



Traffic Impact Study

Shelbyville Marketplace – Shelbyville, IN

Weihe Engineers

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→ The Power of Commitment

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1. Introduction

1.1 Purpose of this report

GHD Services, Inc. (GHD) has prepared a Traffic Impact Study for the proposed Shelbyville Marketplace development to be located in the southwest quadrant of the Progress Road and Marketplace Boulevard intersection in Shelbyville, Shelby County, Indiana. The site location is shown on Figure 1. (Note, all figures are compiled at the end of this report, before the appendices.)

The developer is proposing to construct a 21,034 square foot (SF) hotel and a 19,478 SF retail development as part of the site. Two full access driveways are proposed to serve the retail development (Block "B") on Progress Parkway. There is potential to develop two more parcels on site (Blocks "C" and "D"). If and when that occurs, an internal access drive may be constructed providing site access to Marketplace Boulevard. For the purposes of this study, one full access driveway was assumed on Marketplace Boulevard to serve the hotel development (Block "A"). The proposed site layout is shown on Figure 2.

The purpose of this study was to determine the traffic impacts to area roadways and intersections resulting from the proposed development and to evaluate the potential need for auxiliary turn lanes at the site driveways once the proposed development is opened.

1.2 Limitations

This report: has been prepared by GHD for Weihe Engineers and may only be used and relied on by Weihe Engineers for the purpose agreed between GHD and Weihe Engineers.

GHD otherwise disclaims responsibility to any person other than Weihe Engineers arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Existing Conditions

2.1 Area Roadway System

The primary area roadways serving the development are SR 44, Progress Parkway, Marketplace Boulevard, Deputy Alyea Drive, Sergeant Henderson Drive, and Duran Drive. These roadways are described below:

- **SR 44** is a four-lane roadway with a center two-way left turn lane (TWLTL) in the site vicinity. SR 44 has a posted speed limit of 40 miles per hour (mph), is classified as a ‘principal arterial – other’ and is under the jurisdiction of the Indiana Department of Transportation (INDOT). The roadway has a 2022 two-way annual average daily traffic (AADT) of 15,003 vehicles according to the data provided at location ID 730304, which is located 0.1 miles east of the Dagley Court, in INDOT’s Traffic Count Database System (TCDS).
- **Progress Parkway (S 200 E)** is a north-south two-lane local roadway that contains a center TWLTL along the site frontage and extends from SR 44 approximately 3 miles south to its terminus at SR 9. The roadway has a posted speed limit of 40 mph, is classified as a ‘minor arterial’ and is under the jurisdiction of the City of Shelbyville. The roadway has a 2022 two-way AADT of 7,725 vehicles according to the data provided at location ID 730473, which is located 0.1 miles north of Michigan Road, in INDOT’s TCDS.
- **Marketplace Boulevard** is an east-west two-lane local roadway that provides commercial access and extends from its intersection with Progress Parkway approximately 0.5 miles west to its terminus at E. Michigan Road. The roadway is under the jurisdiction of the City of Shelbyville and does not have a speed limit posted.
- **Deputy Alyea Drive** is a north-south two-lane local roadway that extends from its intersection with SR 44 approximately 260 feet south to its terminus at Marketplace Boulevard. The roadway is under the jurisdiction of the City of Shelbyville; no speed limit is posted. At its intersection with SR 44, the roadway contains a left-in, right-in, right-out (LIRIRO) lane configuration.
- **Sgt. Henderson Drive** is a north-south two-lane local roadway that provides commercial access and extends from its intersection with SR 44 approximately 250 feet south to its terminus at Marketplace Boulevard. The roadway is under the jurisdiction of the City of Shelbyville and has no speed limit posted. The roadway contains signalized traffic control at its intersection with SR 44.
- **Duran Drive** is a north-south two-lane local roadway that provides commercial access and extends from its unsignalized intersection with SR 44 approximately 630 feet south to its terminus at Marketplace Boulevard. The roadway is under the jurisdiction of the City of Shelbyville and has no speed limit posted.

Based on GHD’s discussion with the City of Shelbyville, the below intersections were deemed critical to study for this analysis. INDOT is not anticipated to be involved in this study.

- SR 44 at Deputy Alyea Drive (unsignalized)
- SR 44 at Sgt. Henderson Drive (signalized)
- SR 44 at Duran Drive (unsignalized)
- Progress Parkway at Marketplace Boulevard (unsignalized)
- Marketplace Boulevard at Deputy Alyea Drive (unsignalized)
- Marketplace Boulevard at Sgt. Henderson Drive (unsignalized)

- Marketplace Boulevard at Duran Drive (unsignalized)

2.2 2022 Existing Traffic Volumes

Peak hour traffic turning movement counts were conducted at the study intersections on Tuesday, October 11, 2022 from 7:00 A.M. to 9:00 and from 4:00 P.M. to 6:00 P.M. Passenger cars, trucks and pedestrians were included in the counts. It was determined the peak hours of traffic occurred from 8:00 A.M. to 9:00 A.M. and 4:15 P.M. to 5:15 P.M. It should be noted that when the traffic counts were conducted there was not a traffic signal at the intersection of SR 44 and Sgt. Henderson Drive. It is acknowledged that there may be some traffic that shifts to use this newly signalized intersection, however, the existing traffic volume patterns were unadjusted to provide a conservative analysis.

Figure 3 presents the 2022 existing traffic volumes. The traffic count data is contained in Appendix A.

3. Background Conditions

3.1 2025 and 2035 Background Traffic Volumes

Background traffic takes into account the future traffic conditions of the roadways, before the addition of new site traffic. Two background scenarios were analyzed, 2025 and a horizon year 2035 which represents 10 years into the future from buildout. The Background analyses consider the following situations:

- i. The additional traffic on the roadway system that will be generated by approved developments in the area that may be completed by the time the build-out of the site occurs
- ii. Traffic generated by other developments not known at this time
- iii. The inherent growth in traffic

The estimated buildout year for the site is 2025. To address part i above, discussions were held with the City of Shelbyville to determine if there were any approved developments that would be constructed by 2025 in the study area; it was found there were none.

To address situations ii and iii above, the Indianapolis Metropolitan Planning Organization (Indy MPO) was contacted to obtain a typical growth factor in the study area. The Indy MPO developed and provided AM and PM peak hour traffic volumes in the study area from 2022 to 2040 based on their travel demand model. Annual growth rates of 2.5% and 0.5% were derived from the provided traffic forecasts between years 2022 and 2030 and between years 2030 and 2040, respectively. Therefore, the 2022 existing traffic volumes were increased by 2.5 percent per year for three years to create the 2025 Background Traffic Volumes. These volumes are presented on Figure 4. The 2025 Background Traffic Volumes were further increased by 2.5% percent per year for an additional five years and then 0.5% per year for an additional five years to create the 2035 Background Traffic Volumes. These volumes are presented on Figure 8.

4. Projected Traffic

4.1 Trip Generation

The trip generation for the proposed development was based on data contained in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition.

For the hotel development, ITE Land Use Code (LUC) #310, Hotel, was found to best represent the site use. It should be noted the site plan only provided the building gross floor area (GFA) and did not provide the proposed number of rooms for the hotel. Since ITE LUC #310 does not contain a GFA independent variable, the proposed number of rooms was estimated using a 200 GFA per room assumption, based on hotel room-to-GFA ratios from previous studies. For this hotel, 110 rooms were assumed. For the retail development (Block "B"), ITE Land Use #822, Strip Retail Plaza (<40ksf), was found to best represent the site use.

4.2 Pass-By Trips

It is important to note that surveys conducted by ITE have shown that approximately 40 percent of trips made to shopping plazas (40k to 150k SF) are considered pass-by trips. According to ITE's Trip Generation Handbook, 3rd Ed., a pass-by trip is defined as "an intermediate stop on the way from an origin to a primary destination without a route diversion." For example, if a motorist was leaving work and stopped at a shopping plaza on their way home, the trip to the shopping plaza would be considered a pass-by trip (not a new trip) since the motorist was already on the road on their way to their primary destination (home).

Table 4.1 presents the trip generation for the site.

Table 4.1 Peak Hour Site Trip Generation

Land Use Code	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
2025 Trip Generation (Buildout)						
LU 310 – Hotel (110 Rooms)	27	21	48	27	27	54
LU 822 – Strip Retail Plaza (<40 ksf) (19.5 ksf)	28	18	46	64	65	129
Pass-by Trips (40% in AM / PM)	(11)	(7)	(18)	(26)	(26)	(52)
2025 Total New Site Trips (Figure 5)	44	32	76	65	66	131

4.3 Trip Distribution

Based on a review of the existing turning movement counts, knowledge of the area roadways, and logical traffic patterns, the following trip distribution was developed for the new site traffic and shown in Table 4.2:

Table 4.2 Direction of Approach

To/From	Hotel Development (Block "A")		Retail Development (Block "B")	
	AM / PM		AM	PM
SR 44 (West)	40%		40%	40%
SR 44 (East)	40%		35%	30%
Progress Parkway (South)	10%		25%	30%
Marketplace Boulevard (South)	10%		0%	0%
Total	100%		100%	100%

4.4 Trip Assignment

The projected A.M. and P.M. new peak hour site trips were assigned to the adjacent street system based on the trip distribution described in Section 4.3.

The new primary site trips were assigned as follows:

- All of the hotel site traffic from the west on SR 44 will enter/exit the site via Sgt. Henderson Drive.
- 50% of the hotel site traffic from the east on SR 44 will enter the site via Sgt. Henderson Drive and will exit the site via Deputy Alyea Drive; the remaining hotel site traffic from the east on SR 44 will enter/exit the site via Progress Boulevard.
- All of the hotel site traffic from the south on Progress Boulevard will enter/exit the site via Marketplace Boulevard.
- All of the retail site traffic from the east on SR 44 will enter/exit the site via Progress Parkway. 50% of this traffic will enter/exit the site via the north retail site driveway and the remainder will enter/exit the site via the south retail site driveway.
- All of the retail site traffic from the west on SR 44 will enter the site via Progress Parkway. 50% of this traffic will enter/exit the site via the north retail site driveway and the remainder will enter/exit the site via the south retail site driveway. All of this traffic will exit the site via Sgt. Henderson Drive.
- 50% of the retail site traffic from the south on Progress Boulevard will enter the site via the north retail site driveway and the remainder will enter the site via the south retail site driveway. 90% of this site traffic will exit the site via the south site driveway and the remainder will exit the site via the north site driveway.
- Pass-by trips were assigned based on the existing directional split of traffic on the study roadways.

When the 2025 new primary site trips (Figure 5) are added to the pass-by trips (Figure 6) and the 2025 background traffic volumes (Figure 4), a 2025 future traffic scenario is created (Figure 7).

When the 2025 new primary site trips (Figure 5) are added to the pass-by trips (Figure 6) and the 2035 background traffic volumes (Figure 8), a 2035 horizon traffic scenario is created (Figure 9).

5. Analysis

5.1 Capacity Analysis

The study intersections were analyzed according to the methodologies published in the Highway Capacity Manual (HCM), 6th Edition. The analysis determines the "Level of Service (LOS)" of the intersections and is based on factors such as the number and types of lanes, signal timing, traffic volumes, pedestrian activity, etc. Levels of service are expressed in a range from "A" through "F," with "A" being the highest level of service, and "F" representing the lowest level of service. Tables 5.1 and 5.2 show the thresholds for Levels of Service "A" through "F" for unsignalized and signalized intersections, respectively.

Table 5.1 Level of Service Criteria for Unsignalized Intersections

Level of Service	Delay/Vehicle (seconds)	Description
A	< 10.0	Little or no delay, very low main street traffic.
B	10.1 to 15.0	Short traffic delays, many acceptable gaps.
C	15.1 to 25.0	Average traffic delays, frequent gaps still occur.
D	25.1 to 35.0	Long traffic delays, limited number of acceptable gaps.
E	35.1 to 50.0	Very long traffic delays, very small number of acceptable gaps.
F	> 50.0	Extreme traffic delays, virtually no acceptable gaps in traffic.

Table 5.2 Level of Service Criteria for Signalized Intersections

Level of Service	Delay/Vehicle (seconds)	Description
A	< 10.0	Most vehicles do not stop at all.
B	10.1 to 20.0	Some vehicles stop.
C	20.1 to 35.0	The number of vehicles stopping is significant, although many pass through without stopping.
D	35.1 to 55.0	Many vehicles stop. Individual cycle failures are noticeable.
E	55.1 to 80.0	Considered to be the limit of acceptable delay. Individual cycle failures are frequent.
F	> 80.0	Unacceptable delay.

The traffic engineering software *Synchro 11* was used to perform the capacity analyses. The capacity analyses are discussed in the following paragraphs. The following traffic scenarios were analyzed in this study:

- **Year 2022 Existing Traffic** - This scenario analyzed year 2022 existing traffic volumes at the study intersections in order to determine the existing intersection operating levels of service.

- **Year 2025 Background Traffic** - This scenario analyzed the year 2025 traffic conditions of the study intersections *without* the addition of new site traffic volumes.
- **Year 2025 Future Traffic** - This scenario analyzed the year 2025 background traffic conditions of the study intersections and site driveways *with* the addition of new site traffic volumes.
- **Year 2035 Background Traffic** - This scenario analyzed the year 2035 traffic conditions of the study intersections *without* the addition of the new site traffic volumes.
- **Year 2035 Horizon Traffic** - This scenario analyzed year 2035 background traffic conditions of the study intersections and site driveways *with* the addition of new site traffic volumes.

The traffic signal at the intersection of **SR 44 and Sgt. Henderson Drive** is actuated and operates as a three-phase signal. Given the actuated capabilities of the signal, the timing and signal phasing can vary based on the traffic demand.

The results of the capacity analyses are summarized in Tables 5.3 and 5.4. The *Synchro* capacity analysis reports are contained in Appendix B.

Table 5.3 Capacity Analysis Results for Study Intersections (continued on next page)

Intersection Movement	2022 Existing Traffic		2025 Background Traffic		2025 Future Traffic	
	Delay / LOS		Delay / LOS		Delay / LOS	
	AM	PM	AM	PM	AM	PM
SR 44 and Duran Drive (TWSC)						
Northbound Left	17.0 / C	32.3 / D	18.2 / C	38.4 / E	18.8 / C	41.5 / E
Northbound Through/Right	12.6 / B	17.6 / C	13.2 / B	19.4 / C	13.4 / B	20.2 / C
Eastbound Left	8.2 / A	9.1 / A	8.3 / A	9.4 / A	8.4 / A	9.5 / A
Westbound Left	8.2 / A	8.9 / A	8.3 / A	9.1 / A	8.4 / A	9.2 / A
Southbound Left	16.3 / C	29.5 / D	17.3 / C	33.9 / D	17.8 / C	36.4 / E
Southbound Through/Right	10.0 / B	15.7 / C	10.2 / B	17.5 / C	10.3 / B	18.3 / C
Marketplace Boulevard and Duran Drive (AWSC)						
Overall	6.9 / A	7.0 / A	6.9 / A	7.0 / A	7.0 / A	7.1 / A
Northbound Through/Left	7.1 / A	7.1 / A	7.1 / A	7.1 / A	7.1 / A	7.1 / A
Eastbound Shared	6.9 / A	6.8 / A	6.9 / A	6.8 / A	6.9 / A	6.8 / A
Southbound Through/Right	6.8 / A	7.1 / A	6.8 / A	7.1 / A	6.9 / A	7.2 / A
SR 44 and Sgt. Henderson Drive (Signalized)						
Overall	7.7 / A	9.8 / A	7.9 / A	10.1 / B	8.2 / A	10.4 / B
Eastbound Left	5.8 / A	7.1 / A	5.9 / A	7.3 / A	6.1 / A	7.4 / A
Eastbound Through	6.4 / A	8.3 / A	6.5 / A	8.5 / A	6.9 / A	8.8 / A
Eastbound Right	5.7 / A	6.9 / A	5.8 / A	7.0 / A	6.2 / A	7.3 / A
Westbound Left	6.5 / A	7.4 / A	6.7 / A	7.5 / A	6.7 / A	7.5 / A

Table 5.3 Capacity Analysis Results for Study Intersections (continued from previous page)

Intersection Movement	2022 Existing Traffic		2025 Background Traffic		2025 Future Traffic	
	Delay / LOS		Delay / LOS		Delay / LOS	
	AM	PM	AM	PM	AM	PM
Westbound Through/Right	7.8 / A	10.0 / A	8.1 / A	10.4 / B	8.2 / A	10.5 / B
Northbound Left	15.4 / B	15.7 / B	15.4 / B	15.8 / B	15.4 / B	16.2 / B
Northbound Through/Right	15.0 / B	14.3 / B	15.0 / B	14.4 / B	14.8 / B	14.3 / B
Southbound Left	15.5 / B	15.7 / B	15.5 / B	15.8 / B	15.4 / B	15.7 / B
Southbound Through/Right	15.4 / B	15.3 / B	15.4 / B	15.5 / B	15.2 / B	15.4 / B
Marketplace Boulevard and Sgt. Henderson Drive (AWSC)						
Overall	7.2 / A	7.5 / A	7.2 / A	7.6 / A	7.4 / A	7.8 / A
Eastbound Through/Left	7.2 / A	7.5 / A	7.2 / A	7.5 / A	7.3 / A	7.7 / A
Westbound Through/Right	6.8 / A	7.2 / A	6.8 / A	7.3 / A	6.9 / A	7.4 / A
Southbound Left	8.0 / A	8.3 / A	8.0 / A	8.4 / A	8.2 / A	8.7 / A
Southbound Right	6.7 / A	6.8 / A	6.7 / A	6.8 / A	6.7 / A	6.9 / A
SR 44 and Deputy Alyea Drive (TWSC)						
Northbound Right	9.5 / A	10.6 / B	9.6 / A	10.8 / B	9.6 / A	11.0 / B
Eastbound Left	8.1 / A	8.9 / A	8.2 / A	9.1 / A	8.2 / A	9.1 / A
Westbound Left	8.1 / A	9.4 / A	8.2 / A	9.6 / A	8.2 / A	9.7 / A
Southbound Shared	12.1 / B	17.5 / C	12.5 / B	18.9 / C	12.6 / B	19.3 / C
Marketplace Boulevard and Deputy Alyea Drive (AWSC)						
Overall	7.2 / A	7.4 / A	7.2 / A	7.4 / A	7.3 / A	7.5 / A
Eastbound Through/Left	7.2 / A	7.3 / A	7.2 / A	7.4 / A	7.3 / A	7.5 / A
Westbound Through/Right	7.1 / A	7.2 / A	7.1 / A	7.2 / A	7.2 / A	7.4 / A
Southbound Left	7.9 / A	8.1 / A	8.0 / A	8.1 / A	8.0 / A	8.2 / A
Southbound Right	6.7 / A	6.8 / A	6.7 / A	6.8 / A	6.8 / A	6.9 / A
Progress Parkway and Marketplace Boulevard (TWSC)						
Northbound Left	7.7 / A	8.5 / A	7.8 / A	8.7 / A	7.8 / A	8.9 / A
Eastbound Through/Left	14.0 / B	21.5 / C	14.7 / B	24.0 / C	15.2 / C	28.2 / D
Eastbound Right	9.5 / A	11.6 / B	9.6 / A	12.0 / B	9.7 / A	12.4 / B
Westbound Shared	0.0 / A	10.7 / B	0.0 / A	11.0 / B	0.0 / A	11.1 / B
Southbound Left	8.0 / A	8.2 / A	8.1 / A	8.3 / A	8.1 / A	8.3 / A

Table 5.3 Capacity Analysis Results for Study Intersections (continued from previous page)

Intersection Movement	2022 Existing Traffic		2025 Background Traffic		2025 Future Traffic	
	Delay / LOS		Delay / LOS		Delay / LOS	
	AM	PM	AM	PM	AM	PM
Marketplace Boulevard and Proposed Hotel Site Driveway (TWSC)						
Northbound Shared	--	--	--	--	8.8 / A	9.2 / A
Westbound Through/Left	--	--	--	--	7.3 / A	7.4 / A
Progress Parkway and Proposed Retail Site Driveway #1 (TWSC)						
Northbound Left	--	--	--	--	7.8 / A	8.7 / A
Eastbound Shared	--	--	--	--	11.0 / B	14.7 / B
Progress Parkway and Proposed Retail Site Driveway #2 (TWSC)						
Northbound Left	--	--	--	--	7.8 / A	8.7 / A
Eastbound Shared	--	--	--	--	11.4 / B	14.2 / B

i. 2022 Existing Traffic Conditions

All approaches and movements at the study intersection are projected to operate at acceptable levels of service (LOS D or better) during both peak hours.

ii. 2025 Background Traffic Conditions

In 2025, with the addition of the background traffic, all approaches and movements at the study intersections are projected to operate at acceptable levels of service (LOS D or better) with minimal increases in delay with the exception of the northbound left turning movement at the intersection of **SR 44 and Duran Drive**, which is projected to operate at LOS E during the PM peak hour. The 95th percentile queue length of this movement is projected to be less than one vehicle during either peak hour. With the new traffic signal located at Sgt. Henderson, if drivers experience delays longer than desired, left turning traffic will likely shift from Duran to the signal and the level of service would improve.

iii. 2025 Future Traffic Conditions

In 2025, with the addition of the new site traffic, all approaches and movements at the study intersections and site driveways are projected to operate at levels of service comparable to 2025 background conditions with minimal increases in delay with the exception of the southbound left turning movement at the intersection of **SR 44 and Duran Drive**, which is projected to degrade from LOS D to LOS E during the PM peak hour. The 95th percentile queue length of this movement is projected to be less than one vehicle during either peak hour. It should be noted that no site traffic is added to this movement. As mentioned above, the new traffic signal located at Sgt. Henderson will offer drivers an alternative way to turn left onto SR 44 thus improving the level of service at the SR 44/Duran intersection.

The results of the capacity analyses under 2035 background and horizon conditions are summarized in Table 5.4.

Table 5.4 Capacity Analysis Results for Study Intersections (continued on next page)

Intersection Movement	2035 Background Traffic		2035 Horizon Traffic	
	Delay / LOS		Delay / LOS	
	AM	PM	AM	PM
SR 44 and Duran Drive (TWSC)				
Northbound Left	21.5 / C	58.1 / F	22.3 / C	63.3 / F
Northbound Through/Right	14.6 / B	23.0 / C	15.0 / C	24.2 / C
Eastbound Left	8.5 / A	9.9 / A	8.6 / A	10.0 / B
Westbound Left	8.5 / A	9.6 / A	8.6 / A	9.7 / A
Southbound Left	20.2 / C	48.6 / E	20.8 / C	53.2 / F
Southbound Through/Right	10.5 / B	22.5 / C	10.6 / B	23.6 / C
Marketplace Boulevard and Duran Drive (AWSC)				
Overall	6.9 / A	7.1 / A	7.0 / A	7.1 / A
Northbound Through/Left	7.1 / A	7.1 / A	7.1 / A	7.2 / A
Eastbound Shared	6.9 / A	6.9 / A	6.9 / A	6.9 / A
Southbound Through/Right	6.8 / A	7.2 / A	6.9 / A	7.2 / A
SR 44 and Sgt. Henderson Drive (Signalized)				
Overall	8.4 / A	10.8 / B	8.6 / A	11.0 / B
Eastbound Left	6.2 / A	7.7 / A	6.3 / A	7.8 / A
Eastbound Through	6.9 / A	9.1 / A	7.3 / A	9.4 / A
Eastbound Right	6.0 / A	7.2 / A	6.3 / A	7.4 / A
Westbound Left	6.9 / A	7.8 / A	6.9 / A	7.8 / A
Westbound Through/Right	8.7 / A	11.4 / B	8.9 / A	11.5 / B
Northbound Left	15.5 / B	16.2 / B	15.5 / B	16.7 / B
Northbound Through/Right	14.9 / B	14.5 / B	14.8 / B	14.4 / B
Southbound Left	15.6 / B	16.2 / B	15.5 / B	16.2 / B
Southbound Through/Right	15.4 / B	15.8 / B	15.2 / B	15.7 / B
Marketplace Boulevard and Sgt. Henderson Drive (AWSC)				
Overall	7.2 / A	7.7 / A	7.4 / A	7.9 / A
Eastbound Through/Left	7.2 / A	7.6 / A	7.3 / A	7.8 / A
Westbound Through/Right	6.9 / A	7.4 / A	7.0 / A	7.5 / A
Southbound Left	8.0 / A	8.5 / A	8.3 / A	8.8 / A
Southbound Right	6.7 / A	6.9 / A	6.7 / A	7.0 / A

Table 5.4 Capacity Analysis Results for Study Intersections (continued from previous page)

Intersection Movement	2035 Background Traffic		2035 Horizon Traffic	
	Delay / LOS		Delay / LOS	
	AM	PM	AM	PM
SR 44 and Deputy Alyea Drive (TWSC)				
Northbound Right	9.8 / A	11.4 / B	9.9 / A	11.6 / B
Eastbound Left	8.4 / A	9.5 / A	8.4 / A	9.5 / A
Westbound Left	8.4 / A	10.2 / B	8.4 / A	10.3 / B
Southbound Shared	13.7 / B	24.4 / C	13.8 / B	25.0 / D
Marketplace Boulevard and Deputy Alyea Drive (AWSC)				
Overall	7.2 / A	7.5 / A	7.3 / A	7.6 / A
Eastbound Through/Left	7.2 / A	7.5 / A	7.3 / A	7.6 / A
Westbound Through/Right	7.1 / A	7.2 / A	7.2 / A	7.5 / A
Southbound Left	8.0 / A	8.2 / A	8.1 / A	8.3 / A
Southbound Right	6.7 / A	6.8 / A	6.8 / A	6.9 / A
Progress Parkway and Marketplace Boulevard (TWSC)				
Northbound Left	7.9 / A	9.0 / A	7.9 / A	9.2 / A
Eastbound Through/Left	16.4 / C	31.4 / D	17.3 / C	38.0 / E
Eastbound Right	9.9 / A	13.0 / B	10.0 / B	13.4 / B
Westbound Shared	0.0 / A	11.6 / B	0.0 / A	11.7 / B
Southbound Left	8.2 / A	8.5 / A	8.2 / A	8.5 / A
Marketplace Boulevard and Proposed Hotel Site Driveway (TWSC)				
Northbound Shared	--	--	8.9 / A	9.3 / A
Westbound Through/Left	--	--	7.3 / A	7.4 / A
Progress Parkway and Proposed Retail Site Driveway #1 (TWSC)				
Northbound Left	--	--	7.9 / A	9.0 / A
Eastbound Shared	--	--	11.6 / B	16.2 / C
Progress Parkway and Proposed Retail Site Driveway #2 (TWSC)				
Northbound Left	--	--	7.9 / A	9.0 / A
Eastbound Shared	--	--	12.0 / B	15.6 / C

iv. 2035 Background Traffic Conditions

In 2035, with the addition of the background traffic, all approaches and movements at the study intersections are projected to operate at acceptable levels of service (LOS D or better) during both peak hours with the exception of the

northbound and southbound left turning movements at the intersection of **SR 44 and Duran Drive**, which are projected to operate at LOS F and LOS E, respectively, during the PM peak hour. The 95th percentile queue length of these movements is projected to be less than one vehicle during either peak hour. Note discussion about the new signal at Sgt. Henderson above.

V. 2035 Horizon Traffic Conditions

In 2035, with the addition of the new site traffic, all approaches and movements at the study intersections and site driveways are projected to operate at levels of service comparable to 2035 background conditions with the exception of the southbound left turning movement at the intersection of **SR 44 and Duran Drive**, which is projected to degrade from LOS E to LOS F during the PM peak hour and the eastbound through/left turning movement at the intersection of **Progress Parkway and Marketplace Boulevard**, which is projected to degrade from LOS D to LOS E during the PM peak hour. The 95th percentile queue length of these movements is projected to be less than one vehicle and the volume to capacity ratio is projected to be less than 1.0 during either peak hour. It should be noted that no site traffic is added to the southbound left turning movement at the intersection of **SR 44 and Duran Drive** and the new traffic signal at Sgt. Henderson will help reduce any left turning delays at Duran. Furthermore, during non-peak hours the volume of site and non-site traffic are expected to be lower and, hence, the LOS of the eastbound through/left turning movement at the intersection of **Progress Parkway and Marketplace Boulevard** should improve.

5.2 Auxiliary Turn Lane Analysis

An analysis was performed to determine the need for left and right turn lanes at the proposed site access drives on Marketplace Boulevard and Progress Parkway. A left turn lane analysis was not performed at the intersections of Progress Parkway and the proposed Retail Site Driveways since the proposed site driveways are located within the limits of an existing center two-way left turn lane (TWTL) on Progress Parkway. The determination of need for right and left turn lanes was based on guidelines contained in the 2013 Indiana Department of Transportation Design Manual (IDM).

Left Turn Lane Analysis

Marketplace Boulevard and Proposed Hotel Site Driveway

Under both 2025 future and 2035 horizon conditions, the westbound projected peak hour left turning traffic volume from Marketplace Boulevard into the proposed hotel site driveway is 8 vehicles during both the AM and PM peak hours. Based on the left turn lane guidelines in Figure 46-4C of the IDM, the volume of traffic on Marketplace Boulevard combined with the projected left turning site traffic volumes, a left turn lane would **not** be required to serve the site in 2025 or 2035 during either peak hour. It should be noted that Figure 46-4C of the IDM only provides guidance for speed limits of 40, 50 and 60 mph. Since the posted speed limit on Marketplace Boulevard is unposted in the site vicinity, the warrant guidance for 40-mph speed limits was used in the left turn lane analysis.

Right Turn Lane Analysis

Marketplace Boulevard and Proposed Hotel Site Driveway

Under 2025 future and 2035 horizon conditions, the eastbound projected peak hour right turning traffic volume from Marketplace Boulevard into the proposed hotel site driveway is 19 vehicles during either peak hour. Based on the right turn guidelines in Figure 46-4A of the IDM, the volume of traffic on Marketplace Boulevard combined with the projected right turning site traffic volumes, it was determined a right turn lane would **not** be required to serve the site in 2025 or 2035 during either peak hour.

Progress Parkway and Proposed Retail Site (North) Driveway #1

Under 2025 future and 2035 horizon conditions, the southbound projected peak hour right turning traffic volume from Progress Parkway into the proposed retail site (north) driveway #1 is 9 and 20 vehicles during the AM and PM peak hours, respectively. Based on the right turn guidelines in Figure 46-4A of the IDM, the volume of traffic on Progress Parkway combined with the projected right turning site traffic volumes, it was determined a right turn lane would **not** be required to serve the site in 2025 or 2035 during either peak hour.

Progress Parkway and Proposed Retail Site (North) Driveway #2

Under 2025 future and 2035 horizon conditions, the southbound projected peak hour right turning traffic volume from Progress Parkway into the proposed retail site (north) driveway #2 is 8 and 20 vehicles during the AM and PM peak hours, respectively. Based on the right turn guidelines in Figure 46-4A of the IDM, the volume of traffic on Progress Parkway combined with the projected right turning site traffic volumes, it was determined a right turn lane would **not** be required to serve the site in 2025 or 2035 during either peak hour.

6. Conclusions

Based on the results of the study, the conclusions are as follows:

Conclusions:

- In 2025, the proposed Shelbyville Marketplace development is projected to add 76 new trips during the A.M. peak hour (44 in / 32 out) and 131 new trips during the P.M. peak hour (65 in / 66 out).
- In 2025, with the addition of the new site traffic, all approaches and movements at the study intersections and site driveways are projected to operate at levels of service comparable to 2025 background conditions with minimal increases in delay with the exception of the southbound left turning movement at the intersection of **SR 44 and Duran Drive**, which is projected to degrade from LOS D to LOS E during the PM peak hour. The 95th percentile queue length of this movement is projected to be less than one vehicle during either peak hour. It should be noted that no site traffic is added to this movement. In addition, the new signal at Sgt. Henderson will help improve the left turn traffic condition at Duran by offering an alternative way to turn left onto SR 44.
- Under 2035 horizon conditions, the southbound left turning movement at the intersection of **SR 44 and Duran Drive** is projected to degrade from LOS E to LOS F during the PM peak hour and the eastbound through/left turning movement at the intersection of **Progress Parkway and Marketplace Boulevard** is projected to degrade from LOS D to LOS E during the PM peak hour. The 95th percentile queue length of these movements is projected to be less than one vehicle and the volume to capacity ratio is projected to be less than 1.0 during either peak hour. It should be noted that no site traffic is added to the southbound left turning movement at the intersection of **SR 44 and Duran Drive**. Furthermore, during non-peak hours the volume of site and non-site traffic are expected to be lower and, hence, the LOS of the eastbound through/left turning movement at the intersection of **Progress Parkway and Marketplace Boulevard** should improve.
- Marketplace Boulevard and Proposed Hotel Site Driveway
 - Based on the left turn lane guidelines in Figure 46-4C of the IDM, the volume of traffic on Marketplace Boulevard combined with the projected left turning site traffic volumes, a left turn lane would **not** be required on Marketplace Boulevard to serve the site in 2025 or 2035 during either peak hour.

- Based on the right turn lane guidelines in Figure 46-4A of the IDM, the volume of traffic on Marketplace Boulevard combined with the projected right turning traffic volumes, an eastbound right turn lane would **not** be required on Marketplace Boulevard to serve the hotel site driveway under 2025 future or 2035 horizon conditions.
- Progress Parkway and Proposed Retail Site Driveways
 - Based on the right turn lane guidelines in Figure 46-4A of the IDM, the volume of traffic on Progress Parkway combined with the projected right turning traffic volumes, a southbound right turn lane would **not** be required on Progress Parkway to serve either retail site driveway under 2025 future or 2035 horizon conditions.
- Based on the results of the traffic study, it was determined the area roadways can adequately accommodate the new site traffic from this development.

Please do not hesitate to contact me should you have any questions regarding this analysis.

Sincerely,

GHD Services, Inc.

Eric J. Tripi, P.E., PTOE

Regional Transportation Leader

TRAFFIC IMPACT STUDY STATEMENT OF CERTIFICATION

"I certify that this TRAFFIC IMPACT STUDY has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering."

Eric J. Tripi, P.E., PTOE
Indiana Registration #11400547
GHD Services Inc.



Figure 1: Site Location

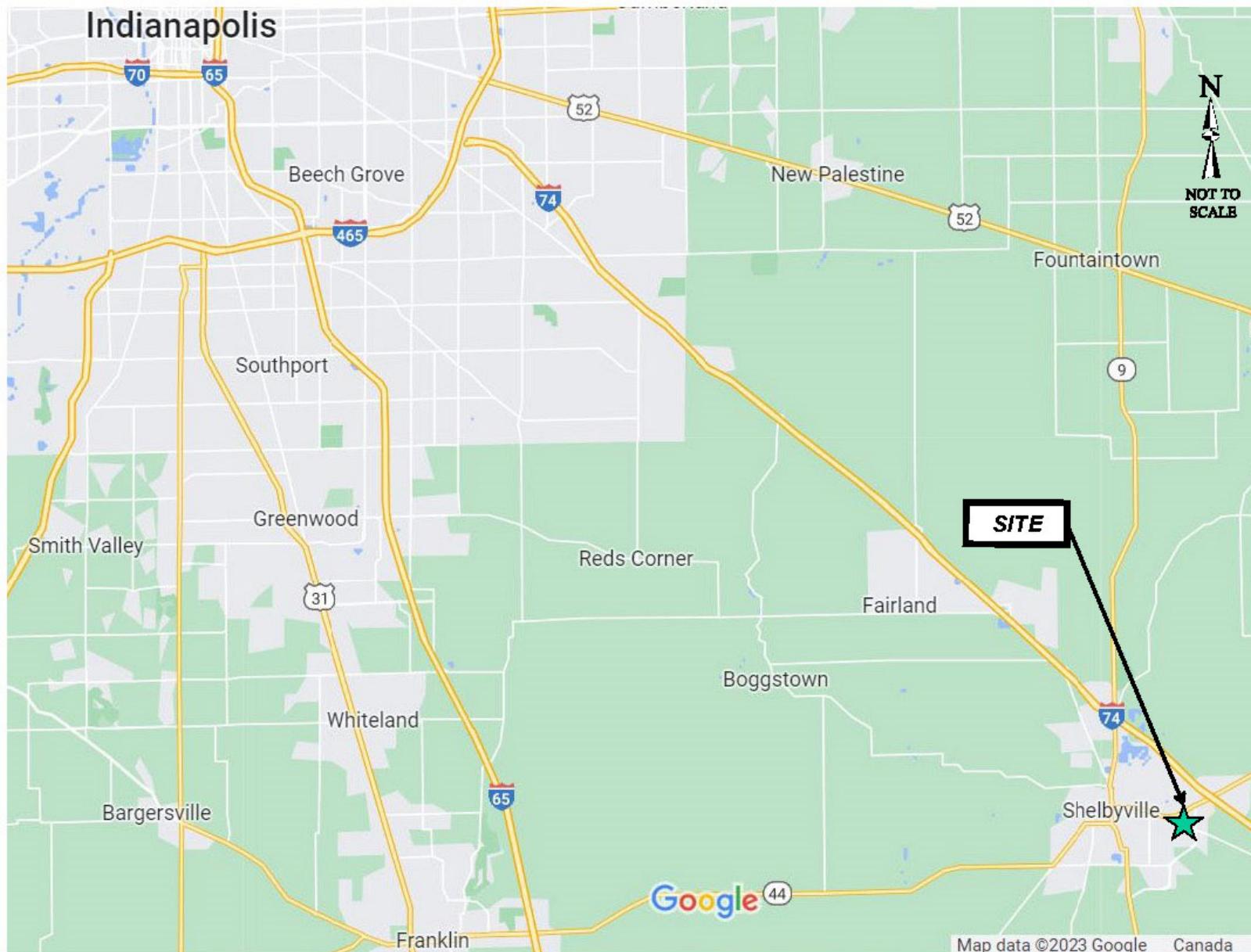


Figure 2: Site Layout Plan

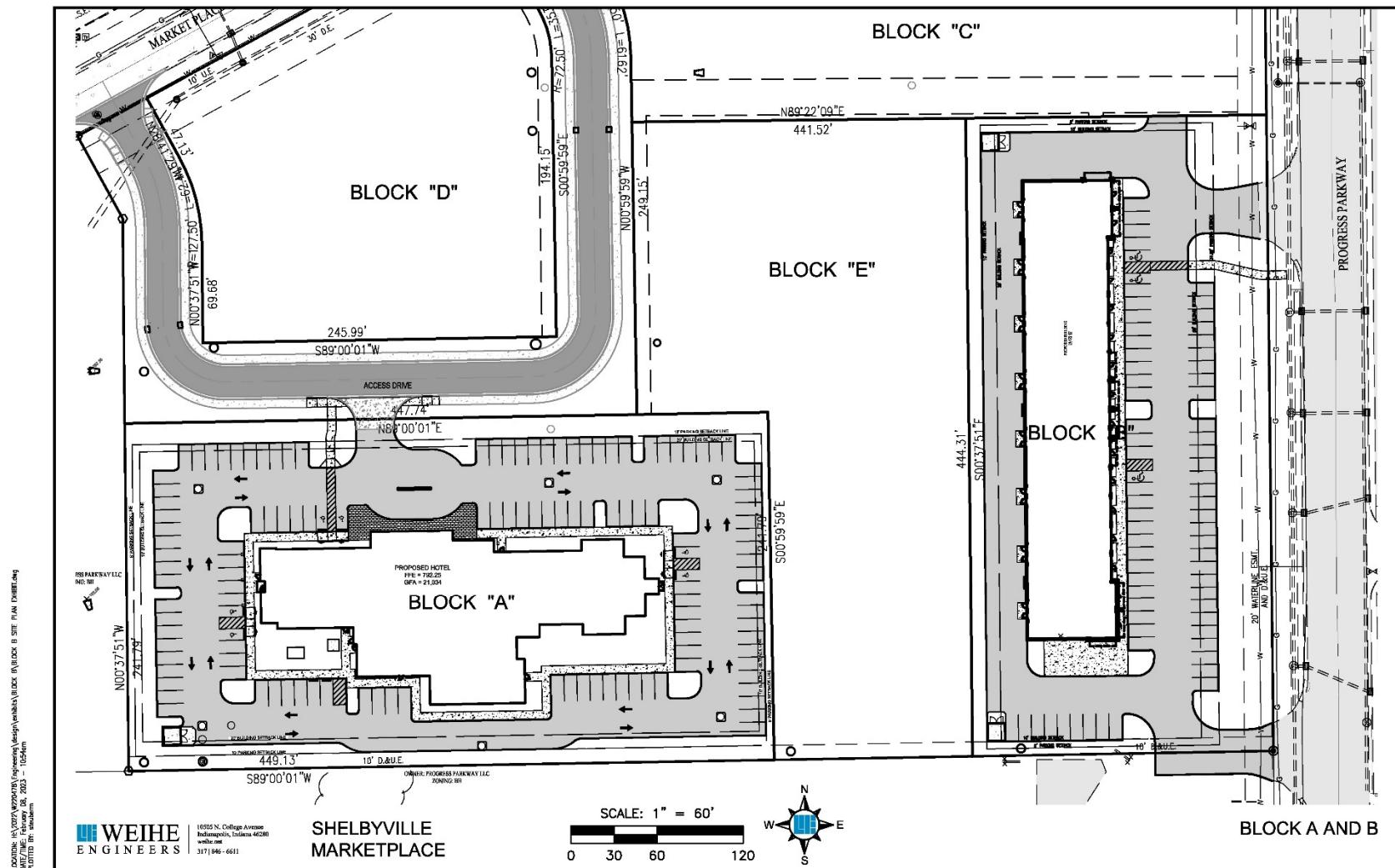


Figure 3: 2022 Existing Traffic Volumes

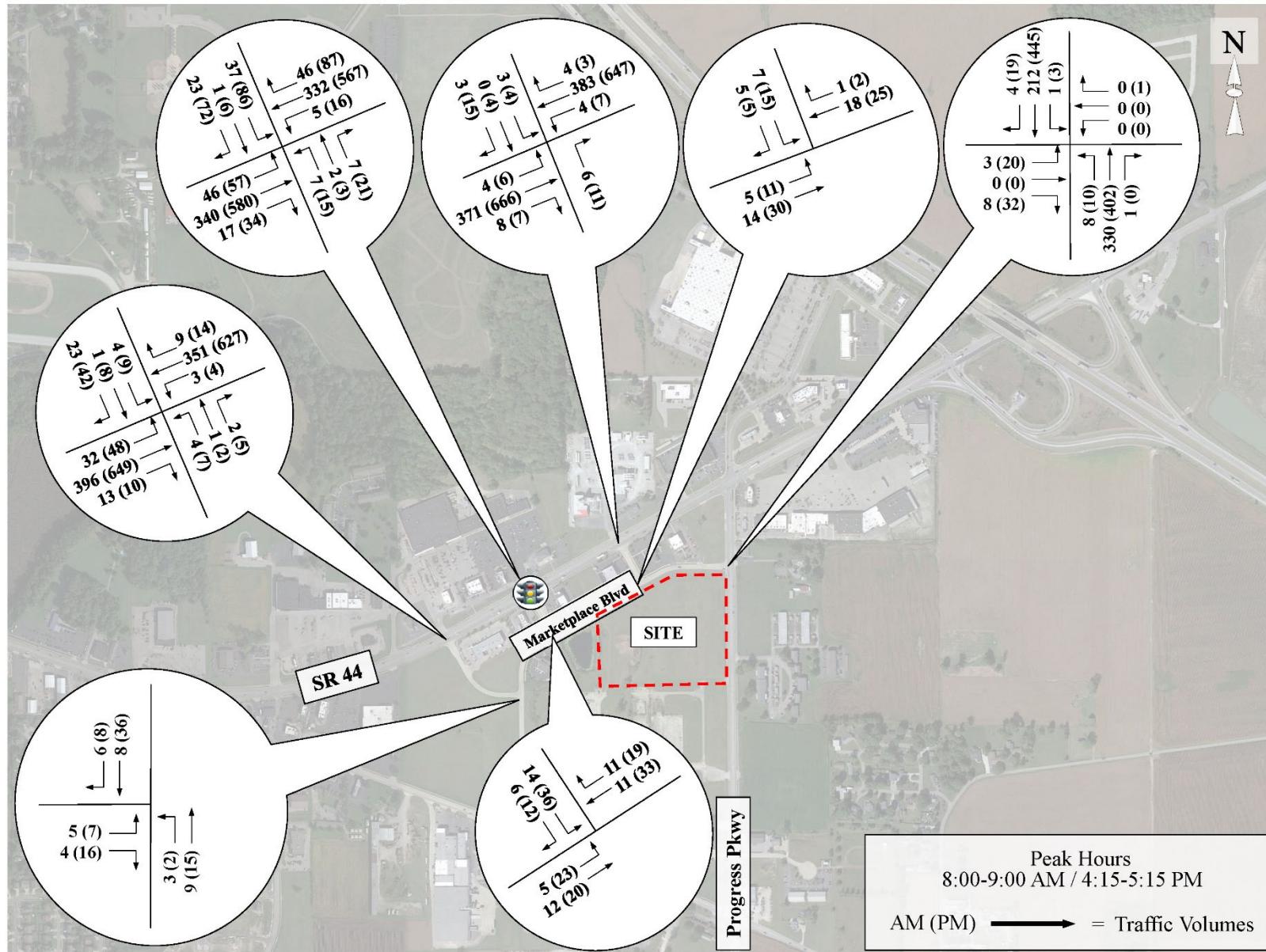


Figure 4: 2025 Background Traffic Volumes

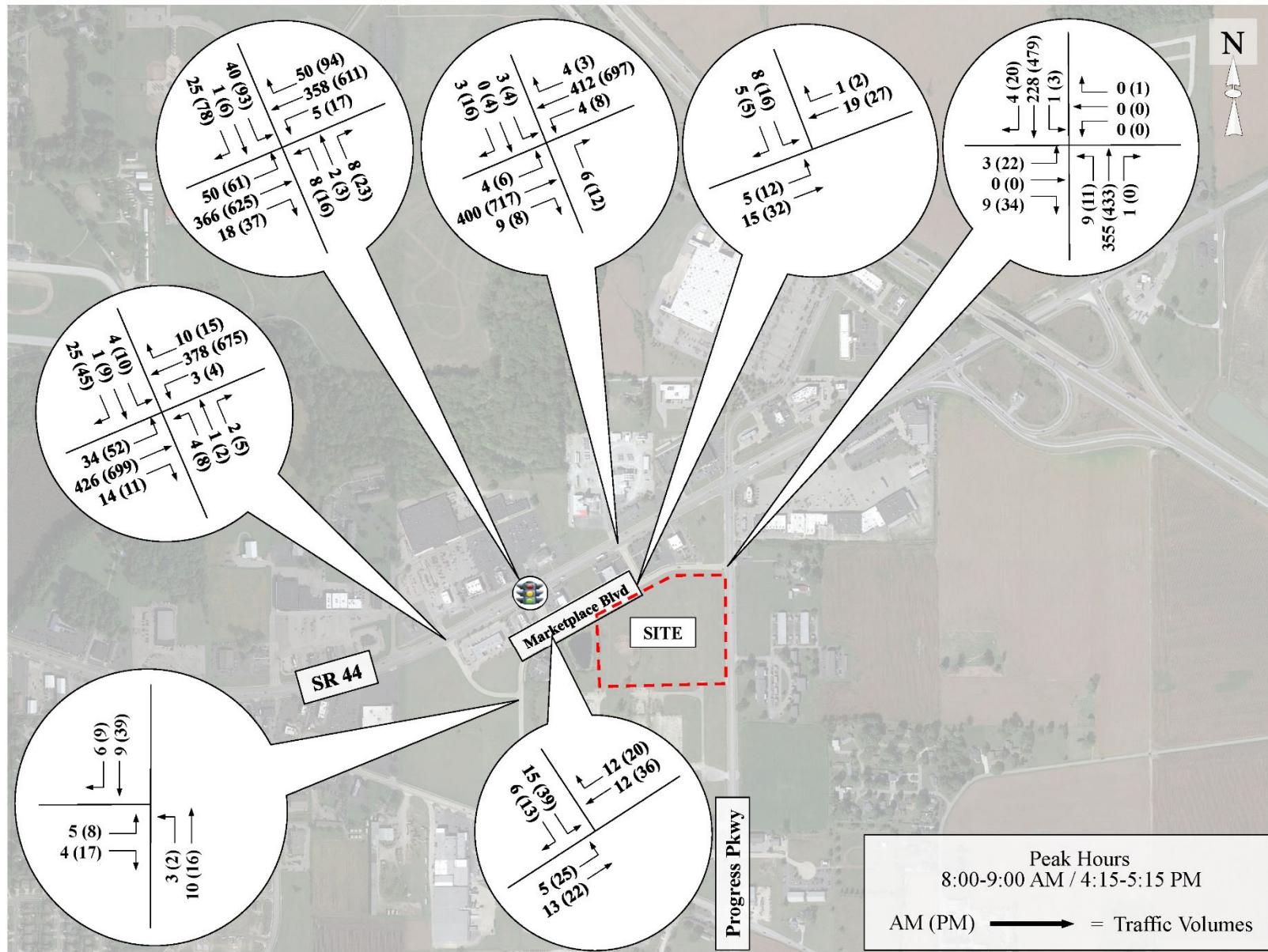


Figure 5: 2025 New Site Generated (Primary) Trips

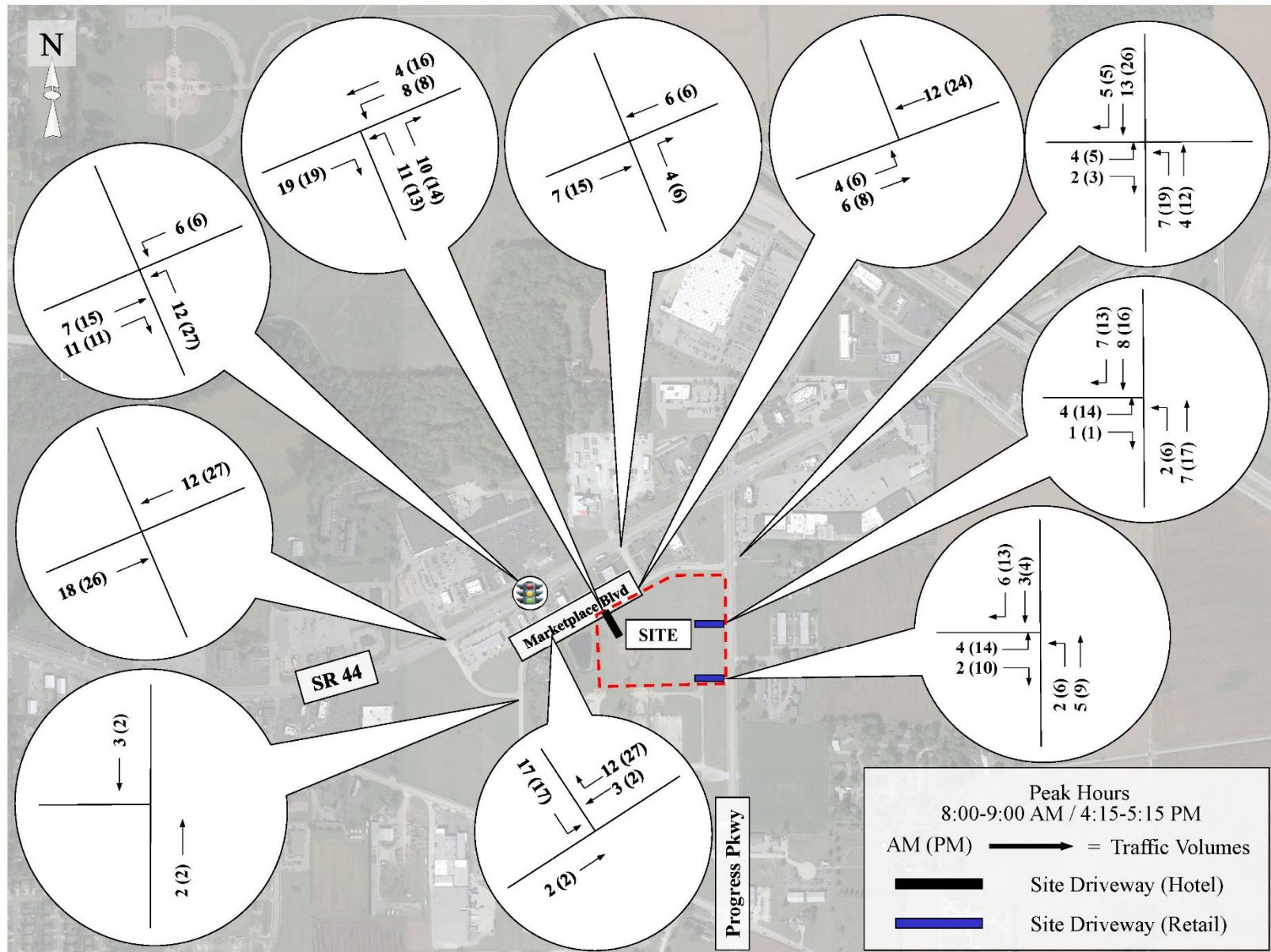


Figure 6: 2025 Pass-By Traffic Volumes

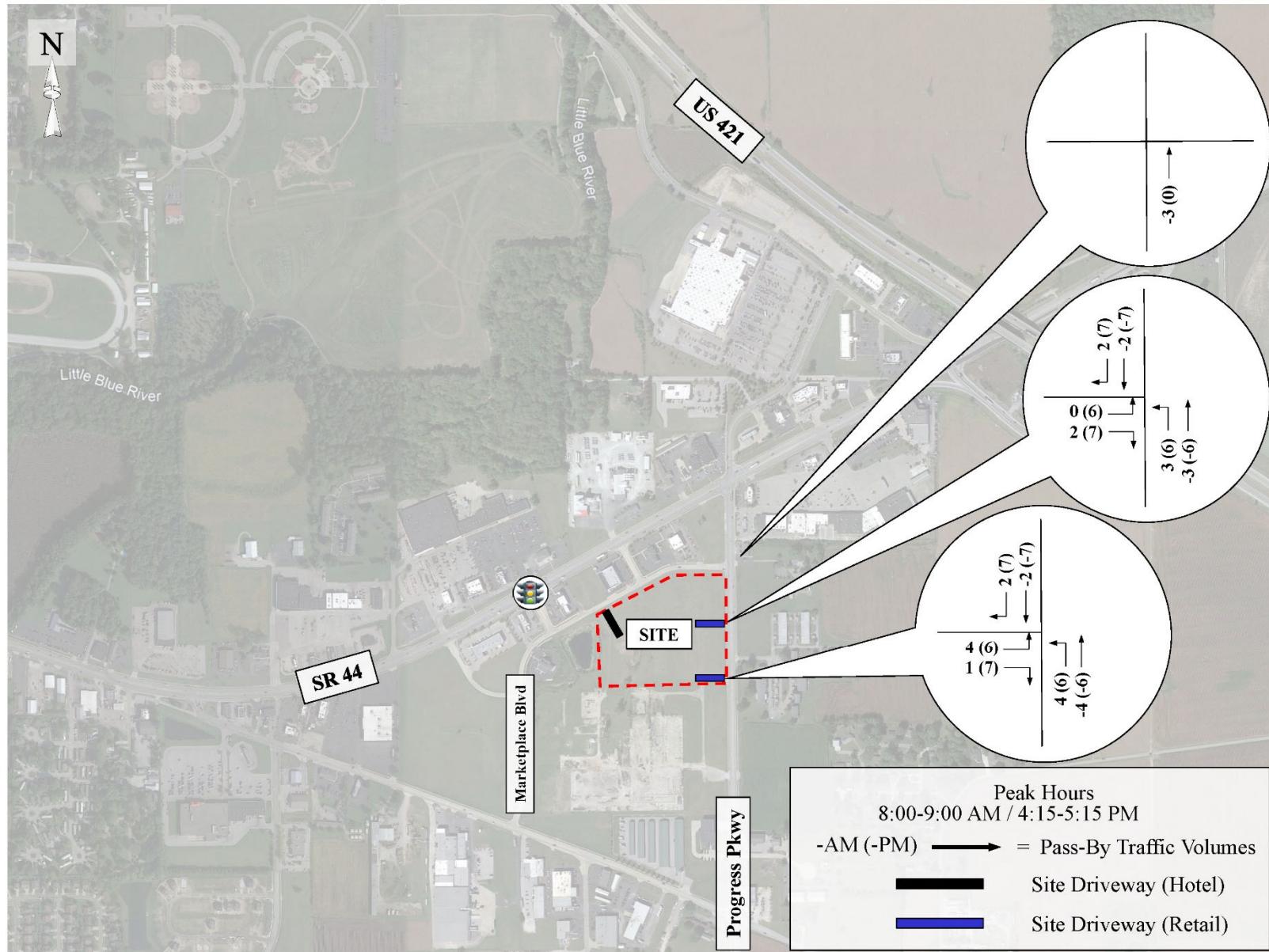


Figure 7: 2025 Future Traffic Volumes

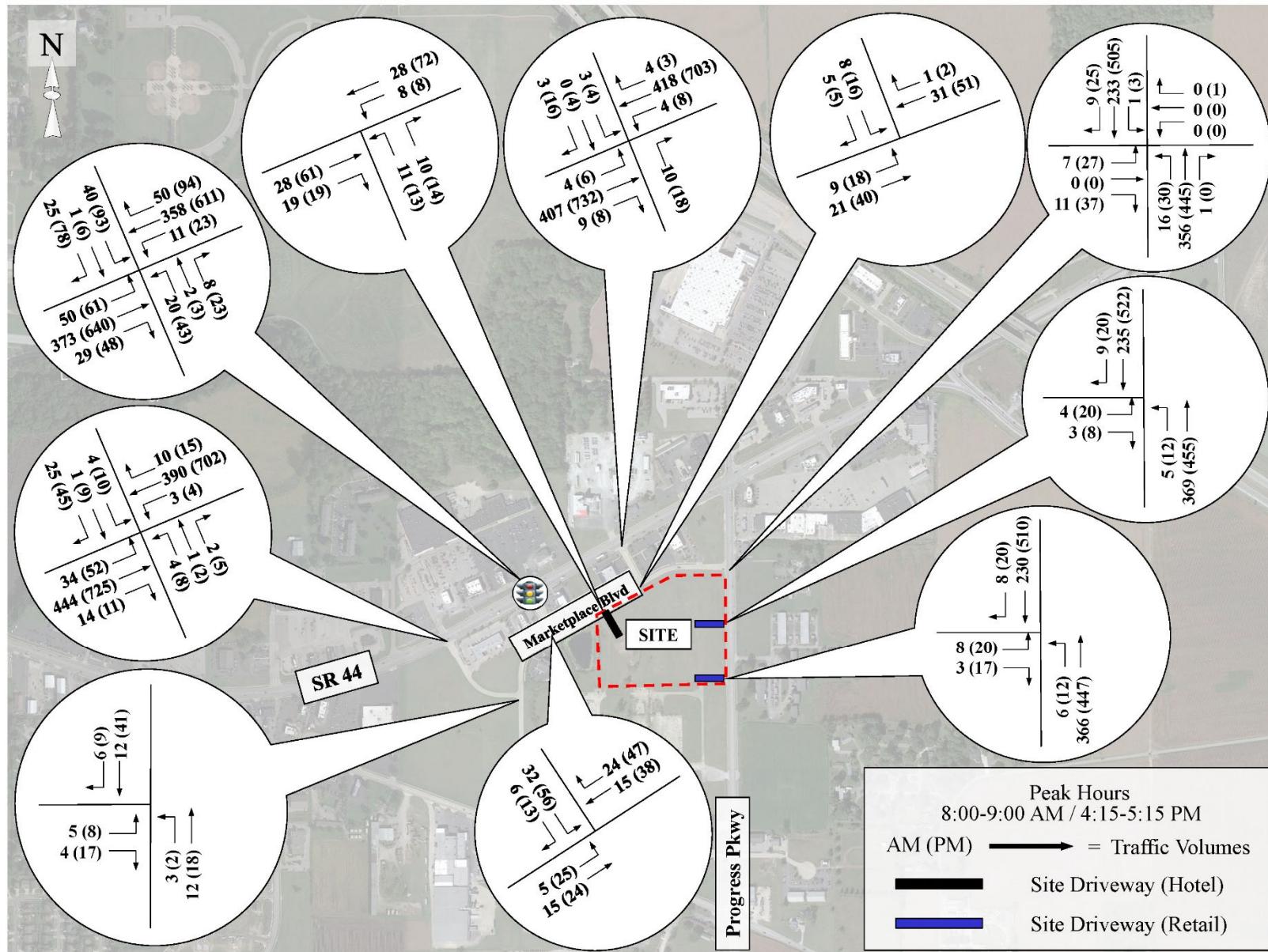


Figure 8: 2035 Background Traffic Volumes

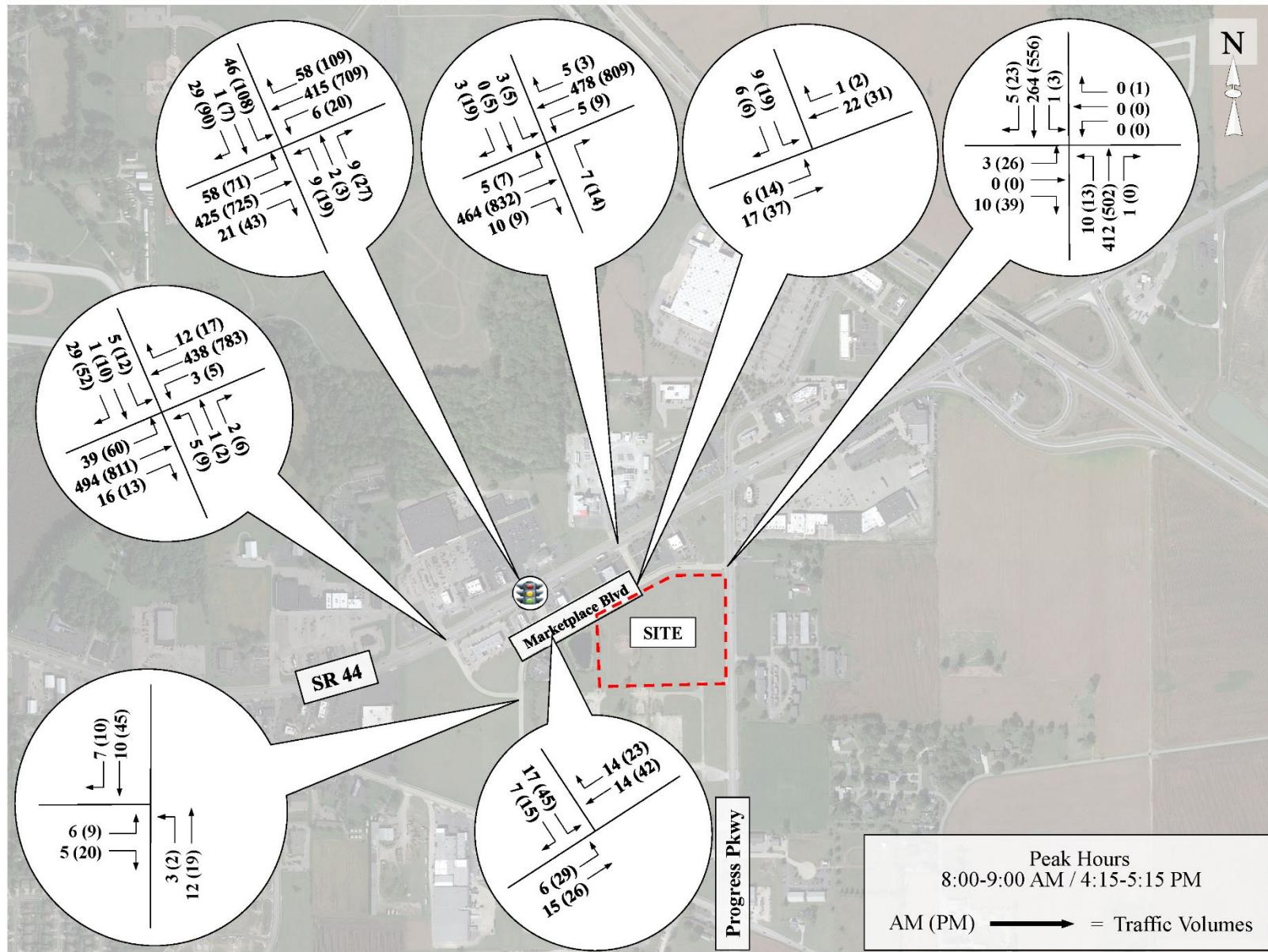
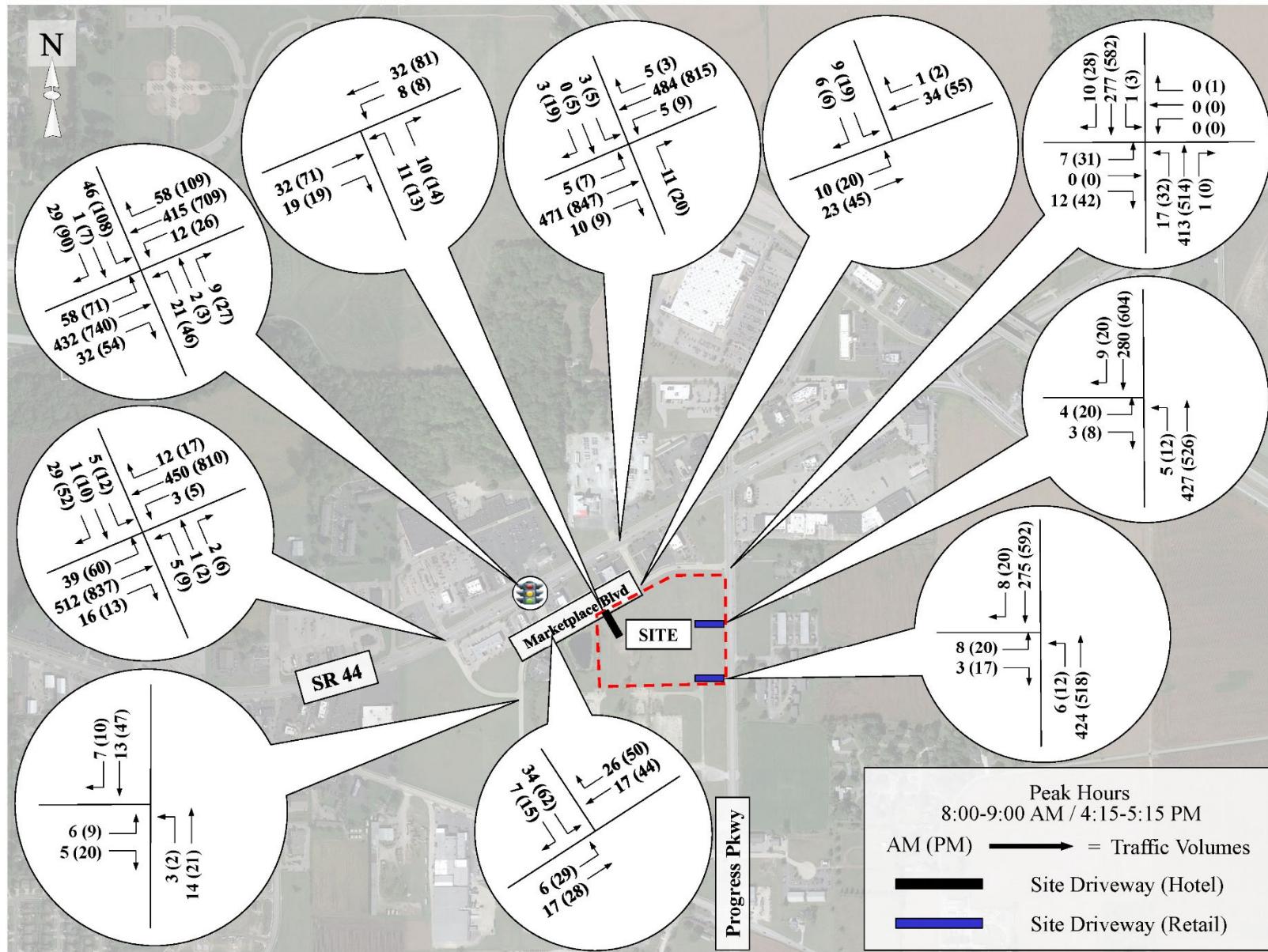


Figure 9: 2035 Horizon Traffic Volumes



Appendix A - Traffic Counts

Type of peak hour being reported: Intersection Peak

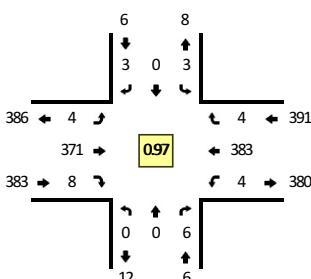
Method for determining peak hour: Total Entering Volume

LOCATION: Deputy Alyea Dr -- SR 44

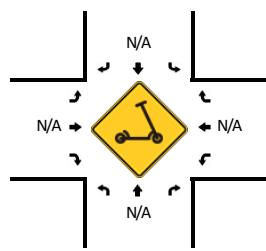
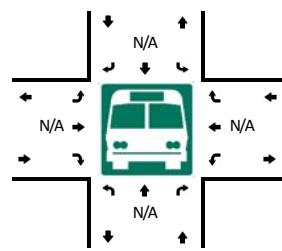
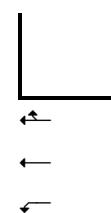
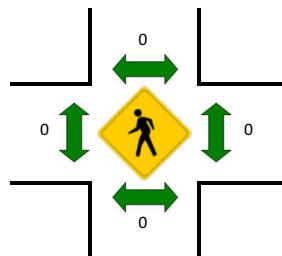
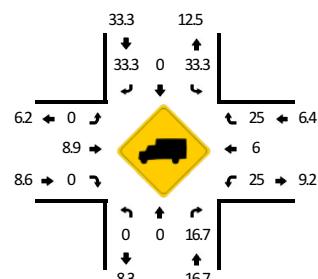
QC JOB #: 15888301

CITY/STATE: Shelbyville, IN

DATE: Tue, Oct 11 2022



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:00 AM -- 8:15 AM



15-Min Count Period Beginning At	Deputy Alyea Dr (Northbound)				Deputy Alyea Dr (Southbound)				SR 44 (Eastbound)				SR 44 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	0	0	1	68	0	0	0	70	0	0	140	
7:15 AM	0	0	0	0	2	0	2	0	8	66	0	0	0	74	4	0	156	
7:30 AM	0	0	0	0	1	1	2	0	2	81	1	0	1	98	4	0	191	
7:45 AM	0	0	1	0	0	0	1	0	2	85	0	0	0	106	4	0	199	686
8:00 AM	0	0	0	0	1	0	1	0	2	103	0	0	0	94	2	0	203	749
8:15 AM	0	0	1	0	1	0	1	0	2	87	2	0	0	89	1	0	184	777
8:30 AM	0	0	1	0	0	0	1	0	0	96	4	0	1	95	1	0	199	785
8:45 AM	0	0	4	0	1	0	0	0	0	85	2	0	3	105	0	0	200	786
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	4	0	4	0	8	412	0	0	0	376	8	0	812	
Heavy Trucks	0	0	0	0	0	0	4	0	0	28	0	0	0	20	0	0	52	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 10/18/2022 9:16 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

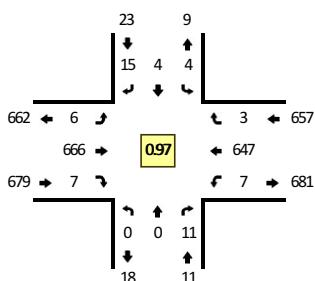
Method for determining peak hour: Total Entering Volume

LOCATION: Deputy Alyea Dr -- SR 44

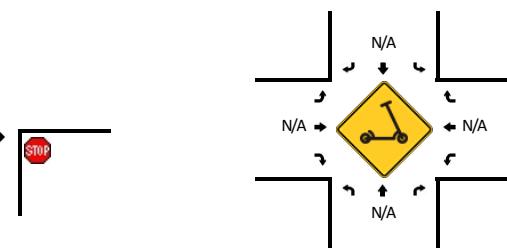
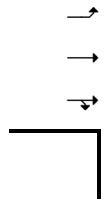
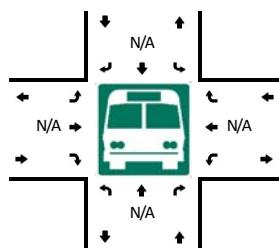
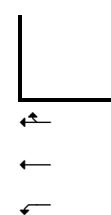
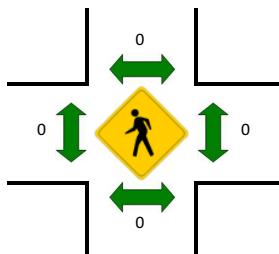
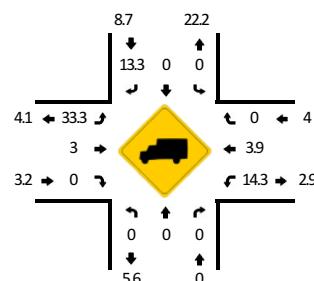
QC JOB #: 15888302

CITY/STATE: Shelbyville, IN

DATE: Tue, Oct 11 2022



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	Deputy Alyea Dr (Northbound)				Deputy Alyea Dr (Southbound)				SR 44 (Eastbound)				SR 44 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	1	0	0	0	1	0	1	178	0	0	2	148	1	0	332	
4:15 PM	0	0	2	0	1	0	3	0	1	169	1	0	0	166	2	0	345	
4:30 PM	0	0	3	0	2	1	6	0	5	170	3	0	4	153	0	0	347	
4:45 PM	0	0	2	0	1	1	2	0	0	150	2	0	2	164	1	0	325	1349
5:00 PM	0	0	4	0	0	2	4	0	0	177	1	0	1	164	0	0	353	1370
5:15 PM	0	0	3	0	0	0	0	0	0	138	2	0	1	154	0	0	298	1323
5:30 PM	0	0	2	0	1	0	2	0	1	140	1	0	2	124	0	0	273	1249
5:45 PM	0	0	2	0	1	0	0	0	0	128	1	1	1	151	0	0	285	1209
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	16	0	0	8	16	0	0	708	4	0	4	656	0	0	1412	
Heavy Trucks	0	0	0	0	0	0	0	0	0	20	0	0	0	24	0	0	44	
Buses																	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	
Bicycles																		
Scooters																		

Comments:

Report generated on 10/18/2022 9:16 AM

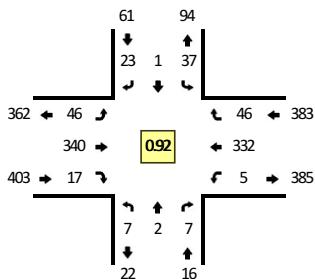
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

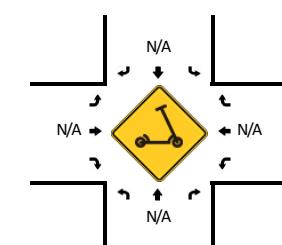
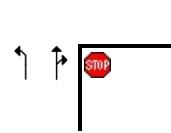
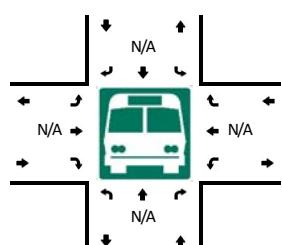
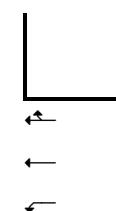
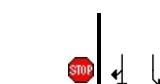
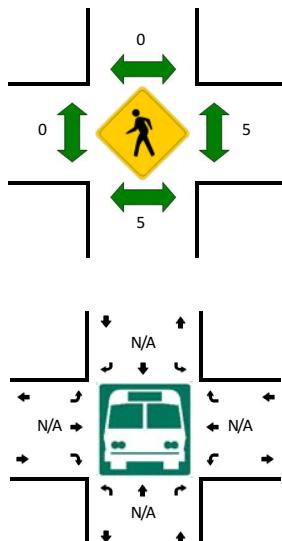
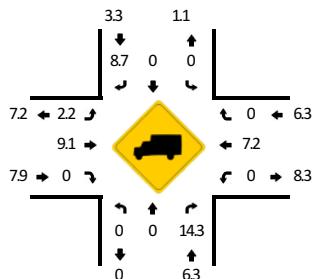
Method for determining peak hour: Total Entering Volume

LOCATION: Sgt Henderson Dr -- SR 44
CITY/STATE: Shelbyville, IN

QC JOB #: 15888303
DATE: Tue, Oct 11 2022



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM



15-Min Count Period Beginning At	Sgt Henderson Dr (Northbound)				Sgt Henderson Dr (Southbound)				SR 44 (Eastbound)				SR 44 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	1	0	5	1	4	0	7	63	0	0	3	52	10	0	147	
7:15 AM	0	1	0	0	8	0	3	0	6	67	2	0	2	68	9	0	166	
7:30 AM	2	1	1	0	2	1	5	0	2	83	0	0	0	93	5	0	195	
7:45 AM	2	0	0	0	5	0	3	0	12	81	4	0	3	93	11	0	214	722
8:00 AM	0	0	3	0	8	1	5	0	16	94	1	0	2	78	14	0	222	797
8:15 AM	1	0	1	0	10	0	4	0	6	78	4	0	1	80	9	1	195	826
8:30 AM	4	1	3	0	9	0	2	0	6	88	4	0	1	85	8	0	211	842
8:45 AM	2	1	0	0	10	0	12	0	18	80	8	0	0	89	15	0	235	863
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	4	0	0	40	0	48	0	72	320	32	0	0	356	60	0	940	
Heavy Trucks	0	0	0		0	0	0		0	40	0		0	32	0		72	
Buses																		
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0			0
Scooters																		

Comments:

Report generated on 10/18/2022 9:16 AM

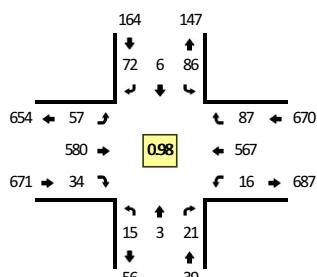
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Type of peak hour being reported: Intersection Peak

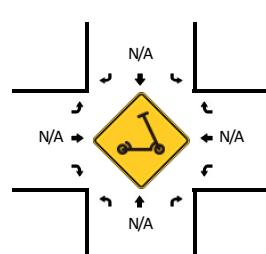
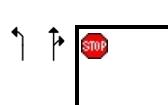
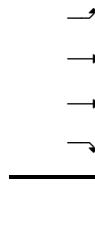
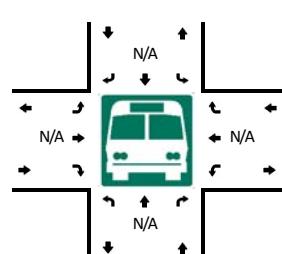
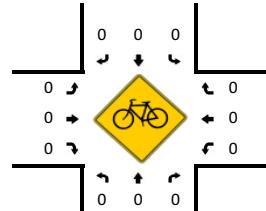
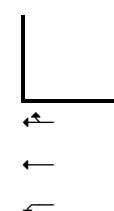
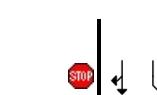
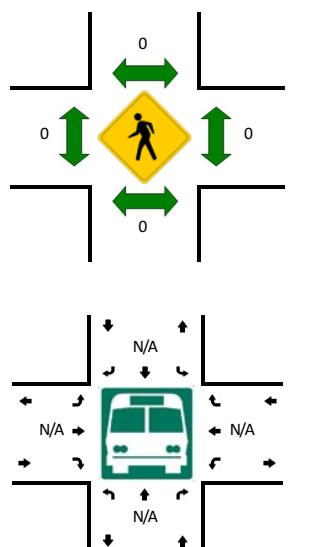
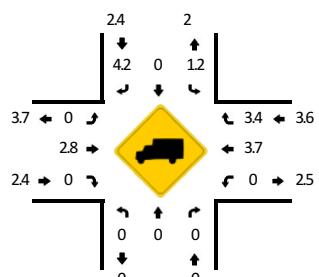
Method for determining peak hour: Total Entering Volume

LOCATION: Sgt Henderson Dr -- SR 44
CITY/STATE: Shelbyville, IN

QC JOB #: 15888304
DATE: Tue, Oct 11 2022



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:15 PM -- 4:30 PM



15-Min Count Period Beginning At	Sgt Henderson Dr (Northbound)				Sgt Henderson Dr (Southbound)				SR 44 (Eastbound)				SR 44 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	2	3	0	19	2	13	0	19	156	6	0	5	120	24	0	372	
4:15 PM	1	1	8	0	23	2	21	0	9	145	10	0	3	144	25	0	392	
4:30 PM	2	1	5	0	17	3	19	0	15	158	10	0	6	134	20	0	390	
4:45 PM	6	0	1	0	24	1	15	0	22	128	5	0	3	147	19	0	371	1525
5:00 PM	6	1	7	0	22	0	17	0	11	149	9	0	4	142	23	0	391	1544
5:15 PM	2	0	3	0	14	4	14	0	12	121	6	0	4	129	23	0	332	1484
5:30 PM	1	0	6	0	18	2	16	0	6	127	2	0	0	114	13	0	305	1399
5:45 PM	0	1	1	0	15	4	16	0	11	116	1	0	1	136	16	0	318	1346
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound					
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Total	
All Vehicles	4	4	32	0	92	8	84	0	36	580	40	0	12	576	100	0	1568	
Heavy Trucks	0	0	0		0	0	8		0	16	0		0	20	0		44	
Buses																		
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles																		
Scooters																		

Comments:

Report generated on 10/18/2022 9:16 AM

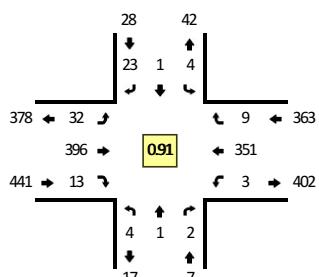
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

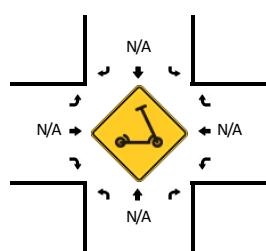
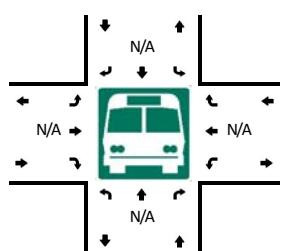
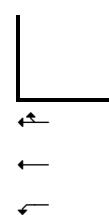
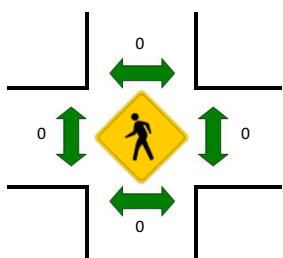
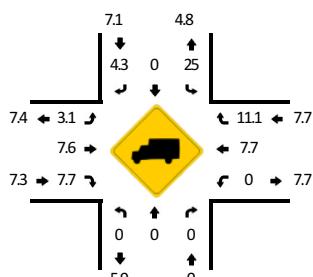
Method for determining peak hour: Total Entering Volume

LOCATION: Duran Dr -- SR 44
CITY/STATE: Shelbyville, IN

QC JOB #: 15888305
DATE: Tue, Oct 11 2022



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM



15-Min Count Period Beginning At	Duran Dr (Northbound)				Duran Dr (Southbound)				SR 44 (Eastbound)				SR 44 (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	2	0	0	0	0	0	0	68	1	0	0	54	3	0	128		
7:15 AM	0	0	1	0	0	0	3	0	3	72	0	0	0	69	1	0	149		
7:30 AM	0	0	0	0	2	0	4	0	4	84	1	0	1	100	3	0	199		
7:45 AM	0	0	0	0	0	0	4	0	7	96	1	0	0	94	4	0	206	682	
8:00 AM	0	0	0	0	0	0	7	0	5	111	5	0	0	83	0	0	211	765	
8:15 AM	1	0	0	0	1	0	9	0	5	88	2	0	1	82	3	0	192	808	
8:30 AM	1	0	0	0	0	0	1	4	0	9	97	2	0	1	87	4	0	206	815
8:45 AM	2	1	2	0	3	0	3	0	13	100	4	0	1	99	2	0	230	839	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound					Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	8	4	8	0	12	0	12	0	52	400	16	0	4	396	8	0	920		
Heavy Trucks	0	0	0		0	0	0		0	36	0		0	32	4		72		
Buses																	0		
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Scooters																			

Comments:

Report generated on 10/18/2022 9:16 AM

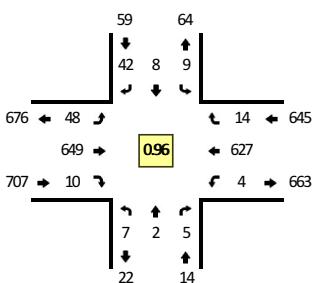
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

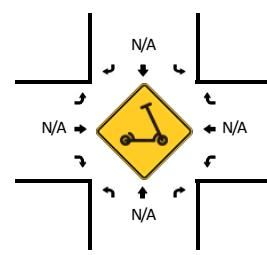
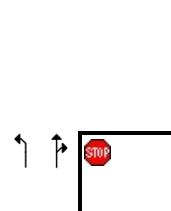
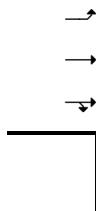
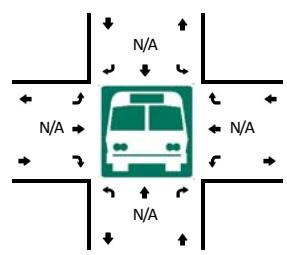
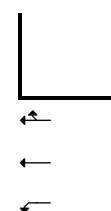
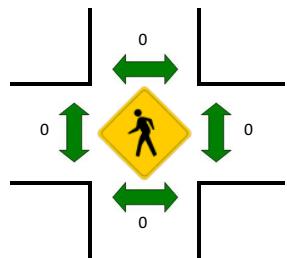
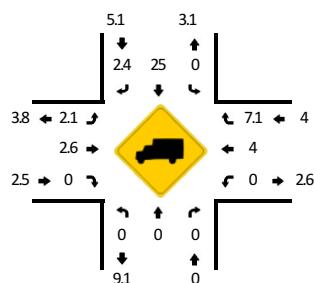
Method for determining peak hour: Total Entering Volume

LOCATION: Duran Dr -- SR 44
CITY/STATE: Shelbyville, IN

QC JOB #: 15888306
DATE: Tue, Oct 11 2022



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



15-Min Count Period Beginning At	Duran Dr (Northbound)				Duran Dr (Southbound)				SR 44 (Eastbound)				SR 44 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	2	0	2	1	16	0	14	171	3	0	0	134	5	0	349	
4:15 PM	0	0	2	0	4	2	11	0	5	157	4	0	1	157	4	0	347	
4:30 PM	1	1	2	0	2	2	12	0	15	180	3	0	2	149	3	0	372	
4:45 PM	3	0	0	0	0	2	11	0	17	152	2	0	0	157	5	0	349	1417
5:00 PM	3	1	1	0	3	2	8	0	11	160	1	0	1	164	2	0	357	1425
5:15 PM	0	0	0	0	2	0	10	0	14	138	2	0	3	137	1	0	307	1385
5:30 PM	0	1	1	0	0	1	18	0	10	132	1	0	3	127	4	0	298	1311
5:45 PM	0	0	1	0	2	0	8	0	9	120	2	0	0	145	4	0	291	1253
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	4	8	0	8	8	48	0	60	720	12	0	8	596	12	0	1488	
Heavy Trucks	0	0	0		0	0	0		0	20	0		0	20	0		40	
Buses																		
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles																		
Scooters	0	0	0		0	0	0		0	0	0		0	0	0		0	

Comments:

Report generated on 10/18/2022 9:16 AM

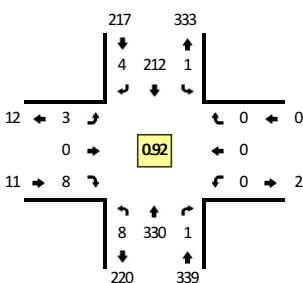
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

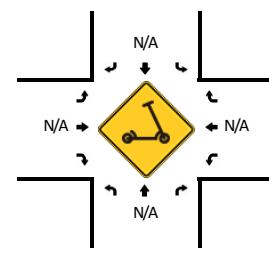
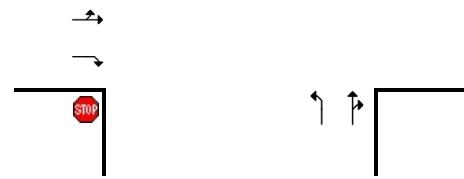
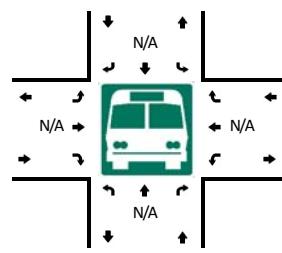
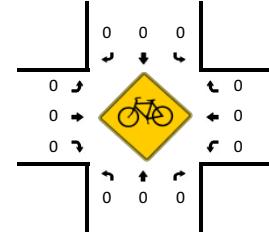
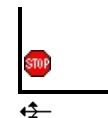
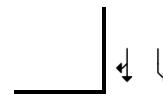
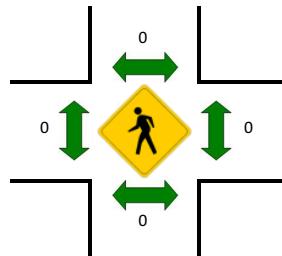
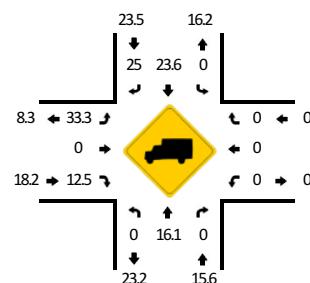
Method for determining peak hour: Total Entering Volume

LOCATION: S 200 E -- Marketplace Blvd
CITY/STATE: Shelbyville, IN

QC JOB #: 15888307
DATE: Tue, Oct 11 2022



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM



15-Min Count Period Beginning At	S 200 E (Northbound)				S 200 E (Southbound)				Marketplace Blvd (Eastbound)				Marketplace Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	75	0	0	0	40	0	0	2	0	0	0	0	0	0	0	119	
7:15 AM	0	84	0	0	0	35	0	0	0	0	1	0	0	0	0	0	120	
7:30 AM	2	93	1	0	0	56	0	0	1	0	1	0	0	0	0	0	154	
7:45 AM	3	75	0	0	0	56	0	0	1	0	1	0	0	0	0	0	136	529
8:00 AM	0	95	0	0	1	51	3	0	1	0	3	0	0	0	0	0	154	564
8:15 AM	3	67	0	0	0	49	1	0	0	0	3	0	0	0	0	0	123	567
8:30 AM	8	62	0	0	0	42	2	0	1	0	2	0	0	0	0	0	117	530
8:45 AM	1	75	0	0	1	42	6	0	1	0	2	0	0	0	0	0	128	522
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	372	4	0	0	224	0	0	4	0	4	0	0	0	0	0	616	
Heavy Trucks	0	68	0	0	0	40	0	0	0	0	0	0	0	0	0	0	108	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Report generated on 10/18/2022 9:16 AM

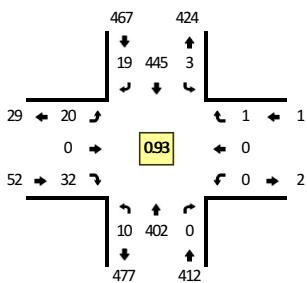
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

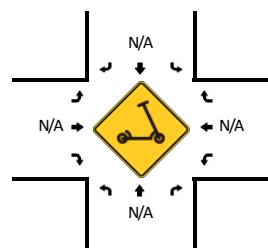
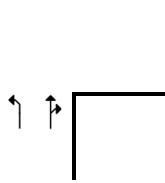
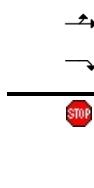
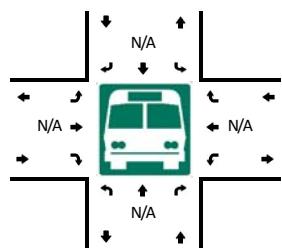
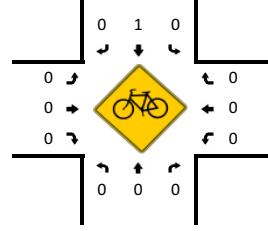
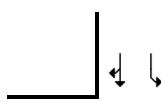
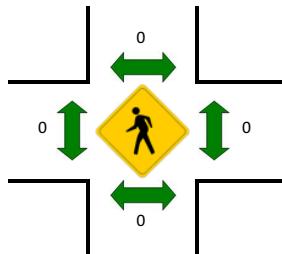
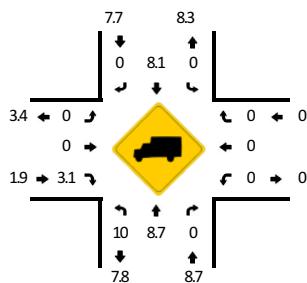
Method for determining peak hour: Total Entering Volume

LOCATION: S 200 E -- Marketplace Blvd
CITY/STATE: Shelbyville, IN

QC JOB #: 15888308
DATE: Tue, Oct 11 2022



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	S 200 E (Northbound)				S 200 E (Southbound)				Marketplace Blvd (Eastbound)				Marketplace Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	93	1	0	0	94	1	0	6	0	2	0	1	0	0	0	200	
4:15 PM	1	92	0	0	0	113	7	0	4	0	6	0	0	0	1	0	224	
4:30 PM	6	98	0	0	0	97	4	1	9	0	6	0	0	0	0	0	221	
4:45 PM	1	105	0	0	2	115	2	0	4	0	7	0	0	0	0	0	236	881
5:00 PM	2	107	0	0	0	120	6	0	3	0	13	0	0	0	0	0	251	932
5:15 PM	2	93	1	0	2	103	5	0	3	0	3	0	1	0	0	0	213	921
5:30 PM	1	88	0	0	0	102	1	0	4	0	7	0	0	0	2	0	205	905
5:45 PM	4	71	1	0	1	81	1	0	7	0	6	0	1	0	0	0	173	842
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	428	0	0	0	480	24	0	12	0	52	0	0	0	0	0	1004	
Heavy Trucks	0	44	0	0	0	12	0	0	0	0	4	0	0	0	0	0	60	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 10/18/2022 9:16 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

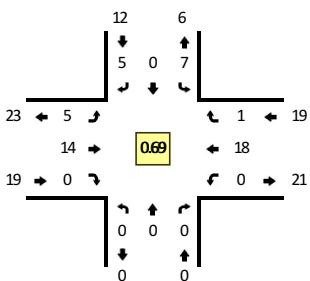
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

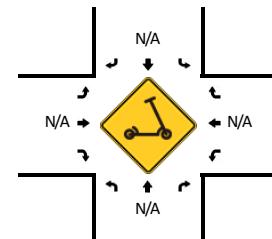
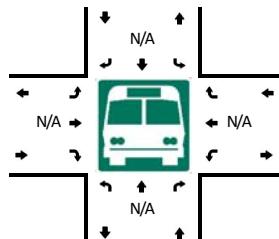
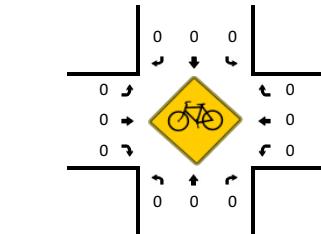
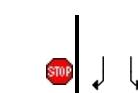
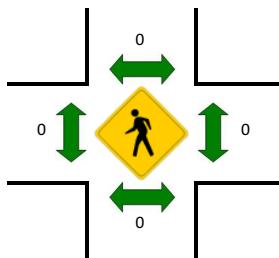
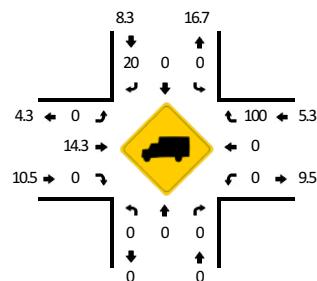
LOCATION: Deputy Alyea Dr -- Marketplace Blvd
CITY/STATE: Shelbyville, IN

QC JOB #: 15888309

DATE: Tue, Oct 11 2022



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM



15-Min Count Period Beginning At	Deputy Alyea Dr (Northbound)				Deputy Alyea Dr (Southbound)				Marketplace Blvd (Eastbound)				Marketplace Blvd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U															
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	3	
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
7:30 AM	0	0	0	0	2	0	1	0	0	0	0	0	0	1	0	0	4		
7:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	3	0	0	5	13	
8:00 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	6	16
8:15 AM	0	0	0	0	2	0	0	0	0	4	0	0	0	0	3	1	0	10	25
8:30 AM	0	0	0	0	4	0	1	0	2	2	0	0	0	0	9	0	0	18	39
8:45 AM	0	0	0	0	1	0	4	0	3	4	0	0	0	0	4	0	0	16	50
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U															
All Vehicles	0	0	0	0	16	0	4	0	8	8	0	0	0	36	0	0	72		
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 10/18/2022 9:16 AM

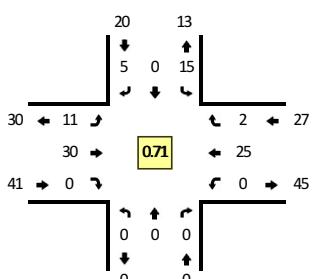
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

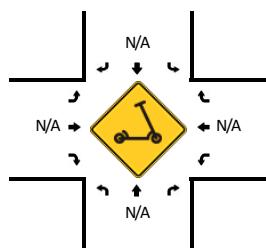
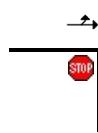
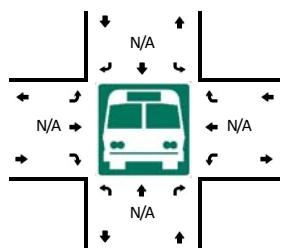
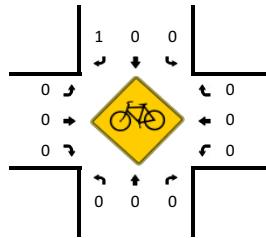
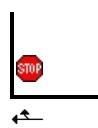
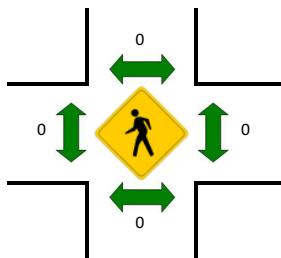
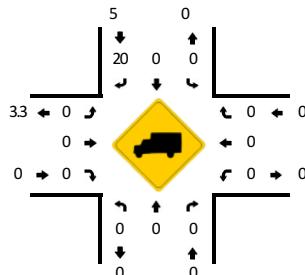
Method for determining peak hour: Total Entering Volume

LOCATION: Deputy Alyea Dr -- Marketplace Blvd
CITY/STATE: Shelbyville, IN

QC JOB #: 15888310
DATE: Tue, Oct 11 2022



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



15-Min Count Period Beginning At	Deputy Alyea Dr (Northbound)				Deputy Alyea Dr (Southbound)				Marketplace Blvd (Eastbound)				Marketplace Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	0	2	0	1	5	0	0	0	2	2	0	13	
4:15 PM	0	0	0	0	1	0	0	0	2	5	0	0	0	5	0	0	13	
4:30 PM	0	0	0	0	6	0	2	0	3	12	0	0	0	8	0	0	31	
4:45 PM	0	0	0	0	4	0	1	0	3	5	0	0	0	4	1	0	18	75
5:00 PM	0	0	0	0	4	0	0	0	2	8	0	0	0	8	1	0	23	85
5:15 PM	0	0	0	0	1	0	2	0	3	5	0	0	0	5	0	0	16	88
5:30 PM	0	0	0	0	3	0	0	0	2	9	0	0	0	2	0	0	16	73
5:45 PM	0	0	0	0	2	0	0	0	1	5	0	0	0	5	1	0	14	69
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	24	0	8	0	12	48	0	0	0	32	0	0	124	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 10/18/2022 9:16 AM

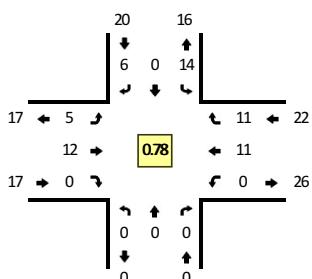
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

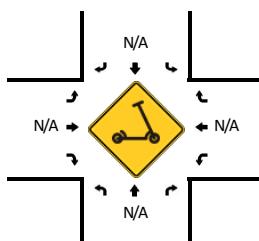
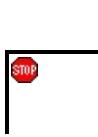
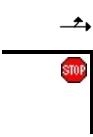
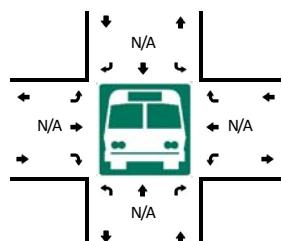
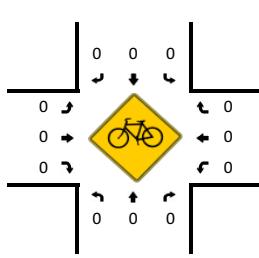
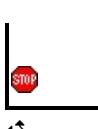
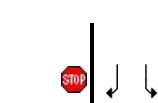
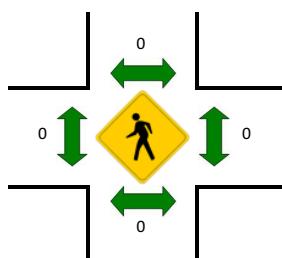
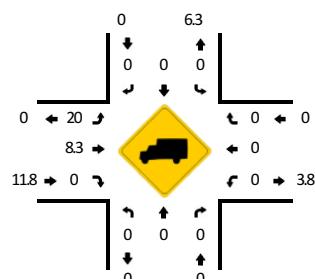
Method for determining peak hour: Total Entering Volume

LOCATION: Sgt Henderson Dr -- Marketplace Blvd
CITY/STATE: Shelbyville, IN

QC JOB #: 15888311
DATE: Tue, Oct 11 2022



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM



15-Min Count Period Beginning At	Sgt Henderson Dr (Northbound)				Sgt Henderson Dr (Southbound)				Marketplace Blvd (Eastbound)				Marketplace Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	0	3	0	2	1	0	0	0	1	0	0	9	
7:15 AM	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	4	
7:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	4	
7:45 AM	0	0	0	0	4	0	1	0	0	2	0	0	0	2	2	0	11	28
8:00 AM	0	0	0	0	2	0	2	0	3	3	0	0	0	1	0	0	11	30
8:15 AM	0	0	0	0	3	0	2	0	1	4	0	0	0	2	1	0	13	39
8:30 AM	0	0	0	0	4	0	1	0	1	2	0	0	0	4	7	0	19	54
8:45 AM	0	0	0	0	5	0	1	0	0	3	0	0	0	4	3	0	16	59
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	16	0	4	0	4	8	0	0	0	16	28	0	76	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 10/18/2022 9:16 AM

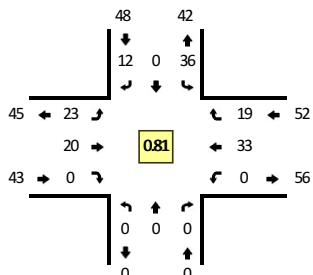
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

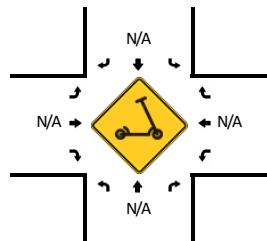
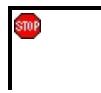
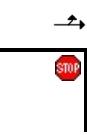
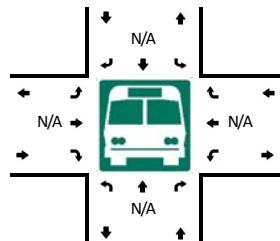
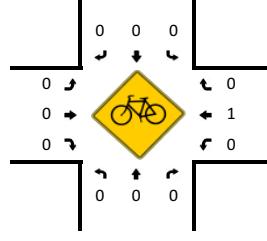
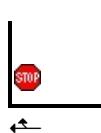
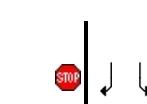
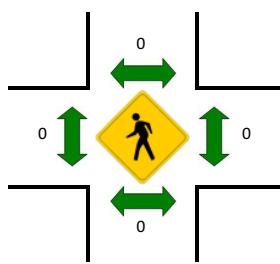
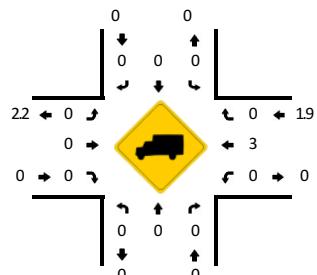
Method for determining peak hour: Total Entering Volume

LOCATION: Sgt Henderson Dr -- Marketplace Blvd
CITY/STATE: Shelbyville, IN

QC JOB #: 15888312
DATE: Tue, Oct 11 2022



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



15-Min Count Period Beginning At	Sgt Henderson Dr (Northbound)				Sgt Henderson Dr (Southbound)				Marketplace Blvd (Eastbound)				Marketplace Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	8	0	0	0	4	3	0	0	0	5	4	0	24	
4:15 PM	0	0	0	0	12	0	1	0	6	6	0	0	0	7	4	0	36	
4:30 PM	0	0	0	0	14	0	3	0	5	8	0	0	0	9	5	0	44	
4:45 PM	0	0	0	0	3	0	4	0	3	1	0	0	0	7	6	0	24	128
5:00 PM	0	0	0	0	7	0	4	0	9	5	0	0	0	10	4	0	39	143
5:15 PM	0	0	0	0	8	0	3	0	3	6	0	0	0	6	2	0	28	135
5:30 PM	0	0	0	0	2	0	2	0	6	2	0	0	0	3	1	0	16	107
5:45 PM	0	0	0	0	3	0	1	0	2	2	0	0	0	3	0	0	11	94
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	56	0	12	0	20	32	0	0	0	36	20	0	176	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Buses																		
Pedestrians	0				0				0				0					
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Report generated on 10/18/2022 9:16 AM

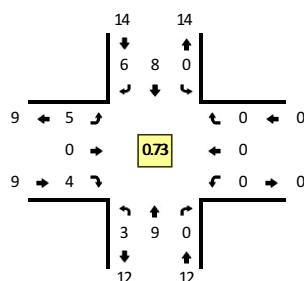
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

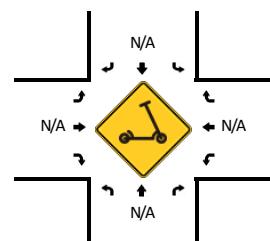
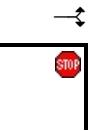
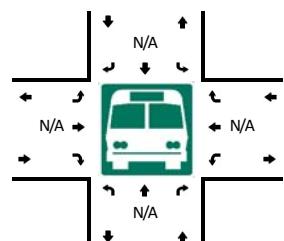
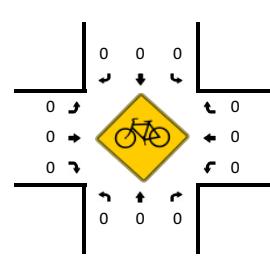
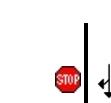
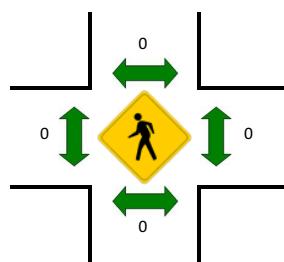
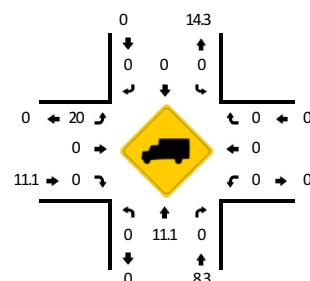
Method for determining peak hour: Total Entering Volume

LOCATION: Marketplace Blvd -- Duran Dr
CITY/STATE: Shelbyville, IN

QC JOB #: 15888313
DATE: Tue, Oct 11 2022



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM



15-Min Count Period Beginning At	Marketplace Blvd (Northbound)				Marketplace Blvd (Southbound)				Duran Dr (Eastbound)				Duran Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	2	0	0	0	2	2	0	1	0	0	0	0	0	0	0	7	
7:15 AM	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4	14
8:00 AM	0	3	0	0	0	2	0	0	2	0	0	0	0	0	0	0	7	14
8:15 AM	0	1	0	0	0	2	2	0	1	0	0	0	0	0	0	0	6	17
8:30 AM	0	4	0	0	0	2	2	0	2	0	2	0	0	0	0	0	12	29
8:45 AM	3	1	0	0	0	2	2	0	0	0	2	0	0	0	0	0	10	35
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	16	0	0	0	8	8	0	8	0	8	0	0	0	0	0	48	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

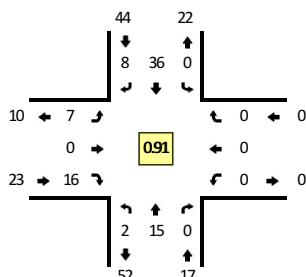
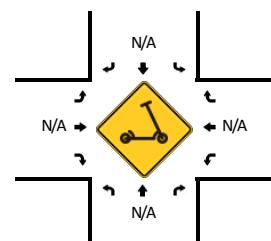
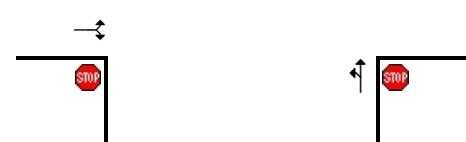
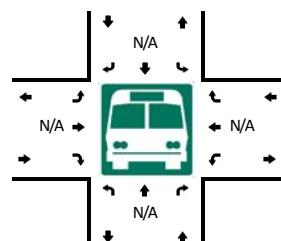
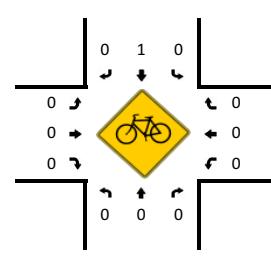
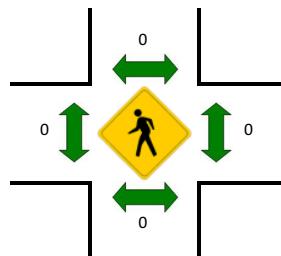
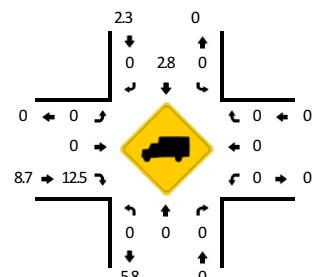
Comments:

Report generated on 10/18/2022 9:16 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Marketplace Blvd -- Duran Dr
CITY/STATE: Shelbyville, IN
QC JOB #: 15888314**DATE:** Tue, Oct 11 2022
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM


15-Min Count Period Beginning At	Marketplace Blvd (Northbound)				Marketplace Blvd (Southbound)				Duran Dr (Eastbound)				Duran Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	7	0	0	0	6	1	0	2	0	2	0	0	0	0	0	20	
4:15 PM	0	5	0	0	0	7	1	0	4	0	4	0	0	0	0	0	21	
4:30 PM	1	4	0	0	0	10	1	0	3	0	3	0	0	0	0	0	22	
4:45 PM	0	1	0	0	0	8	3	0	0	0	6	0	0	0	0	0	18	81
5:00 PM	1	5	0	0	0	11	3	0	0	0	3	0	0	0	0	0	23	84
5:15 PM	1	3	0	0	0	5	1	0	4	0	2	0	0	0	0	0	16	79
5:30 PM	0	3	0	0	0	5	0	0	1	0	4	0	0	0	0	0	13	70
5:45 PM	0	2	0	0	0	3	0	0	1	0	1	0	0	0	0	0	7	59
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	20	0	0	0	44	12	0	0	0	12	0	0	0	0	0	92	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0	0	0	
Buses																		
Pedestrians	0				0				0				0					0
Bicycles	0				0				0				0					0
Scooters													0	0	0			

Comments:

Report generated on 10/18/2022 9:16 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Appendix B - Synchro Reports

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	396	13	3	351	9	4	1	2	4	1	23
Future Vol, veh/h	32	396	13	3	351	9	4	1	2	4	1	23
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	8	8	0	8	11	0	0	0	2	0	4
Mvmt Flow	35	435	14	3	386	10	4	1	2	4	1	25

Major/Minor	Major1	Major2		Minor1		Minor2		
Conflicting Flow All	396	0	0	449	0	0	712	914
Stage 1	-	-	-	-	-	-	512	512
Stage 2	-	-	-	-	-	-	200	402
Critical Hdwy	4.16	-	-	4.1	-	-	7.5	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.5	4
Pot Cap-1 Maneuver	1152	-	-	1122	-	-	323	275
Stage 1	-	-	-	-	-	-	518	540
Stage 2	-	-	-	-	-	-	789	604
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1152	-	-	1122	-	-	304	266
Mov Cap-2 Maneuver	-	-	-	-	-	-	304	266
Stage 1	-	-	-	-	-	-	502	524
Stage 2	-	-	-	-	-	-	761	602

Approach	EB	WB		NB		SB	
HCM Control Delay, s	0.6	0.1		15.1		10.9	
HCM LOS				C		B	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	304	475	1152	-	-	1122	-	-	324	741
HCM Lane V/C Ratio	0.014	0.007	0.031	-	-	0.003	-	-	0.014	0.036
HCM Control Delay (s)	17	12.6	8.2	-	-	8.2	-	-	16.3	10
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0	0	0.1	-	-	0	-	-	0	0.1

Intersection

Intersection Delay, s/veh 6.9

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	4	3	9	8	6
Future Vol, veh/h	5	4	3	9	8	6
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	11	2	2
Mvmt Flow	7	5	4	12	11	8
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.9		7.1		6.8	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	25%	56%	0%
Vol Thru, %	75%	0%	57%
Vol Right, %	0%	44%	43%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	12	9	14
LT Vol	3	5	0
Through Vol	9	0	8
RT Vol	0	4	6
Lane Flow Rate	16	12	19
Geometry Grp	1	1	1
Degree of Util (X)	0.018	0.013	0.02
Departure Headway (Hd)	4.02	3.841	3.711
Convergence, Y/N	Yes	Yes	Yes
Cap	894	935	969
Service Time	2.026	1.852	1.717
HCM Lane V/C Ratio	0.018	0.013	0.02
HCM Control Delay	7.1	6.9	6.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0	0.1

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023

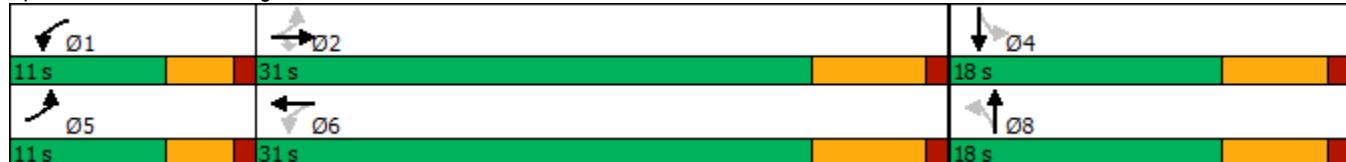


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	11	31	18	11	31	18
Maximum Split (%)	18.3%	51.7%	30.0%	18.3%	51.7%	30.0%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	5	15	7	5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	42	0	11	42
End Time (s)	11	42	0	11	42	0
Yield/Force Off (s)	7	35.8	54.1	7	35.8	54.1
Yield/Force Off 170(s)	7	35.8	54.1	7	35.8	54.1
Local Start Time (s)	49	0	31	49	0	31
Local Yield (s)	56	24.8	43.1	56	24.8	43.1
Local Yield 170(s)	56	24.8	43.1	56	24.8	43.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	46	340	17	5	332	46	7	2	7	37	1	23
Future Volume (veh/h)	46	340	17	5	332	46	7	2	7	37	1	23
Initial Q (Q _b), 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		No	No		
Adj Sat Flow, veh/h/ln	1870	1767	1900	1900	1796	1900	1900	1900	1693	1900	1900	1767
Adj Flow Rate, veh/h	50	370	18	5	361	50	8	2	8	40	1	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	9	0	0	7	0	0	0	14	0	0	9
Cap, veh/h	604	1514	726	593	1216	167	327	36	145	342	7	170
Arrive On Green	0.05	0.45	0.45	0.01	0.40	0.40	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3357	1610	1810	3014	414	1407	332	1329	1427	62	1557
Grp Volume(v), veh/h	50	370	18	5	203	208	8	0	10	40	0	26
Grp Sat Flow(s), veh/h/ln	1781	1678	1610	1810	1706	1722	1407	0	1661	1427	0	1620
Q Serve(g_s), s	0.6	2.5	0.2	0.1	3.0	3.0	0.2	0.0	0.2	1.0	0.0	0.5
Cycle Q Clear(g_c), s	0.6	2.5	0.2	0.1	3.0	3.0	0.7	0.0	0.2	1.2	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.80	1.00		0.96
Lane Grp Cap(c), veh/h	604	1514	726	593	689	695	327	0	181	342	0	177
V/C Ratio(X)	0.08	0.24	0.02	0.01	0.30	0.30	0.02	0.00	0.06	0.12	0.00	0.15
Avail Cap(c_a), veh/h	843	2239	1074	922	1138	1149	631	0	541	650	0	527
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	0.00	1.00
Uniform Delay (d), s/veh	5.8	6.3	5.7	6.5	7.5	7.5	15.3	0.0	14.8	15.4	0.0	15.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	0.0	0.0	0.7	0.7	0.1	0.0	0.1	0.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	6.4	5.7	6.5	7.7	7.8	15.4	0.0	15.0	15.5	0.0	15.4
LnGrp LOS	A	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h	438				416				18			66
Approach Delay, s/veh	6.3				7.7				15.1			15.5
Approach LOS	A				A				B			B
Timer - Assigned Phs	1	2		4	5	6			8			
Phs Duration (G+Y+R _c), s	4.3	23.0		10.0	6.0	21.2			10.0			
Change Period (Y+R _c), s	4.0	* 6.2		* 5.9	4.0	* 6.2			* 5.9			
Max Green Setting (Gmax), s	7.0	* 25		* 12	7.0	* 25			* 12			
Max Q Clear Time (g_c+l1), s	2.1	4.5		3.2	2.6	5.0			2.7			
Green Ext Time (p_c), s	0.0	2.2		0.1	0.0	2.1			0.0			

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

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

Intersection

Intersection Delay, s/veh 7.2

Intersection LOS A

Movement EBL EBT WBT WBR SBL SBR**Lane Configurations**

Traffic Vol, veh/h 5 12 11 11 14 6

Future Vol, veh/h 5 12 11 11 14 6

Peak Hour Factor 0.78 0.78 0.78 0.78 0.78 0.78

Heavy Vehicles, % 2 8 2 2 2 2

Mvmt Flow 6 15 14 14 18 8

Number of Lanes 0 1 1 0 1 1

Approach EB WB SB

Opposing Approach WB EB

Opposing Lanes 1 1 0

Conflicting Approach Left SB WB

Conflicting Lanes Left 2 0 1

Conflicting Approach Right SB EB

Conflicting Lanes Right 0 2 1

HCM Control Delay 7.2 6.8 7.6

HCM LOS A A A

Lane EBLn1WBLn1SBLn1SBLn2

Vol Left, % 29% 0% 100% 0%

Vol Thru, % 71% 50% 0% 0%

Vol Right, % 0% 50% 0% 100%

Sign Control Stop Stop Stop Stop

Traffic Vol by Lane 17 22 14 6

LT Vol 5 0 14 0

Through Vol 12 11 0 0

RT Vol 0 11 0 6

Lane Flow Rate 22 28 18 8

Geometry Grp 2 2 7 7

Degree of Util (X) 0.025 0.029 0.026 0.008

Departure Headway (Hd) 4.059 3.694 5.12 3.92

Convergence, Y/N Yes Yes Yes Yes

Cap 882 968 701 914

Service Time 2.083 1.721 2.84 1.639

HCM Lane V/C Ratio 0.025 0.029 0.026 0.009

HCM Control Delay 7.2 6.8 8 6.7

HCM Lane LOS A A A A

HCM 95th-tile Q 0.1 0.1 0.1 0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗		↑ ↗	↑ ↗	↑ ↗	
Traffic Vol, veh/h	4	371	8	4	383	4	0	0	6	3	0	3
Future Vol, veh/h	4	371	8	4	383	4	0	0	6	3	0	3
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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	9	0	2	6	2	2	2	2	2	2	2
Mvmt Flow	4	382	8	4	395	4	0	0	6	3	0	3

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	399	0	0	390	0	0	-	-	195	604	803	200
Stage 1	-	-	-	-	-	-	-	-	405	405	-	-
Stage 2	-	-	-	-	-	-	-	-	199	398	-	-
Critical Hdwy	4.1	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.54	5.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.54	5.54	-	-
Follow-up Hdwy	2.2	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1171	-	-	1165	-	-	0	0	814	382	315	808
Stage 1	-	-	-	-	-	-	0	0	-	593	597	-
Stage 2	-	-	-	-	-	-	0	0	-	784	601	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1171	-	-	1165	-	-	-	-	814	377	313	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	377	313	-
Stage 1	-	-	-	-	-	-	-	-	-	591	595	-
Stage 2	-	-	-	-	-	-	-	-	-	775	599	-

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		9.5		12.1		
HCM LOS				A		B		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	814	1171	-	-	1165	-	-	514
HCM Lane V/C Ratio	0.008	0.004	-	-	0.004	-	-	0.012
HCM Control Delay (s)	9.5	8.1	-	-	8.1	-	-	12.1
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection

Intersection Delay, s/veh 7.2

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	5	14	18	1	7	5
Future Vol, veh/h	5	14	18	1	7	5
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	14	0	2	2	2
Mvmt Flow	7	20	26	1	10	7
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.2		7.1		7.4	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	26%	0%	100%	0%
Vol Thru, %	74%	95%	0%	0%
Vol Right, %	0%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	19	7	5
LT Vol	5	0	7	0
Through Vol	14	18	0	0
RT Vol	0	1	0	5
Lane Flow Rate	28	28	10	7
Geometry Grp	2	2	7	7
Degree of Util (X)	0.031	0.03	0.014	0.008
Departure Headway (Hd)	4.036	3.918	5.128	3.927
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	915	699	911
Service Time	2.055	1.937	2.854	1.652
HCM Lane V/C Ratio	0.032	0.031	0.014	0.008
HCM Control Delay	7.2	7.1	7.9	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0	0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	8	0	0	0	8	330	1	1	212	4
Future Vol, veh/h	3	0	8	0	0	0	8	330	1	1	212	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	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, %	2	2	2	2	2	2	2	16	2	2	24	2
Mvmt Flow	3	0	9	0	0	0	9	359	1	1	230	4

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	612	612	232	617	614	360	234	0	0	360	0	0
Stage 1	234	234	-	378	378	-	-	-	-	-	-	-
Stage 2	378	378	-	239	236	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	405	408	807	402	407	684	1333	-	-	1199	-	-
Stage 1	769	711	-	644	615	-	-	-	-	-	-	-
Stage 2	644	615	-	764	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	403	405	807	396	404	684	1333	-	-	1199	-	-
Mov Cap-2 Maneuver	403	405	-	396	404	-	-	-	-	-	-	-
Stage 1	764	710	-	639	611	-	-	-	-	-	-	-
Stage 2	640	611	-	755	709	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB		
HCM Control Delay, s	10.7	0			0.2			0		
HCM LOS	B	A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR	
Capacity (veh/h)	1333	-	-	403	807	-	1199	-	-	
HCM Lane V/C Ratio	0.007	-	-	0.008	0.011	-	0.001	-	-	
HCM Control Delay (s)	7.7	-	-	14	9.5	0	8	-	-	
HCM Lane LOS	A	-	-	B	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	0	0	-	0	-	-	

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	48	649	10	4	627	14	7	2	5	9	8	42
Future Vol, veh/h	48	649	10	4	627	14	7	2	5	9	8	42
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	0	0	4	7	0	0	0	0	0	2
Mvmt Flow	50	676	10	4	653	15	7	2	5	9	8	44

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	668	0	0	686	0	0	1120	1457	343	1108	1455	334
Stage 1	-	-	-	-	-	-	781	781	-	669	669	-
Stage 2	-	-	-	-	-	-	339	676	-	439	786	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.32
Pot Cap-1 Maneuver	918	-	-	917	-	-	164	131	659	167	131	662
Stage 1	-	-	-	-	-	-	358	408	-	418	459	-
Stage 2	-	-	-	-	-	-	655	456	-	572	406	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	918	-	-	917	-	-	139	123	659	156	123	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	123	-	156	123	-
Stage 1	-	-	-	-	-	-	339	386	-	395	457	-
Stage 2	-	-	-	-	-	-	598	454	-	534	384	-

Approach	EB	WB		NB		SB						
HCM Control Delay, s	0.6	0.1		24.9		17.8						
HCM LOS				C		C						
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	139	294	918	-	-	917	-	-	156	389		
HCM Lane V/C Ratio	0.052	0.025	0.054	-	-	0.005	-	-	0.06	0.134		
HCM Control Delay (s)	32.3	17.6	9.1	-	-	8.9	-	-	29.5	15.7		
HCM Lane LOS	D	C	A	-	-	A	-	-	D	C		
HCM 95th %tile Q(veh)	0.2	0.1	0.2	-	-	0	-	-	0.2	0.5		

Intersection

Intersection Delay, s/veh

7

Intersection LOS

A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	16	2	15	36	8
Future Vol, veh/h	7	16	2	15	36	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	13	0	0	3	0
Mvmt Flow	8	18	2	16	40	9
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.8		7.1		7.1	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	12%	30%	0%
Vol Thru, %	88%	0%	82%
Vol Right, %	0%	70%	18%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	17	23	44
LT Vol	2	7	0
Through Vol	15	0	36
RT Vol	0	16	8
Lane Flow Rate	19	25	48
Geometry Grp	1	1	1
Degree of Util (X)	0.021	0.026	0.052
Departure Headway (Hd)	4.003	3.66	3.9
Convergence, Y/N	Yes	Yes	Yes
Cap	896	977	921
Service Time	2.019	1.685	1.911
HCM Lane V/C Ratio	0.021	0.026	0.052
HCM Control Delay	7.1	6.8	7.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023

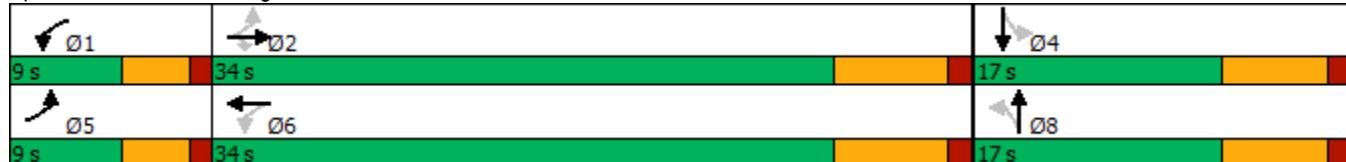


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	9	34	17	9	34	17
Maximum Split (%)	15.0%	56.7%	28.3%	15.0%	56.7%	28.3%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	4.5	15	7	4.5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	9	43	0	9	43
End Time (s)	9	43	0	9	43	0
Yield/Force Off (s)	5	36.8	54.1	5	36.8	54.1
Yield/Force Off 170(s)	5	36.8	54.1	5	36.8	54.1
Local Start Time (s)	51	0	34	51	0	34
Local Yield (s)	56	27.8	45.1	56	27.8	45.1
Local Yield 170(s)	56	27.8	45.1	56	27.8	45.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	57	580	34	16	567	87	15	3	21	86	6	72
Future Volume (veh/h)	57	580	34	16	567	87	15	3	21	86	6	72
Initial Q (Q _b), 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	1900	1856	1900	1900	1841	1856	1900	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	58	592	35	16	579	89	15	3	21	88	6	73
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	3	0	0	4	3	0	0	0	1	0	4
Cap, veh/h	462	1464	668	457	1155	177	338	33	228	387	20	239
Arrive On Green	0.05	0.42	0.42	0.02	0.38	0.38	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1810	3526	1610	1810	3040	466	1341	205	1436	1398	124	1505
Grp Volume(v), veh/h	58	592	35	16	332	336	15	0	24	88	0	79
Grp Sat Flow(s), veh/h/ln	1810	1763	1610	1810	1749	1757	1341	0	1641	1398	0	1629
Q Serve(g_s), s	0.7	4.7	0.5	0.2	5.7	5.8	0.4	0.0	0.5	2.3	0.0	1.7
Cycle Q Clear(g_c), s	0.7	4.7	0.5	0.2	5.7	5.8	2.1	0.0	0.5	2.8	0.0	1.7
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.88	1.00		0.92
Lane Grp Cap(c), veh/h	462	1464	668	457	664	667	338	0	261	387	0	259
V/C Ratio(X)	0.13	0.40	0.05	0.04	0.50	0.50	0.04	0.00	0.09	0.23	0.00	0.31
Avail Cap(c_a), veh/h	594	2482	1134	652	1231	1237	502	0	461	558	0	458
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	0.00	1.00
Uniform Delay (d), s/veh	7.0	8.1	6.9	7.4	9.4	9.4	15.6	0.0	14.2	15.4	0.0	14.7
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.6	0.6	0.1	0.0	0.2	0.3	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	1.1	0.1	0.1	1.5	1.5	0.1	0.0	0.2	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.1	8.3	6.9	7.4	10.0	10.0	15.7	0.0	14.3	15.7	0.0	15.3
LnGrp LOS	A	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h		685			684			39			167	
Approach Delay, s/veh		8.1			9.9			14.8			15.5	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	22.6		12.2	6.1	21.2		12.2				
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2		* 5.9				
Max Green Setting (Gmax), s	5.0	* 28		* 11	5.0	* 28		* 11				
Max Q Clear Time (g_c+l1), s	2.2	6.7		4.8	2.7	7.8		4.1				
Green Ext Time (p_c), s	0.0	3.8		0.3	0.0	3.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 7.5

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	20	33	19	36	12
Future Vol, veh/h	23	20	33	19	36	12
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	3	0	0	0
Mvmt Flow	28	25	41	23	44	15
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left	SB		WB			
Conflicting Lanes Left	2	0	1			
Conflicting Approach Right		SB	EB			
Conflicting Lanes Right	0	2	1			
HCM Control Delay	7.5	7.2	7.9			
HCM LOS	A	A	A			

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	53%	0%	100%	0%
Vol Thru, %	47%	63%	0%	0%
Vol Right, %	0%	37%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	52	36	12
LT Vol	23	0	36	0
Through Vol	20	33	0	0
RT Vol	0	19	0	12
Lane Flow Rate	53	64	44	15
Geometry Grp	2	2	7	7
Degree of Util (X)	0.061	0.069	0.064	0.016
Departure Headway (Hd)	4.158	3.874	5.203	4.001
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	854	915	686	889
Service Time	2.221	1.938	2.953	1.751
HCM Lane V/C Ratio	0.062	0.07	0.064	0.017
HCM Control Delay	7.5	7.2	8.3	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↘	↑ ↗		↑ ↘	↑ ↗				↑ ↘	↑ ↗		
Traffic Vol, veh/h	6	666	7	7	647	3	0	0	11	4	4	15
Future Vol, veh/h	6	666	7	7	647	3	0	0	11	4	4	15
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	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	0	14	4	0	2	2	0	0	0	13
Mvmt Flow	6	687	7	7	667	3	0	0	11	4	4	15
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	670	0	0	694	0	0	-	-	347	1039	1389	335
Stage 1	-	-	-	-	-	-	-	-	683	683	-	-
Stage 2	-	-	-	-	-	-	-	-	356	706	-	-
Critical Hdwy	4.1	-	-	4.38	-	-	-	-	6.9	7.5	6.5	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	-
Follow-up Hdwy	2.2	-	-	2.34	-	-	-	-	3.3	3.5	4	3.43
Pot Cap-1 Maneuver	930	-	-	822	-	-	0	0	655	188	144	630
Stage 1	-	-	-	-	-	-	0	0	410	452	-	-
Stage 2	-	-	-	-	-	-	0	0	640	442	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	930	-	-	822	-	-	-	-	655	183	142	630
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	183	142	-
Stage 1	-	-	-	-	-	-	-	-	-	408	448	-
Stage 2	-	-	-	-	-	-	-	-	-	625	439	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.1		0.1		10.6		17.5					
HCM LOS					B		C					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	655	930	-	-	822	-	-	311				
HCM Lane V/C Ratio	0.017	0.007	-	-	0.009	-	-	0.076				
HCM Control Delay (s)	10.6	8.9	-	-	9.4	-	-	17.5				
HCM Lane LOS	B	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2				

Intersection

Intersection Delay, s/veh 7.4

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	11	30	25	2	15	5
Future Vol, veh/h	11	30	25	2	15	5
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	15	42	35	3	21	7
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.3		7.2		7.8	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	27%	0%	100%	0%
Vol Thru, %	73%	93%	0%	0%
Vol Right, %	0%	7%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	27	15	5
LT Vol	11	0	15	0
Through Vol	30	25	0	0
RT Vol	0	2	0	5
Lane Flow Rate	58	38	21	7
Geometry Grp	2	2	7	7
Degree of Util (X)	0.065	0.042	0.03	0.008
Departure Headway (Hd)	4.031	3.947	5.166	3.999
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	887	904	691	891
Service Time	2.063	1.984	2.909	1.741
HCM Lane V/C Ratio	0.065	0.042	0.03	0.008
HCM Control Delay	7.3	7.2	8.1	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.1	0

Intersection

Int Delay, s/veh

1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	32	0	0	1	10	402	0	3	445	19
Future Vol, veh/h	20	0	32	0	0	1	10	402	0	3	445	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	3	0	0	0	10	9	0	0	8	0
Mvmt Flow	22	0	34	0	0	1	11	432	0	3	478	20

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	949	948	488	965	958	432	498	0	0	432	0	0
Stage 1	494	494	-	454	454	-	-	-	-	-	-	-
Stage 2	455	454	-	511	504	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.2	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Cap-1 Maneuver	242	263	578	236	259	628	1026	-	-	1138	-	-
Stage 1	561	550	-	589	573	-	-	-	-	-	-	-
Stage 2	589	573	-	549	544	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	239	259	578	220	255	628	1026	-	-	1138	-	-
Mov Cap-2 Maneuver	239	259	-	220	255	-	-	-	-	-	-	-
Stage 1	555	548	-	583	567	-	-	-	-	-	-	-
Stage 2	582	567	-	515	542	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB			
HCM Control Delay, s	15.4	10.7			0.2			0.1			
HCM LOS	C	B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	1026	-	-	239	578	628	1138	-	-		
HCM Lane V/C Ratio	0.01	-	-	0.09	0.06	0.002	0.003	-	-		
HCM Control Delay (s)	8.5	-	-	21.5	11.6	10.7	8.2	-	-		
HCM Lane LOS	A	-	-	C	B	B	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	0	-	-		

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗	
Traffic Vol, veh/h	34	426	14	3	378	10	4	1	2	4	1	25
Future Vol, veh/h	34	426	14	3	378	10	4	1	2	4	1	25
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	8	8	0	8	11	0	0	0	2	0	4
Mvmt Flow	37	468	15	3	415	11	4	1	2	4	1	27

Major/Minor	Major1	Major2		Minor1		Minor2		
Conflicting Flow All	426	0	0	483	0	0	764	982
Stage 1	-	-	-	-	-	-	550	550
Stage 2	-	-	-	-	-	-	214	432
Critical Hdwy	4.16	-	-	4.1	-	-	7.5	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.5	4
Pot Cap-1 Maneuver	1123	-	-	1090	-	-	297	251
Stage 1	-	-	-	-	-	-	492	519
Stage 2	-	-	-	-	-	-	774	586
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1123	-	-	1090	-	-	278	242
Mov Cap-2 Maneuver	-	-	-	-	-	-	278	242
Stage 1	-	-	-	-	-	-	476	502
Stage 2	-	-	-	-	-	-	743	584

Approach	EB	WB		NB		SB				
HCM Control Delay, s	0.6	0.1		16.1		11.1				
HCM LOS				C		B				
<hr/>										
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	278	445	1123	-	-	1090	-	-	297	723
HCM Lane V/C Ratio	0.016	0.007	0.033	-	-	0.003	-	-	0.015	0.04
HCM Control Delay (s)	18.2	13.2	8.3	-	-	8.3	-	-	17.3	10.2
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0	0	0.1	-	-	0	-	-	0	0.1

Intersection

Intersection Delay, s/veh 6.9

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	4	3	10	9	6
Future Vol, veh/h	5	4	3	10	9	6
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	11	2	2
Mvmt Flow	7	5	4	14	12	8
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.9		7.1		6.8	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	23%	56%	0%
Vol Thru, %	77%	0%	60%
Vol Right, %	0%	44%	40%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	13	9	15
LT Vol	3	5	0
Through Vol	10	0	9
RT Vol	0	4	6
Lane Flow Rate	18	12	21
Geometry Grp	1	1	1
Degree of Util (X)	0.02	0.013	0.021
Departure Headway (Hd)	4.017	3.845	3.729
Convergence, Y/N	Yes	Yes	Yes
Cap	895	933	964
Service Time	2.023	1.858	1.736
HCM Lane V/C Ratio	0.02	0.013	0.022
HCM Control Delay	7.1	6.9	6.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0	0.1

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	11	31	18	11	31	18
Maximum Split (%)	18.3%	51.7%	30.0%	18.3%	51.7%	30.0%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	5	15	7	5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	42	0	11	42
End Time (s)	11	42	0	11	42	0
Yield/Force Off (s)	7	35.8	54.1	7	35.8	54.1
Yield/Force Off 170(s)	7	35.8	54.1	7	35.8	54.1
Local Start Time (s)	49	0	31	49	0	31
Local Yield (s)	56	24.8	43.1	56	24.8	43.1
Local Yield 170(s)	56	24.8	43.1	56	24.8	43.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘	↗ ↙	↖ ↖	↑ ↗	↑ ↘	↖ ↙	↖ ↖	↑ ↗	↖ ↙	↖ ↖	
Traffic Volume (veh/h)	50	366	18	5	358	50	8	2	8	40	1	25
Future Volume (veh/h)	50	366	18	5	358	50	8	2	8	40	1	25
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00		1.00	1.00		1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1767	1900	1900	1796	1900	1900	1900	1693	1900	1900	1767
Adj Flow Rate, veh/h	54	398	20	5	389	54	9	2	9	43	1	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	9	0	0	7	0	0	0	14	0	0	9
Cap, veh/h	587	1511	725	574	1204	166	330	34	155	346	7	178
Arrive On Green	0.06	0.45	0.45	0.01	0.40	0.40	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3357	1610	1810	3013	415	1404	301	1355	1426	58	1561
Grp Volume(v), veh/h	54	398	20	5	219	224	9	0	11	43	0	28
Grp Sat Flow(s), veh/h/ln	1781	1678	1610	1810	1706	1722	1404	0	1656	1426	0	1619
Q Serve(g_s), s	0.6	2.8	0.3	0.1	3.3	3.4	0.2	0.0	0.2	1.0	0.0	0.6
Cycle Q Clear(g_c), s	0.6	2.8	0.3	0.1	3.3	3.4	0.8	0.0	0.2	1.3	0.0	0.6
Prop In Lane	1.00			1.00	1.00		0.24	1.00		0.82	1.00	0.96
Lane Grp Cap(c), veh/h	587	1511	725	574	682	688	330	0	189	346	0	185
V/C Ratio(X)	0.09	0.26	0.03	0.01	0.32	0.33	0.03	0.00	0.06	0.12	0.00	0.15
Avail Cap(c_a), veh/h	817	2217	1064	899	1127	1137	622	0	534	643	0	522
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	0.00	1.00
Uniform Delay (d), s/veh	5.9	6.4	5.7	6.6	7.8	7.8	15.3	0.0	14.8	15.4	0.0	15.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.3	0.3	0.0	0.0	0.1	0.2	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.1	0.6	0.1	0.0	0.8	0.8	0.1	0.0	0.1	0.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	5.9	6.5	5.8	6.7	8.0	8.1	15.4	0.0	15.0	15.5	0.0	15.4
LnGrp LOS	A	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h	472				448			20			71	
Approach Delay, s/veh	6.4				8.0			15.1			15.5	
Approach LOS	A				A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	23.1		10.2	6.2	21.2		10.2				
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2		* 5.9				
Max Green Setting (Gmax), s	7.0	* 25		* 12	7.0	* 25		* 12				
Max Q Clear Time (g_c+l1), s	2.1	4.8		3.3	2.6	5.4		2.8				
Green Ext Time (p_c), s	0.0	2.4		0.1	0.0	2.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	7.9
HCM 6th LOS	A

Notes

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

Intersection

Intersection Delay, s/veh 7.2

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Vol, veh/h	5	13	12	12	15	6
Future Vol, veh/h	5	13	12	12	15	6
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	8	2	2	2	2
Mvmt Flow	6	17	15	15	19	8
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right		SB		EB		
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.2		6.8		7.6	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	28%	0%	100%	0%
Vol Thru, %	72%	50%	0%	0%
Vol Right, %	0%	50%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	24	15	6
LT Vol	5	0	15	0
Through Vol	13	12	0	0
RT Vol	0	12	0	6
Lane Flow Rate	23	31	19	8
Geometry Grp	2	2	7	7
Degree of Util (X)	0.026	0.032	0.027	0.008
Departure Headway (Hd)	4.059	3.698	5.128	3.927
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	967	700	912
Service Time	2.085	1.724	2.848	1.647
HCM Lane V/C Ratio	0.026	0.032	0.027	0.009
HCM Control Delay	7.2	6.8	8	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗				↑ ↗	↑ ↗		
Traffic Vol, veh/h	4	400	9	4	412	4	0	0	6	3	0	3
Future Vol, veh/h	4	400	9	4	412	4	0	0	6	3	0	3
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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	9	0	2	6	2	2	2	2	2	2	2
Mvmt Flow	4	412	9	4	425	4	0	0	6	3	0	3

Major/Minor	Major1	Major2		Minor1		Minor2		
Conflicting Flow All	429	0	0	421	0	0	-	-
Stage 1	-	-	-	-	-	-	-	435
Stage 2	-	-	-	-	-	-	-	214
Critical Hdwy	4.1	-	-	4.14	-	-	6.94	7.54
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54
Follow-up Hdwy	2.2	-	-	2.22	-	-	3.32	3.52
Pot Cap-1 Maneuver	1141	-	-	1135	-	-	794	355
Stage 1	-	-	-	-	-	0	0	570
Stage 2	-	-	-	-	-	0	0	768
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1141	-	-	1135	-	-	794	350
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	289
Stage 1	-	-	-	-	-	-	568	577
Stage 2	-	-	-	-	-	-	759	580

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		9.6		12.5		
HCM LOS				A		B		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	794	1141	-	-	1135	-	-	485
HCM Lane V/C Ratio	0.008	0.004	-	-	0.004	-	-	0.013
HCM Control Delay (s)	9.6	8.2	-	-	8.2	-	-	12.5
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection

Intersection Delay, s/veh 7.2

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	5	15	19	1	8	5
Future Vol, veh/h	5	15	19	1	8	5
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	14	0	2	2	2
Mvmt Flow	7	22	28	1	12	7
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.2		7.1		7.5	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	25%	0%	100%	0%
Vol Thru, %	75%	95%	0%	0%
Vol Right, %	0%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	20	8	5
LT Vol	5	0	8	0
Through Vol	15	19	0	0
RT Vol	0	1	0	5
Lane Flow Rate	29	29	12	7
Geometry Grp	2	2	7	7
Degree of Util (X)	0.033	0.032	0.017	0.008
Departure Headway (Hd)	4.037	3.923	5.136	3.935
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	887	913	698	909
Service Time	2.059	1.946	2.861	1.66
HCM Lane V/C Ratio	0.033	0.032	0.017	0.008
HCM Control Delay	7.2	7.1	8	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	9	0	0	0	9	355	1	1	228	4
Future Vol, veh/h	3	0	9	0	0	0	9	355	1	1	228	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	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, %	2	2	2	2	2	2	2	16	2	2	24	2
Mvmt Flow	3	0	10	0	0	0	10	386	1	1	248	4

Major/Minor	Minor2	Minor1			Major1		Major2		
Conflicting Flow All	659	659	250	664	661	387	252	0	0
Stage 1	252	252	-	407	407	-	-	-	-
Stage 2	407	407	-	257	254	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	4.12
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	2.218
Pot Cap-1 Maneuver	377	384	789	374	383	661	1313	-	1171
Stage 1	752	698	-	621	597	-	-	-	-
Stage 2	621	597	-	748	697	-	-	-	-
Platoon blocked, %							-	-	-
Mov Cap-1 Maneuver	375	381	789	367	380	661	1313	-	1171
Mov Cap-2 Maneuver	375	381	-	367	380	-	-	-	-
Stage 1	746	697	-	616	592	-	-	-	-
Stage 2	616	592	-	738	696	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	0	0.2	0
HCM LOS	B	A		
<hr/>				
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBln1 EBln2 WBln1 SBL SBT SBR
Capacity (veh/h)	1313	-	-	375 789 - 1171 - -
HCM Lane V/C Ratio	0.007	-	-	0.009 0.012 - 0.001 - -
HCM Control Delay (s)	7.8	-	-	14.7 9.6 0 8.1 - -
HCM Lane LOS	A	-	-	B A A A - -
HCM 95th %tile Q(veh)	0	-	-	0 0 - 0 - -

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↘	↑ ↘		↑ ↘	↑ ↘		↑ ↘	↑ ↘		↑ ↘	↑ ↘	
Traffic Vol, veh/h	52	699	11	4	675	15	8	2	5	10	9	45
Future Vol, veh/h	52	699	11	4	675	15	8	2	5	10	9	45
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	0	0	4	7	0	0	0	0	0	2
Mvmt Flow	54	728	11	4	703	16	8	2	5	10	9	47

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	719	0	0	739	0	0	1206	1569	370	1192	1566	360
Stage 1	-	-	-	-	-	-	842	842	-	719	719	-
Stage 2	-	-	-	-	-	-	364	727	-	473	847	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.32
Pot Cap-1 Maneuver	878	-	-	876	-	-	142	112	633	145	112	637
Stage 1	-	-	-	-	-	-	329	383	-	390	436	-
Stage 2	-	-	-	-	-	-	633	432	-	546	381	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	878	-	-	876	-	-	116	104	633	135	104	637
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	104	-	135	104	-
Stage 1	-	-	-	-	-	-	309	359	-	366	434	-
Stage 2	-	-	-	-	-	-	571	430	-	505	357	-

Approach	EB	WB			NB			SB			
HCM Control Delay, s	0.6	0.1			29.5			20.1			
HCM LOS					D			C			

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	116	258	878	-	-	876	-	-	135	344
HCM Lane V/C Ratio	0.072	0.028	0.062	-	-	0.005	-	-	0.077	0.164
HCM Control Delay (s)	38.4	19.4	9.4	-	-	9.1	-	-	33.9	17.5
HCM Lane LOS	E	C	A	-	-	A	-	-	D	C
HCM 95th %tile Q(veh)	0.2	0.1	0.2	-	-	0	-	-	0.2	0.6

Intersection

Intersection Delay, s/veh

7

Intersection LOS

A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	17	2	16	39	9
Future Vol, veh/h	8	17	2	16	39	9
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	13	0	0	3	0
Mvmt Flow	9	19	2	18	43	10
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.8		7.1		7.1	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	11%	32%	0%
Vol Thru, %	89%	0%	81%
Vol Right, %	0%	68%	19%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	18	25	48
LT Vol	2	8	0
Through Vol	16	0	39
RT Vol	0	17	9
Lane Flow Rate	20	27	53
Geometry Grp	1	1	1
Degree of Util (X)	0.022	0.028	0.057
Departure Headway (Hd)	4.009	3.682	3.901
Convergence, Y/N	Yes	Yes	Yes
Cap	894	971	921
Service Time	2.026	1.709	1.912
HCM Lane V/C Ratio	0.022	0.028	0.058
HCM Control Delay	7.1	6.8	7.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023

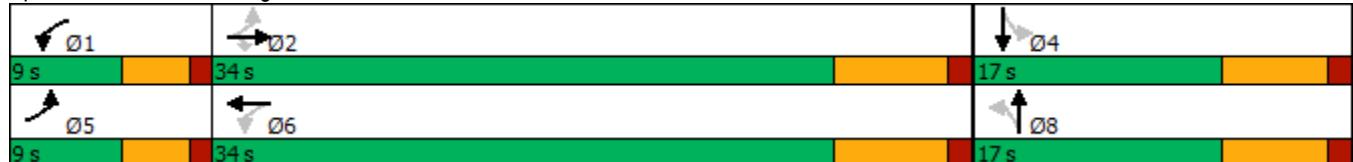


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	9	34	17	9	34	17
Maximum Split (%)	15.0%	56.7%	28.3%	15.0%	56.7%	28.3%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	4.5	15	7	4.5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	9	43	0	9	43
End Time (s)	9	43	0	9	43	0
Yield/Force Off (s)	5	36.8	54.1	5	36.8	54.1
Yield/Force Off 170(s)	5	36.8	54.1	5	36.8	54.1
Local Start Time (s)	51	0	34	51	0	34
Local Yield (s)	56	27.8	45.1	56	27.8	45.1
Local Yield 170(s)	56	27.8	45.1	56	27.8	45.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	61	625	37	17	611	94	16	3	23	93	6	78
Future Volume (veh/h)	61	625	37	17	611	94	16	3	23	93	6	78
Initial Q (Q _b), 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		No	No		No
Adj Sat Flow, veh/h/ln	1900	1856	1900	1900	1841	1856	1900	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	62	638	38	17	623	96	16	3	23	95	6	80
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	3	0	0	4	3	0	0	0	1	0	4
Cap, veh/h	444	1461	667	437	1147	176	334	30	234	387	18	244
Arrive On Green	0.06	0.41	0.41	0.02	0.38	0.38	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1810	3526	1610	1810	3038	467	1332	189	1450	1396	114	1514
Grp Volume(v), veh/h	62	638	38	17	358	361	16	0	26	95	0	86
Grp Sat Flow(s), veh/h/ln	1810	1763	1610	1810	1749	1757	1332	0	1639	1396	0	1627
Q Serve(g_s), s	0.8	5.1	0.6	0.2	6.4	6.4	0.4	0.0	0.5	2.5	0.0	1.9
Cycle Q Clear(g_c), s	0.8	5.1	0.6	0.2	6.4	6.4	2.3	0.0	0.5	3.0	0.0	1.9
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.88	1.00		0.93
Lane Grp Cap(c), veh/h	444	1461	667	437	660	663	334	0	264	387	0	262
V/C Ratio(X)	0.14	0.44	0.06	0.04	0.54	0.54	0.05	0.00	0.10	0.25	0.00	0.33
Avail Cap(c_a), veh/h	570	2467	1127	630	1224	1229	491	0	458	552	0	455
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	0.00	1.00
Uniform Delay (d), s/veh	7.2	8.3	7.0	7.5	9.7	9.7	15.8	0.0	14.2	15.5	0.0	14.8
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.7	0.7	0.1	0.0	0.2	0.3	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	1.2	0.1	0.1	1.7	1.7	0.1	0.0	0.2	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.3	8.5	7.0	7.5	10.4	10.4	15.8	0.0	14.4	15.8	0.0	15.5
LnGrp LOS	A	A	A	A	B	B	B	A	B	B	A	B
Approach Vol, veh/h	738				736				42			181
Approach Delay, s/veh	8.3				10.3				14.9			15.7
Approach LOS	A				B				B			B
Timer - Assigned Phs	1	2		4	5	6			8			
Phs Duration (G+Y+Rc), s	4.8	22.7		12.3	6.2	21.2			12.3			
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2			* 5.9			
Max Green Setting (Gmax), s	5.0	* 28		* 11	5.0	* 28			* 11			
Max Q Clear Time (g_c+l1), s	2.2	7.1		5.0	2.8	8.4			4.3			
Green Ext Time (p_c), s	0.0	4.1		0.3	0.0	4.1			0.0			

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

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

Intersection

Intersection Delay, s/veh 7.6

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	22	36	20	39	13
Future Vol, veh/h	25	22	36	20	39	13
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	3	0	0	0
Mvmt Flow	31	27	44	25	48	16
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left	SB		WB			
Conflicting Lanes Left	2	0	1			
Conflicting Approach Right		SB	EB			
Conflicting Lanes Right	0	2	1			
HCM Control Delay	7.5	7.3	8			
HCM LOS	A	A	A			

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	53%	0%	100%	0%
Vol Thru, %	47%	64%	0%	0%
Vol Right, %	0%	36%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	56	39	13
LT Vol	25	0	39	0
Through Vol	22	36	0	0
RT Vol	0	20	0	13
Lane Flow Rate	58	69	48	16
Geometry Grp	2	2	7	7
Degree of Util (X)	0.067	0.075	0.07	0.018
Departure Headway (Hd)	4.169	3.891	5.22	4.018
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	849	909	683	884
Service Time	2.241	1.964	2.976	1.774
HCM Lane V/C Ratio	0.068	0.076	0.07	0.018
HCM Control Delay	7.5	7.3	8.4	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.1

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗		↑ ↗	↑ ↗	↑ ↗	
Traffic Vol, veh/h	6	717	8	8	697	3	0	0	12	4	4	16
Future Vol, veh/h	6	717	8	8	697	3	0	0	12	4	4	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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	0	14	4	0	2	2	0	0	0	13
Mvmt Flow	6	739	8	8	719	3	0	0	12	4	4	16

Major/Minor	Major1	Major2		Minor1		Minor2			
Conflicting Flow All	722	0	0	747	0	0	-	-	374 1119 1496 361
Stage 1	-	-	-	-	-	-	-	-	737 737 -
Stage 2	-	-	-	-	-	-	-	-	382 759 -
Critical Hdwy	4.1	-	-	4.38	-	-	-	6.9	7.5 6.5 7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5 5.5 -
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5 5.5 -
Follow-up Hdwy	2.2	-	-	2.34	-	-	-	3.3	3.5 4 3.43
Pot Cap-1 Maneuver	889	-	-	783	-	-	0	0	629 164 124 605
Stage 1	-	-	-	-	-	-	0	0	381 428 -
Stage 2	-	-	-	-	-	-	0	0	618 418 -
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	889	-	-	783	-	-	-	629	159 122 605
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	159 122 -
Stage 1	-	-	-	-	-	-	-	-	378 424 -
Stage 2	-	-	-	-	-	-	-	-	602 415 -

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		10.8		18.9		
HCM LOS				B		C		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	629	889	-	-	783	-	-	284
HCM Lane V/C Ratio	0.02	0.007	-	-	0.011	-	-	0.087
HCM Control Delay (s)	10.8	9.1	-	-	9.6	-	-	18.9
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

Intersection

Intersection Delay, s/veh 7.4

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	12	32	27	2	16	5
Future Vol, veh/h	12	32	27	2	16	5
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	17	45	38	3	23	7
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.4		7.2		7.8	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	27%	0%	100%	0%
Vol Thru, %	73%	93%	0%	0%
Vol Right, %	0%	7%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	29	16	5
LT Vol	12	0	16	0
Through Vol	32	27	0	0
RT Vol	0	2	0	5
Lane Flow Rate	62	41	23	7
Geometry Grp	2	2	7	7
Degree of Util (X)	0.069	0.045	0.032	0.008
Departure Headway (Hd)	4.035	3.955	5.178	4.01
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	886	902	690	888
Service Time	2.07	1.995	2.923	1.754
HCM Lane V/C Ratio	0.07	0.045	0.033	0.008
HCM Control Delay	7.4	7.2	8.1	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.1	0

Intersection

Int Delay, s/veh

1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	0	34	0	0	1	11	433	0	3	479	20
Future Vol, veh/h	22	0	34	0	0	1	11	433	0	3	479	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	3	0	0	0	10	9	0	0	8	0
Mvmt Flow	24	0	37	0	0	1	12	466	0	3	515	22

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1023	1022	526	1041	1033	466	537	0	0	466	0	0
Stage 1	532	532	-	490	490	-	-	-	-	-	-	-
Stage 2	491	490	-	551	543	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.2	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Cap-1 Maneuver	216	238	550	210	234	601	992	-	-	1106	-	-
Stage 1	535	529	-	564	552	-	-	-	-	-	-	-
Stage 2	563	552	-	522	523	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	213	234	550	194	230	601	992	-	-	1106	-	-
Mov Cap-2 Maneuver	213	234	-	194	230	-	-	-	-	-	-	-
Stage 1	529	527	-	557	545	-	-	-	-	-	-	-
Stage 2	555	545	-	486	521	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.7	11	0.2	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	992	-	-	213	550	601	1106	-	-
HCM Lane V/C Ratio	0.012	-	-	0.111	0.066	0.002	0.003	-	-
HCM Control Delay (s)	8.7	-	-	24	12	11	8.3	-	-
HCM Lane LOS	A	-	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0	0	-	-

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗	
Traffic Vol, veh/h	34	444	14	3	390	10	4	1	2	4	1	25
Future Vol, veh/h	34	444	14	3	390	10	4	1	2	4	1	25
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	8	8	0	8	11	0	0	0	2	0	4
Mvmt Flow	37	488	15	3	429	11	4	1	2	4	1	27

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	440	0	0	503	0	0	791	1016	252	760	1018	220
Stage 1	-	-	-	-	-	-	570	570	-	441	441	-
Stage 2	-	-	-	-	-	-	221	446	-	319	577	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.5	6.5	6.9	7.54	6.5	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.54	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.54	5.5	-
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.5	4	3.3	3.52	4	3.34
Pot Cap-1 Maneuver	1109	-	-	1072	-	-	284	240	754	295	239	778
Stage 1	-	-	-	-	-	-	479	509	-	565	580	-
Stage 2	-	-	-	-	-	-	767	577	-	667	505	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1109	-	-	1072	-	-	266	231	754	285	230	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	266	231	-	285	230	-
Stage 1	-	-	-	-	-	-	463	492	-	546	578	-
Stage 2	-	-	-	-	-	-	736	575	-	641	488	-

Approach	EB	WB		NB		SB					
HCM Control Delay, s	0.6	0.1		16.5		11.3					
HCM LOS				C		B					
Minor Lane/Major Mvmt		NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)		266	430	1109	-	-	1072	-	-	285	713
HCM Lane V/C Ratio		0.017	0.008	0.034	-	-	0.003	-	-	0.015	0.04
HCM Control Delay (s)		18.8	13.4	8.4	-	-	8.4	-	-	17.8	10.3
HCM Lane LOS		C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)		0.1	0	0.1	-	-	0	-	-	0	0.1

Intersection

Intersection Delay, s/veh

7

Intersection LOS

A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	4	3	12	12	6
Future Vol, veh/h	5	4	3	12	12	6
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	11	2	2
Mvmt Flow	7	5	4	16	16	8
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.9		7.1		6.9	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	20%	56%	0%
Vol Thru, %	80%	0%	67%
Vol Right, %	0%	44%	33%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	15	9	18
LT Vol	3	5	0
Through Vol	12	0	12
RT Vol	0	4	6
Lane Flow Rate	21	12	25
Geometry Grp	1	1	1
Degree of Util (X)	0.023	0.013	0.026
Departure Headway (Hd)	4.014	3.856	3.771
Convergence, Y/N	Yes	Yes	Yes
Cap	896	929	953
Service Time	2.021	1.874	1.779
HCM Lane V/C Ratio	0.023	0.013	0.026
HCM Control Delay	7.1	6.9	6.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0	0.1

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	11	31	18	11	31	18
Maximum Split (%)	18.3%	51.7%	30.0%	18.3%	51.7%	30.0%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	5	15	7	5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	42	0	11	42
End Time (s)	11	42	0	11	42	0
Yield/Force Off (s)	7	35.8	54.1	7	35.8	54.1
Yield/Force Off 170(s)	7	35.8	54.1	7	35.8	54.1
Local Start Time (s)	49	0	31	49	0	31
Local Yield (s)	56	24.8	43.1	56	24.8	43.1
Local Yield 170(s)	56	24.8	43.1	56	24.8	43.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘	↗ ↗	↖ ↗	↑ ↗ ↘	↙ ↗ ↘	↖ ↗	↖ ↘	↑ ↗	↖ ↗	↖ ↘	↖ ↗
Traffic Volume (veh/h)	50	373	29	11	358	50	20	2	8	40	1	25
Future Volume (veh/h)	50	373	29	11	358	50	20	2	8	40	1	25
Initial Q (Q _b), 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		No		No	
Adj Sat Flow, veh/h/ln	1870	1767	1900	1900	1796	1900	1900	1900	1693	1900	1900	1767
Adj Flow Rate, veh/h	54	405	32	12	389	54	22	2	9	43	1	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	9	0	0	7	0	0	0	14	0	0	9
Cap, veh/h	581	1467	704	566	1191	164	341	37	166	357	7	192
Arrive On Green	0.06	0.44	0.44	0.02	0.40	0.40	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3357	1610	1810	3013	415	1404	301	1355	1426	58	1561
Grp Volume(v), veh/h	54	405	32	12	219	224	22	0	11	43	0	28
Grp Sat Flow(s), veh/h/ln	1781	1678	1610	1810	1706	1722	1404	0	1656	1426	0	1619
Q Serve(g_s), s	0.6	2.9	0.4	0.1	3.4	3.4	0.5	0.0	0.2	1.0	0.0	0.6
Cycle Q Clear(g_c), s	0.6	2.9	0.4	0.1	3.4	3.4	1.1	0.0	0.2	1.3	0.0	0.6
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.82	1.00		0.96
Lane Grp Cap(c), veh/h	581	1467	704	566	675	681	341	0	203	357	0	199
V/C Ratio(X)	0.09	0.28	0.05	0.02	0.32	0.33	0.06	0.00	0.05	0.12	0.00	0.14
Avail Cap(c_a), veh/h	807	2195	1053	872	1116	1126	616	0	528	636	0	516
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	0.00	1.00
Uniform Delay (d), s/veh	6.0	6.8	6.1	6.6	8.0	8.0	15.3	0.0	14.7	15.2	0.0	14.8
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.3	0.3	0.1	0.0	0.1	0.1	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.1	0.6	0.1	0.0	0.8	0.8	0.2	0.0	0.1	0.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.1	6.9	6.2	6.7	8.2	8.2	15.4	0.0	14.8	15.4	0.0	15.2
LnGrp LOS	A	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h		491			455			33			71	
Approach Delay, s/veh		6.8			8.2			15.2			15.3	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	22.8		10.6	6.2	21.2		10.6				
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2		* 5.9				
Max Green Setting (Gmax), s	7.0	* 25		* 12	7.0	* 25		* 12				
Max Q Clear Time (g_c+l1), s	2.1	4.9		3.3	2.6	5.4		3.1				
Green Ext Time (p_c), s	0.0	2.5		0.1	0.0	2.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Notes

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

Intersection

Intersection Delay, s/veh 7.4

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Vol, veh/h	5	15	15	24	32	6
Future Vol, veh/h	5	15	15	24	32	6
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	8	2	2	2	2
Mvmt Flow	6	19	19	31	41	8
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right		SB		EB		
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.3		6.9		8	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	25%	0%	100%	0%
Vol Thru, %	75%	38%	0%	0%
Vol Right, %	0%	62%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	39	32	6
LT Vol	5	0	32	0
Through Vol	15	15	0	0
RT Vol	0	24	0	6
Lane Flow Rate	26	50	41	8
Geometry Grp	2	2	7	7
Degree of Util (X)	0.029	0.051	0.059	0.008
Departure Headway (Hd)	4.105	3.667	5.165	3.964
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	866	969	694	903
Service Time	2.158	1.719	2.891	1.689
HCM Lane V/C Ratio	0.03	0.052	0.059	0.009
HCM Control Delay	7.3	6.9	8.2	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗				↑ ↗	↖ ↘		
Traffic Vol, veh/h	4	407	9	4	418	4	0	0	10	3	0	3
Future Vol, veh/h	4	407	9	4	418	4	0	0	10	3	0	3
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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	9	0	2	6	2	2	2	2	2	2	2
Mvmt Flow	4	420	9	4	431	4	0	0	10	3	0	3

Major/Minor	Major1	Major2		Minor1		Minor2		
Conflicting Flow All	435	0	0	429	0	0	-	-
Stage 1	-	-	-	-	-	-	-	441
Stage 2	-	-	-	-	-	-	-	218
Critical Hdwy	4.1	-	-	4.14	-	-	6.94	7.54
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54
Follow-up Hdwy	2.2	-	-	2.22	-	-	3.32	3.52
Pot Cap-1 Maneuver	1135	-	-	1127	-	-	790	349
Stage 1	-	-	-	-	-	0	0	565
Stage 2	-	-	-	-	-	0	0	575
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1135	-	-	1127	-	-	790	343
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	283
Stage 1	-	-	-	-	-	-	563	573
Stage 2	-	-	-	-	-	-	751	576

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		9.6		12.6		
HCM LOS				A		B		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	790	1135	-	-	1127	-	-	478
HCM Lane V/C Ratio	0.013	0.004	-	-	0.004	-	-	0.013
HCM Control Delay (s)	9.6	8.2	-	-	8.2	-	-	12.6
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection

Intersection Delay, s/veh 7.3

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	9	21	31	1	8	5
Future Vol, veh/h	9	21	31	1	8	5
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	14	0	2	2	2
Mvmt Flow	13	30	45	1	12	7
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.3		7.2		7.5	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	30%	0%	100%	0%
Vol Thru, %	70%	97%	0%	0%
Vol Right, %	0%	3%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	32	8	5
LT Vol	9	0	8	0
Through Vol	21	31	0	0
RT Vol	0	1	0	5
Lane Flow Rate	43	46	12	7
Geometry Grp	2	2	7	7
Degree of Util (X)	0.049	0.051	0.017	0.008
Departure Headway (Hd)	4.06	3.945	5.191	3.989
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	907	689	894
Service Time	2.086	1.971	2.929	1.728
HCM Lane V/C Ratio	0.049	0.051	0.017	0.008
HCM Control Delay	7.3	7.2	8	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.1	0

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	11	0	0	0	16	356	1	1	233	9
Future Vol, veh/h	7	0	11	0	0	0	16	356	1	1	233	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									
Storage Length	60	-	0	-	-	-	100	-	-	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, %	2	2	2	2	2	2	2	16	2	2	24	2
Mvmt Flow	8	0	12	0	0	0	17	387	1	1	253	10

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	682	682	258	688	687	388	263	0	0	388	0	0
Stage 1	260	260	-	422	422	-	-	-	-	-	-	-
Stage 2	422	422	-	266	265	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	364	372	781	360	370	660	1301	-	-	1170	-	-
Stage 1	745	693	-	609	588	-	-	-	-	-	-	-
Stage 2	609	588	-	739	689	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	360	367	781	351	365	660	1301	-	-	1170	-	-
Mov Cap-2 Maneuver	360	367	-	351	365	-	-	-	-	-	-	-
Stage 1	735	692	-	601	580	-	-	-	-	-	-	-
Stage 2	601	580	-	727	688	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB			
HCM Control Delay, s	11.8	0			0.3			0			
HCM LOS	B	A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	1301	-	-	360	781	-	1170	-	-		
HCM Lane V/C Ratio	0.013	-	-	0.021	0.015	-	0.001	-	-		
HCM Control Delay (s)	7.8	-	-	15.2	9.7	0	8.1	-	-		
HCM Lane LOS	A	-	-	C	A	A	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	0.1	0	-	0	-	-		

Intersection

Int Delay, s/veh 2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↓	↔		
Traffic Vol, veh/h	28	19	8	28	11	10
Future Vol, veh/h	28	19	8	28	11	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	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	21	9	30	12	11

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	51	0	89 41
Stage 1	-	-	-	-	41 -
Stage 2	-	-	-	-	48 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1555	-	912 1030
Stage 1	-	-	-	-	981 -
Stage 2	-	-	-	-	974 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1555	-	907 1030
Mov Cap-2 Maneuver	-	-	-	-	907 -
Stage 1	-	-	-	-	981 -
Stage 2	-	-	-	-	968 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	962	-	-	1555	-
HCM Lane V/C Ratio	0.024	-	-	0.006	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	4	3	5	369	235	9
Future Vol, veh/h	4	3	5	369	235	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	3	5	401	255	10

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	671	260	265	0	-
Stage 1	260	-	-	-	-
Stage 2	411	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	422	779	1299	-	-
Stage 1	783	-	-	-	-
Stage 2	669	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	420	779	1299	-	-
Mov Cap-2 Maneuver	518	-	-	-	-
Stage 1	780	-	-	-	-
Stage 2	669	-	-	-	-

Approach	EB	NB	SB	
HCM Control Delay, s	11	0.1	0	
HCM LOS	B			

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1299	-	605	-	-
HCM Lane V/C Ratio	0.004	-	0.013	-	-
HCM Control Delay (s)	7.8	-	11	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	↑	
Traffic Vol, veh/h	8	3	6	366	230	8
Future Vol, veh/h	8	3	6	366	230	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	3	7	398	250	9

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	667	255	259	0	-
Stage 1	255	-	-	-	-
Stage 2	412	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	424	784	1306	-	-
Stage 1	788	-	-	-	-
Stage 2	669	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	422	784	1306	-	-
Mov Cap-2 Maneuver	519	-	-	-	-
Stage 1	784	-	-	-	-
Stage 2	669	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1306	-	572	-	-
HCM Lane V/C Ratio	0.005	-	0.021	-	-
HCM Control Delay (s)	7.8	-	11.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑↓		↑	↑		↑	↑	
Traffic Vol, veh/h	52	725	11	4	702	15	8	2	5	10	9	45
Future Vol, veh/h	52	725	11	4	702	15	8	2	5	10	9	45
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	0	0	4	7	0	0	0	0	0	2
Mvmt Flow	54	755	11	4	731	16	8	2	5	10	9	47

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	747	0	0	766	0	0	1247	1624	383	1234	1621	374
Stage 1	-	-	-	-	-	-	869	869	-	747	747	-
Stage 2	-	-	-	-	-	-	378	755	-	487	874	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.32
Pot Cap-1 Maneuver	857	-	-	856	-	-	132	104	621	135	104	623
Stage 1	-	-	-	-	-	-	317	372	-	376	423	-
Stage 2	-	-	-	-	-	-	621	420	-	536	370	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	857	-	-	856	-	-	107	97	621	125	97	623
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	97	-	125	97	-
Stage 1	-	-	-	-	-	-	297	349	-	352	421	-
Stage 2	-	-	-	-	-	-	559	418	-	495	347	-

Approach	EB	WB		NB		SB						
HCM Control Delay, s	0.6	0.1		31.6		21.1						
HCM LOS				D		C						
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	107	244	857	-	-	856	-	-	125	327		
HCM Lane V/C Ratio	0.078	0.03	0.063	-	-	0.005	-	-	0.083	0.172		
HCM Control Delay (s)	41.5	20.2	9.5	-	-	9.2	-	-	36.4	18.3		
HCM Lane LOS	E	C	A	-	-	A	-	-	E	C		
HCM 95th %tile Q(veh)	0.2	0.1	0.2	-	-	0	-	-	0.3	0.6		

Intersection

Intersection Delay, s/veh 7.1

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	17	2	18	41	9
Future Vol, veh/h	8	17	2	18	41	9
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	13	0	0	3	0
Mvmt Flow	9	19	2	20	45	10
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.8		7.1		7.2	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	10%	32%	0%
Vol Thru, %	90%	0%	82%
Vol Right, %	0%	68%	18%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	20	25	50
LT Vol	2	8	0
Through Vol	18	0	41
RT Vol	0	17	9
Lane Flow Rate	22	27	55
Geometry Grp	1	1	1
Degree of Util (X)	0.024	0.028	0.06
Departure Headway (Hd)	4.009	3.69	3.907
Convergence, Y/N	Yes	Yes	Yes
Cap	895	968	920
Service Time	2.026	1.719	1.918
HCM Lane V/C Ratio	0.025	0.028	0.06
HCM Control Delay	7.1	6.8	7.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023

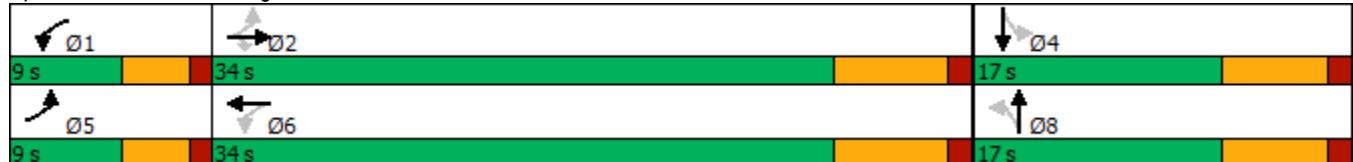


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	9	34	17	9	34	17
Maximum Split (%)	15.0%	56.7%	28.3%	15.0%	56.7%	28.3%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	4.5	15	7	4.5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	9	43	0	9	43
End Time (s)	9	43	0	9	43	0
Yield/Force Off (s)	5	36.8	54.1	5	36.8	54.1
Yield/Force Off 170(s)	5	36.8	54.1	5	36.8	54.1
Local Start Time (s)	51	0	34	51	0	34
Local Yield (s)	56	27.8	45.1	56	27.8	45.1
Local Yield 170(s)	56	27.8	45.1	56	27.8	45.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘	↗ ↗	↖ ↗	↑ ↗ ↘	↙ ↗ ↘	↖ ↗	↖ ↘	↙ ↗	↖ ↗	↖ ↘	↙ ↗
Traffic Volume (veh/h)	61	640	48	23	611	94	43	3	23	93	6	78
Future Volume (veh/h)	61	640	48	23	611	94	43	3	23	93	6	78
Initial Q (Q _b), 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		No		No	
Adj Sat Flow, veh/h/ln	1900	1856	1900	1900	1841	1856	1900	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	62	653	49	23	623	96	44	3	23	95	6	80
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	3	0	0	4	3	0	0	0	1	0	4
Cap, veh/h	442	1433	655	432	1142	176	338	31	239	391	19	249
Arrive On Green	0.06	0.41	0.41	0.03	0.38	0.38	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1810	3526	1610	1810	3038	467	1332	189	1450	1396	114	1514
Grp Volume(v), veh/h	62	653	49	23	358	361	44	0	26	95	0	86
Grp Sat Flow(s), veh/h/ln	1810	1763	1610	1810	1749	1757	1332	0	1639	1396	0	1627
Q Serve(g_s), s	0.8	5.4	0.7	0.3	6.4	6.4	1.2	0.0	0.5	2.5	0.0	1.9
Cycle Q Clear(g_c), s	0.8	5.4	0.7	0.3	6.4	6.4	3.1	0.0	0.5	3.0	0.0	1.9
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.88	1.00		0.93
Lane Grp Cap(c), veh/h	442	1433	655	432	657	660	338	0	270	391	0	268
V/C Ratio(X)	0.14	0.46	0.07	0.05	0.54	0.55	0.13	0.00	0.10	0.24	0.00	0.32
Avail Cap(c_a), veh/h	567	2456	1122	613	1218	1224	489	0	456	550	0	453
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	0.00	1.00
Uniform Delay (d), s/veh	7.2	8.6	7.2	7.5	9.8	9.8	16.1	0.0	14.1	15.4	0.0	14.7
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.1	0.7	0.7	0.2	0.0	0.2	0.3	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	1.3	0.2	0.1	1.7	1.8	0.3	0.0	0.2	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.4	8.8	7.3	7.5	10.5	10.5	16.2	0.0	14.3	15.7	0.0	15.4
LnGrp LOS	A	A	A	A	B	B	B	A	B	B	A	B
Approach Vol, veh/h		764			742			70			181	
Approach Delay, s/veh		8.6			10.4			15.5			15.6	
Approach LOS		A			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+R _c), s	5.0	22.4		12.5	6.2	21.2		12.5				
Change Period (Y+R _c), s	4.0	* 6.2		* 5.9	4.0	* 6.2		* 5.9				
Max Green Setting (Gmax), s	5.0	* 28		* 11	5.0	* 28		* 11				
Max Q Clear Time (g_c+l1), s	2.3	7.4		5.0	2.8	8.4		5.1				
Green Ext Time (p_c), s	0.0	4.3		0.3	0.0	4.1		0.1				

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

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

Intersection

Intersection Delay, s/veh 7.8

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	24	38	47	56	13
Future Vol, veh/h	25	24	38	47	56	13
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	3	0	0	0
Mvmt Flow	31	30	47	58	69	16
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left	SB		WB			
Conflicting Lanes Left	2	0	1			
Conflicting Approach Right		SB	EB			
Conflicting Lanes Right	0	2	1			
HCM Control Delay	7.7	7.4	8.4			
HCM LOS	A	A	A			

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	51%	0%	100%	0%
Vol Thru, %	49%	45%	0%	0%
Vol Right, %	0%	55%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	85	56	13
LT Vol	25	0	56	0
Through Vol	24	38	0	0
RT Vol	0	47	0	13
Lane Flow Rate	60	105	69	16
Geometry Grp	2	2	7	7
Degree of Util (X)	0.073	0.114	0.102	0.018
Departure Headway (Hd)	4.331	3.912	5.286	4.083
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	832	921	672	866
Service Time	2.333	1.913	3.063	1.859
HCM Lane V/C Ratio	0.072	0.114	0.103	0.018
HCM Control Delay	7.7	7.4	8.7	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.3	0.1

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗		↑ ↗	↑ ↗	↑ ↗	
Traffic Vol, veh/h	6	732	8	8	703	3	0	0	18	4	4	16
Future Vol, veh/h	6	732	8	8	703	3	0	0	18	4	4	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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	0	14	4	0	2	2	0	0	0	13
Mvmt Flow	6	755	8	8	725	3	0	0	19	4	4	16

Major/Minor	Major1	Major2		Minor1		Minor2		
Conflicting Flow All	728	0	0	763	0	0	-	-
Stage 1	-	-	-	-	-	-	-	743
Stage 2	-	-	-	-	-	-	-	390
Critical Hdwy	4.1	-	-	4.38	-	-	-	7.5
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.5
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.5
Follow-up Hdwy	2.2	-	-	2.34	-	-	-	3.43
Pot Cap-1 Maneuver	885	-	-	771	-	-	0	1518
Stage 1	-	-	-	-	-	-	0	378
Stage 2	-	-	-	-	-	-	0	425
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	885	-	-	771	-	-	-	602
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	118
Stage 2	-	-	-	-	-	-	-	421

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		11		19.3		
HCM LOS		B		C				
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	622	885	-	-	771	-	-	277
HCM Lane V/C Ratio	0.03	0.007	-	-	0.011	-	-	0.089
HCM Control Delay (s)	11	9.1	-	-	9.7	-	-	19.3
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

Intersection

Intersection Delay, s/veh 7.5

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	18	40	51	2	16	5
Future Vol, veh/h	18	40	51	2	16	5
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	25	56	72	3	23	7
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.5		7.4		7.9	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	31%	0%	100%	0%
Vol Thru, %	69%	96%	0%	0%
Vol Right, %	0%	4%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	58	53	16	5
LT Vol	18	0	16	0
Through Vol	40	51	0	0
RT Vol	0	2	0	5
Lane Flow Rate	82	75	23	7
Geometry Grp	2	2	7	7
Degree of Util (X)	0.092	0.083	0.033	0.008
Departure Headway (Hd)	4.068	3.989	5.271	4.102
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	877	894	674	863
Service Time	2.112	2.035	3.04	1.87
HCM Lane V/C Ratio	0.094	0.084	0.034	0.008
HCM Control Delay	7.5	7.4	8.2	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.1	0

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	0	37	0	0	1	30	445	0	3	505	25
Future Vol, veh/h	27	0	37	0	0	1	30	445	0	3	505	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	3	0	0	0	10	9	0	0	8	0
Mvmt Flow	29	0	40	0	0	1	32	478	0	3	543	27

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1106	1105	557	1125	1118	478	570	0	0	478	0	0
Stage 1	563	563	-	542	542	-	-	-	-	-	-	-
Stage 2	543	542	-	583	576	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.2	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Cap-1 Maneuver	190	213	528	184	209	591	964	-	-	1095	-	-
Stage 1	514	512	-	528	523	-	-	-	-	-	-	-
Stage 2	528	523	-	502	505	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	184	205	528	165	201	591	964	-	-	1095	-	-
Mov Cap-2 Maneuver	184	205	-	165	201	-	-	-	-	-	-	-
Stage 1	497	510	-	511	506	-	-	-	-	-	-	-
Stage 2	510	506	-	463	503	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.1	11.1	0.6	0
HCM LOS	C	B		
<hr/>				
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBln1 EBln2 WBln1 SBL SBT SBR
Capacity (veh/h)	964	-	-	184 528 591 1095 - -
HCM Lane V/C Ratio	0.033	-	-	0.158 0.075 0.002 0.003 - -
HCM Control Delay (s)	8.9	-	-	28.2 12.4 11.1 8.3 - -
HCM Lane LOS	A	-	-	D B B A - -
HCM 95th %tile Q(veh)	0.1	-	-	0.5 0.2 0 0 - -

Intersection

Int Delay, s/veh 1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	61	19	8	72	13	14
Future Vol, veh/h	61	19	8	72	13	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	21	9	78	14	15

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	87	0	173 77
Stage 1	-	-	-	-	77 -
Stage 2	-	-	-	-	96 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1509	-	812 984
Stage 1	-	-	-	-	946 -
Stage 2	-	-	-	-	928 -
Platoon blocked, %	-	-	-	-	
Mov Cap-1 Maneuver	-	-	1509	-	812 984
Mov Cap-2 Maneuver	-	-	-	-	812 -
Stage 1	-	-	-	-	946 -
Stage 2	-	-	-	-	922 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	893	-	-	1509	-
HCM Lane V/C Ratio	0.033	-	-	0.006	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	20	8	12	455	522	20
Future Vol, veh/h	20	8	12	455	522	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	9	13	495	567	22

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	1099	578	589	0	-
Stage 1	578	-	-	-	-
Stage 2	521	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	235	516	986	-	-
Stage 1	561	-	-	-	-
Stage 2	596	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	232	516	986	-	-
Mov Cap-2 Maneuver	368	-	-	-	-
Stage 1	554	-	-	-	-
Stage 2	596	-	-	-	-

Approach	EB	NB	SB	
HCM Control Delay, s	14.7	0.2	0	
HCM LOS	B			

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	986	-	401	-	-
HCM Lane V/C Ratio	0.013	-	0.076	-	-
HCM Control Delay (s)	8.7	-	14.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	20	17	12	447	510	20
Future Vol, veh/h	20	17	12	447	510	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	18	13	486	554	22

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	1077	565	576	0	-
Stage 1	565	-	-	-	-
Stage 2	512	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	242	524	997	-	-
Stage 1	569	-	-	-	-
Stage 2	602	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	239	524	997	-	-
Mov Cap-2 Maneuver	374	-	-	-	-
Stage 1	562	-	-	-	-
Stage 2	602	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	997	-	431	-	-
HCM Lane V/C Ratio	0.013	-	0.093	-	-
HCM Control Delay (s)	8.7	-	14.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Traffic Vol, veh/h	39	494	16	3	438	12	5	1	2	5	1	29
Future Vol, veh/h	39	494	16	3	438	12	5	1	2	5	1	29
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	8	8	0	8	11	0	0	0	2	0	4
Mvmt Flow	43	543	18	3	481	13	5	1	2	5	1	32

Major/Minor	Major1	Major2		Minor1		Minor2	
Conflicting Flow All	494	0	0	561	0	0	885 1138 281 852 1141 247
Stage 1	-	-	-	-	-	638	638 - 494 494 -
Stage 2	-	-	-	-	-	247	500 - 358 647 -
Critical Hdwy	4.16	-	-	4.1	-	-	7.5 6.5 6.9 7.54 6.5 6.98
Critical Hdwy Stg 1	-	-	-	-	-	6.5	5.5 - 6.54 5.5 -
Critical Hdwy Stg 2	-	-	-	-	-	6.5	5.5 - 6.54 5.5 -
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.5 4 3.3 3.52 4 3.34
Pot Cap-1 Maneuver	1059	-	-	1020	-	-	243 203 722 253 202 747
Stage 1	-	-	-	-	-	436	474 - 526 550 -
Stage 2	-	-	-	-	-	741	546 - 633 470 -
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1059	-	-	1020	-	-	224 194 722 243 193 747
Mov Cap-2 Maneuver	-	-	-	-	-	224	194 - 243 193 -
Stage 1	-	-	-	-	-	418	455 - 504 548 -
Stage 2	-	-	-	-	-	706	544 - 604 451 -

Approach	EB	WB		NB		SB					
HCM Control Delay, s	0.6	0.1		18.9		11.9					
HCM LOS				C		B					
<hr/>											
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	224	379	1059	-	-	1020	-	-	243	682	
HCM Lane V/C Ratio	0.025	0.009	0.04	-	-	0.003	-	-	0.023	0.048	
HCM Control Delay (s)	21.5	14.6	8.5	-	-	8.5	-	-	20.2	10.5	
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B	
HCM 95th %tile Q(veh)	0.1	0	0.1	-	-	0	-	-	0.1	0.2	

Intersection

Intersection Delay, s/veh 6.9

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	5	3	12	10	7
Future Vol, veh/h	6	5	3	12	10	7
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	11	2	2
Mvmt Flow	8	7	4	16	14	10
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.9		7.1		6.8	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	20%	55%	0%
Vol Thru, %	80%	0%	59%
Vol Right, %	0%	45%	41%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	15	11	17
LT Vol	3	6	0
Through Vol	12	0	10
RT Vol	0	5	7
Lane Flow Rate	21	15	23
Geometry Grp	1	1	1
Degree of Util (X)	0.023	0.016	0.024
Departure Headway (Hd)	4.017	3.846	3.728
Convergence, Y/N	Yes	Yes	Yes
Cap	894	932	963
Service Time	2.026	1.862	1.738
HCM Lane V/C Ratio	0.023	0.016	0.024
HCM Control Delay	7.1	6.9	6.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0	0.1

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023

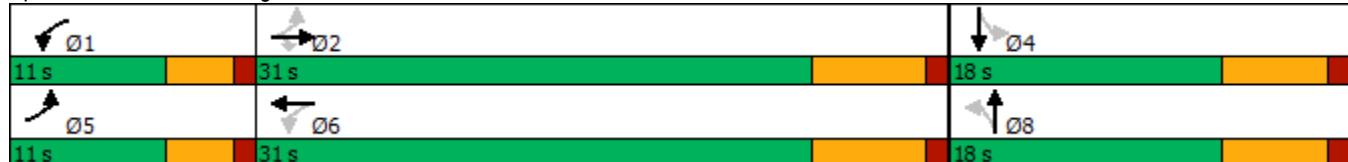


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	11	31	18	11	31	18
Maximum Split (%)	18.3%	51.7%	30.0%	18.3%	51.7%	30.0%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	5	15	7	5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	42	0	11	42
End Time (s)	11	42	0	11	42	0
Yield/Force Off (s)	7	35.8	54.1	7	35.8	54.1
Yield/Force Off 170(s)	7	35.8	54.1	7	35.8	54.1
Local Start Time (s)	49	0	31	49	0	31
Local Yield (s)	56	24.8	43.1	56	24.8	43.1
Local Yield 170(s)	56	24.8	43.1	56	24.8	43.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	58	425	21	6	415	58	9	2	9	46	1	29
Future Volume (veh/h)	58	425	21	6	415	58	9	2	9	46	1	29
Initial Q (Q _b), 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		No	No		No
Adj Sat Flow, veh/h/ln	1870	1767	1900	1900	1796	1900	1900	1900	1693	1900	1900	1767
Adj Flow Rate, veh/h	63	462	23	7	451	63	10	2	10	50	1	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	9	0	0	7	0	0	0	14	0	0	9
Cap, veh/h	554	1499	719	537	1180	164	335	34	169	354	6	193
Arrive On Green	0.06	0.45	0.45	0.01	0.39	0.39	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3357	1610	1810	3009	418	1398	275	1377	1424	49	1569
Grp Volume(v), veh/h	63	462	23	7	255	259	10	0	12	50	0	33
Grp Sat Flow(s), veh/h/ln	1781	1678	1610	1810	1706	1721	1398	0	1652	1424	0	1618
Q Serve(g_s), s	0.8	3.4	0.3	0.1	4.1	4.1	0.2	0.0	0.2	1.2	0.0	0.7
Cycle Q Clear(g_c), s	0.8	3.4	0.3	0.1	4.1	4.1	0.9	0.0	0.2	1.5	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.83	1.00		0.97
Lane Grp Cap(c), veh/h	554	1499	719	537	669	675	335	0	203	354	0	199
V/C Ratio(X)	0.11	0.31	0.03	0.01	0.38	0.38	0.03	0.00	0.06	0.14	0.00	0.17
Avail Cap(c_a), veh/h	766	2177	1044	851	1107	1116	605	0	523	630	0	512
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	0.00	1.00
Uniform Delay (d), s/veh	6.1	6.8	5.9	6.9	8.3	8.3	15.4	0.0	14.8	15.5	0.0	15.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.4	0.4	0.0	0.0	0.1	0.2	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	0.7	0.1	0.0	1.0	1.0	0.1	0.0	0.1	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.2	6.9	6.0	6.9	8.7	8.7	15.5	0.0	14.9	15.6	0.0	15.4
LnGrp LOS	A	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h	548				521				22			83
Approach Delay, s/veh	6.8				8.6				15.2			15.5
Approach LOS	A				A				B			B
Timer - Assigned Phs	1	2		4	5	6			8			
Phs Duration (G+Y+Rc), s	4.4	23.3		10.6	6.4	21.2			10.6			
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2			* 5.9			
Max Green Setting (Gmax), s	7.0	* 25		* 12	7.0	* 25			* 12			
Max Q Clear Time (g_c+l1), s	2.1	5.4		3.5	2.8	6.1			2.9			
Green Ext Time (p_c), s	0.0	2.8		0.1	0.0	2.7			0.0			

Intersection Summary

HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

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

Intersection

Intersection Delay, s/veh 7.2

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	15	14	14	17	7
Future Vol, veh/h	6	15	14	14	17	7
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	8	2	2	2	2
Mvmt Flow	8	19	18	18	22	9
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left	SB		WB			
Conflicting Lanes Left	2	0	1			
Conflicting Approach Right		SB	EB			
Conflicting Lanes Right	0	2	1			
HCM Control Delay	7.2	6.9	7.6			
HCM LOS	A	A	A			

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	29%	0%	100%	0%
Vol Thru, %	71%	50%	0%	0%
Vol Right, %	0%	50%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	28	17	7
LT Vol	6	0	17	0
Through Vol	15	14	0	0
RT Vol	0	14	0	7
Lane Flow Rate	27	36	22	9
Geometry Grp	2	2	7	7
Degree of Util (X)	0.03	0.037	0.031	0.01
Departure Headway (Hd)	4.071	3.706	5.144	3.943
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	878	963	697	908
Service Time	2.102	1.739	2.865	1.664
HCM Lane V/C Ratio	0.031	0.037	0.032	0.01
HCM Control Delay	7.2	6.9	8	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘				↑ ↗	↖ ↙		
Traffic Vol, veh/h	5	464	10	5	478	5	0	0	7	3	0	3
Future Vol, veh/h	5	464	10	5	478	5	0	0	7	3	0	3
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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	9	0	2	6	2	2	2	2	2	2	2
Mvmt Flow	5	478	10	5	493	5	0	0	7	3	0	3

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	498	0	0	488	0	0	-	-	244	755	1004	249
Stage 1	-	-	-	-	-	-	-	-	506	506	-	-
Stage 2	-	-	-	-	-	-	-	-	249	498	-	-
Critical Hdwy	4.1	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.54	5.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.54	5.54	-	-
Follow-up Hdwy	2.2	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1076	-	-	1071	-	-	0	0	757	298	240	751
Stage 1	-	-	-	-	-	-	0	0	-	517	538	-
Stage 2	-	-	-	-	-	-	0	0	-	733	543	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1076	-	-	1071	-	-	-	-	757	293	238	751
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	293	238	-
Stage 1	-	-	-	-	-	-	-	-	-	514	535	-
Stage 2	-	-	-	-	-	-	-	-	-	723	540	-

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		9.8		13.7		
HCM LOS				A		B		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	757	1076	-	-	1071	-	-	422
HCM Lane V/C Ratio	0.01	0.005	-	-	0.005	-	-	0.015
HCM Control Delay (s)	9.8	8.4	-	-	8.4	-	-	13.7
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection

Intersection Delay, s/veh 7.2

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	6	17	22	1	9	6
Future Vol, veh/h	6	17	22	1	9	6
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	14	0	2	2	2
Mvmt Flow	9	25	32	1	13	9
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.2		7.1		7.5	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	26%	0%	100%	0%
Vol Thru, %	74%	96%	0%	0%
Vol Right, %	0%	4%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	23	9	6
LT Vol	6	0	9	0
Through Vol	17	22	0	0
RT Vol	0	1	0	6
Lane Flow Rate	33	33	13	9
Geometry Grp	2	2	7	7
Degree of Util (X)	0.038	0.036	0.019	0.01
Departure Headway (Hd)	4.05	3.938	5.152	3.951
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	884	909	695	905
Service Time	2.073	1.962	2.879	1.678
HCM Lane V/C Ratio	0.037	0.036	0.019	0.01
HCM Control Delay	7.2	7.1	8	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	10	0	0	0	10	412	1	1	264	5
Future Vol, veh/h	3	0	10	0	0	0	10	412	1	1	264	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	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, %	2	2	2	2	2	2	2	16	2	2	24	2
Mvmt Flow	3	0	11	0	0	0	11	448	1	1	287	5

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	763	763	290	768	765	449	292	0	0	449	0	0
Stage 1	292	292	-	471	471	-	-	-	-	-	-	-
Stage 2	471	471	-	297	294	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	321	334	749	319	333	610	1270	-	-	1111	-	-
Stage 1	716	671	-	573	560	-	-	-	-	-	-	-
Stage 2	573	560	-	712	670	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	319	331	749	312	330	610	1270	-	-	1111	-	-
Mov Cap-2 Maneuver	319	331	-	312	330	-	-	-	-	-	-	-
Stage 1	710	670	-	568	555	-	-	-	-	-	-	-
Stage 2	568	555	-	701	669	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB		
HCM Control Delay, s	11.4	0			0.2			0		
HCM LOS	B	A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR	
Capacity (veh/h)	1270	-	-	319	749	-	1111	-	-	
HCM Lane V/C Ratio	0.009	-	-	0.01	0.015	-	0.001	-	-	
HCM Control Delay (s)	7.9	-	-	16.4	9.9	0	8.2	-	-	
HCM Lane LOS	A	-	-	C	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	0	0	-	0	-	-	

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗	
Traffic Vol, veh/h	60	811	13	5	783	17	9	2	6	12	10	52
Future Vol, veh/h	60	811	13	5	783	17	9	2	6	12	10	52
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	0	0	4	7	0	0	0	0	0	2
Mvmt Flow	63	845	14	5	816	18	9	2	6	13	10	54

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	834	0	0	859	0	0	1401	1822	430	1385	1820	417
Stage 1	-	-	-	-	-	-	978	978	-	835	835	-
Stage 2	-	-	-	-	-	-	423	844	-	550	985	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.32
Pot Cap-1 Maneuver	795	-	-	791	-	-	102	78	579	105	78	585
Stage 1	-	-	-	-	-	-	273	331	-	333	386	-
Stage 2	-	-	-	-	-	-	585	382	-	492	329	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	795	-	-	791	-	-	77	71	579	95	71	585
Mov Cap-2 Maneuver	-	-	-	-	-	-	77	71	-	95	71	-
Stage 1	-	-	-	-	-	-	251	305	-	307	384	-
Stage 2	-	-	-	-	-	-	513	380	-	445	303	-

Approach	EB	WB		NB		SB				
HCM Control Delay, s	0.7	0.1		41.6		26.7				
HCM LOS				E		D				
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	77	208	795	-	-	791	-	-	95	270
HCM Lane V/C Ratio	0.122	0.04	0.079	-	-	0.007	-	-	0.132	0.239
HCM Control Delay (s)	58.1	23	9.9	-	-	9.6	-	-	48.6	22.5
HCM Lane LOS	F	C	A	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	0.4	0.1	0.3	-	-	0	-	-	0.4	0.9

Intersection

Intersection Delay, s/veh 7.1

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	20	2	19	45	10
Future Vol, veh/h	9	20	2	19	45	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	13	0	0	3	0
Mvmt Flow	10	22	2	21	49	11
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.9		7.1		7.2	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	10%	31%	0%
Vol Thru, %	90%	0%	82%
Vol Right, %	0%	69%	18%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	21	29	55
LT Vol	2	9	0
Through Vol	19	0	45
RT Vol	0	20	10
Lane Flow Rate	23	32	60
Geometry Grp	1	1	1
Degree of Util (X)	0.026	0.033	0.066
Departure Headway (Hd)	4.02	3.694	3.915
Convergence, Y/N	Yes	Yes	Yes
Cap	891	967	917
Service Time	2.04	1.726	1.929
HCM Lane V/C Ratio	0.026	0.033	0.065
HCM Control Delay	7.1	6.9	7.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023

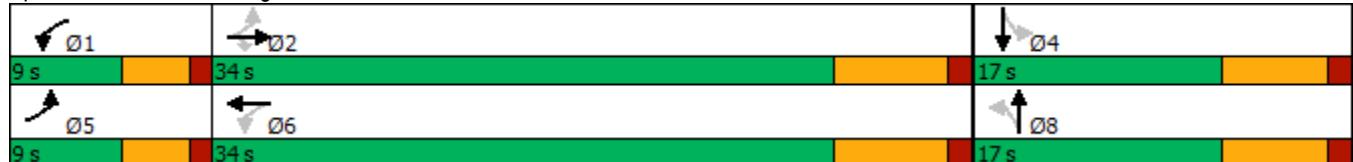


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	9	34	17	9	34	17
Maximum Split (%)	15.0%	56.7%	28.3%	15.0%	56.7%	28.3%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	4.5	15	7	4.5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	9	43	0	9	43
End Time (s)	9	43	0	9	43	0
Yield/Force Off (s)	5	36.8	54.1	5	36.8	54.1
Yield/Force Off 170(s)	5	36.8	54.1	5	36.8	54.1
Local Start Time (s)	51	0	34	51	0	34
Local Yield (s)	56	27.8	45.1	56	27.8	45.1
Local Yield 170(s)	56	27.8	45.1	56	27.8	45.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	50

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	2	3	4	5	6	7	8	9	10	11	12
Traffic Volume (veh/h)	71	725	43	20	709	109	19	3	27	108	7	90
Future Volume (veh/h)	71	725	43	20	709	109	19	3	27	108	7	90
Initial Q (Q _b), 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		No		No	
Adj Sat Flow, veh/h/ln	1900	1856	1900	1900	1841	1856	1900	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	72	740	44	20	723	111	19	3	28	110	7	92
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	3	0	0	4	3	0	0	0	1	0	4
Cap, veh/h	410	1455	664	399	1134	174	324	26	243	385	19	249
Arrive On Green	0.06	0.41	0.41	0.02	0.37	0.37	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1810	3526	1610	1810	3039	466	1317	158	1476	1389	115	1513
Grp Volume(v), veh/h	72	740	44	20	416	418	19	0	31	110	0	99
Grp Sat Flow(s), veh/h/ln	1810	1763	1610	1810	1749	1757	1317	0	1634	1389	0	1628
Q Serve(g_s), s	0.9	6.3	0.7	0.3	7.9	7.9	0.5	0.0	0.6	2.9	0.0	2.2
Cycle Q Clear(g_c), s	0.9	6.3	0.7	0.3	7.9	7.9	2.7	0.0	0.6	3.6	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.90	1.00		0.93
Lane Grp Cap(c), veh/h	410	1455	664	399	653	656	324	0	269	385	0	268
V/C Ratio(X)	0.18	0.51	0.07	0.05	0.64	0.64	0.06	0.00	0.12	0.29	0.00	0.37
Avail Cap(c_a), veh/h	523	2438	1114	584	1209	1215	471	0	451	540	0	449
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	0.00	1.00
Uniform Delay (d), s/veh	7.5	8.8	7.1	7.7	10.4	10.4	16.1	0.0	14.3	15.8	0.0	14.9
Incr Delay (d2), s/veh	0.2	0.3	0.0	0.1	1.0	1.0	0.1	0.0	0.2	0.4	0.0	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	1.6	0.2	0.1	2.2	2.2	0.1	0.0	0.2	0.8	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.7	9.1	7.2	7.8	11.4	11.4	16.2	0.0	14.5	16.2	0.0	15.8
LnGrp LOS	A	A	A	A	B	B	B	A	B	B	A	B
Approach Vol, veh/h		856			854			50			209	
Approach Delay, s/veh		8.8			11.3			15.1			16.0	
Approach LOS		A			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	22.8		12.5	6.5	21.2		12.5				
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2		* 5.9				
Max Green Setting (Gmax), s	5.0	* 28		* 11	5.0	* 28		* 11				
Max Q Clear Time (g_c+l1), s	2.3	8.3		5.6	2.9	9.9		4.7				
Green Ext Time (p_c), s	0.0	4.8		0.4	0.0	4.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

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

Intersection

Intersection Delay, s/veh 7.7

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	26	42	23	45	15
Future Vol, veh/h	29	26	42	23	45	15
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	3	0	0	0
Mvmt Flow	36	32	52	28	56	19
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left	SB		WB			
Conflicting Lanes Left	2	0	1			
Conflicting Approach Right		SB	EB			
Conflicting Lanes Right	0	2	1			
HCM Control Delay	7.6	7.4	8.1			
HCM LOS	A	A	A			

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	53%	0%	100%	0%
Vol Thru, %	47%	65%	0%	0%
Vol Right, %	0%	35%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	65	45	15
LT Vol	29	0	45	0
Through Vol	26	42	0	0
RT Vol	0	23	0	15
Lane Flow Rate	68	80	56	19
Geometry Grp	2	2	7	7
Degree of Util (X)	0.079	0.087	0.081	0.021
Departure Headway (Hd)	4.192	3.915	5.255	4.053
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	843	900	677	874
Service Time	2.277	2.003	3.022	1.819
HCM Lane V/C Ratio	0.081	0.089	0.083	0.022
HCM Control Delay	7.6	7.4	8.5	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.3	0.1

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘				↑ ↗	↖ ↙		
Traffic Vol, veh/h	7	832	9	9	809	3	0	0	14	5	5	19
Future Vol, veh/h	7	832	9	9	809	3	0	0	14	5	5	19
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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	0	14	4	0	2	2	0	0	0	13
Mvmt Flow	7	858	9	9	834	3	0	0	14	5	5	20

Major/Minor	Major1	Major2		Minor1		Minor2		
Conflicting Flow All	837	0	0	867	0	0	-	-
Stage 1	-	-	-	-	-	-	-	854
Stage 2	-	-	-	-	-	-	-	443
Critical Hdwy	4.1	-	-	4.38	-	-	6.9	7.5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5
Follow-up Hdwy	2.2	-	-	2.34	-	-	3.3	3.5
Pot Cap-1 Maneuver	806	-	-	701	-	-	576	121
Stage 1	-	-	-	-	-	0	0	324
Stage 2	-	-	-	-	-	0	0	378
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	806	-	-	701	-	-	576	116
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	87
Stage 1	-	-	-	-	-	-	321	373
Stage 2	-	-	-	-	-	-	550	364

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		11.4		24.4		
HCM LOS				B		C		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	576	806	-	-	701	-	-	215
HCM Lane V/C Ratio	0.025	0.009	-	-	0.013	-	-	0.139
HCM Control Delay (s)	11.4	9.5	-	-	10.2	-	-	24.4
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.5

Intersection

Intersection Delay, s/veh 7.5

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	14	37	31	2	19	6
Future Vol, veh/h	14	37	31	2	19	6
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	20	52	44	3	27	8
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.5		7.2		7.9	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	27%	0%	100%	0%
Vol Thru, %	73%	94%	0%	0%
Vol Right, %	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	33	19	6
LT Vol	14	0	19	0
Through Vol	37	31	0	0
RT Vol	0	2	0	6
Lane Flow Rate	72	46	27	8
Geometry Grp	2	2	7	7
Degree of Util (X)	0.081	0.051	0.039	0.009
Departure Headway (Hd)	4.052	3.98	5.205	4.037
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	881	895	685	881
Service Time	2.091	2.026	2.957	1.789
HCM Lane V/C Ratio	0.082	0.051	0.039	0.009
HCM Control Delay	7.5	7.2	8.2	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.1	0

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	0	39	0	0	1	13	502	0	3	556	23
Future Vol, veh/h	26	0	39	0	0	1	13	502	0	3	556	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	3	0	0	0	10	9	0	0	8	0
Mvmt Flow	28	0	42	0	0	1	14	540	0	3	598	25

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1186	1185	611	1206	1197	540	623	0	0	540	0	0
Stage 1	617	617	-	568	568	-	-	-	-	-	-	-
Stage 2	569	568	-	638	629	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.2	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Cap-1 Maneuver	167	191	492	162	187	546	921	-	-	1039	-	-
Stage 1	481	484	-	511	510	-	-	-	-	-	-	-
Stage 2	511	510	-	468	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	164	188	492	146	184	546	921	-	-	1039	-	-
Mov Cap-2 Maneuver	164	188	-	146	184	-	-	-	-	-	-	-
Stage 1	474	483	-	503	502	-	-	-	-	-	-	-
Stage 2	502	502	-	427	477	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB		
HCM Control Delay, s	20.4	11.6	0.2	0		
HCM LOS	C	B				
<hr/>						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBln1 EBln2 WBln1 SBL SBT SBR		
Capacity (veh/h)	921	-	-	164 492 546 1039	-	-
HCM Lane V/C Ratio	0.015	-	-	0.17 0.085 0.002 0.003	-	-
HCM Control Delay (s)	9	-	-	31.4 13 11.6 8.5	-	-
HCM Lane LOS	A	-	-	D B B A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6 0.3 0 0	-	-

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗		↑ ↗	↑ ↗	
Traffic Vol, veh/h	39	512	16	3	450	12	5	1	2	5	1	29
Future Vol, veh/h	39	512	16	3	450	12	5	1	2	5	1	29
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	8	8	0	8	11	0	0	0	2	0	4
Mvmt Flow	43	563	18	3	495	13	5	1	2	5	1	32

Major/Minor	Major1	Major2		Minor1		Minor2		
Conflicting Flow All	508	0	0	581	0	0	912	1172
Stage 1	-	-	-	-	-	-	658	658
Stage 2	-	-	-	-	-	-	254	514
Critical Hdwy	4.16	-	-	4.1	-	-	7.5	6.5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.5	4
Pot Cap-1 Maneuver	1046	-	-	1003	-	-	232	194
Stage 1	-	-	-	-	-	-	424	464
Stage 2	-	-	-	-	-	-	734	539
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1046	-	-	1003	-	-	214	185
Mov Cap-2 Maneuver	-	-	-	-	-	-	214	185
Stage 1	-	-	-	-	-	-	407	445
Stage 2	-	-	-	-	-	-	699	537

Approach	EB	WB		NB		SB				
HCM Control Delay, s	0.6	0.1		19.6		12.1				
HCM LOS				C		B				
<hr/>										
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	214	365	1046	-	-	1003	-	-	233	672
HCM Lane V/C Ratio	0.026	0.009	0.041	-	-	0.003	-	-	0.024	0.049
HCM Control Delay (s)	22.3	15	8.6	-	-	8.6	-	-	20.8	10.6
HCM Lane LOS	C	C	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0	0.1	-	-	0	-	-	0.1	0.2

Intersection

Intersection Delay, s/veh

7

Intersection LOS

A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	5	3	14	13	7
Future Vol, veh/h	6	5	3	14	13	7
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	11	2	2
Mvmt Flow	8	7	4	19	18	10
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.9		7.1		6.9	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	18%	55%	0%
Vol Thru, %	82%	0%	65%
Vol Right, %	0%	45%	35%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	17	11	20
LT Vol	3	6	0
Through Vol	14	0	13
RT Vol	0	5	7
Lane Flow Rate	23	15	27
Geometry Grp	1	1	1
Degree of Util (X)	0.026	0.016	0.029
Departure Headway (Hd)	4.015	3.858	3.767
Convergence, Y/N	Yes	Yes	Yes
Cap	895	929	953
Service Time	2.025	1.877	1.777
HCM Lane V/C Ratio	0.026	0.016	0.028
HCM Control Delay	7.1	6.9	6.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0	0.1

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/09/2023

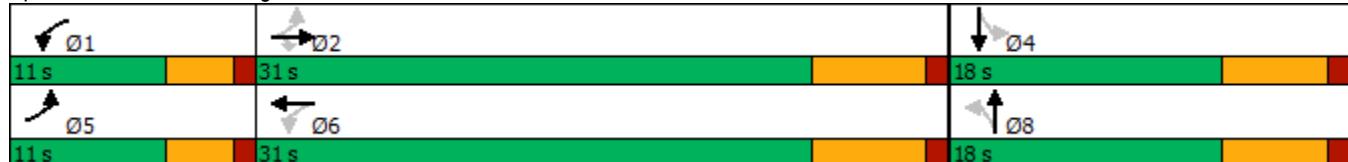


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	11	31	18	11	31	18
Maximum Split (%)	18.3%	51.7%	30.0%	18.3%	51.7%	30.0%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	5	15	7	5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	42	0	11	42
End Time (s)	11	42	0	11	42	0
Yield/Force Off (s)	7	35.8	54.1	7	35.8	54.1
Yield/Force Off 170(s)	7	35.8	54.1	7	35.8	54.1
Local Start Time (s)	49	0	31	49	0	31
Local Yield (s)	56	24.8	43.1	56	24.8	43.1
Local Yield 170(s)	56	24.8	43.1	56	24.8	43.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/09/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘	↗ ↗	↖ ↗	↑ ↘	↗ ↘	↖ ↗	↖ ↘	↑ ↗	↖ ↗	↖ ↘	↑ ↘
Traffic Volume (veh/h)	58	432	32	12	415	58	21	2	9	46	1	29
Future Volume (veh/h)	58	432	32	12	415	58	21	2	9	46	1	29
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1767	1900	1900	1796	1900	1900	1900	1693	1900	1900	1767
Adj Flow Rate, veh/h	63	470	35	13	451	63	23	2	10	50	1	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	9	0	0	7	0	0	0	14	0	0	9
Cap, veh/h	549	1462	701	529	1170	163	343	36	179	363	6	204
Arrive On Green	0.06	0.44	0.44	0.02	0.39	0.39	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	3357	1610	1810	3009	418	1398	275	1377	1424	49	1569
Grp Volume(v), veh/h	63	470	35	13	255	259	23	0	12	50	0	33
Grp Sat Flow(s), veh/h/ln	1781	1678	1610	1810	1706	1721	1398	0	1652	1424	0	1618
Q Serve(g_s), s	0.8	3.5	0.5	0.2	4.1	4.2	0.6	0.0	0.2	1.2	0.0	0.7
Cycle Q Clear(g_c), s	0.8	3.5	0.5	0.2	4.1	4.2	1.3	0.0	0.2	1.5	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.83	1.00		0.97
Lane Grp Cap(c), veh/h	549	1462	701	529	664	669	343	0	215	363	0	211
V/C Ratio(X)	0.11	0.32	0.05	0.02	0.38	0.39	0.07	0.00	0.06	0.14	0.00	0.16
Avail Cap(c_a), veh/h	758	2158	1035	827	1097	1106	600	0	518	624	0	507
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	0.00	1.00
Uniform Delay (d), s/veh	6.2	7.1	6.3	6.9	8.5	8.5	15.5	0.0	14.7	15.3	0.0	14.9
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.4	0.4	0.1	0.0	0.1	0.2	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	0.8	0.1	0.0	1.0	1.0	0.2	0.0	0.1	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.3	7.3	6.3	6.9	8.8	8.9	15.5	0.0	14.8	15.5	0.0	15.2
LnGrp LOS	A	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h	568				527			35			83	
Approach Delay, s/veh	7.1				8.8			15.3			15.4	
Approach LOS	A				A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	23.0		10.9	6.5	21.2		10.9				
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2		* 5.9				
Max Green Setting (Gmax), s	7.0	* 25		* 12	7.0	* 25		* 12				
Max Q Clear Time (g_c+l1), s	2.2	5.5		3.5	2.8	6.2		3.3				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	2.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

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

Intersection

Intersection Delay, s/veh 7.4

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations

Traffic Vol, veh/h 6 17 17 26 34 7

Future Vol, veh/h 6 17 17 26 34 7

Peak Hour Factor 0.78 0.78 0.78 0.78 0.78 0.78

Heavy Vehicles, % 2 8 2 2 2 2

Mvmt Flow 8 22 22 33 44 9

Number of Lanes 0 1 1 0 1 1

Approach	EB	WB	SB
----------	----	----	----

Opposing Approach WB EB

Opposing Lanes 1 1 0

Conflicting Approach Left SB WB

Conflicting Lanes Left 2 0 1

Conflicting Approach Right SB EB

Conflicting Lanes Right 0 2 1

HCM Control Delay 7.3 7 8

HCM LOS A A A

Lane	EBLn1	WBLn1	SBLn1	SBLn2
------	-------	-------	-------	-------

Vol Left, % 26% 0% 100% 0%

Vol Thru, % 74% 40% 0% 0%

Vol Right, % 0% 60% 0% 100%

Sign Control Stop Stop Stop Stop

Traffic Vol by Lane 23 43 34 7

LT Vol 6 0 34 0

Through Vol 17 17 0 0

RT Vol 0 26 0 7

Lane Flow Rate 29 55 44 9

Geometry Grp 2 2 7 7

Degree of Util (X) 0.034 0.056 0.063 0.01

Departure Headway (Hd) 4.119 3.684 5.181 3.98

Convergence, Y/N Yes Yes Yes Yes

Cap 863 963 692 898

Service Time 2.176 1.741 2.91 1.708

HCM Lane V/C Ratio 0.034 0.057 0.064 0.01

HCM Control Delay 7.3 7 8.3 6.7

HCM Lane LOS A A A A

HCM 95th-tile Q 0.1 0.2 0.2 0

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↗	↑ ↗	↑ ↗	↗	↗	↗	↗	↖ ↘	↖ ↘	↖ ↘
Traffic Vol, veh/h	5	471	10	5	484	5	0	0	11	3	0	3
Future Vol, veh/h	5	471	10	5	484	5	0	0	11	3	0	3
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									
Storage Length	150	-	-	150	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	9	0	2	6	2	2	2	2	2	2	2
Mvmt Flow	5	486	10	5	499	5	0	0	11	3	0	3

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	504	0	0	496	0	0	-	-	248	765	1018	252
Stage 1	-	-	-	-	-	-	-	-	512	512	-	-
Stage 2	-	-	-	-	-	-	-	-	253	506	-	-
Critical Hdwy	4.1	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.54	5.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.54	5.54	-	-
Follow-up Hdwy	2.2	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1071	-	-	1064	-	-	0	0	752	293	236	748
Stage 1	-	-	-	-	-	-	0	0	-	513	535	-
Stage 2	-	-	-	-	-	-	0	0	-	729	538	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1071	-	-	1064	-	-	-	-	752	287	234	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	287	234	-
Stage 1	-	-	-	-	-	-	-	-	-	510	532	-
Stage 2	-	-	-	-	-	-	-	-	-	715	535	-

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.1	0.1		9.9		13.8		
HCM LOS				A		B		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	752	1071	-	-	1064	-	-	415
HCM Lane V/C Ratio	0.015	0.005	-	-	0.005	-	-	0.015
HCM Control Delay (s)	9.9	8.4	-	-	8.4	-	-	13.8
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection

Intersection Delay, s/veh 7.3

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	10	23	34	1	9	6
Future Vol, veh/h	10	23	34	1	9	6
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	14	0	2	2	2
Mvmt Flow	14	33	49	1	13	9
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.3		7.2		7.6	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	30%	0%	100%	0%
Vol Thru, %	70%	97%	0%	0%
Vol Right, %	0%	3%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	35	9	6
LT Vol	10	0	9	0
Through Vol	23	34	0	0
RT Vol	0	1	0	6
Lane Flow Rate	48	51	13	9
Geometry Grp	2	2	7	7
Degree of Util (X)	0.054	0.056	0.019	0.01
Departure Headway (Hd)	4.071	3.958	5.206	4.004
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	904	686	890
Service Time	2.098	1.985	2.949	1.747
HCM Lane V/C Ratio	0.055	0.056	0.019	0.01
HCM Control Delay	7.3	7.2	8.1	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.1	0

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	12	0	0	0	17	413	1	1	277	10
Future Vol, veh/h	7	0	12	0	0	0	17	413	1	1	277	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	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, %	2	2	2	2	2	2	2	16	2	2	24	2
Mvmt Flow	8	0	13	0	0	0	18	449	1	1	301	11

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	795	795	307	801	800	450	312	0	0	450	0	0
Stage 1	309	309	-	486	486	-	-	-	-	-	-	-
Stage 2	486	486	-	315	314	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	305	320	733	303	318	609	1248	-	-	1110	-	-
Stage 1	701	660	-	563	551	-	-	-	-	-	-	-
Stage 2	563	551	-	696	656	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	301	315	733	294	313	609	1248	-	-	1110	-	-
Mov Cap-2 Maneuver	301	315	-	294	313	-	-	-	-	-	-	-
Stage 1	691	659	-	555	543	-	-	-	-	-	-	-
Stage 2	555	543	-	683	655	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB		
HCM Control Delay, s	12.7	0			0.3			0		
HCM LOS	B	A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR	
Capacity (veh/h)	1248	-	-	301	733	-	1110	-	-	
HCM Lane V/C Ratio	0.015	-	-	0.025	0.018	-	0.001	-	-	
HCM Control Delay (s)	7.9	-	-	17.3	10	0	8.2	-	-	
HCM Lane LOS	A	-	-	C	B	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	-	0	-	-	

Intersection

Int Delay, s/veh 2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	32	19	8	32	11	10
Future Vol, veh/h	32	19	8	32	11	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	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	21	9	35	12	11

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	56	0	99 46
Stage 1	-	-	-	-	46 -
Stage 2	-	-	-	-	53 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1549	-	900 1023
Stage 1	-	-	-	-	976 -
Stage 2	-	-	-	-	970 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1549	-	895 1023
Mov Cap-2 Maneuver	-	-	-	-	895 -
Stage 1	-	-	-	-	976 -
Stage 2	-	-	-	-	964 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	952	-	-	1549	-
HCM Lane V/C Ratio	0.024	-	-	0.006	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	4	3	5	427	280	9
Future Vol, veh/h	4	3	5	427	280	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	3	5	464	304	10

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	783	309	314	0	-
Stage 1	309	-	-	-	-
Stage 2	474	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	362	731	1246	-	-
Stage 1	745	-	-	-	-
Stage 2	626	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	361	731	1246	-	-
Mov Cap-2 Maneuver	472	-	-	-	-
Stage 1	742	-	-	-	-
Stage 2	626	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1246	-	557	-	-
HCM Lane V/C Ratio	0.004	-	0.014	-	-
HCM Control Delay (s)	7.9	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	8	3	6	424	275	8
Future Vol, veh/h	8	3	6	424	275	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	3	7	461	299	9

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	779	304	308	0	-
Stage 1	304	-	-	-	-
Stage 2	475	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	364	736	1253	-	-
Stage 1	748	-	-	-	-
Stage 2	626	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	362	736	1253	-	-
Mov Cap-2 Maneuver	473	-	-	-	-
Stage 1	744	-	-	-	-
Stage 2	626	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1253	-	524	-	-
HCM Lane V/C Ratio	0.005	-	0.023	-	-
HCM Control Delay (s)	7.9	-	12	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection

Int Delay, s/veh

2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑↓		↑	↑		↑	↑	
Traffic Vol, veh/h	60	837	13	5	810	17	9	2	6	12	10	52
Future Vol, veh/h	60	837	13	5	810	17	9	2	6	12	10	52
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									
Storage Length	150	-	-	150	-	-	0	-	50	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	0	0	4	7	0	0	0	0	0	2
Mvmt Flow	63	872	14	5	844	18	9	2	6	13	10	54

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	862	0	0	886	0	0	1442	1877	443	1426	1875	431
Stage 1	-	-	-	-	-	-	1005	1005	-	863	863	-
Stage 2	-	-	-	-	-	-	437	872	-	563	1012	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.32
Pot Cap-1 Maneuver	776	-	-	773	-	-	95	72	568	97	73	573
Stage 1	-	-	-	-	-	-	263	322	-	320	374	-
Stage 2	-	-	-	-	-	-	574	371	-	483	319	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	776	-	-	773	-	-	71	66	568	87	67	573
Mov Cap-2 Maneuver	-	-	-	-	-	-	71	66	-	87	67	-
Stage 1	-	-	-	-	-	-	242	296	-	294	372	-
Stage 2	-	-	-	-	-	-	502	369	-	436	293	-

Approach	EB	WB		NB		SB						
HCM Control Delay, s	0.7	0.1		44.9		28.4						
HCM LOS				E		D						
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	71	196	776	-	-	773	-	-	87	258		
HCM Lane V/C Ratio	0.132	0.043	0.081	-	-	0.007	-	-	0.144	0.25		
HCM Control Delay (s)	63.3	24.2	10	-	-	9.7	-	-	53.2	23.6		
HCM Lane LOS	F	C	B	-	-	A	-	-	F	C		
HCM 95th %tile Q(veh)	0.4	0.1	0.3	-	-	0	-	-	0.5	1		

Intersection

Intersection Delay, s/veh 7.1

Intersection LOS A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	20	2	21	47	10
Future Vol, veh/h	9	20	2	21	47	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	13	0	0	3	0
Mvmt Flow	10	22	2	23	52	11
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB			EB		
Conflicting Lanes Right	1		0		1	
HCM Control Delay	6.9		7.2		7.2	
HCM LOS	A		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	9%	31%	0%
Vol Thru, %	91%	0%	82%
Vol Right, %	0%	69%	18%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	23	29	57
LT Vol	2	9	0
Through Vol	21	0	47
RT Vol	0	20	10
Lane Flow Rate	25	32	63
Geometry Grp	1	1	1
Degree of Util (X)	0.028	0.033	0.068
Departure Headway (Hd)	4.02	3.699	3.919
Convergence, Y/N	Yes	Yes	Yes
Cap	891	965	916
Service Time	2.04	1.734	1.934
HCM Lane V/C Ratio	0.028	0.033	0.069
HCM Control Delay	7.2	6.9	7.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2

Timing Report, Sorted By Phase

3: Sgt. Henderson Dr & SR 44

03/10/2023

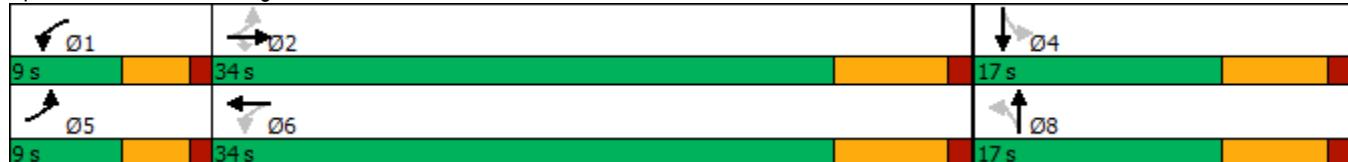


Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	9	34	17	9	34	17
Maximum Split (%)	15.0%	56.7%	28.3%	15.0%	56.7%	28.3%
Minimum Split (s)	9	21.2	12.9	9	21.2	12.9
Yellow Time (s)	3	5.1	4.7	3	5.1	4.7
All-Red Time (s)	1	1.1	1.2	1	1.1	1.2
Minimum Initial (s)	4.5	15	7	4.5	15	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	9	43	0	9	43
End Time (s)	9	43	0	9	43	0
Yield/Force Off (s)	5	36.8	54.1	5	36.8	54.1
Yield/Force Off 170(s)	5	36.8	54.1	5	36.8	54.1
Local Start Time (s)	51	0	34	51	0	34
Local Yield (s)	56	27.8	45.1	56	27.8	45.1
Local Yield 170(s)	56	27.8	45.1	56	27.8	45.1

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	50

Splits and Phases: 3: Sgt. Henderson Dr & SR 44



HCM 6th Signalized Intersection Summary

3: Sgt. Henderson Dr & SR 44

03/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	71	740	54	26	709	109	46	3	27	108	7	90
Future Volume (veh/h)	71	740	54	26	709	109	46	3	27	108	7	90
Initial Q (Q _b), 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		No	No		No
Adj Sat Flow, veh/h/ln	1900	1856	1900	1900	1841	1856	1900	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	72	755	55	27	723	111	47	3	28	110	7	92
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	3	0	0	4	3	0	0	0	1	0	4
Cap, veh/h	408	1427	652	397	1131	174	327	26	246	388	19	252
Arrive On Green	0.06	0.40	0.40	0.03	0.37	0.37	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1810	3526	1610	1810	3039	466	1317	158	1476	1389	115	1513
Grp Volume(v), veh/h	72	755	55	27	416	418	47	0	31	110	0	99
Grp Sat Flow(s), veh/h/ln	1810	1763	1610	1810	1749	1757	1317	0	1634	1389	0	1628
Q Serve(g_s), s	0.9	6.5	0.8	0.4	7.9	7.9	1.3	0.0	0.6	2.9	0.0	2.2
Cycle Q Clear(g_c), s	0.9	6.5	0.8	0.4	7.9	7.9	3.5	0.0	0.6	3.6	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.90	1.00		0.93
Lane Grp Cap(c), veh/h	408	1427	652	397	651	654	327	0	272	388	0	271
V/C Ratio(X)	0.18	0.53	0.08	0.07	0.64	0.64	0.14	0.00	0.11	0.28	0.00	0.36
Avail Cap(c_a), veh/h	521	2431	1110	569	1206	1212	470	0	450	539	0	448
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	0.00	1.00
Uniform Delay (d), s/veh	7.6	9.1	7.4	7.7	10.4	10.4	16.5	0.0	14.3	15.8	0.0	14.9
Incr Delay (d2), s/veh	0.2	0.3	0.1	0.1	1.1	1.0	0.2	0.0	0.2	0.4	0.0	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	1.6	0.2	0.1	2.2	2.2	0.4	0.0	0.2	0.8	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.8	9.4	7.4	7.8	11.5	11.5	16.7	0.0	14.4	16.2	0.0	15.7
LnGrp LOS	A	A	A	A	B	B	B	A	B	B	A	B
Approach Vol, veh/h					882		861		78			209
Approach Delay, s/veh					9.1		11.4		15.8			16.0
Approach LOS					A		B		B			B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	22.5		12.6	6.5	21.2		12.6				
Change Period (Y+Rc), s	4.0	* 6.2		* 5.9	4.0	* 6.2		* 5.9				
Max Green Setting (Gmax), s	5.0	* 28		* 11	5.0	* 28		* 11				
Max Q Clear Time (g_c+l1), s	2.4	8.5		5.6	2.9	9.9		5.5				
Green Ext Time (p_c), s	0.0	5.0		0.4	0.0	4.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Notes

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

Intersection

Intersection Delay, s/veh 7.9

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	28	44	50	62	15
Future Vol, veh/h	29	28	44	50	62	15
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	3	0	0	0
Mvmt Flow	36	35	54	62	77	19
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB	SB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left	SB		WB			
Conflicting Lanes Left	2	0	1			
Conflicting Approach Right		SB	EB			
Conflicting Lanes Right	0	2	1			
HCM Control Delay	7.8	7.5	8.4			
HCM LOS	A	A	A			

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	51%	0%	100%	0%
Vol Thru, %	49%	47%	0%	0%
Vol Right, %	0%	53%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	94	62	15
LT Vol	29	0	62	0
Through Vol	28	44	0	0
RT Vol	0	50	0	15
Lane Flow Rate	70	116	77	19
Geometry Grp	2	2	7	7
Degree of Util (X)	0.085	0.128	0.113	0.021
Departure Headway (Hd)	4.369	3.961	5.323	4.12
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	824	910	667	856
Service Time	2.373	1.963	3.112	1.908
HCM Lane V/C Ratio	0.085	0.127	0.115	0.022
HCM Control Delay	7.8	7.5	8.8	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	0.4	0.1

Intersection																		
Int Delay, s/veh	0.6																	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘				↑ ↗	↗ ↙								
Traffic Vol, veh/h	7	847	9	9	815	3	0	0	20	5	5	19						
Future Vol, veh/h	7	847	9	9	815	3	0	0	20	5	5	19						
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	-	-	150	-	-	-	-	0	-	-	-						
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-						
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-						
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97						
Heavy Vehicles, %	0	3	0	14	4	0	2	2	0	0	0	13						
Mvmt Flow	7	873	9	9	840	3	0	0	21	5	5	20						
Major/Minor																		
Major1		Major2			Minor1		Minor2											
Conflicting Flow All	843	0	0	882	0	0	-	-	441	1311	1756	422						
Stage 1	-	-	-	-	-	-	-	-	860	860	-	-						
Stage 2	-	-	-	-	-	-	-	-	451	896	-	-						
Critical Hdwy	4.1	-	-	4.38	-	-	-	-	6.9	7.5	6.5	7.16						
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.5	5.5	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.5	5.5	-	-						
Follow-up Hdwy	2.2	-	-	2.34	-	-	-	-	3.3	3.5	4	3.43						
Pot Cap-1 Maneuver	802	-	-	691	-	-	0	0	570	119	86	551						
Stage 1	-	-	-	-	-	-	0	0	-	321	376	-						
Stage 2	-	-	-	-	-	-	0	0	-	563	362	-						
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-						
Mov Cap-1 Maneuver	802	-	-	691	-	-	-	-	570	113	84	551						
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	113	84	-						
Stage 1	-	-	-	-	-	-	-	-	-	318	371	-						
Stage 2	-	-	-	-	-	-	-	-	-	538	359	-						
Approach																		
EB			WB			NB			SB									
HCM Control Delay, s	0.1		0.1		11.6			25										
HCM LOS	B						D											
Minor Lane/Major Mvmt																		
NBLn1		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1										
Capacity (veh/h)	570	802	-	-	691	-	-	210										
HCM Lane V/C Ratio	0.036	0.009	-	-	0.013	-	-	0.142										
HCM Control Delay (s)	11.6	9.5	-	-	10.3	-	-	25										
HCM Lane LOS	B	A	-	-	B	-	-	D										
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.5										

Intersection

Intersection Delay, s/veh 7.6

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	20	45	55	2	19	6
Future Vol, veh/h	20	45	55	2	19	6
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	28	63	77	3	27	8
Number of Lanes	0	1	1	0	1	1
Approach	EB	WB		SB		
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left	SB			WB		
Conflicting Lanes Left	2		0		1	
Conflicting Approach Right			SB		EB	
Conflicting Lanes Right	0		2		1	
HCM Control Delay	7.6		7.5		8	
HCM LOS	A		A		A	

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	31%	0%	100%	0%
Vol Thru, %	69%	96%	0%	0%
Vol Right, %	0%	4%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	57	19	6
LT Vol	20	0	19	0
Through Vol	45	55	0	0
RT Vol	0	2	0	6
Lane Flow Rate	92	80	27	8
Geometry Grp	2	2	7	7
Degree of Util (X)	0.104	0.089	0.039	0.01
Departure Headway (Hd)	4.084	4.009	5.296	4.127
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	872	887	670	856
Service Time	2.132	2.062	3.074	1.904
HCM Lane V/C Ratio	0.106	0.09	0.04	0.009
HCM Control Delay	7.6	7.5	8.3	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.1	0

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	0	42	0	0	1	32	514	0	3	582	28
Future Vol, veh/h	31	0	42	0	0	1	32	514	0	3	582	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	60	-	0	-	-	-	100	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	3	0	0	0	10	9	0	0	8	0
Mvmt Flow	33	0	45	0	0	1	34	553	0	3	626	30

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	1269	1268	641	1291	1283	553	656	0	0	553	0	0
Stage 1	647	647	-	621	621	-	-	-	-	-	-	-
Stage 2	622	621	-	670	662	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.2	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Cap-1 Maneuver	147	170	473	142	167	537	894	-	-	1027	-	-
Stage 1	463	470	-	478	482	-	-	-	-	-	-	-
Stage 2	478	482	-	450	462	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	142	163	473	124	160	537	894	-	-	1027	-	-
Mov Cap-2 Maneuver	142	163	-	124	160	-	-	-	-	-	-	-
Stage 1	445	469	-	460	464	-	-	-	-	-	-	-
Stage 2	459	464	-	406	461	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.8	11.7	0.5	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	894	-	-	142	473	537	1027	-	-
HCM Lane V/C Ratio	0.038	-	-	0.235	0.095	0.002	0.003	-	-
HCM Control Delay (s)	9.2	-	-	38	13.4	11.7	8.5	-	-
HCM Lane LOS	A	-	-	E	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	0.3	0	0	-	-

Intersection

Int Delay, s/veh 1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	71	19	8	81	13	14
Future Vol, veh/h	71	19	8	81	13	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	21	9	88	14	15

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	98	0	194 88
Stage 1	-	-	-	-	88 -
Stage 2	-	-	-	-	106 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1495	-	795 970
Stage 1	-	-	-	-	935 -
Stage 2	-	-	-	-	918 -
Platoon blocked, %	-	-	-	-	
Mov Cap-1 Maneuver	-	-	1495	-	790 970
Mov Cap-2 Maneuver	-	-	-	-	790 -
Stage 1	-	-	-	-	935 -
Stage 2	-	-	-	-	912 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	874	-	-	1495	-
HCM Lane V/C Ratio	0.034	-	-	0.006	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	20	8	12	526	604	20
Future Vol, veh/h	20	8	12	526	604	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	9	13	572	657	22

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	1266	668	679	0	-
Stage 1	668	-	-	-	-
Stage 2	598	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	187	458	913	-	-
Stage 1	510	-	-	-	-
Stage 2	549	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	184	458	913	-	-
Mov Cap-2 Maneuver	323	-	-	-	-
Stage 1	503	-	-	-	-
Stage 2	549	-	-	-	-

Approach	EB	NB	SB	
HCM Control Delay, s	16.2	0.2	0	
HCM LOS	C			

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	913	-	353	-	-
HCM Lane V/C Ratio	0.014	-	0.086	-	-
HCM Control Delay (s)	9	-	16.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	20	17	12	518	592	20
Future Vol, veh/h	20	17	12	518	592	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	18	13	563	643	22

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	1243	654	665	0	-
Stage 1	654	-	-	-	-
Stage 2	589	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	193	467	924	-	-
Stage 1	517	-	-	-	-
Stage 2	554	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	190	467	924	-	-
Mov Cap-2 Maneuver	329	-	-	-	-
Stage 1	510	-	-	-	-
Stage 2	554	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	924	-	381	-	-
HCM Lane V/C Ratio	0.014	-	0.106	-	-
HCM Control Delay (s)	9	-	15.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Appendix C - Auxiliary Lane Warrants

Marketplace Boulevard at Proposed Hotel Site Driveway
Operating Speed: Unposted

Operating Speed (mph)	Opposing Volume (veh/h)	Advancing Volume (veh/h)			
		5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
40	800	330	240	180	160
	600	410	305	225	200
	400	510	380	275	245
	200	640	470	350	305
	100	720	515	390	340
50	800	280	210	165	135
	600	350	260	195	170
	400	430	320	240	210
	200	550	400	300	270
	100	615	445	335	295
60	800	230	170	125	115
	600	290	210	160	140
	400	365	270	200	175
	200	450	330	250	215
	100	505	370	275	240

**VOLUME GUIDELINES FOR LEFT-TURN LANE
ON TWO-LANE HIGHWAY**

Figure 46-4C

2025 AM Peak Hour

Opposing Volume (WB): 47 veh/hr

Advancing Volume (EB): 36 veh/hr < 390 veh/hr

EB Left Turns: 8 veh/hr

% Left Turns: 20%

Warranted? No

2025 PM Peak Hour

Opposing Volume (WB): 80 veh/hr

Advancing Volume (EB): 80 veh/hr < 515 veh/hr

EB Left Turns: 8 veh/hr

Left Turns: 10%

Warranted? No

2035 AM Peak Hour

Opposing Volume (WB): 51 veh/hr

Advancing Volume (EB): 40 veh/hr < 390 veh/hr

EB Left Turns: 8 veh/hr

% Left Turns: 20%

Warranted? No

2035 PM Peak Hour

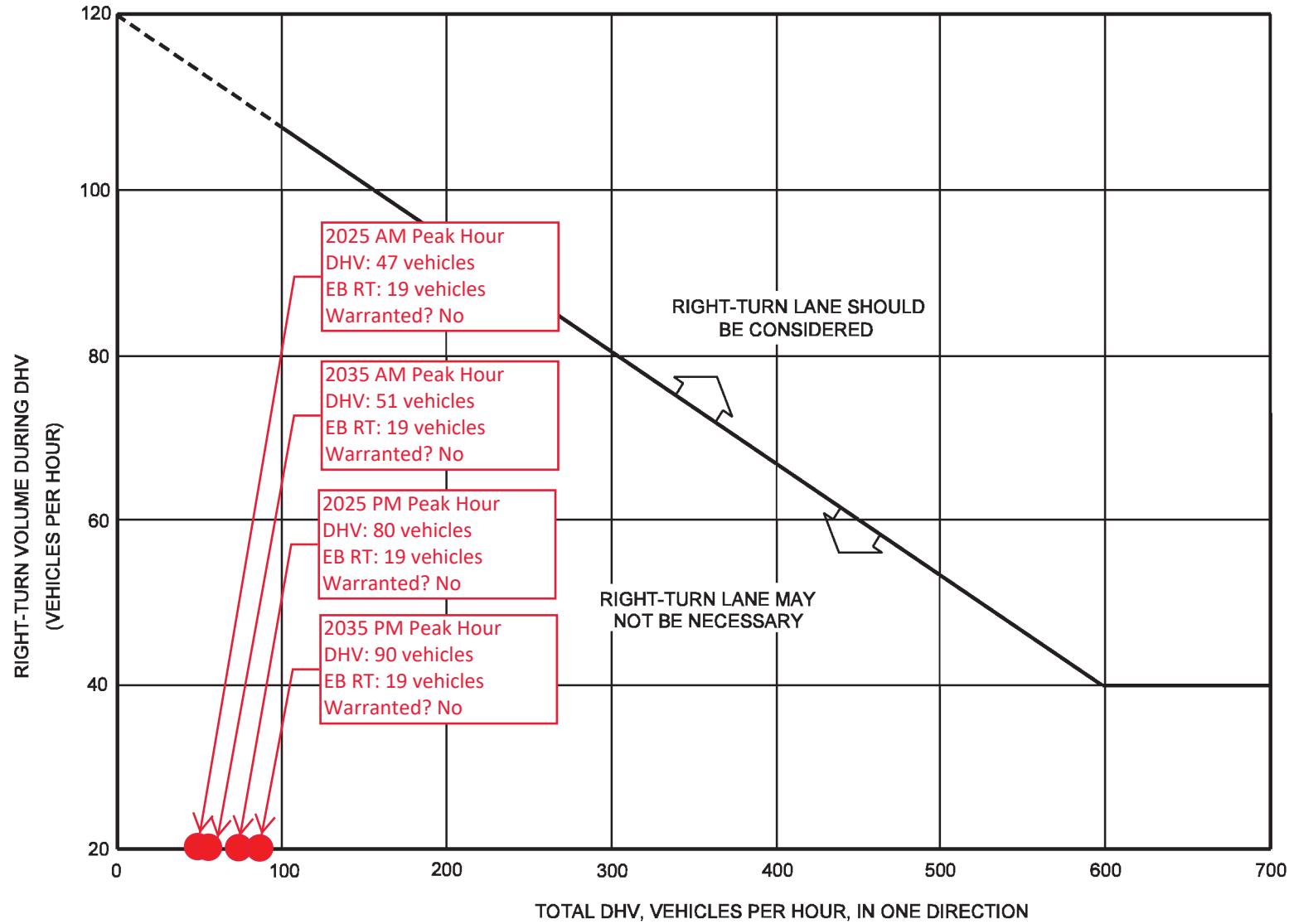
Opposing Volume (WB): 90 veh/hr

Advancing Volume (EB): 89 veh/hr < 515 veh/hr

EB Left Turns: 8 veh/hr

Left Turns: 10%

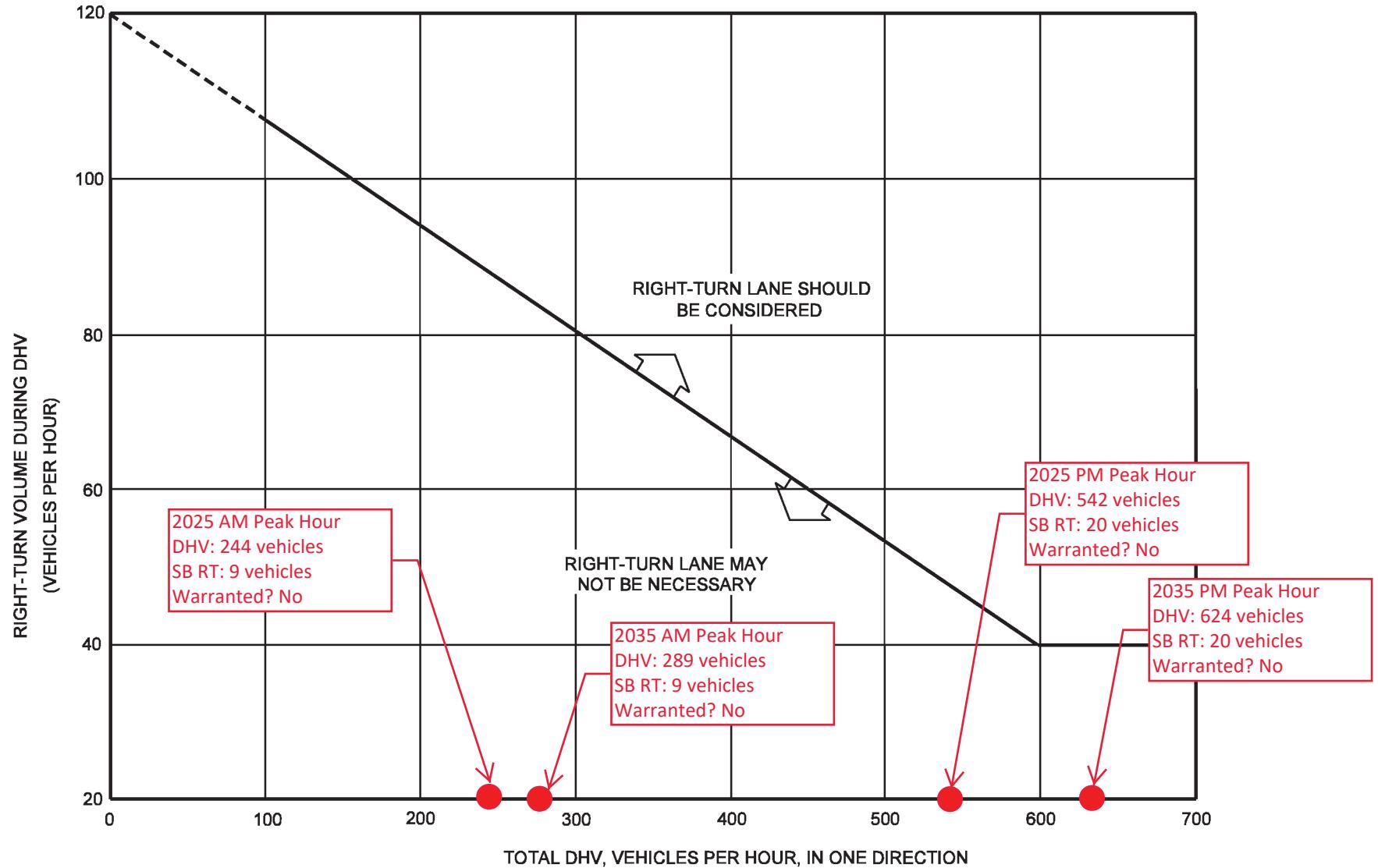
Warranted? No



GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS

Figure 46-4A

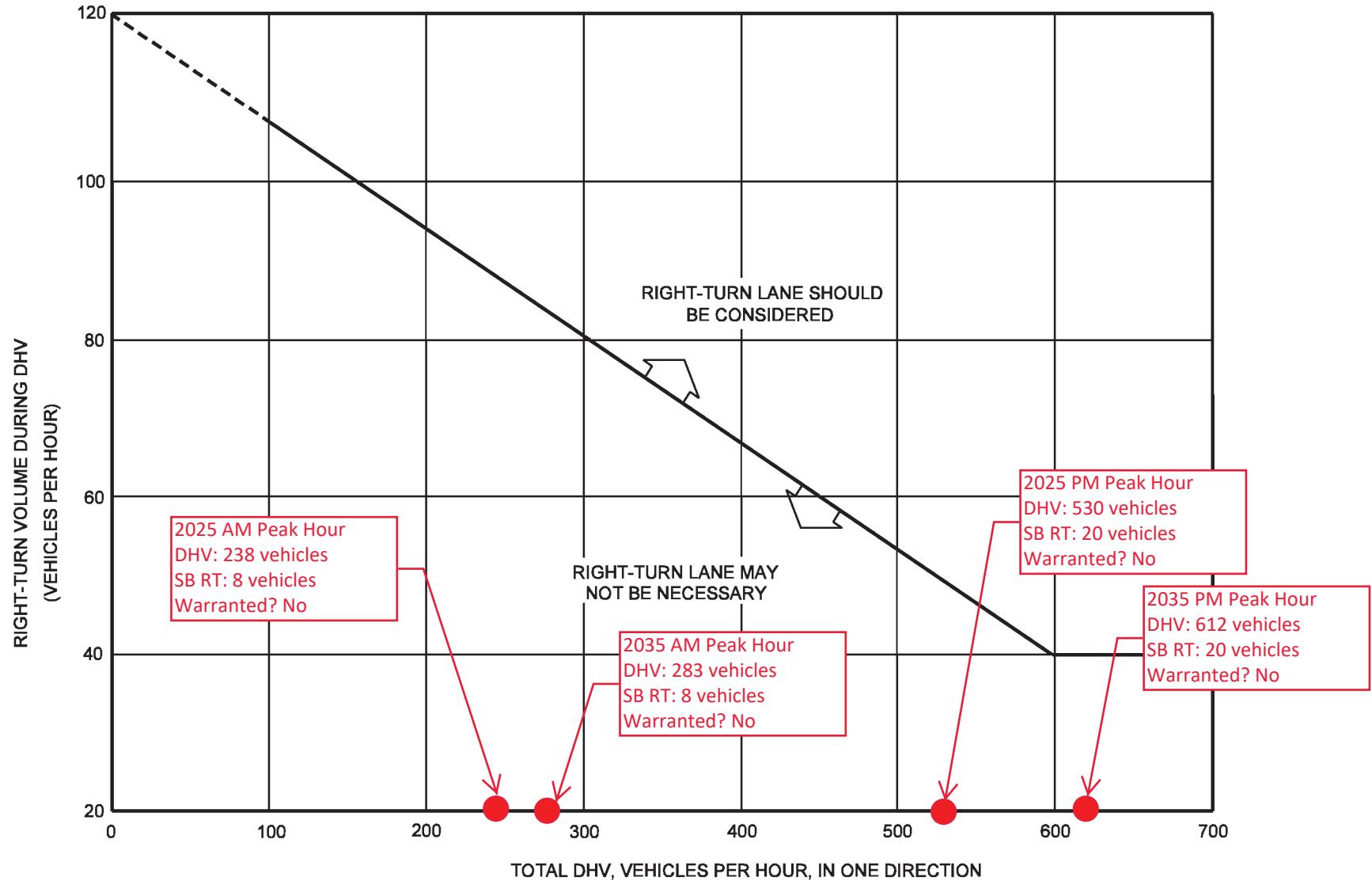
Marketplace Boulevard
and Hotel Site Driveway
(Speed limit: unposted)



GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS

Figure 46-4A

Progress Parkway
and Retail Site (North) Driveway #1
(Speed limit: 40 mph)



GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS

Figure 46-4A

Progress Parkway
and Retail Site (North) Driveway #2
(Speed limit: 40 mph)



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