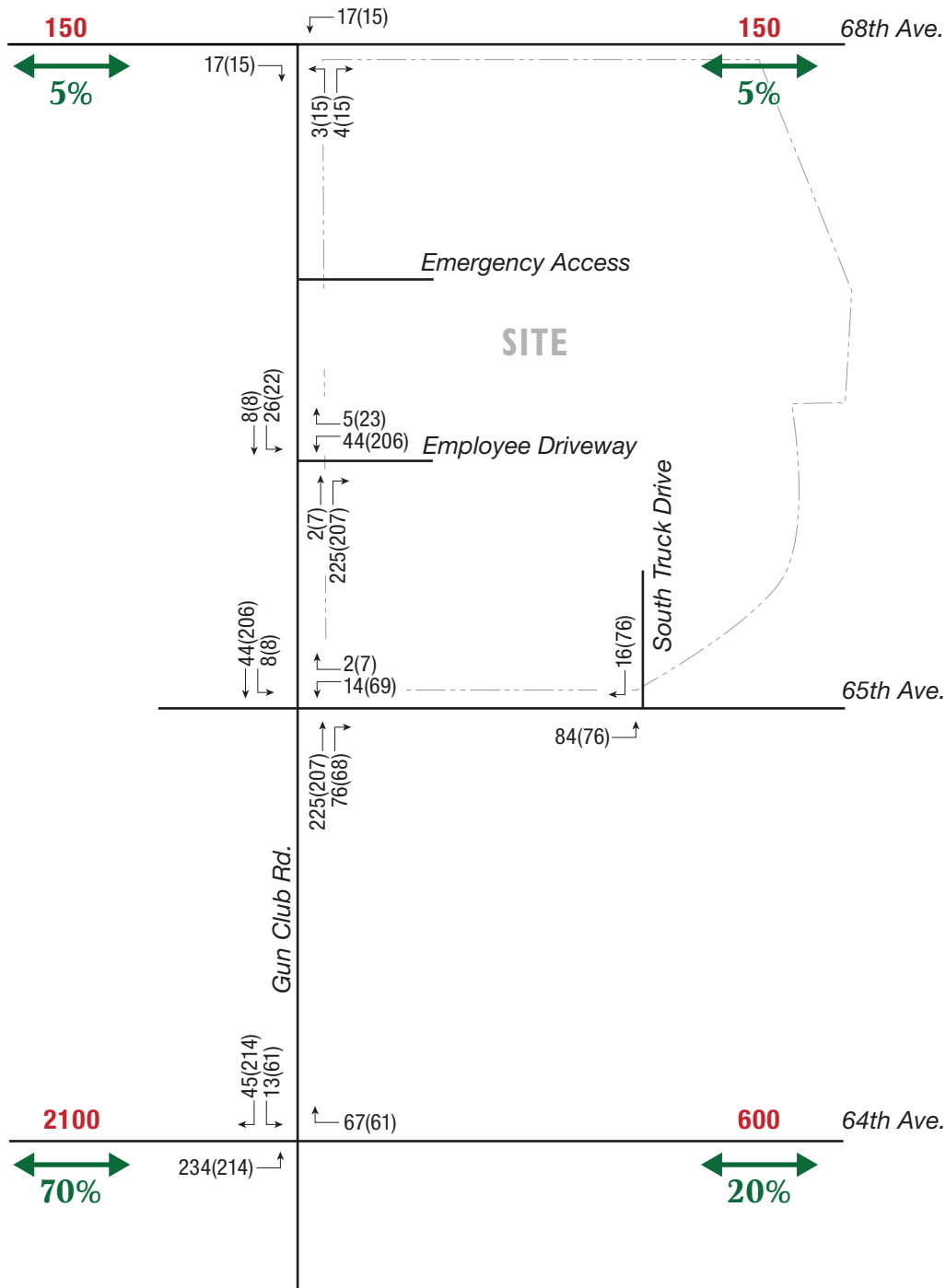


LEGEND

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

XXXX = Daily Traffic Volumes

XX% = Site Trip Distribution



LEGEND

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

XXXX = Daily Traffic Volumes

XX% = Site Trip Distribution

IV. FUTURE BACKGROUND CONDITIONS

Background traffic conditions have been developed to serve as a basis for determining the potential impacts from the Dollar General Distribution Center on the study area roadway network.

IV.A. Short-Term Future Background

The short-term scenario reflects forecasted traffic conditions for opening day of the Dollar General Distribution Center. This is assumed to occur in 2023.

Roadway System

Very few roadways exist within High Point at this time, and few additional roadways are planned in the short term. 64th Avenue between E-470 and Jackson Gap Street, which is related to development within High Point, Fulenwider, and Porteos, is currently under construction and is anticipated to be completed in late 2021 or early 2022. Gun Club Road between 64th and 68th Avenues, as well as 68th Avenue between Gun Club Road and Denali Street, are anticipated to be constructed beginning in mid-2022 and to be completed prior to construction of the Dollar General Distribution Center in 2023.

Traffic Volumes

Background traffic is the component of roadway volumes that would use the adjacent roadway system regardless of site development. Along the roadways adjacent to the site, little to no background traffic is expected beyond through traffic along 64th Avenue and traffic south of 64th on Gun Club Road associated with the Hyde development in the short term.

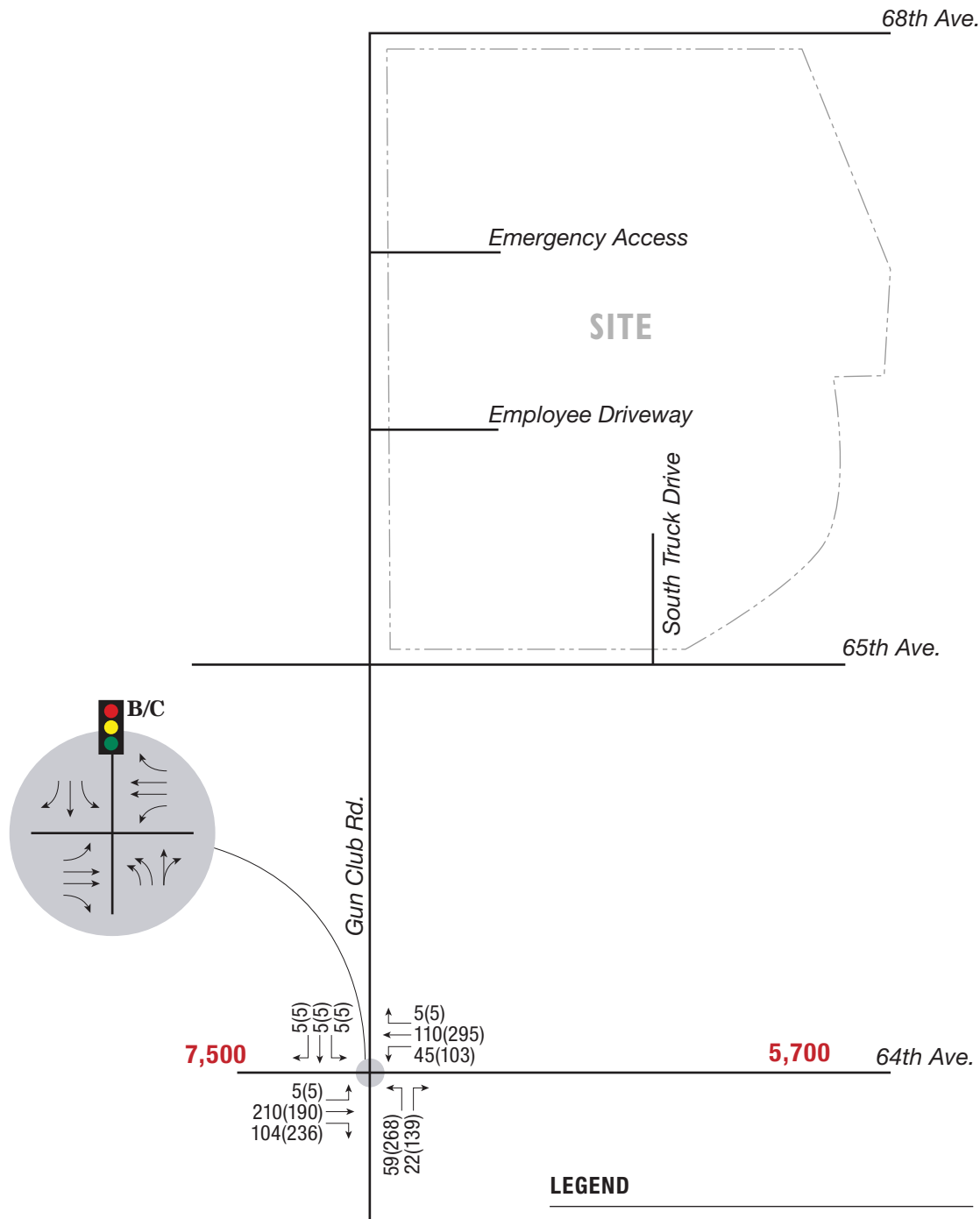
City of Aurora staff have requested opening day analysis. For these purposes, one-fifth of 2040 volumes presented in the 64th Avenue ISP, which built on analysis from the *High Point Master Plan TIS* and other area traffic studies, have been assumed for 64th Avenue through traffic in 2023, under the assumption that uniform growth will occur in the area over the next 20 years. This is likely a conservative estimate of traffic volumes for the short-term scenario.

Calculations were carried out to assess traffic operations given short-term background traffic demands. These analyses were conducted using techniques documented in the *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016) using the forecasted traffic volumes and intersection geometry. Level of Service (LOS) is a qualitative measure of traffic operational conditions based on roadway capacity and vehicle delay. Levels of service are described by a letter designation ranging from A to F, with LOS A representing almost free-flow travel, while LOS F represents congested conditions. For signalized intersections, LOS is calculated for the entire intersection, while LOS for unsignalized intersections is calculated for movements that must yield right-of-way to other traffic movements.

Figure 5 shows the operational results based on the projected short-term background traffic demands along the study area roadways and intersections. 64th Avenue is estimated to serve the greatest amount of background traffic reaching up to 7,500 VPD west of the site. These volume projections are likely extremely conservative as they are nearly 41 percent higher than the projections provided in the 2030 NEATS modeling.

Traffic Control and Operations

Due to the low expected volumes, all intersections are anticipated to operate acceptably as side-street stop-controlled intersections in the short-term scenario, with the exception of Gun Club Road/64th Avenue, which is anticipated to meet signal warrants. As illustrated on **Figure 5**, all intersections are projected to operate within acceptable parameters, at LOS C or better, during peak times given the forecasted short-term background traffic. **Appendix A** includes signal warrants and **Appendix B** includes LOS worksheets.




LEGEND

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

XXXX = Daily Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

 = Traffic Signal

IV.B. Long-Term Future Background

The long-term scenario reflects forecasted traffic conditions in 2040, which was the long-term forecast year for the High Point FDP and the NEATS Study mentioned previously.

Roadway System

By year 2040, High Point is assumed to be built out for the purposes of this analysis. This includes the full roadway network surrounding the site assuming full construction of 64th Avenue, Gun Club Road, and 68th Avenue.

Traffic Volumes

The long-term background traffic has been estimated using traffic volume projections from the *High Point FDP Master Plan Traffic Study*. Trips are based on a variety of studies, including the *High Point FDP Master Plan Traffic Study*, the *68th Avenue ISP* prepared by FHU and approved in April 2021, and the *Hyde Industrial TIS* prepared by FHU and approved in August 2021, which further refined analysis from the original study based on more developed site plans than what was available at the time the FDP was prepared. Known development replaced previous assumptions from the *High Point FDP Master Plan Traffic Study* and background traffic for this study are those refinements less the assumptions for the Dollar General Distribution Center parcel. Relevant studies used to develop background traffic volumes are located in **Appendix C**.

Figure 6 shows the projected long-term background traffic demands along the study area roadways and intersections. 64th Avenue is estimated to serve the greatest amount of background traffic reaching up to 27,700 VPD west of the site.

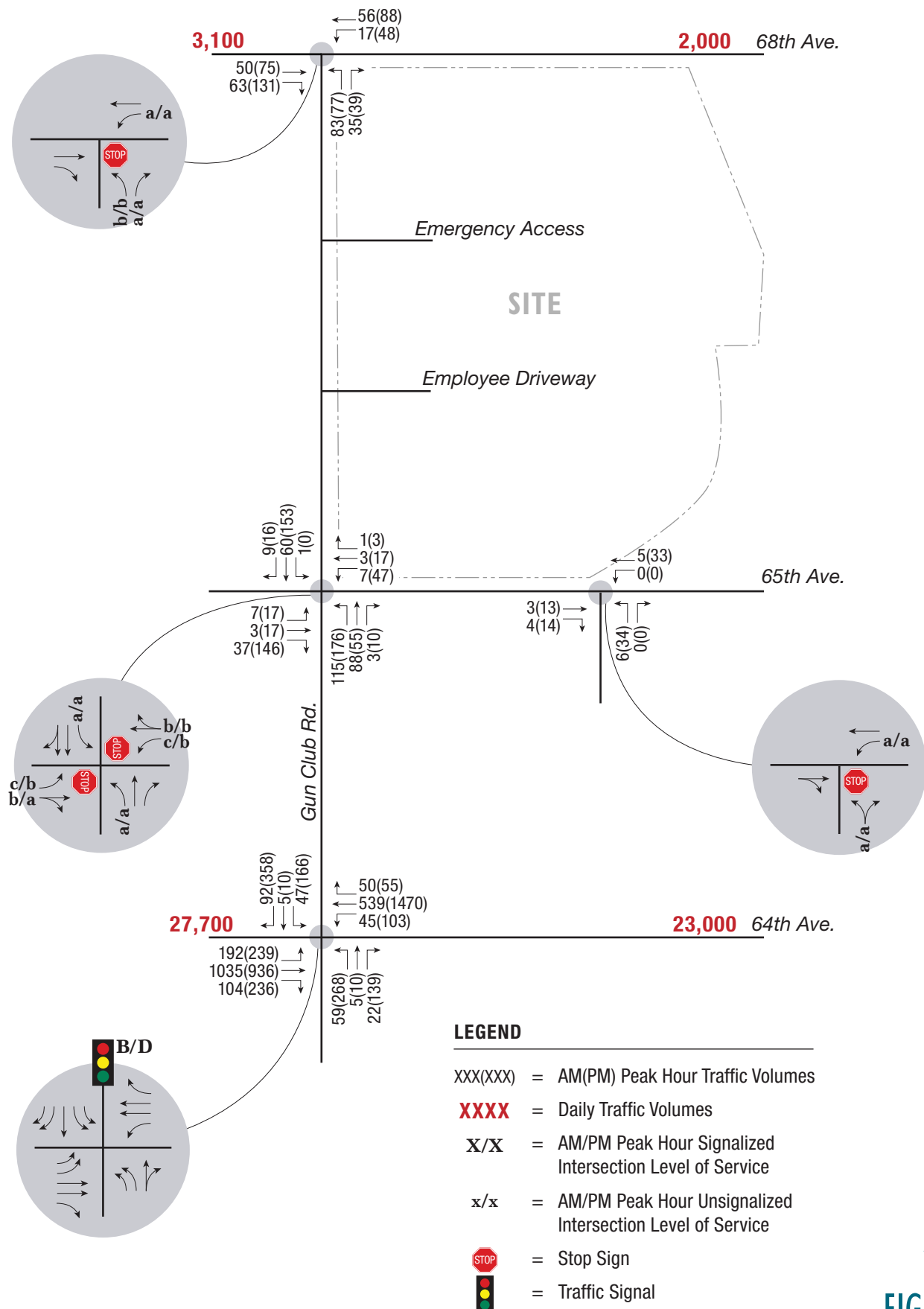
Traffic Control

All study area intersections have been assumed to be under side-street stop-control, with the exception of the 64th Avenue/Gun Club Road. 64th Avenue/Gun Club Road was identified for signalization in the *High Point FDP Master Plan Traffic Study* and further confirmed in the *Hyde Industrial TIS*.

Traffic Operations

The long-term future background traffic volumes were used as the basis for intersection capacity analyses, the results of which are also shown on **Figure 6** (**Appendix B** includes LOS worksheets).

As indicated, all intersections and movements are projected to operate within acceptable parameters, at LOS D or better, during peak times given the long-term background traffic.



V. TOTAL TRAFFIC CONDITIONS

The background volumes and site traffic presented previously were combined to reflect total traffic conditions surrounding the site, and total traffic operations were evaluated.

V.A. Short-Term Future

The Dollar General Distribution Center and Hyde Industrial would be the first sites to be developed within High Point east of E-470.

The short-term site generated traffic volumes illustrated on **Figure 3** were added to the short-term future background traffic volumes found on **Figure 5** to produce the year 2023 total traffic volumes shown on **Figure 7**. 64th Avenue is estimated to serve the greatest amount of total traffic reaching up to 9,800 VPD west of the site.

Intersection capacity analyses were conducted using the short-term total peak hour volumes and intersection geometrics as shown on **Figure 7**. **Appendix D** includes analysis worksheets. As indicated, traffic operations would remain acceptable at LOS D or better. It should be noted that this LOS D is the short-term.

V.B. Long-Term Future

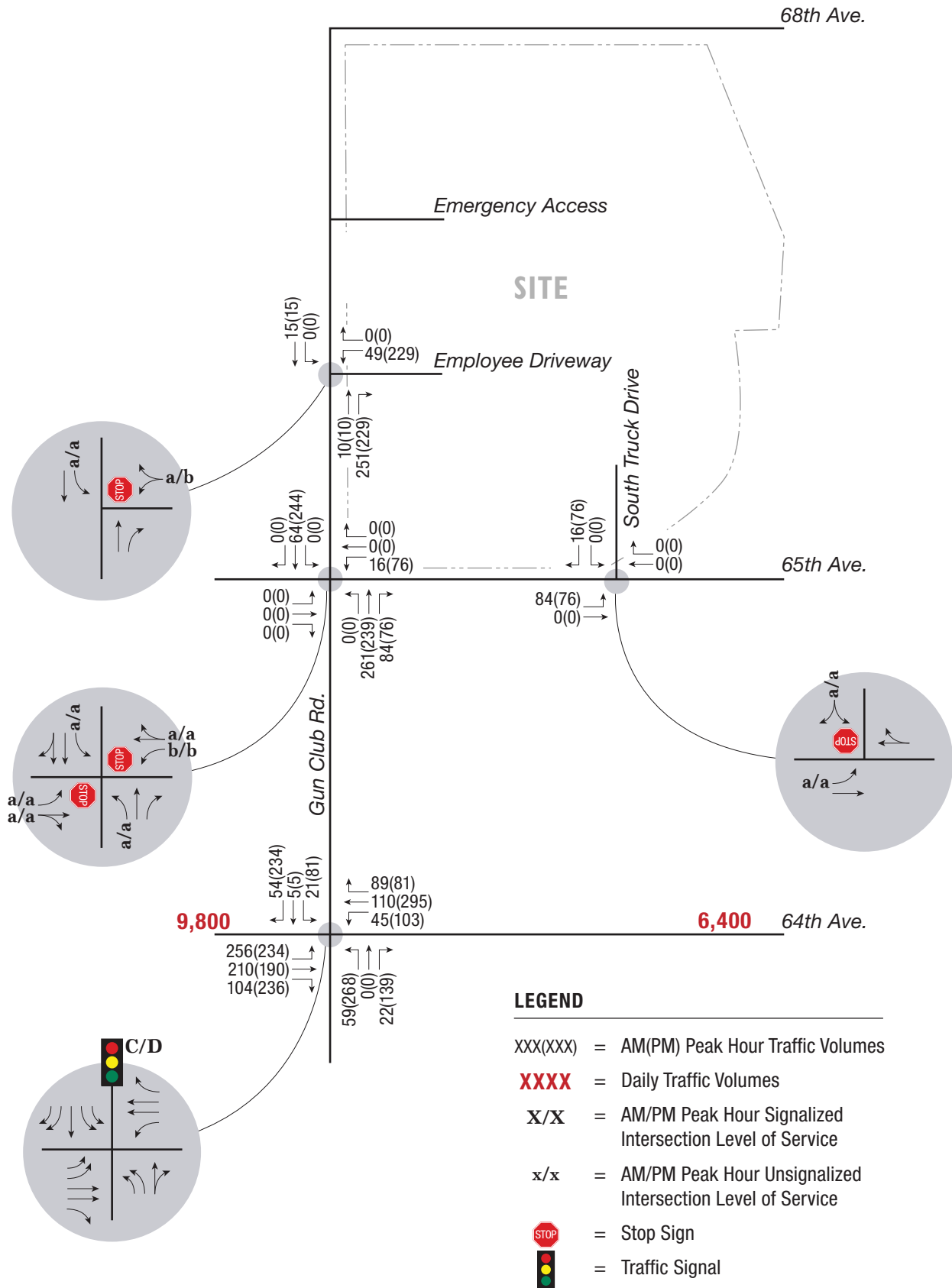
The site generated traffic volumes illustrated on **Figure 4** were added to the long-term future background traffic volumes found on **Figure 6** to produce the year 2040 total traffic volumes shown on **Figure 8**. 64th Avenue is estimated to serve the greatest amount of total traffic reaching up to 29,800 VPD west of the site.

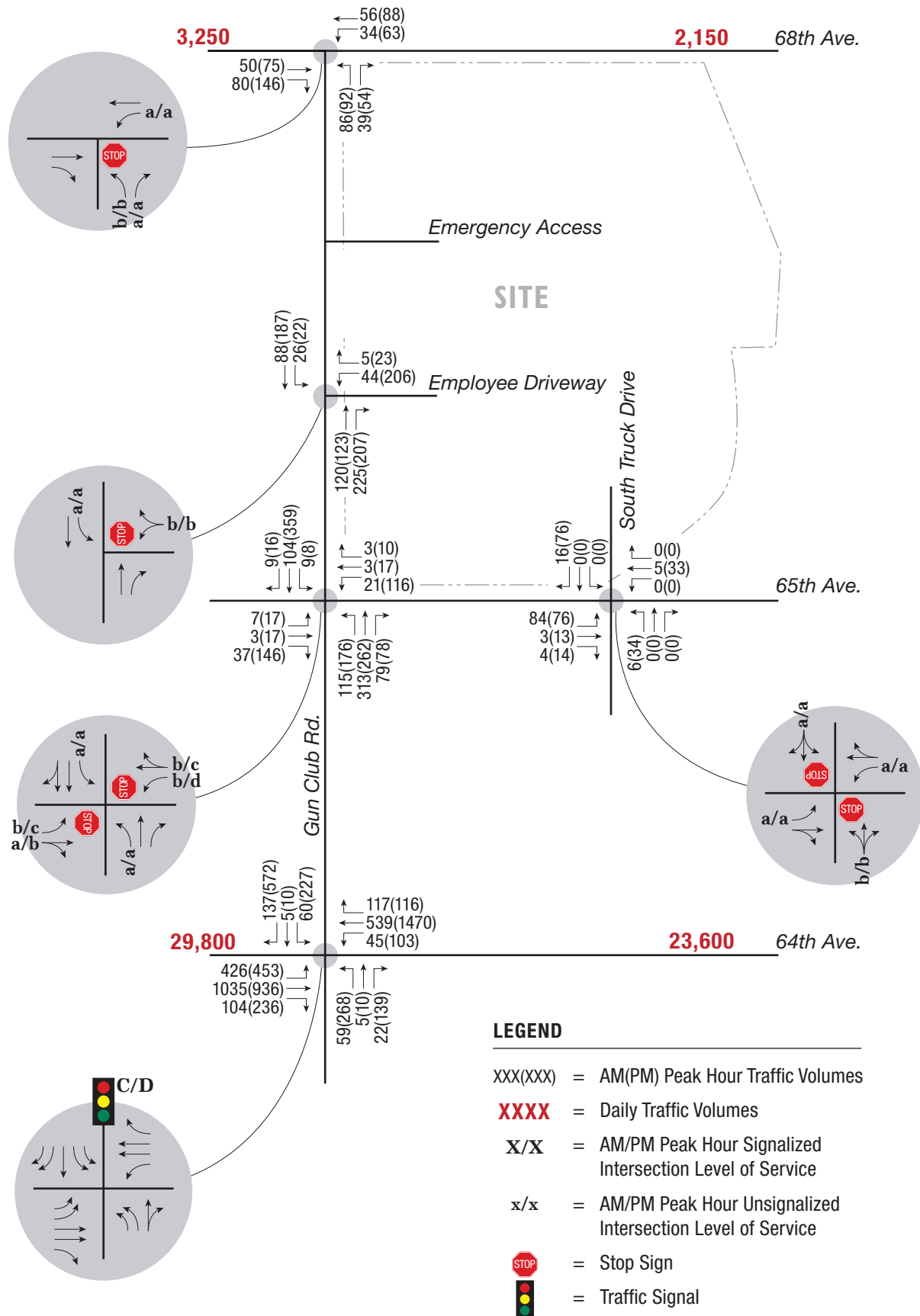
Intersection capacity analyses were conducted using the long-term total peak hour volumes and intersection geometrics as shown on **Figure 8**. **Appendix D** includes analysis worksheets. As indicated, traffic operations would remain acceptable at LOS D or better in the long-term.

Signalization of 64th Avenue/Gun Club Road intersection has been assumed for the long-term scenario based on previous analysis provided in the *High Point Master Plan Traffic Impact Study Analysis*.

Gated Truck Access

The southern access on 65th Avenue is anticipated to serve truck traffic for this anticipated facility. Because this access is specifically for trucks using the facility, the heavy vehicle percentage at this access is anticipated to be 100 percent. This access is anticipated to be located on the south side of the development with the gate near the southeast corner of the planned building for trucks to access the truck court on the east side of the site. The area along the south side of the proposed building will provide about 1,000 feet of queueing space for trucks, which is enough space to accommodate approximately 20 trucks entering the facility. Based on other Dollar General Distribution Center sites this stacking area is more than adequate to serve entering truck demand on-site.





City of Aurora staff have asked for mitigation strategies for any signalized movement that falls below LOS D. As indicated on the analysis worksheets, the study area signalized intersection of Gun Club Road/64th Avenue has a natural cycle length of 80 and 110 seconds in the AM and PM peak, respectively. City staff have required a minimum of a 120-second cycle to fit with the recent citywide signal retiming project and to ensure that pedestrian crossing times can be accommodated. It is not feasible to alleviate these delays given a cycle length of 120 seconds. FHU recommends the consideration of lower cycle lengths at study area intersections. It should also be noted that the intersection analysis was done with a study area that did not include adjacent signals and, therefore, does not consider progression along the 64th Avenue corridor. Therefore, the results presented represent a worst-case scenario for eastbound and westbound traffic at the intersection. Given that the Dollar General Distribution Center is in conformance with previous trip generation estimates, it is FHU's recommendation that analysis from the previous 64th Avenue ISP remain the guiding document for construction of the Gun Club Road/64th Avenue intersection.

City of Aurora *Traffic Impact Study Guidelines* indicate that the Colorado Department of Transportation (CDOT) State Highway Access Code (SHAC) should be used to determine storage and taper lengths. These values generally yield overly conservative results and provide storage well in excess of 95th percentile queues (which already incorporate a heavy vehicle percentage), often by a factor of two to three. Rather, it is recommended that the values in **Table 2** corresponding to the 95th percentile lengths be used to determine storage lengths. Tapers of 144 and 120 feet, to provide the required 12:1 and 10:1 taper ratios for streets with posted speeds of 40 and 35 miles per hour (mph), respectively, should be added to the recommended storage lengths. These taper lengths correspond to the anticipated speed limits of 40 mph along 64th Avenue and 35 mph along Gun Club Road, 65th Avenue, and 68th Avenue.

Output from the traffic analysis effort was used to recommend the storage lengths shown in **Table 2**, using the following methodology:

- **Left-Turn Lane Storage Lengths** – At signalized intersections, the greater of the HCM 6th Edition or Synchro methodology queue calculations were reported. For unsignalized intersections, the HCM 6th Edition calculation was reported.
- **Through Movements** – For signalized intersections, Synchro calculation results were reported. No through movement queues are reported for unsignalized intersections as through movements are free.
- **Right-Turn Movements** – For signalized intersections, the Synchro queue length was used. HCM 6th Edition information was not used because HCM's signalized intersection methodology does not account for right turns on red. For unsignalized intersections, HCM 6th Edition calculation was reported.

Table 2. Long-Term Future Dollar General Distribution Center Queueing

Intersection	Approach	Movement	2040 95th Percentile Queue Length (ft)		Recommended Storage Length (ft)	2040 SHAC Recommended Storage Length (ft)
			AM	PM		
Gun Club Road & 64th Avenue	Eastbound	Left*	275	350	350	230
		Through	360	340	Continuous	Continuous
		Right	50	50	Continuous	Continuous
	Westbound	Left	75	175	175	110
		Through	215	870	Continuous	Continuous
		Right	50	50	75	120
	Northbound	Left*	50	225	225	135
		Through/Right	40	75	Continuous	Continuous
	Southbound	Left*	50	225	225	115
		Through	50	50	Continuous	Continuous
		Right*	50	300	Continuous/300	Continuous/290
Gun Club Road & 65th Avenue	Eastbound	Left	50	50	50	50
		Through/Right	50	50	Continuous	Continuous
	Westbound	Left	50	75	75	120
		Through/Right	50	50	Continuous	Continuous
	Northbound	Left	50	50	50	180
		Right	0	0	50	105
	Southbound	Left	50	50	50	50
65 th Avenue & South Truck Access	Eastbound	Left	50	50	50	255
	Westbound	Left	50	50	50	0
	Northbound	Left/Through/Right	50	50	Continuous	Continuous
	Southbound	Left/Through/Right	50	50	Continuous	Continuous

Intersection	Approach	Movement	2040 95th Percentile Queue Length (ft)		Recommended Storage Length (ft)	2040 SHAC Recommended Storage Length (ft)
			AM	PM		
Gun Club Road & Employee Site Access	Westbound	Left/Right	50	50	Continuous	Continuous
	Southbound	Left	50	50	50	50
	Northbound	Right	0	0	50	295 ??
Gun Club Road & 68 th Avenue	Westbound	Left	50	50	50	70
	Northbound	Left	50	50	50	100
		Right	50	50	Continuous	Continuous
*Denotes Dual Turn Lanes – Storage lengths shown are per lane						

VI. SUMMARY AND RECOMMENDATIONS

M.A. Mortenson Company is proposing to develop an approximately 74-acre site within the High Point development in Aurora, Colorado, encompassing Planning Area (PA) 80 of the master development plan. The site is located along the east side of future Gun Club Road, bounded to the south by the future 65th Avenue and to the north by the future 68th Avenue. Access to the site will be provided via three full movement drives, two on future Gun Club Road and one on future 66th Avenue. An additional site emergency use only access point will be given into the truck court of the site via 66th Avenue along the eastern edge of the project site. The proposed development would consist of the approximately 920,000 square foot Dollar General Distribution Center.

The proposed development is estimated to generate approximately 3,000 trips per day, with an estimated 400 occurring during the AM peak hour and 610 occurring during the PM peak hour. This represents a nearly 60 reduction for daily and AM peak hour values as compared to the *High Point FDP Master Plan Traffic Study*; however, due to a shift change occurring during the PM peak, those values are anticipated to be similar to previous evaluations.

The potential traffic impacts of the development were evaluated under Long-Term Future (2040) conditions. This study assessed three public road intersections and two site access points with respect to peak hour traffic and LOS operations. There are no projected traffic operation issues in the long-term future planning horizon. Intersections are expected to operate acceptably at LOS D or better during peak hours.

64th Avenue will function acceptably as a four-lane major arterial, and Gun Club Road and 68th Avenue will function acceptably as three-lane collectors. Side-street stop control should operate acceptably at all study intersections with the exception of 64th Avenue with Gun Club Road. This intersection is anticipated to meet peak hour, four-hour, and eight-hour warrants for signalization based on previous analysis provided in both the *High Point FDP Master Plan Traffic Study* and the *Hyde Industrial TIS*. Signal warrants included in **Appendix A** indicate signals would be warranted under short-term background conditions.

Queuing at site access points is projected to be minimal. However, it is recommended that site access points be spaced a minimum of 150 feet from adjacent intersections.

APPENDIX A. SIGNAL WARRANTS

MUTCD Volume-based Warrant Evaluation
Gun Club Rd & E 64th Ave
Background (2023)



Major Street: E 64th Ave

Lanes Moving Traffic: 1

Approach Speed: 45 MPH

Option: High speed major-street

Minor Street: Gun Club Rd

Lanes Moving Traffic: 2 or more

Right Turn Volume Included: 50% NB, 100% SB

WARRANT 1, Condition A - Minimum Vehicular Volume

70% Satisfied Yes

	Vehicles per hour 70% (56%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	350 (280)	834	783	732	681	630	578	527	476
Highest Apprch. Minor Street	140 (112)	338	317	297	276	255	234	214	193

WARRANT 1, Condition B - Interruption of Continuous Traffic

70% Satisfied No

	Vehicles per hour 70% (56%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	525 (420)	834	783	732	681	630	578	527	476
Highest Apprch. Minor Street	70 (56)	338	317	297	276	255	234	214	193

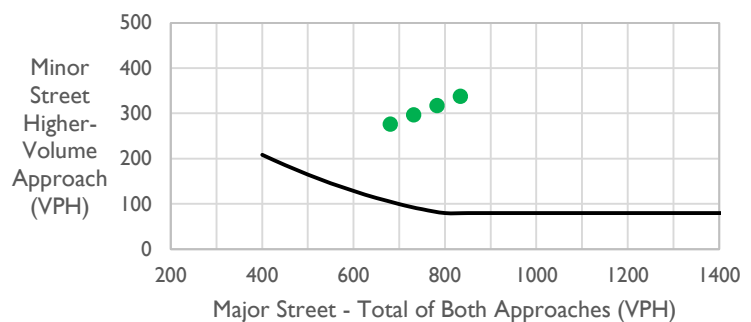
WARRANT 1, Condition A and Condition B

56% Satisfied Yes

WARRANT 2, Four Hour Volume

70% Satisfied Yes

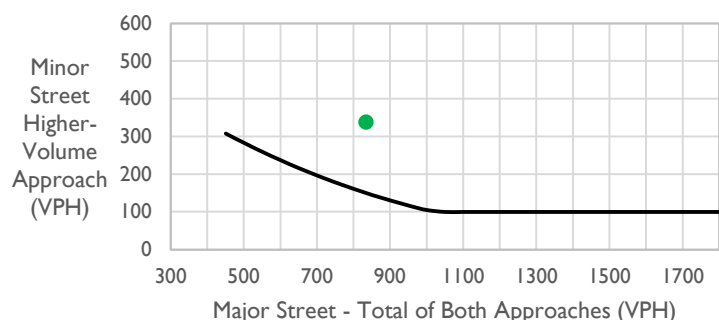
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	834	338
2nd Highest	783	317
3rd Highest	732	297
4th Highest	681	276



WARRANT 3, Peak Hour Volume

70% Satisfied Yes























	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	834	338



APPENDIX B. BACKGROUND LOS

Timings
1: Gun Club Rd & E 64th Ave

AM Peak
11/09/2021

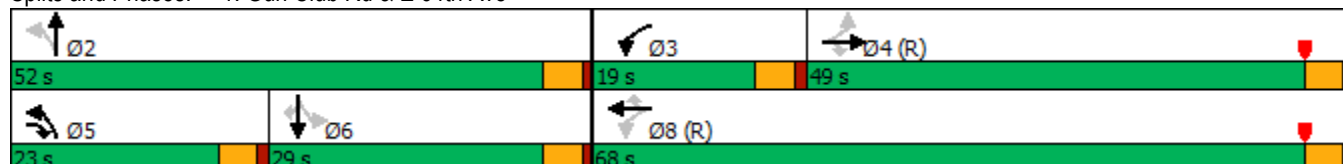
											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	5	210	104	45	110	5	59	0	5	5	5
Future Volume (vph)	5	210	104	45	110	5	59	0	5	5	5
Turn Type	Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	Perm
Protected Phases		4	5	3	8		5	2		6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	5	3	8	8	5	2	6	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)	29.5	29.5	9.5	9.5	29.5	29.5	9.5	29.5	29.5	29.5	29.5
Total Split (s)	49.0	49.0	23.0	19.0	68.0	68.0	23.0	52.0	29.0	29.0	29.0
Total Split (%)	40.8%	40.8%	19.2%	15.8%	56.7%	56.7%	19.2%	43.3%	24.2%	24.2%	24.2%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.5	3.5	3.5	3.5	3.5
Lead/Lag	Lag	Lag	Lead	Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effect Green (s)	91.7	91.7	104.7	100.5	100.5	100.5	13.5	13.5	7.2	7.2	7.2
Actuated g/C Ratio	0.76	0.76	0.87	0.84	0.84	0.84	0.11	0.11	0.06	0.06	0.06
v/c Ratio	0.01	0.10	0.09	0.06	0.05	0.00	0.22	0.03	0.05	0.05	0.03
Control Delay	6.2	5.0	0.7	2.8	2.4	0.0	47.1	0.1	53.8	53.8	0.4
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	6.2	5.0	0.7	2.8	2.4	0.0	47.1	0.1	53.8	53.8	0.4
LOS	A	A	A	A	A	A	D	A	D	D	A
Approach Delay		3.6			2.5			34.3		36.0	
Approach LOS		A			A			C		D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 69 (58%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.22
 Intersection Signal Delay: 8.4
 Intersection Capacity Utilization 28.3%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A
























Splits and Phases: 1: Gun Club Rd & E 64th Ave












HCM 6th Signalized Intersection Summary

1: Gun Club Rd & E 64th Ave

AM Peak
11/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	210	104	45	110	5	59	0	22	5	5	5
Future Volume (veh/h)	5	210	104	45	110	5	59	0	22	5	5	5
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	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	5	228	113	49	120	5	64	0	24	5	5	5
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, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	930	2442	1165	838	2668	1190	347	0	160	108	65	55
Arrive On Green	0.77	0.77	0.77	0.05	0.84	0.84	0.05	0.00	0.10	0.04	0.04	0.04
Sat Flow, veh/h	1135	3188	1422	1598	3188	1422	3100	0	1422	1244	1678	1422
Grp Volume(v), veh/h	5	228	113	49	120	5	64	0	24	5	5	5
Grp Sat Flow(s),veh/h/ln	1135	1594	1422	1598	1594	1422	1550	0	1422	1244	1678	1422
Q Serve(g_s), s	0.1	2.2	1.9	0.6	0.8	0.1	2.3	0.0	1.8	0.5	0.3	0.4
Cycle Q Clear(g_c), s	0.1	2.2	1.9	0.6	0.8	0.1	2.3	0.0	1.8	0.5	0.3	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	930	2442	1165	838	2668	1190	347	0	160	108	65	55
V/C Ratio(X)	0.01	0.09	0.10	0.06	0.04	0.00	0.18	0.00	0.15	0.05	0.08	0.09
Avail Cap(c_a), veh/h	930	2442	1165	977	2668	1190	711	0	575	324	357	302
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.3	3.5	2.1	1.8	1.7	1.6	49.6	0.0	48.5	55.7	55.6	55.6
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	0.0	0.0	0.3	0.0	0.4	0.2	0.5	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(95%),veh/ln	0.0	1.0	0.6	0.2	0.2	0.0	1.6	0.0	1.2	0.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	3.6	2.3	1.8	1.7	1.6	49.9	0.0	48.9	55.9	56.1	56.4
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	E	E
Approach Vol, veh/h	346			174			88			15		
Approach Delay, s/veh	3.2			1.7			49.6			56.1		
Approach LOS	A			A			D			E		
Timer - Assigned Phs	2			3			4			5		
Phs Duration (G+Y+Rc), s	17.0			8.5			94.4			8.9		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	47.5			14.5			44.5			18.5		
Max Q Clear Time (g_c+I1), s	3.8			2.6			4.2			4.3		
Green Ext Time (p_c), s	0.1			0.1			1.8			0.1		
Intersection Summary												
HCM 6th Ctrl Delay	10.6											
HCM 6th LOS	B											
Notes												

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	0	0	10	0	0	15	0
Future Vol, veh/h	0	0	0	0	0	0	0	10	0	0	15	0
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	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	0	0	0	0	0	11	0	0	16	0





Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	27	27	8	19	27	11	16	0	0	11	0	0
Stage 1	16	16	-	11	11	-	-	-	-	-	-	-
Stage 2	11	11	-	8	16	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	7.525	6.725	6.425	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	947	839	1033	959	839	1031	1515	-	-	1522	-	-
Stage 1	967	855	-	975	859	-	-	-	-	-	-	-
Stage 2	975	859	-	978	855	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	947	839	1033	959	839	1031	1515	-	-	1522	-	-
Mov Cap-2 Maneuver	947	839	-	959	839	-	-	-	-	-	-	-
Stage 1	967	855	-	975	859	-	-	-	-	-	-	-
Stage 2	975	859	-	978	855	-	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1515	-	-	-	-	-	-	1522	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	0	-	-

HCM 6th TWSC
3: 65th Ave & South Truck Driveway

AM Peak
11/09/2021

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
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	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1	0	0
Stage 1	-	-	1
Stage 2	-	-	0
Critical Hdwy	4.25	-	6.55
Critical Hdwy Stg 1	-	-	5.55
Critical Hdwy Stg 2	-	-	5.55
Follow-up Hdwy	2.335	-	3.635
Pot Cap-1 Maneuver	1540	-	989
Stage 1	-	-	989
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1540	-	989
Mov Cap-2 Maneuver	-	-	989
Stage 1	-	-	989
Stage 2	-	-	-























Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1540	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	7.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	0	0	15	0	0	10
Future Vol, veh/h	0	0	15	0	0	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	150	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	0	16	0	0	11
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	33	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	32	-
Critical Hdwy	-	-	4.2	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.29	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	1571	-	960	1061
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	950	1061
Mov Cap-2 Maneuver	-	-	-	-	950	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	960	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		7.3		8.4	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	1061	-	-	1571	-
HCM Lane V/C Ratio	-	0.01	-	-	0.01	-
HCM Control Delay (s)	0	8.4	-	-	7.3	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0	-	-	0	-

Timings
1: Gun Club Rd & E 64th Ave









PM Peak
11/09/2021

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	5	190	236	103	295	5	268	0	5	5	5
Future Volume (vph)	5	190	236	103	295	5	268	0	5	5	5
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	pm+pt	NA	pt+ov
Protected Phases	7	4	5	3	8		5	2	1	6	6 7
Permitted Phases	4		4	8		8			6		
Detector Phase	7	4	5	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	15.0	31.0	15.0	15.0	31.0	31.0	15.0	15.0	15.0	15.0	
Total Split (s)	17.0	42.0	38.0	23.0	48.0	48.0	38.0	38.0	17.0	17.0	
Total Split (%)	14.2%	35.0%	31.7%	19.2%	40.0%	40.0%	31.7%	31.7%	14.2%	14.2%	
Yellow Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	
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)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?		Yes			Yes	Yes		Yes		Yes	
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	
Act Effect Green (s)	82.9	75.2	98.2	89.4	87.0	87.0	18.0	20.3	10.0	7.0	9.4
Actuated g/C Ratio	0.69	0.63	0.82	0.74	0.72	0.72	0.15	0.17	0.08	0.06	0.08
v/c Ratio	0.01	0.11	0.22	0.14	0.14	0.00	0.64	0.18	0.04	0.05	0.02
Control Delay	7.0	11.1	1.0	6.2	7.2	0.0	54.1	0.5	36.2	54.2	0.2
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	7.0	11.1	1.0	6.2	7.2	0.0	54.1	0.5	36.2	54.2	0.2
LOS	A	B	A	A	A	A	D	A	D	D	A
Approach Delay		5.5			6.9			35.8		30.2	
Approach LOS		A			A			D		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 64 (53%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 16.0
Intersection Capacity Utilization 38.4%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service A
























Splits and Phases: 1: Gun Club Rd & E 64th Ave

 Ø1	 Ø2	 Ø3	 Ø4 (R)
17 s	38 s	23 s	42 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
38 s	17 s	17 s	48 s

HCM 6th Signalized Intersection Summary

1: Gun Club Rd & E 64th Ave

PM Peak
11/09/2021





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	190	236	103	295	5	268	0	139	5	5	5
Future Volume (veh/h)	5	190	236	103	295	5	268	0	139	5	5	5
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	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	5	207	257	112	321	5	291	0	151	5	5	5
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, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	695	2026	1092	660	2136	953	384	0	226	139	84	92
Arrive On Green	0.02	0.64	0.64	0.06	0.67	0.67	0.12	0.00	0.15	0.01	0.05	0.05
Sat Flow, veh/h	1598	3188	1422	1598	3188	1422	3100	0	1422	1598	1678	1422
Grp Volume(v), veh/h	5	207	257	112	321	5	291	0	151	5	5	5
Grp Sat Flow(s),veh/h/ln	1598	1594	1422	1598	1594	1422	1550	0	1422	1598	1678	1422
Q Serve(g_s), s	0.1	3.0	6.1	2.6	4.4	0.1	10.9	0.0	12.0	0.4	0.3	0.4
Cycle Q Clear(g_c), s	0.1	3.0	6.1	2.6	4.4	0.1	10.9	0.0	12.0	0.4	0.3	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	695	2026	1092	660	2136	953	384	0	226	139	84	92
V/C Ratio(X)	0.01	0.10	0.24	0.17	0.15	0.01	0.76	0.00	0.67	0.04	0.06	0.05
Avail Cap(c_a), veh/h	832	2026	1092	821	2136	953	878	0	403	288	182	175
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	8.5	3.9	5.6	7.3	6.6	50.8	0.0	48.0	52.7	54.3	52.7
Incr Delay (d2), s/veh	0.0	0.1	0.5	0.1	0.1	0.0	3.1	0.0	3.4	0.1	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	1.8	2.6	1.4	2.5	0.1	7.8	0.0	7.9	0.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	8.6	4.5	5.7	7.4	6.6	53.9	0.0	51.4	52.8	54.6	52.9
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	D	D
Approach Vol, veh/h	469				438				442			
Approach Delay, s/veh	6.3				7.0				53.1			
Approach LOS	A				A				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	23.1	10.9	80.3	18.9	10.0	6.8	84.4				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	12.0	33.0	17.0	36.0	33.0	12.0	11.0	42.0				
Max Q Clear Time (g_c+I1), s	2.4	14.0	4.6	8.1	12.9	2.4	2.1	6.4				
Green Ext Time (p_c), s	0.0	0.4	0.2	2.1	1.0	0.0	0.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay	22.2											
HCM 6th LOS	C											
Notes												

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Vol, veh/h	0	0	0	0	0	0	0	10	0	0	15	0
Future Vol, veh/h	0	0	0	0	0	0	0	10	0	0	15	0
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	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	0	0	0	0	0	0	11	0	0	16	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	27	27	8	19	27	11	16	0	0	11	0	0
Stage 1	16	16	-	11	11	-	-	-	-	-	-	-
Stage 2	11	11	-	8	16	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	7.525	6.725	6.425	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	947	839	1033	959	839	1031	1515	-	-	1522	-	-
Stage 1	967	855	-	975	859	-	-	-	-	-	-	-
Stage 2	975	859	-	978	855	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	947	839	1033	959	839	1031	1515	-	-	1522	-	-
Mov Cap-2 Maneuver	947	839	-	959	839	-	-	-	-	-	-	-
Stage 1	967	855	-	975	859	-	-	-	-	-	-	-
Stage 2	975	859	-	978	855	-	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1515	-	-	-	-	-	-	1522	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	0	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
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	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1	0	0
Stage 1	-	-	1
Stage 2	-	-	0
Critical Hdwy	4.25	-	6.55
Critical Hdwy Stg 1	-	-	5.55
Critical Hdwy Stg 2	-	-	5.55
Follow-up Hdwy	2.335	-	3.635
Pot Cap-1 Maneuver	1540	-	989
Stage 1	-	-	989
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1540	-	989
Mov Cap-2 Maneuver	-	-	989
Stage 1	-	-	989
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1540	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-























Intersection						
Int Delay, s/veh	7.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	0	0	15	0	0	10
Future Vol, veh/h	0	0	15	0	0	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	150	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	0	16	0	0	11
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	33	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	32	-
Critical Hdwy	-	-	4.2	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.29	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	1571	-	960	1061
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	950	1061
Mov Cap-2 Maneuver	-	-	-	-	950	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	960	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		7.3		8.4	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	1061	-	-	1571	-
HCM Lane V/C Ratio	-	0.01	-	-	0.01	-
HCM Control Delay (s)	0	8.4	-	-	7.3	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0	-	-	0	-

Timings

1: Gun Club Rd & E 64th Ave

High Point Dollar General DC

11/09/2021

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	192	1035	104	45	539	50	59	5	47	5	92
Future Volume (vph)	192	1035	104	45	539	50	59	5	47	5	92
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pt+ov
Protected Phases	7	4		3	8		5	2	1	6	6 7
Permitted Phases			4			8					
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	15.0	31.0	31.0	15.0	31.0	31.0	15.0	15.0	15.0	15.0	
Total Split (s)	20.0	73.0	73.0	17.0	70.0	70.0	15.0	15.0	15.0	15.0	
Total Split (%)	16.7%	60.8%	60.8%	14.2%	58.3%	58.3%	12.5%	12.5%	12.5%	12.5%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	
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)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes		Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	
Act Effect Green (s)	15.2	81.1	81.1	11.1	74.8	74.8	8.9	7.7	10.6	7.3	26.5
Actuated g/C Ratio	0.13	0.68	0.68	0.09	0.62	0.62	0.07	0.06	0.09	0.06	0.22
v/c Ratio	0.54	0.53	0.11	0.34	0.30	0.06	0.28	0.25	0.19	0.05	0.16
Control Delay	54.3	13.1	2.1	56.4	12.2	0.1	55.2	28.3	52.7	53.2	7.3
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	54.3	13.1	2.1	56.4	12.2	0.1	55.2	28.3	52.7	53.2	7.3
LOS	D	B	A	E	B	A	E	C	D	D	A
Approach Delay		18.2			14.4			46.8		23.7	
Approach LOS		B			B			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 64 (53%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 18.6

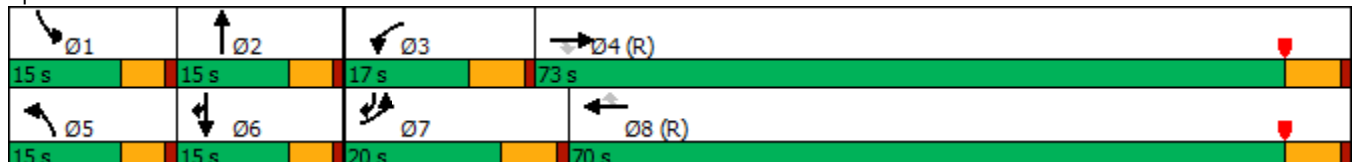
Intersection LOS: B

Intersection Capacity Utilization 51.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Gun Club Rd & E 64th Ave


























HCM 6th Signalized Intersection Summary

1: Gun Club Rd & E 64th Ave

High Point Dollar General DC

11/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	192	1035	104	45	539	50	59	5	22	47	5	92
Future Volume (veh/h)	192	1035	104	45	539	50	59	5	22	47	5	92
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	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	209	1125	113	49	586	54	64	5	24	51	5	100
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, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	311	2252	1004	87	2105	939	140	16	77	131	102	383
Arrive On Green	0.10	0.71	0.71	0.05	0.66	0.66	0.05	0.06	0.06	0.04	0.06	0.06
Sat Flow, veh/h	3100	3188	1422	1598	3188	1422	3100	252	1208	3100	1678	2502
Grp Volume(v), veh/h	209	1125	113	49	586	54	64	0	29	51	5	100
Grp Sat Flow(s),veh/h/ln	1550	1594	1422	1598	1594	1422	1550	0	1460	1550	1678	1251
Q Serve(g_s), s	7.8	19.2	3.0	3.6	9.2	1.6	2.4	0.0	2.3	1.9	0.3	4.2
Cycle Q Clear(g_c), s	7.8	19.2	3.0	3.6	9.2	1.6	2.4	0.0	2.3	1.9	0.3	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		1.00
Lane Grp Cap(c), veh/h	311	2252	1004	87	2105	939	140	0	93	131	102	383
V/C Ratio(X)	0.67	0.50	0.11	0.56	0.28	0.06	0.46	0.00	0.31	0.39	0.05	0.26
Avail Cap(c_a), veh/h	413	2252	1004	173	2105	939	284	0	134	284	154	460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	8.0	5.6	55.4	8.5	7.2	55.9	0.0	54.1	55.9	53.1	44.8
Incr Delay (d2), s/veh	2.6	0.8	0.2	5.6	0.3	0.1	2.3	0.0	1.9	1.9	0.2	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(95%),veh/ln	5.5	9.6	1.5	2.8	5.2	0.8	1.8	0.0	1.6	1.4	0.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	8.8	5.8	61.0	8.8	7.3	58.2	0.0	56.0	57.8	53.3	45.2
LnGrp LOS	D	A	A	E	A	A	E	A	E	E	D	D
Approach Vol, veh/h		1447			689			93			156	
Approach Delay, s/veh		15.2			12.4			57.5			49.6	
Approach LOS		B			B			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	11.6	10.5	88.8	9.4	11.3	16.0	83.2				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	10.0	11.0	67.0	10.0	10.0	14.0	64.0				
Max Q Clear Time (g_c+I1), s	3.9	4.3	5.6	21.2	4.4	6.2	9.8	11.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	10.3	0.1	0.1	0.2	4.3				











Intersection Summary

HCM 6th Ctrl Delay 18.3

HCM 6th LOS B

Notes

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







Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	3	37	7	3	1	115	88	3	1	60	9
Future Vol, veh/h	7	3	37	7	3	1	115	88	3	1	60	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	8	3	40	8	3	1	125	96	3	1	65	10

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	422	421	38	382	423	96	75	0	0	99	0	0
Stage 1	72	72	-	346	346	-	-	-	-	-	-	-
Stage 2	350	349	-	36	77	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	7.525	6.725	6.425	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	601	574	988	644	572	*988	1439	-	-	*1453	-	-
Stage 1	896	808	-	731	672	-	-	-	-	-	-	-
Stage 2	726	670	-	941	803	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	558	523	988	574	521	*988	1439	-	-	*1453	-	-
Mov Cap-2 Maneuver	558	523	-	574	521	-	-	-	-	-	-	-
Stage 1	818	807	-	667	614	-	-	-	-	-	-	-
Stage 2	659	612	-	898	802	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	11.3	4.3	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1439	-	-	558	926	574	591	*1453	-	-
HCM Lane V/C Ratio	0.087	-	-	0.014	0.047	0.013	0.007	0.001	-	-
HCM Control Delay (s)	7.7	-	-	11.5	9.1	11.4	11.1	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0	0.1	0	0	0	-	-

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	0	3	4	0	5	0	6	0	0	0	0	0
Future Vol, veh/h	0	3	4	0	5	0	6	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	3	4	0	5	0	7	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	5	0	0	7	0	0	10	10	5	10	12	5
Stage 1	-	-	-	-	-	-	5	5	-	5	5	-
Stage 2	-	-	-	-	-	-	5	5	-	5	7	-
Critical Hdwy	4.25	-	-	4.25	-	-	7.25	6.65	6.35	7.25	6.65	6.35
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	5.65	-	6.25	5.65	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	5.65	-	6.25	5.65	-
Follow-up Hdwy	2.335	-	-	2.335	-	-	3.635	4.135	3.435	3.635	4.135	3.435
Pot Cap-1 Maneuver	1535	-	-	1533	-	-	976	860	1041	976	857	1041
Stage 1	-	-	-	-	-	-	984	866	-	984	866	-
Stage 2	-	-	-	-	-	-	984	866	-	984	865	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1535	-	-	1533	-	-	976	860	1041	976	857	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	976	860	-	976	857	-
Stage 1	-	-	-	-	-	-	984	866	-	984	866	-
Stage 2	-	-	-	-	-	-	984	866	-	984	865	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			8.7			0		
HCM LOS							A			A		































Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	976	1535	-	-	1533	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-	-	-	-	-
HCM Control Delay (s)	8.7	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	50	63	17	56	83	35
Future Vol, veh/h	50	63	17	56	83	35
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	150	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	54	68	18	61	90	38
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	122	0	151	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	97	-
Critical Hdwy	-	-	4.2	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.29	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	1417	-	822	991
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1417	-	811	991
Mov Cap-2 Maneuver	-	-	-	-	811	-
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	895	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.8		9.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	811	991	-	-	1417	-
HCM Lane V/C Ratio	0.111	0.038	-	-	0.013	-
HCM Control Delay (s)	10	8.8	-	-	7.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-

Timings
1: Gun Club Rd & E 64th Ave

High Point Dollar General DC

11/09/2021

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 	 	 	 
Traffic Volume (vph)	239	936	236	103	1470	55	268	10	166	10	358
Future Volume (vph)	239	936	236	103	1470	55	268	10	166	10	358
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pt+ov
Protected Phases	7	4		3	8		5	2	1	6	6 7
Permitted Phases			4			8					
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	15.0	31.0	31.0	15.0	31.0	31.0	15.0	15.0	15.0	15.0	
Total Split (s)	16.0	67.0	67.0	19.0	70.0	70.0	17.0	19.0	15.0	17.0	
Total Split (%)	13.3%	55.8%	55.8%	15.8%	58.3%	58.3%	14.2%	15.8%	12.5%	14.2%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	
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)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes		Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	
Act Effect Green (s)	12.0	64.2	64.2	13.8	66.0	66.0	13.0	15.2	10.8	13.0	29.0
Actuated g/C Ratio	0.10	0.54	0.54	0.12	0.55	0.55	0.11	0.13	0.09	0.11	0.24
v/c Ratio	0.86	0.61	0.30	0.62	0.93	0.07	0.88	0.52	0.66	0.06	0.60
Control Delay	78.7	21.4	2.7	65.9	35.4	0.2	80.5	15.7	65.0	49.1	36.8
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	78.7	21.4	2.7	65.9	35.4	0.2	80.5	15.7	65.0	49.1	36.8
LOS	E	C	A	E	D	A	F	B	E	D	D
Approach Delay		28.0			36.1			57.3		45.8	
Approach LOS		C			D			E		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 64 (53%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 36.7

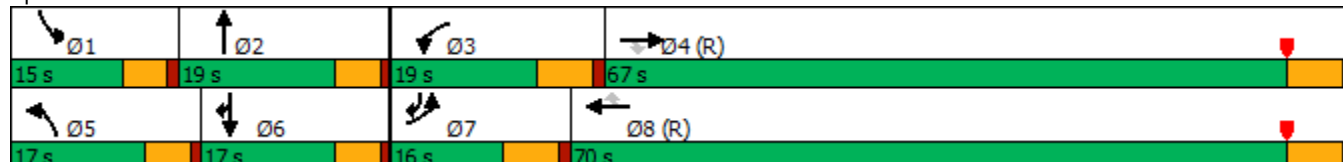
Intersection LOS: D

Intersection Capacity Utilization 74.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Gun Club Rd & E 64th Ave





































HCM 6th Signalized Intersection Summary







1: Gun Club Rd & E 64th Ave







High Point Dollar General DC

11/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	936	236	103	1470	55	268	10	139	166	10	358
Future Volume (veh/h)	239	936	236	103	1470	55	268	10	139	166	10	358
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	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	260	1017	257	112	1598	60	291	11	151	180	11	389
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, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	310	1754	782	159	1753	782	336	13	180	254	182	500
Arrive On Green	0.10	0.55	0.55	0.10	0.55	0.55	0.11	0.13	0.13	0.08	0.11	0.11
Sat Flow, veh/h	3100	3188	1422	1598	3188	1422	3100	98	1339	3100	1678	2502
Grp Volume(v), veh/h	260	1017	257	112	1598	60	291	0	162	180	11	389
Grp Sat Flow(s),veh/h/ln	1550	1594	1422	1598	1594	1422	1550	0	1437	1550	1678	1251
Q Serve(g_s), s	9.9	25.3	11.9	8.1	54.3	2.4	11.1	0.0	13.2	6.8	0.7	13.0
Cycle Q Clear(g_c), s	9.9	25.3	11.9	8.1	54.3	2.4	11.1	0.0	13.2	6.8	0.7	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.93	1.00		1.00
Lane Grp Cap(c), veh/h	310	1754	782	159	1753	782	336	0	194	254	182	500
V/C Ratio(X)	0.84	0.58	0.33	0.70	0.91	0.08	0.87	0.00	0.84	0.71	0.06	0.78
Avail Cap(c_a), veh/h	310	1754	782	200	1753	782	336	0	194	284	182	500
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	17.8	14.8	52.3	24.4	12.7	52.6	0.0	51.1	53.7	48.0	45.5
Incr Delay (d2), s/veh	18.1	1.4	1.1	7.9	8.7	0.2	20.5	0.0	26.2	7.0	0.1	7.6
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(95%),veh/ln	8.0	13.8	6.9	6.4	27.8	1.4	9.0	0.0	10.2	5.2	0.5	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.1	19.2	15.9	60.2	33.0	12.9	73.2	0.0	77.3	60.6	48.2	53.1
LnGrp LOS	E	B	B	E	C	B	E	A	E	E	D	D
Approach Vol, veh/h	1534			1770			453			580		
Approach Delay, s/veh	27.5			34.1			74.7			55.3		
Approach LOS	C			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	20.2	16.0	70.0	17.0	17.0	16.0	70.0				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	14.0	13.0	61.0	12.0	12.0	10.0	64.0				
Max Q Clear Time (g_c+I1), s	8.8	15.2	10.1	27.3	13.1	15.0	11.9	56.3				
Green Ext Time (p_c), s	0.1	0.0	0.1	9.2	0.0	0.0	0.0	5.7				
Intersection Summary												
HCM 6th Ctrl Delay				38.8								
HCM 6th LOS				D								
Notes												

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	17	146	47	17	3	176	55	10	0	153	16
Future Vol, veh/h	17	17	146	47	17	3	176	55	10	0	153	16
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	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	18	18	159	51	18	3	191	60	11	0	166	17
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	633	628	92	534	625	60	183	0	0	71	0	0
Stage 1	175	175	-	442	442	-	-	-	-	-	-	-
Stage 2	458	453	-	92	183	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	7.525	6.725	6.425	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	389	405	911	460	406	*1013	1308	-	-	*1490	-	-
Stage 1	778	726	-	605	578	-	-	-	-	-	-	-
Stage 2	592	572	-	872	720	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	331	346	911	324	346	*1013	1308	-	-	*1490	-	-
Mov Cap-2 Maneuver	331	346	-	324	346	-	-	-	-	-	-	-
Stage 1	664	726	-	516	494	-	-	-	-	-	-	-
Stage 2	485	488	-	702	720	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.5		17.2		6		0					
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1308	-	-	331	778	324	384	*1490	-	-		
HCM Lane V/C Ratio	0.146	-	-	0.056	0.228	0.158	0.057	-	-	-		
HCM Control Delay (s)	8.2	-	-	16.5	11	18.2	14.9	0	-	-		
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-		
HCM 95th %tile Q(veh)	0.5	-	-	0.2	0.9	0.6	0.2	0	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	13	14	0	33	0	34	0	0	0	0	0
Future Vol, veh/h	0	13	14	0	33	0	34	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	0	14	15	0	36	0	37	0	0	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	36	0	0	29	0	0	58	58	22	58	65	36
Stage 1	-	-	-	-	-	-	22	22	-	36	36	-
Stage 2	-	-	-	-	-	-	36	36	-	22	29	-
Critical Hdwy	4.25	-	-	4.25	-	-	7.25	6.65	6.35	7.25	6.65	6.35
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	5.65	-	6.25	5.65	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	5.65	-	6.25	5.65	-
Follow-up Hdwy	2.335	-	-	2.335	-	-	3.635	4.135	3.435	3.635	4.135	3.435
Pot Cap-1 Maneuver	1495	-	-	1504	-	-	907	809	1019	907	801	1001
Stage 1	-	-	-	-	-	-	964	852	-	947	840	-
Stage 2	-	-	-	-	-	-	947	840	-	964	846	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1495	-	-	1504	-	-	907	809	1019	907	801	1001
Mov Cap-2 Maneuver	-	-	-	-	-	-	907	809	-	907	801	-
Stage 1	-	-	-	-	-	-	964	852	-	947	840	-
Stage 2	-	-	-	-	-	-	947	840	-	964	846	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.1			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	907	1495	-	-	1504	-	-	-				
HCM Lane V/C Ratio	0.041	-	-	-	-	-	-	-				
HCM Control Delay (s)	9.1	0	-	-	0	-	-	0				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-				

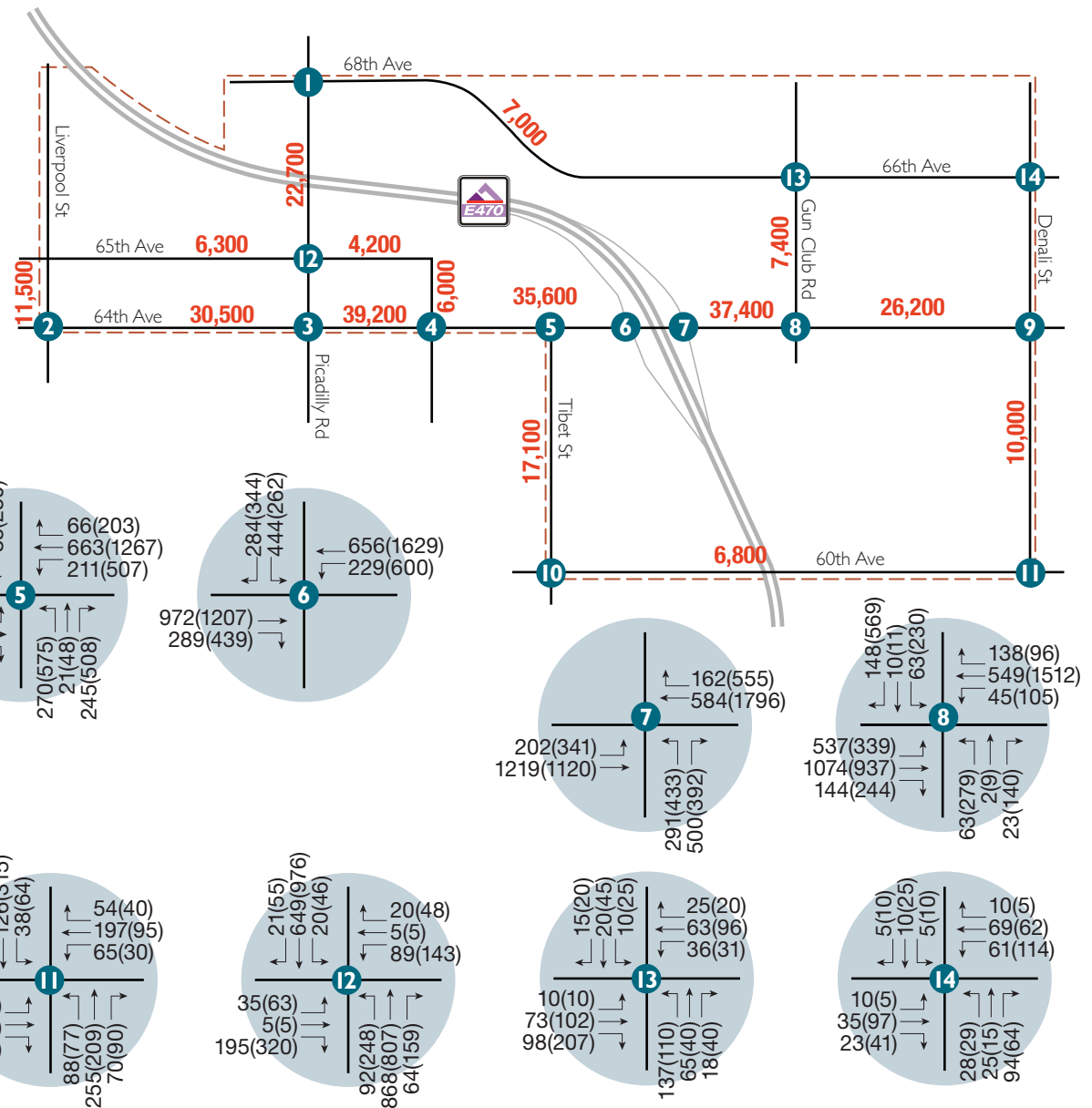
Intersection						
Int Delay, s/veh	3.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	75	131	48	88	77	39
Future Vol, veh/h	75	131	48	88	77	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	150	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	82	142	52	96	84	42
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	224	0	282	82
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	200	-
Critical Hdwy	-	-	4.2	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.29	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	1299	-	691	956
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	815	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1299	-	663	956
Mov Cap-2 Maneuver	-	-	-	-	663	-
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	782	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.8		10.4	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	663	956	-	-	1299	-
HCM Lane V/C Ratio	0.126	0.044	-	-	0.04	-
HCM Control Delay (s)	11.2	8.9	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

APPENDIX C. RELEVANT PREVIOUS STUDIES

LEGEND

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

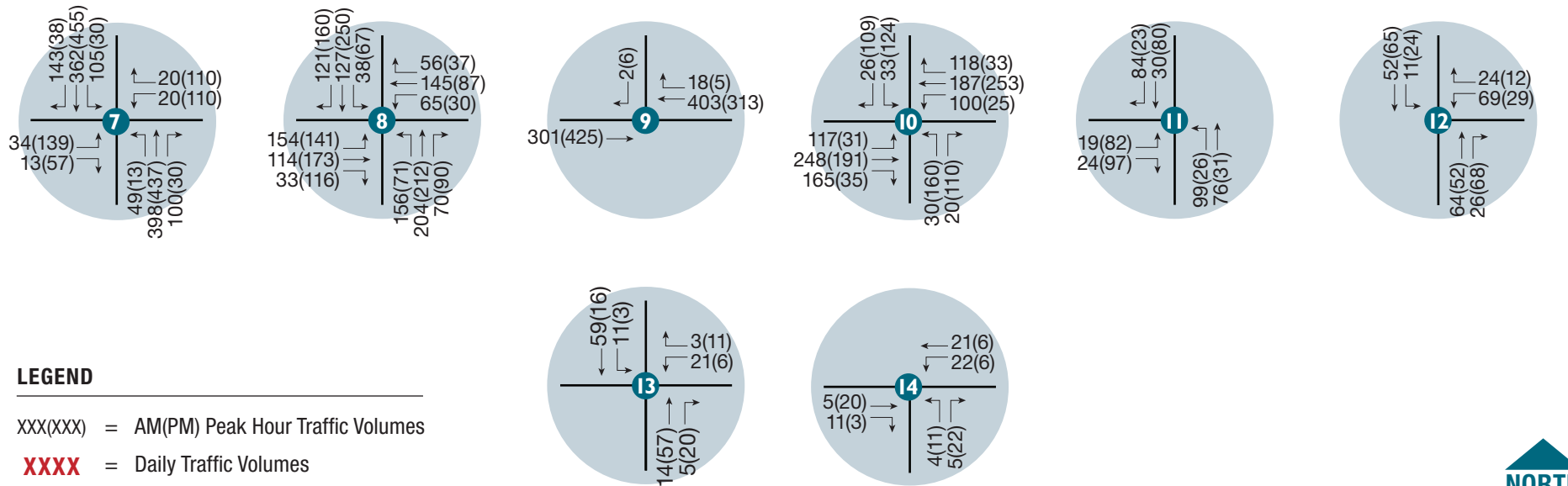
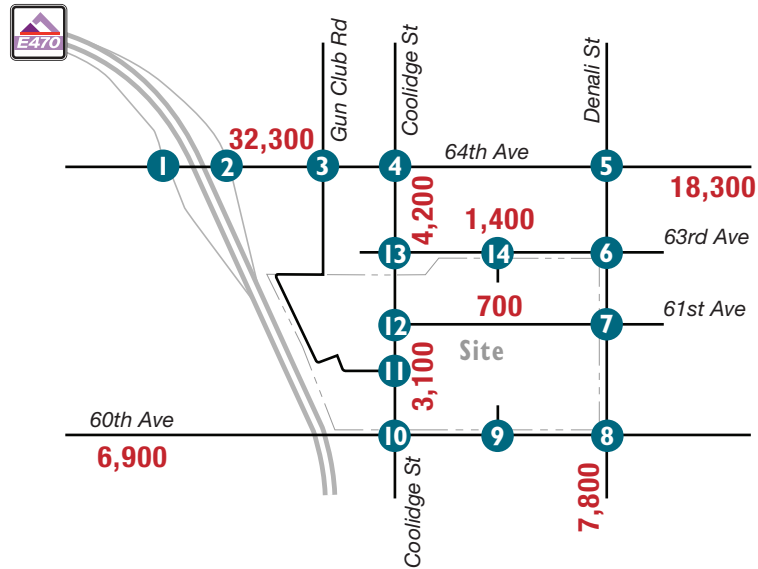
XXXX = Daily Traffic Volumes

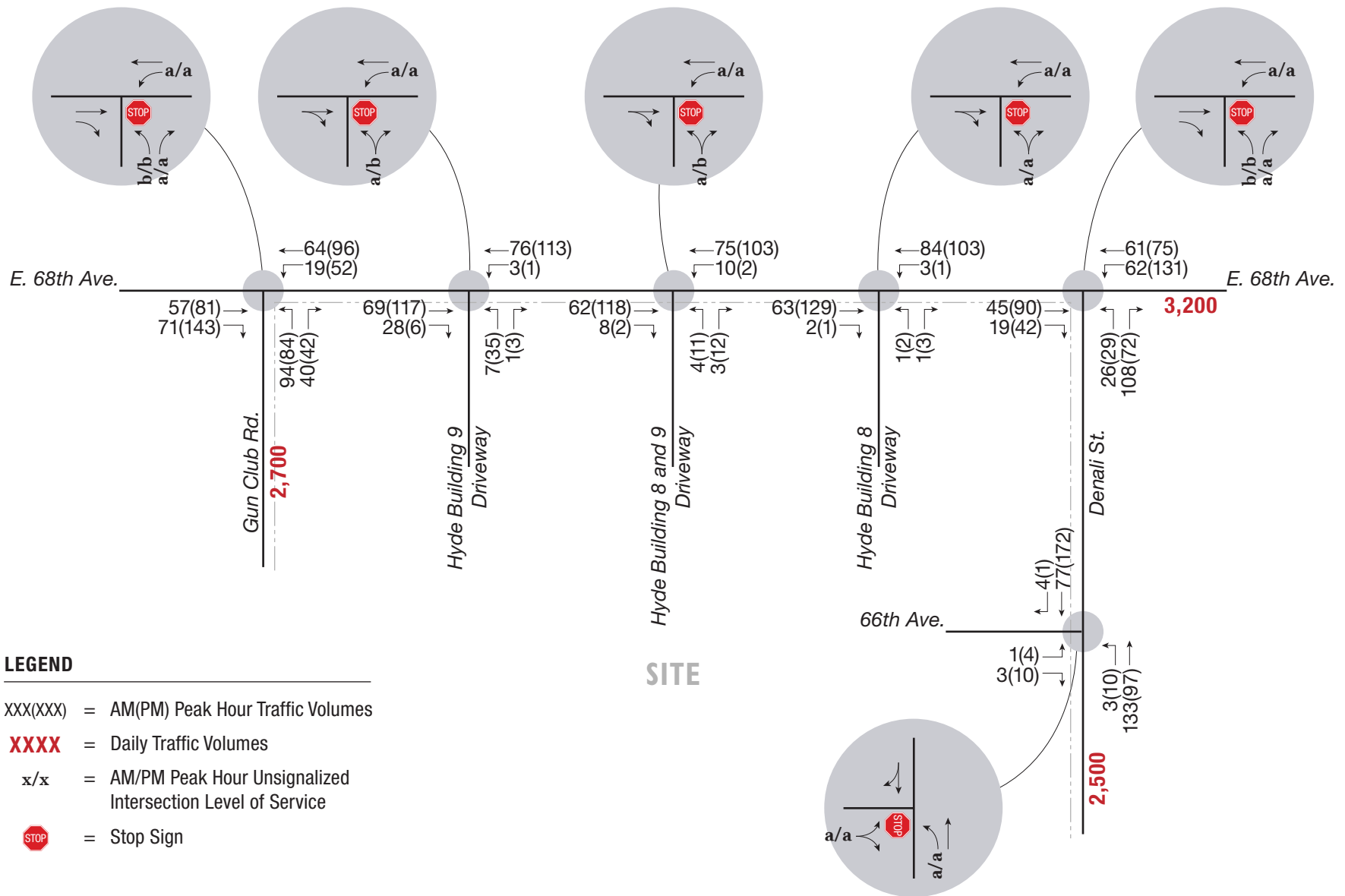


Year 2040 Total Traffic Volumes

FIGURE 8

KEY MAP





























APPENDIX D. TOTAL TRAFFIC LOS

HCM 6th Signalized Intersection Summary

1: Gun Club Rd & E 64th Ave

2023 Total Conditions

AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	256	210	104	45	110	89	59	0	22	21	5	54
Future Volume (veh/h)	256	210	104	45	110	89	59	0	22	21	5	54
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	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	278	228	113	49	120	97	64	0	24	23	5	59
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, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	392	2289	1021	87	2060	919	140	0	90	95	82	418
Arrive On Green	0.13	0.72	0.72	0.05	0.65	0.65	0.05	0.00	0.06	0.03	0.05	0.05
Sat Flow, veh/h	3100	3188	1422	1598	3188	1422	3100	0	1422	3100	1678	2502
Grp Volume(v), veh/h	278	228	113	49	120	97	64	0	24	23	5	59
Grp Sat Flow(s),veh/h/ln	1550	1594	1422	1598	1594	1422	1550	0	1422	1550	1678	1251
Q Serve(g_s), s	10.3	2.6	2.9	3.6	1.7	3.1	2.4	0.0	1.9	0.9	0.3	2.4
Cycle Q Clear(g_c), s	10.3	2.6	2.9	3.6	1.7	3.1	2.4	0.0	1.9	0.9	0.3	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	2289	1021	87	2060	919	140	0	90	95	82	418
V/C Ratio(X)	0.71	0.10	0.11	0.56	0.06	0.11	0.46	0.00	0.27	0.24	0.06	0.14
Avail Cap(c_a), veh/h	852	2289	1021	280	2060	919	439	0	201	387	210	609
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	5.1	5.2	55.3	7.8	8.1	55.9	0.0	54.0	56.8	54.4	42.6
Incr Delay (d2), s/veh	2.4	0.1	0.2	5.6	0.1	0.2	2.3	0.0	1.6	1.3	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.3	1.3	1.4	2.8	0.9	1.6	1.8	0.0	1.3	0.6	0.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	5.2	5.4	60.9	7.9	8.3	58.2	0.0	55.6	58.1	54.7	42.8
LnGrp LOS	D	A	A	E	A	A	E	A	E	E	D	D
Approach Vol, veh/h	619			266			88			87		
Approach Delay, s/veh	26.6			17.8			57.5			47.5		
Approach LOS	C			B			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	11.6	10.5	90.2	9.4	9.9	19.2	81.5				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	14.0	16.0	19.0	49.0	16.0	14.0	31.0	37.0				
Max Q Clear Time (g_c+I1), s	2.9	3.9	5.6	4.9	4.4	4.4	12.3	5.1				
Green Ext Time (p_c), s	0.0	0.0	0.1	1.8	0.1	0.1	0.9	1.0				










Intersection Summary

HCM 6th Ctrl Delay 28.6

HCM 6th LOS C

Notes

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





Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	16	0	0	0	261	84	0	64	0
Future Vol, veh/h	0	0	0	16	0	0	0	261	84	0	64	0
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	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	100	100	100	15	15	100	15	15	15
Mvmt Flow	0	0	0	17	0	0	0	284	91	0	70	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	400	445	35	319	354	284	70	0	0	375	0	0
Stage 1	70	70	-	284	284	-	-	-	-	-	-	-
Stage 2	330	375	-	35	70	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	8.8	8	7.7	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	7.6	7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	8	7	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	4.45	4.95	4.25	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	*794	*698	992	*650	*584	*681	1445	-	-	*1235	-	-
Stage 1	*898	*809	-	*650	*584	-	-	-	-	-	-	-
Stage 2	*794	*698	-	*765	*666	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*794	*698	992	*650	*584	*681	1445	-	-	*1235	-	-
Mov Cap-2 Maneuver	*794	*698	-	*650	*584	-	-	-	-	-	-	-
Stage 1	*898	*809	-	*650	*584	-	-	-	-	-	-	-
Stage 2	*794	*698	-	*765	*666	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.7	0	0
HCM LOS	A	B		






Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1445	-	-	-	-	650	-	* 1235	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.027	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	10.7	0	0	-	-
HCM Lane LOS	A	-	-	A	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1	-	0	-	-

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

Intersection						
Int Delay, s/veh	8.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	84	0	0	0	0	16
Future Vol, veh/h	84	0	0	0	0	16
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	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	15	15	100	100	100
Mvmt Flow	91	0	0	0	0	17
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1	0	-	0	183	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	182	-
Critical Hdwy	5.1	-	-	-	7.4	7.2
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	3.1	-	-	-	4.4	4.2
Pot Cap-1 Maneuver	1160	-	-	-	627	856
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1160	-	-	-	578	856
Mov Cap-2 Maneuver	-	-	-	-	578	-
Stage 1	-	-	-	-	753	-
Stage 2	-	-	-	-	660	-
Approach	EB	WB		SB		
HCM Control Delay, s	8.4	0		9.3		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1160	-	-	-	856	
HCM Lane V/C Ratio	0.079	-	-	-	0.02	
HCM Control Delay (s)	8.4	-	-	-	9.3	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	





HCM 6th TWSC
4: Gun Club Rd & Employee Driveway

2023 Total Conditions
AM Peak

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	0	10	251	0	15
Future Vol, veh/h	49	0	10	251	0	15
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	53	0	11	273	0	16
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	27	11	0	0	284	0
Stage 1	11	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.55	6.35	-	-	4.25	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	-	-	2.335	-
Pot Cap-1 Maneuver	956	1033	-	-	1207	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	956	1033	-	-	1207	-
Mov Cap-2 Maneuver	956	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	956	1207	-	
HCM Lane V/C Ratio	-	-	0.056	-	-	
HCM Control Delay (s)	-	-	9	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

HCM 6th TWSC
5: Gun Club Rd & Emergency Access

2023 Total Conditions
AM Peak

























Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	10	0	0	15
Future Vol, veh/h	0	0	10	0	0	15
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	0	0	11	0	0	16
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	27	11	0	0	11	0
Stage 1	11	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.55	6.35	-	-	4.25	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	-	-	2.335	-
Pot Cap-1 Maneuver	956	1033	-	-	1527	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	956	1033	-	-	1527	-
Mov Cap-2 Maneuver	956	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1527	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	










HCM 6th Signalized Intersection Summary

1: Gun Club Rd & E 64th Ave

2023 Total Conditions

PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	190	236	103	295	81	268	0	139	81	5	234
Future Volume (veh/h)	234	190	236	103	295	81	268	0	139	81	5	234
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	254	207	257	112	321	88	291	0	151	88	5	254
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	361	1688	753	161	1637	730	380	0	263	159	191	556
Arrive On Green	0.12	0.53	0.53	0.10	0.51	0.51	0.12	0.00	0.18	0.05	0.11	0.11
Sat Flow, veh/h	3100	3188	1422	1598	3188	1422	3100	0	1422	3100	1678	2502
Grp Volume(v), veh/h	254	207	257	112	321	88	291	0	151	88	5	254
Grp Sat Flow(s),veh/h/ln	1550	1594	1422	1598	1594	1422	1550	0	1422	1550	1678	1251
Q Serve(g_s), s	9.5	3.9	12.5	8.1	6.5	3.9	10.9	0.0	11.7	3.3	0.3	10.5
Cycle Q Clear(g_c), s	9.5	3.9	12.5	8.1	6.5	3.9	10.9	0.0	11.7	3.3	0.3	10.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	361	1688	753	161	1637	730	380	0	263	159	191	556
V/C Ratio(X)	0.70	0.12	0.34	0.70	0.20	0.12	0.77	0.00	0.57	0.55	0.03	0.46
Avail Cap(c_a), veh/h	568	1688	753	306	1637	730	672	0	320	362	210	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	14.2	16.2	52.2	15.8	15.1	51.0	0.0	45.0	55.6	47.2	40.4
Incr Delay (d2), s/veh	2.5	0.1	1.2	5.4	0.3	0.3	3.3	0.0	2.0	3.0	0.1	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(95%),veh/ln	6.7	2.5	7.3	6.2	4.2	2.3	7.8	0.0	7.6	2.4	0.2	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.5	14.4	17.4	57.6	16.1	15.5	54.2	0.0	47.0	58.6	47.3	41.0
LnGrp LOS	D	B	B	E	B	B	D	A	D	E	D	D
Approach Vol, veh/h	718			521			442			347		
Approach Delay, s/veh	29.3			24.9			51.8			45.5		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	26.2	16.1	67.5	18.7	17.7	18.0	65.6				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	13.0	26.0	21.0	38.0	25.0	14.0	20.0	39.0				
Max Q Clear Time (g_c+I1), s	5.3	13.7	10.1	14.5	12.9	12.5	11.5	8.5				
Green Ext Time (p_c), s	0.1	0.3	0.2	2.0	0.8	0.1	0.5	2.3				
Intersection Summary												
HCM 6th Ctrl Delay	35.8											
HCM 6th LOS	D											
Notes												





Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	76	0	0	0	239	76	0	244	0
Future Vol, veh/h	0	0	0	76	0	0	0	239	76	0	244	0
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	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	100	100	100	15	15	100	15	15	15
Mvmt Flow	0	0	0	83	0	0	0	260	83	0	265	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	567	608	133	393	525	260	265	0	0	343	0	0
Stage 1	265	265	-	260	260	-	-	-	-	-	-	-
Stage 2	302	343	-	133	265	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	8.8	8	7.7	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	7.6	7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	8	7	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	4.45	4.95	4.25	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	*741	*622	856	*669	*591	*701	1217	-	-	*1271	-	-
Stage 1	*687	*662	-	*669	*601	-	-	-	-	-	-	-
Stage 2	*818	*719	-	*653	*518	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*741	*622	856	*669	*591	*701	1217	-	-	*1271	-	-
Mov Cap-2 Maneuver	*741	*622	-	*669	*591	-	-	-	-	-	-	-
Stage 1	*687	*662	-	*669	*601	-	-	-	-	-	-	-
Stage 2	*818	*719	-	*653	*518	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.1	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1217	-	-	-	-	669	-	* 1271	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.123	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	11.1	0	0	-	-
HCM Lane LOS	A	-	-	A	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.4	-	0	-	-

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

Intersection						
Int Delay, s/veh	8.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	76	0	0	0	0	76
Future Vol, veh/h	76	0	0	0	0	76
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	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	15	15	100	100	100
Mvmt Flow	83	0	0	0	0	83
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1	0	-	0	167	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	5.1	-	-	-	7.4	7.2
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	3.1	-	-	-	4.4	4.2
Pot Cap-1 Maneuver	1160	-	-	-	642	856
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1160	-	-	-	596	856
Mov Cap-2 Maneuver	-	-	-	-	596	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	673	-
Approach	EB	WB		SB		
HCM Control Delay, s	8.3	0		9.7		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1160	-	-	-	856	
HCM Lane V/C Ratio	0.071	-	-	-	0.097	
HCM Control Delay (s)	8.3	-	-	-	9.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	





HCM 6th TWSC
4: Gun Club Rd & Employee Driveway

2023 Total Conditions
PM Peak

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔		↑	↔	↔	↑
Traffic Vol, veh/h	229	0	10	229	0	15
Future Vol, veh/h	229	0	10	229	0	15
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	249	0	11	249	0	16
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	27	11	0	0	260	0
Stage 1	11	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.55	6.35	-	-	4.25	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	-	-	2.335	-
Pot Cap-1 Maneuver	956	1033	-	-	1233	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	956	1033	-	-	1233	-
Mov Cap-2 Maneuver	956	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.1	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	956	1233	-	
HCM Lane V/C Ratio	-	-	0.26	-	-	
HCM Control Delay (s)	-	-	10.1	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	1	0	-	

HCM 6th TWSC
5: Gun Club Rd & Emergency Access

2023 Total Conditions
PM Peak

























Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	10	0	0	15
Future Vol, veh/h	0	0	10	0	0	15
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	0	0	11	0	0	16
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	27	11	0	0	11	0
Stage 1	11	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.55	6.35	-	-	4.25	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	-	-	2.335	-
Pot Cap-1 Maneuver	956	1033	-	-	1527	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	956	1033	-	-	1527	-
Mov Cap-2 Maneuver	956	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1527	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

HCM 6th Signalized Intersection Summary

1: Gun Club Rd & E 64th Ave

2040 Total Conditions

AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	426	1035	104	45	539	117	59	5	22	60	5	137
Future Volume (veh/h)	426	1035	104	45	539	117	59	5	22	60	5	137
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	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	463	1125	113	49	586	127	64	5	24	65	5	149
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, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	576	2212	1063	87	1793	876	140	18	88	140	123	628
Arrive On Green	0.19	0.69	0.69	0.05	0.56	0.56	0.05	0.07	0.06	0.05	0.07	0.07
Sat Flow, veh/h	3100	3188	1422	1598	3188	1422	3100	252	1208	3100	1678	2502
Grp Volume(v), veh/h	463	1125	113	49	586	127	64	0	29	65	5	149
Grp Sat Flow(s),veh/h/ln	1550	1594	1422	1598	1594	1422	1550	0	1460	1550	1678	1251
Q Serve(g_s), s	17.2	20.0	2.6	3.6	11.8	4.5	2.4	0.0	2.3	2.5	0.3	5.7
Cycle Q Clear(g_c), s	17.2	20.0	2.6	3.6	11.8	4.5	2.4	0.0	2.3	2.5	0.3	5.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		1.00
Lane Grp Cap(c), veh/h	576	2212	1063	87	1793	876	140	0	107	140	123	628
V/C Ratio(X)	0.80	0.51	0.11	0.56	0.33	0.15	0.46	0.00	0.27	0.46	0.04	0.24
Avail Cap(c_a), veh/h	775	2212	1063	173	1793	876	284	0	134	284	154	674
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	8.7	4.2	55.4	14.1	9.7	55.9	0.0	53.0	55.9	51.7	35.8
Incr Delay (d2), s/veh	4.5	0.8	0.2	5.6	0.5	0.3	2.3	0.0	1.4	2.4	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.0	10.1	1.2	2.8	7.3	2.5	1.8	0.0	1.6	1.8	0.3	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	9.5	4.4	61.0	14.6	10.1	58.2	0.0	54.3	58.2	51.8	36.0
LnGrp LOS	D	A	A	E	B	B	E	A	D	E	D	D
Approach Vol, veh/h	1701				762				93			
Approach Delay, s/veh	20.5				16.8				57.0			
Approach LOS	C				B				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	12.8	10.5	87.3	9.4	12.8	26.3	71.5				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	10.0	11.0	67.0	10.0	10.0	28.0	50.0				
Max Q Clear Time (g_c+I1), s	4.5	4.3	5.6	22.0	4.4	7.7	19.2	13.8				
Green Ext Time (p_c), s	0.1	0.0	0.0	10.3	0.1	0.1	1.2	4.4				











Intersection Summary

HCM 6th Ctrl Delay 22.5

HCM 6th LOS C

Notes

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

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	3	37	21	3	3	115	313	79	9	104	9
Future Vol, veh/h	7	3	37	21	3	3	115	313	79	9	104	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	8	3	40	23	3	3	125	340	86	10	113	10

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	774	814	62	668	733	340	123	0	0	426	0	0
Stage 1	138	138	-	590	590	-	-	-	-	-	-	-
Stage 2	636	676	-	78	143	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	7.525	6.725	6.425	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	*608	522	953	*755	*598	*815	1379	-	-	*1199	-	-
Stage 1	*818	755	-	*771	*678	-	-	-	-	-	-	-
Stage 2	*771	662	-	*888	*751	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*558	471	953	*665	*540	*815	1379	-	-	*1199	-	-
Mov Cap-2 Maneuver	*558	471	-	*665	*540	-	-	-	-	-	-	-
Stage 1	*744	749	-	*701	*616	-	-	-	-	-	-	-
Stage 2	*694	602	-	*840	*745	-	-	-	-	-	-	-







Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	10.6	1.8	0.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1379	-	-	558	885	665	650	*1199	-	-
HCM Lane V/C Ratio	0.091	-	-	0.014	0.049	0.034	0.01	0.008	-	-
HCM Control Delay (s)	7.9	-	-	11.5	9.3	10.6	10.6	8	-	-
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0	0.2	0.1	0	0	-	-

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

HCM 6th TWSC
3: 65th Ave & South Truck Driveway

2040 Total Conditions
AM Peak

Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	84	3	4	0	5	0	6	0	0	0	0	16
Future Vol, veh/h	84	3	4	0	5	0	6	0	0	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	15	15	15	15	100	15	100	15	100	100	100
Mvmt Flow	91	3	4	0	5	0	7	0	0	0	0	17






Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	5	0	0	7	0	0	201	192	5	192	194	5
Stage 1	-	-	-	-	-	-	187	187	-	5	5	-
Stage 2	-	-	-	-	-	-	14	5	-	187	189	-
Critical Hdwy	5.1	-	-	4.25	-	-	7.25	7.5	6.35	8.1	7.5	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	6.5	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	6.5	-	7.1	6.5	-
Follow-up Hdwy	3.1	-	-	2.335	-	-	3.635	4.9	3.435	4.4	4.9	4.2
Pot Cap-1 Maneuver	1156	-	-	1533	-	-	730	560	1041	596	558	851
Stage 1	-	-	-	-	-	-	786	594	-	813	731	-
Stage 2	-	-	-	-	-	-	973	731	-	633	592	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1156	-	-	1533	-	-	672	516	1041	560	514	851
Mov Cap-2 Maneuver	-	-	-	-	-	-	672	516	-	560	514	-
Stage 1	-	-	-	-	-	-	724	547	-	749	731	-
Stage 2	-	-	-	-	-	-	953	731	-	583	545	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.7	0	10.4	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	672	1156	-	-	1533	-	-	851
HCM Lane V/C Ratio	0.01	0.079	-	-	-	-	-	0.02
HCM Control Delay (s)	10.4	8.4	-	-	0	-	-	9.3
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.3	-	-	0	-	-	0.1

HCM 6th TWSC
4: Gun Club Rd & Employee Driveway

2040 Total Conditions
AM Peak

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	5	120	225	26	88
Future Vol, veh/h	44	5	120	225	26	88
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	48	5	130	245	28	96





Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	282	130	0	0	375
Stage 1	130	-	-	-	-
Stage 2	152	-	-	-	-
Critical Hdwy	6.55	6.35	-	-	4.25
Critical Hdwy Stg 1	5.55	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-
Follow-up Hdwy	3.635	3.435	-	-	2.335
Pot Cap-1 Maneuver	720	948	-	-	1117
Stage 1	899	-	-	-	-
Stage 2	845	-	-	-	-
Platoon blocked, %	1	1	-	-	1
Mov Cap-1 Maneuver	702	948	-	-	1117
Mov Cap-2 Maneuver	702	-	-	-	-
Stage 1	899	-	-	-	-
Stage 2	824	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	721	1117
HCM Lane V/C Ratio	-	-	0.074	0.025
HCM Control Delay (s)	-	-	10.4	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC
5: Gun Club Rd & Emergency Access

2040 Total Conditions
AM Peak

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	125	0	0	114
Future Vol, veh/h	0	0	125	0	0	114
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	0	0	136	0	0	124

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	260	136	0
Stage 1	136	-	-
Stage 2	124	-	-
Critical Hdwy	6.55	6.35	-
Critical Hdwy Stg 1	5.55	-	-
Critical Hdwy Stg 2	5.55	-	-
Follow-up Hdwy	3.635	3.435	-
Pot Cap-1 Maneuver	743	940	-
Stage 1	893	-	-
Stage 2	870	-	-
Platoon blocked, %	1	1	-
Mov Cap-1 Maneuver	743	940	-
Mov Cap-2 Maneuver	743	-	-
Stage 1	893	-	-
Stage 2	870	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1397
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection

Int Delay, s/veh 4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	50	80	34	56	86	39
Future Vol, veh/h	50	80	34	56	86	39
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	150	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	54	87	37	61	93	42

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	141
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.2
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.29
Pot Cap-1 Maneuver	-	-	1394
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1394
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	9.9
HCM LOS			A

























Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	761	991	-	-	1394	-
HCM Lane V/C Ratio	0.123	0.043	-	-	0.027	-
HCM Control Delay (s)	10.4	8.8	-	-	7.7	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

HCM 6th Signalized Intersection Summary

1: Gun Club Rd & E 64th Ave

2040 Total Conditions

PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	453	936	236	103	1470	116	268	10	139	227	10	572
Future Volume (veh/h)	453	936	236	103	1470	116	268	10	139	227	10	572
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	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678
Adj Flow Rate, veh/h	492	1017	257	112	1598	126	291	11	124	247	11	622
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, %	15	15	15	15	15	15	15	15	15	15	15	15
Cap, veh/h	517	1729	937	159	1514	818	336	16	176	284	196	688
Arrive On Green	0.17	0.54	0.54	0.10	0.47	0.47	0.11	0.13	0.13	0.09	0.12	0.12
Sat Flow, veh/h	3100	3188	1422	1598	3188	1422	3100	117	1322	3100	1678	2502
Grp Volume(v), veh/h	492	1017	257	112	1598	126	291	0	135	247	11	622
Grp Sat Flow(s),veh/h/ln	1550	1594	1422	1598	1594	1422	1550	0	1440	1550	1678	1251
Q Serve(g_s), s	18.9	25.7	9.0	8.1	57.0	5.0	11.1	0.0	10.8	9.4	0.7	14.0
Cycle Q Clear(g_c), s	18.9	25.7	9.0	8.1	57.0	5.0	11.1	0.0	10.8	9.4	0.7	14.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.92	1.00		1.00
Lane Grp Cap(c), veh/h	517	1729	937	159	1514	818	336	0	192	284	196	688
V/C Ratio(X)	0.95	0.59	0.27	0.71	1.06	0.15	0.87	0.00	0.70	0.87	0.06	0.90
Avail Cap(c_a), veh/h	517	1729	937	160	1514	818	336	0	192	284	196	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	18.4	8.5	52.4	31.5	11.9	52.6	0.0	50.2	53.8	47.1	42.0
Incr Delay (d2), s/veh	28.0	1.5	0.7	13.2	39.3	0.4	20.5	0.0	11.0	23.8	0.1	15.4
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(95%),veh/ln	14.0	14.0	4.7	6.8	38.7	2.8	9.0	0.0	7.9	8.1	0.5	15.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.5	19.9	9.2	65.6	70.8	12.3	73.2	0.0	61.2	77.6	47.2	57.4
LnGrp LOS	E	B	A	E	F	B	E	A	E	E	D	E
Approach Vol, veh/h	1766				1836				426			
Approach Delay, s/veh	34.4				66.5				69.4			
Approach LOS	C				E				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	20.0	15.9	69.1	17.0	18.0	24.0	61.0				
Change Period (Y+Rc), s	5.0	5.0	6.0	6.0	5.0	5.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	15.0	10.0	63.0	12.0	13.0	18.0	55.0				
Max Q Clear Time (g_c+I1), s	11.4	12.8	10.1	27.7	13.1	16.0	20.9	59.0				
Green Ext Time (p_c), s	0.0	0.1	0.0	9.3	0.0	0.0	0.0	0.0				











Intersection Summary

HCM 6th Ctrl Delay 54.5

HCM 6th LOS D

Notes

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

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	17	146	116	17	10	176	262	78	8	359	16
Future Vol, veh/h	17	17	146	116	17	10	176	262	78	8	359	16
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	-	-	150	-	-	100	-	0	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15	15	15	15	15	15	15
Mvmt Flow	18	18	159	126	18	11	191	285	85	9	390	17

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1141	1169	204	889	1092	285	407	0	0	370	0	0
Stage 1	417	417	-	667	667	-	-	-	-	-	-	-
Stage 2	724	752	-	222	425	-	-	-	-	-	-	-
Critical Hdwy	7.525	6.725	7.125	7.525	6.725	6.425	4.325	-	-	4.325	-	-
Critical Hdwy Stg 1	6.725	5.725	-	6.325	5.725	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.325	5.725	-	6.725	5.725	-	-	-	-	-	-	-
Follow-up Hdwy	3.6425	4.1425	3.4425	3.6425	4.1425	3.4425	2.3425	-	-	2.3425	-	-
Pot Cap-1 Maneuver	262	266	769	435	303	*840	1073	-	-	*1235	-	-
Stage 1	556	564	-	701	631	-	-	-	-	-	-	-
Stage 2	641	566	-	729	559	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	209	217	769	278	248	*840	1073	-	-	*1235	-	-
Mov Cap-2 Maneuver	209	217	-	278	248	-	-	-	-	-	-	-
Stage 1	457	560	-	576	519	-	-	-	-	-	-	-
Stage 2	502	465	-	555	555	-	-	-	-	-	-	-







Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.3		26.1		3.1		0.2	
HCM LOS	B		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1073	-	-	209	608	278	336	*1235	-	-
HCM Lane V/C Ratio	0.178	-	-	0.088	0.291	0.454	0.087	0.007	-	-
HCM Control Delay (s)	9.1	-	-	23.9	13.3	28.3	16.7	7.9	-	-
HCM Lane LOS	A	-	-	C	B	D	C	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	0.3	1.2	2.2	0.3	0	-	-

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






HCM 6th TWSC
3: 65th Ave & South Truck Driveway

2040 Total Conditions
PM Peak

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	76	13	14	0	33	0	34	0	0	0	0	76
Future Vol, veh/h	76	13	14	0	33	0	34	0	0	0	0	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	15	15	15	15	100	15	100	15	100	100	100
Mvmt Flow	83	14	15	0	36	0	37	0	0	0	0	83
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	36	0	0	29	0	0	266	224	22	224	231	36
Stage 1	-	-	-	-	-	-	188	188	-	36	36	-
Stage 2	-	-	-	-	-	-	78	36	-	188	195	-
Critical Hdwy	5.1	-	-	4.25	-	-	7.25	7.5	6.35	8.1	7.5	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	6.5	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	6.5	-	7.1	6.5	-
Follow-up Hdwy	3.1	-	-	2.335	-	-	3.635	4.9	3.435	4.4	4.9	4.2
Pot Cap-1 Maneuver	1121	-	-	1504	-	-	661	535	1019	565	529	814
Stage 1	-	-	-	-	-	-	785	593	-	779	705	-
Stage 2	-	-	-	-	-	-	899	705	-	632	588	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1121	-	-	1504	-	-	561	495	1019	533	490	814
Mov Cap-2 Maneuver	-	-	-	-	-	-	561	495	-	533	490	-
Stage 1	-	-	-	-	-	-	727	549	-	721	705	-
Stage 2	-	-	-	-	-	-	808	705	-	585	544	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	6.2			0			11.9			9.9		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	561	1121	-	-	1504	-	-	814				
HCM Lane V/C Ratio	0.066	0.074	-	-	-	-	-	0.101				
HCM Control Delay (s)	11.9	8.5	-	-	0	-	-	9.9				
HCM Lane LOS	B	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.3				

HCM 6th TWSC
4: Gun Club Rd & Employee Driveway

2040 Total Conditions
PM Peak

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	206	23	123	207	22	187
Future Vol, veh/h	206	23	123	207	22	187
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, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	224	25	134	225	24	203





Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	385	134	0	0	359
Stage 1	134	-	-	-	-
Stage 2	251	-	-	-	-
Critical Hdwy	6.55	6.35	-	-	4.25
Critical Hdwy Stg 1	5.55	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-
Follow-up Hdwy	3.635	3.435	-	-	2.335
Pot Cap-1 Maneuver	620	942	-	-	1133
Stage 1	895	-	-	-	-
Stage 2	761	-	-	-	-
Platoon blocked, %	1	1	-	-	1
Mov Cap-1 Maneuver	607	942	-	-	1133
Mov Cap-2 Maneuver	607	-	-	-	-
Stage 1	895	-	-	-	-
Stage 2	745	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	629	1133
HCM Lane V/C Ratio	-	-	0.396	0.021
HCM Control Delay (s)	-	-	14.4	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.9	0.1

HCM 6th TWSC
5: Gun Club Rd & Emergency Access

2040 Total Conditions
PM Peak

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	146	0	0	209
Future Vol, veh/h	0	0	146	0	0	209
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	0	0	159	0	0	227

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	386	159	0
Stage 1	159	-	-
Stage 2	227	-	-
Critical Hdwy	6.55	6.35	-
Critical Hdwy Stg 1	5.55	-	-
Critical Hdwy Stg 2	5.55	-	-
Follow-up Hdwy	3.635	3.435	-
Pot Cap-1 Maneuver	630	932	-
Stage 1	882	-	-
Stage 2	781	-	-
Platoon blocked, %	1	1	-
Mov Cap-1 Maneuver	630	932	-
Mov Cap-2 Maneuver	630	-	-
Stage 1	882	-	-
Stage 2	781	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1376
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection						
Int Delay, s/veh	4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	75	146	63	88	92	54
Future Vol, veh/h	75	146	63	88	92	54
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	150	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	82	159	68	96	100	59
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	241	0	314	82
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	232	-
Critical Hdwy	-	-	4.2	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.29	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	1280	-	663	956
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1280	-	628	956
Mov Cap-2 Maneuver	-	-	-	-	628	-
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	746	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.3		10.8	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	628	956	-	-	1280	-
HCM Lane V/C Ratio	0.159	0.061	-	-	0.053	-
HCM Control Delay (s)	11.8	9	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0.2	-