

**DEVELOPMENT OF REGIONAL IMPACT
(DRI #2860)
TRAFFIC STUDY
FOR
McCAMY MIXED-USE DEVELOPMENT
KENNESAW, GEORGIA**



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January 24, 2019
Revised: February 27, 2019
A & R Project # 18-117

EXECUTIVE SUMMARY

Traffic impacts were evaluated for the added traffic from the proposed McCamy mixed-use development located in the southeast corner of Interstate 575 and Chastain Road in Kennesaw, Georgia.

The development will consist of:

- 52,000 square foot supermarket
- 70,000 square feet of retail space
- 68,500 square feet of restaurant space
- 190,000 square feet of office space
- 250 hotel rooms
- 164 townhome units
- 600 multifamily units with first floor retail
- 300 attached senior living units

The development proposes one full-access and one right-in/right-out driveway on Chastain Road as well as one full-access driveway and one right-in/right-out driveway on Chastain Meadows Parkway. Existing and future operations after completion of the project were analyzed at the intersections of:

1. Bells Ferry Road at N. Booth Road
2. Bells Ferry Road at Chastain Road/New Chastain Road
3. Bells Ferry Road at Big Shanty Road
4. Chastain Meadows Parkway at Big Shanty Road
5. Big Shanty Road at George Busbee Parkway
6. Chastain Road at George Busbee Parkway
7. Chastain Road at Town Park Drive/Chastain Center Boulevard
8. Chastain Road at I-575 Southbound Ramps
9. Chastain Road at I-575 Northbound Ramps
10. Chastain Road at Chastain Lakes Drive
11. Chastain Road at Chastain Meadows Parkway
12. Chastain Meadows Parkway at Proposed Site Access

The analysis includes the evaluation of Future operations for “No-Build” and “Build” conditions, which account for increases in annual growth of through traffic and added traffic from the proposed development, respectively. The results of the analysis are listed below:

System Recommendations and Improvements (2022)

A summary of the system improvements, which address deficiencies that are found within the existing road network for the “No-Build” conditions and are recommended for the local municipality to use in planning future transportation projects, is provided in Section 6.1.4.

Site Access Configuration

The following access configuration was utilized when modeling the proposed site driveway intersections:

- Site Driveway 1: Right-in/right-out driveway on Chastain Road, east of I-575
 - This driveway is proposed to consist of one entering and one exiting lane.

- It is recommended that an eastbound right turn lane be installed on Chastain Road for entering traffic.
- The intersection is proposed to be unsignalized with a STOP sign on the northbound (driveway) approach.
- Site Driveway 2: Full-access driveway on Chastain Road, aligned with Chastain Lakes Drive
 - This driveway is proposed to consist of one entering and two exiting lanes.
 - Entering left turn movements are proposed to be made from the existing westbound turn lane on Chastain Road.
 - It is recommended that an eastbound right turn lane be installed on Chastain Road for entering traffic.
 - A preliminary signal warrant analysis indicates that the intersection will meet MUTCD thresholds for a traffic signal. Therefore, a traffic signal should be installed with construction of the development.
- Site Driveway 3: Right-in/right-out driveway on Chastain Meadows Parkway, south of Chastain Road
 - This driveway is proposed to consist of one entering and one exiting lane.
 - It is recommended that a southbound right turn lane be installed on Chastain Meadows Parkway for entering traffic.
 - At the request of Cobb County DOT, the existing median opening at this driveway location will be closed, prohibiting all left-ins and left-outs at the intersection. It has also been requested that the northbound left turn lane at the intersection of Chastain Road at Chastain Meadows Parkway be extended to this intersection to allow for more storage/queueing space.
- Site Driveway 4: Full-access driveway on Chastain Meadows Parkway, at existing median opening
 - This driveway is proposed to consist of one entering and two exiting lanes.
 - Entering left turn movements are proposed to be made from the existing northbound turn lane on Chastain Meadows Parkway.
 - It is recommended that a southbound right turn lane be installed on Chastain Meadows Parkway for entering traffic.
 - A preliminary signal warrant analysis indicates that the intersection will meet MUTCD thresholds for a traffic signal during the peak hours. Therefore, a traffic signal should be installed with construction of the development.

Site Mitigation Improvements and Recommendations (2022)

Improvements that are identified as mitigation improvements are recommended as directly benefitting proposed site-generated traffic and are summarized in Section 6.2.3.

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1.0 INTRODUCTION

The purpose of this study is to determine the added traffic that will result from the proposed McCamy mixed-use development located in the southeast corner of Interstate 575 and Chastain Road in Kennesaw, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development will consist of:

- 52,000 square foot supermarket
- 70,000 square feet of retail space
- 68,500 square feet of restaurant space
- 190,000 square feet of office space
- 250 hotel rooms
- 164 townhome units
- 600 multifamily units with first floor retail
- 300 attached senior living units



The development proposes one full-access and one right-in/right-out driveway on Chastain Road as well as one full-access driveway and one right-in/right-out driveway on Chastain Meadows Parkway.

The AM and PM peak hours have been analyzed in this study. In addition to the site access points, this study includes the evaluation of traffic operations at the intersections of:

1. Bells Ferry Road at N. Booth Road
2. Bells Ferry Road at Chastain Road/New Chastain Road
3. Bells Ferry Road at Big Shanty Road

4. Chastain Meadows Parkway at Big Shanty Road
5. Big Shanty Road at George Busbee Parkway
6. Chastain Road at George Busbee Parkway
7. Chastain Road at Town Park Drive/Chastain Center Boulevard
8. Chastain Road at I-575 Southbound Ramps
9. Chastain Road at I-575 Northbound Ramps
10. Chastain Road at Chastain Lakes Drive
11. Chastain Road at Chastain Meadows Parkway
12. Chastain Meadows Parkway at Proposed Site Access

Recommendations to improve traffic operations have been identified as appropriate and are discussed in detail in the following sections of the report.

2.0 STUDY NETWORK DETERMINATION

The study network was determined by evaluating the amount of traffic that the proposed development will add to each roadway segment in the area. According to GRTA requirements, a roadway segment carries a “significant” amount of traffic if the project contributes 7% or more trips to the two-way daily service volumes of the roadway at the appropriate level of service standard. Upon agreement with GRTA a level of service standard of “D” was used for determining the study area network.

The traffic generated by the proposed project was then assigned to the area roadways using the trip distribution to determine the site-generated traffic on each roadway segment. The boundaries of the study network extend to the most distant intersections where at least 7% of the service volumes on the segment are attributed to project traffic. The following study intersections fell within the 7% rule and/or have been selected as being suitable for evaluation in discussions with ARC, GRTA, GDOT, and Cobb County:

1. Bells Ferry Road at N. Booth Road
2. Bells Ferry Road at Chastain Road/New Chastain Road
3. Bells Ferry Road at Big Shanty Road
4. Chastain Meadows Parkway at Big Shanty Road
5. Big Shanty Road at George Busbee Parkway
6. Chastain Road at George Busbee Parkway
7. Chastain Road at Town Park Drive/Chastain Center Boulevard
8. Chastain Road at I-575 Southbound Ramps
9. Chastain Road at I-575 Northbound Ramps
10. Chastain Road at Chastain Lakes Drive
11. Chastain Road at Chastain Meadows Parkway
12. Chastain Meadows Parkway at Proposed Site Access

The location of the development and the surrounding study network is shown in Figure 1. Other intersections within this corridor, such as unsignalized side streets, right-in/right-out driveways or private driveways have not been included in the study network.

2.1 Existing Roadway Facilities

The following is a brief description of each of the roadway facilities located in proximity to the site:

2.1.1 *Chastain Road*

Chastain Road is a four-lane, median-divided roadway with a posted speed limit of 45 mph in the vicinity of the site. Cobb County traffic counts indicate that the daily traffic volume on Chastain Road in 2011 was 41,900 vehicles per day east of George Busbee Parkway and 25,000 vehicles per day west of Chastain Meadows Parkway. Cobb County classifies Chastain Road as an Arterial roadway.

2.1.2 *George Busbee Parkway*

George Busbee Parkway is a four-lane, median-divided roadway with a posted speed limit of 35 mph north of Chastain Road and 45 mph south of Chastain Road. Cobb County traffic counts indicate that the

daily traffic volume on George Busbee Parkway in 2007 was 19,900 vehicles per day south of Busbee Drive (N) and in 2008 was 23,100 vehicles per day north of Big Shanty Road. Cobb County classifies George Busbee Parkway as an Arterial roadway.

2.1.3 Town Park Drive

Town Park Drive is a four-lane, median-divided roadway with a posted speed limit of 35 mph north of Chastain Road. Cobb County traffic counts indicate that the daily traffic volume on Town Park Drive in 2016 was 5,050 vehicle per day east of George Busbee Parkway. Cobb County classifies Town Park Drive as a Major roadway.

2.1.4 Interstate 575

Interstate 575 is a four-lane, median-divided roadway with a posted speed limit of 55 mph in the vicinity of the site. GDOT traffic counts (Station IDs 0670778 & 0670776) indicate that the daily traffic volume on I-575 in 2016 was 95,800 vehicles per day between Chastain Road and Bells Ferry Road and 78,500 vehicles per day between Chastain Road and Barrett Parkway. GDOT classifies I-575 as an Interstate.

2.1.5 Chastain Lakes Drive

Chastain Lakes Drive is a two-lane, undivided residential roadway with a posted speed limit of 25 mph.

2.1.6 Chastain Meadows Parkway

Chastain Meadows Parkway is a four-lane, median-divided roadway with a posted speed limit of 45 mph in the vicinity of the site. Cobb County traffic counts indicate that the daily traffic volume on Chastain Meadows Parkway in 2017 was 16,200 vehicles per day south of Big Shanty Road. Cobb County classifies Chastain Meadows Parkway as an Arterial roadway.

2.1.7 Big Shanty Road

Big Shanty Road is a four-lane, median-divided roadway west of Chastain Meadows Parkway and a two-lane, undivided roadway east of Chastain Meadows Parkway with a posted speed limit of 35 mph in the vicinity of the site. Cobb County traffic counts indicate that the daily traffic volume on Big Shanty Road in 2016 was 4,800 vehicles per day west of Bells Ferry Road and 20,600 vehicles per day west of Hidden Forest Court. Cobb County classifies Big Shanty Road as a Major roadway.

2.1.8 Bells Ferry Road

Bells Ferry Road is a two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. Cobb County traffic counts indicate that the daily traffic volume on Bells Ferry Road in 2016 was 15,300 vehicles per day north of Parkwood Drive and 12,600 vehicles per day north of Rock Bridge Road. Cobb County classifies Bells Ferry Road as an Arterial roadway.

2.1.9 N. Booth Road

N. Booth Road is a two-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. Cobb County traffic counts indicate that the daily traffic volume on N. Booth Road in 2010 was

7,500 vehicles per day east of Southwick Drive. Cobb County classifies N. Booth Road as a Major roadway.

2.1.10 New Chastain Road

New Chastain Road is a four-lane, median-divided roadway with a posted speed limit of 45 mph in the vicinity of the site. Cobb County traffic counts indicate that the daily traffic volume on New Chastain Road in 2010 was 21,500 vehicles per day east of Sumter Drive. Cobb County classifies New Chastain Road as an Arterial roadway.

2.2 Existing Bicycle and Pedestrian Facilities

The following is a brief description of each of the bicycle and pedestrian facilities located in proximity to the site:

2.2.1 Nearby local or regional trails

There are trails located in the study area that include the Big Shanty Road Trail and the Noonday Creek Trail that begins at Bells Ferry Road south of Big Shanty Road and follows Noonday Creek west.

2.2.2 Bicycle paths or sidewalks

Sidewalks and pedestrian facilities are present along the following roadways in the study network:

- Chastain Road: both sides of the road between Bells Ferry Road and I-75 and beyond.
- George Busbee Parkway: both sides of the road beginning south of Wade Green Road and ending at Barrett Parkway.
- Town Park Drive: both sides of the road between George Busbee Parkway to Chastain Road.
- Chastain Meadows Parkway: both sides of the road between Chastain Road and Barrett Parkway.
- Big Shanty Road: both sides of the road between Chastain Meadows Parkway and George Busbee Parkway and beyond.
- N. Booth Road: south side of the road between Shiloh Road and Bells Ferry Road. Both sides of the road between Palmer Middle School and Maxanne Court.
- Bells Ferry Road: At various points on each side of the road between Barrett Parkway and N. Booth Road.

Bike paths are present along the following roadways in the study network:

- Chastain Road: both sides of the road between I-575 and I-75 and beyond
- There are currently Zagster bike share stations in the vicinity of the development located at the Avonlea apartments and the Bells Ferry Trailhead

2.3 Existing Transit Facilities

CobbLINC Bus Route 40 and 45 currently operates within the study network with bust stops on both Chastain Road and Chastain Meadows Parkway. There is a GRTA Xpress Park-and-Ride lot on Big Shanty Road, that serves routes 480, 482, and 483, and a CobbLINC Park-and-Ride lot on Busbee Drive. The KSU “Big Owl Bus” also operates on Big Shanty Road near George Busbee Parkway for university students.



LOCATION MAP AND STUDY INTERSECTIONS

3.0 STUDY METHODOLOGY

In this study, the methodology used for evaluating traffic operations at each of the subject intersections is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2010 edition (HCM 2010). At specific intersections in which HCM 2010 is unable to report results or where U-Turns are present, HCM 2000 will be used instead. Synchro software, which utilizes the HCM methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

3.1 Unsignalized Intersections

For unsignalized intersections at which the side street or minor street is controlled by a stop sign, the criteria for evaluating traffic operations are the level-of-service (LOS) for the turning movements at the intersection and the level-of-service for the overall intersection. Level-of-service is based on the average controlled delay incurred at the intersection. Controlled delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Level-of-service is assigned a letter designation from "A" through "F". Level-of-service "A" indicates excellent operations with little delay to motorists, while level-of-service "F" exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross safely, resulting in extremely long total delays and long queues. The level-of-service criteria for two-way stop-controlled and all-way stop-controlled (unsignalized) intersections are given in Table 1.

TABLE 1 — LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS	
Level-of-service	Average Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: Highway Capacity Manual

3.2 Signalized Intersections

For signalized intersections, it is necessary to evaluate both capacity and level-of-service in order to evaluate the overall operation of the intersection. The capacity analysis of an intersection is performed by comparing the volume of traffic using the various lane groups at the intersection to the capacity of those lane groups. This results in a volume/capacity (v/c) ratio for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic has exceeded the capacity available, resulting in a temporary excess of demand. Although the capacity of the entire intersection is not defined, a composite v/c ratio for the sum of the critical lane groups within the intersection is computed. This composite v/c ratio is an indication of the overall intersection sufficiency.

Level-of-service for a signalized intersection is defined in terms of average controlled delay per vehicle, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for signalized intersections, based on average controlled delay, are shown in Table 2. Level-of-service “A” indicates operations with very low controlled delay, while level-of-service “F” describes operations with extremely high average-controlled delay. Level-of-service “E” is typically considered to be the limit of acceptable delay, and level-of-service “F” is considered unacceptable by most drivers.

TABLE 2 — LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS	
Level-of-service	Average Control Delay (sec)
A	≤ 10
B	$> 10 \text{ and } \leq 20$
C	$> 20 \text{ and } \leq 35$
D	$> 35 \text{ and } \leq 55$
E	$> 55 \text{ and } \leq 80$
F	> 80

Source: Highway Capacity Manual

4.0 EXISTING TRAFFIC ANALYSIS

Existing traffic counts were obtained at the following study intersections:

1. Bells Ferry Road at N. Booth Road
2. Bells Ferry Road at Chastain Road/New Chastain Road
3. Bells Ferry Road at Big Shanty Road
4. Chastain Meadows Parkway at Big Shanty Road
5. Big Shanty Road at George Busbee Parkway
6. Chastain Road at George Busbee Parkway
7. Chastain Road at Town Park Drive/Chastain Center Boulevard
8. Chastain Road at I-575 Southbound Ramps
9. Chastain Road at I-575 Northbound Ramps
10. Chastain Road at Chastain Lakes Drive
11. Chastain Road at Chastain Meadows Parkway
12. Chastain Meadows Parkway at Proposed Site Access

Turning movement counts were collected in November 2018 during the AM and PM peak hours between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., respectively. Turning movement counts at intersection 10 were collected between 7:00 a.m. and 7:00 p.m. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2.

4.1 Existing Traffic Operations

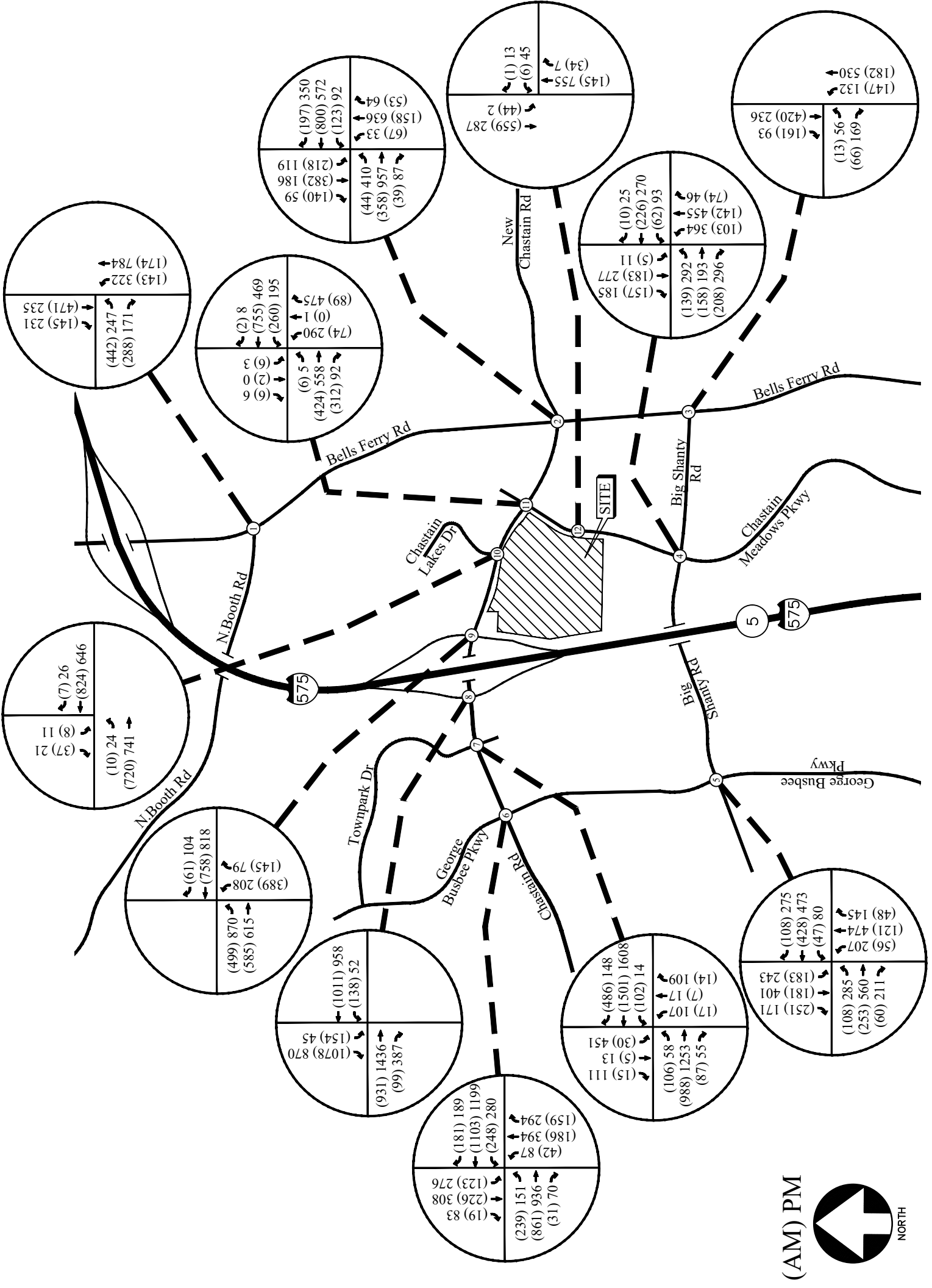
Existing traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analysis are shown in Table 3. The existing traffic control and lane geometry for the intersections are shown in Figure 3.

TABLE 3 — EXISTING INTERSECTION OPERATIONS					
Intersection		Traffic Control	AM Peak	PM Peak	LOS STD
1	<u>Bells Ferry Rd @ N. Booth Rd</u>	Signalized	<u>D (40.5)</u>	<u>C (31.1)</u>	<u>E / E</u>
	-Eastbound Approach		E (55.3)	F (98.5)	-
	-Northbound Approach		B (14.2)	B (11.6)	-
	-Southbound Approach		D (36.7)	B (16.9)	-
2	<u>Chastain Rd @ Bells Ferry Rd</u>	Signalized	<u>D (44.4)</u>	<u>F (155.3)</u>	<u>E / E</u>
	-Eastbound Approach		C (30.4)	F (139.6)	-
	-Westbound Approach		C (33.9)	F (88.1)	-
	-Northbound Approach		D (36.5)	F (301.4)	-
3	<u>Bells Ferry Rd @ Big Shanty Rd</u>	Stop-Controlled on EB Approach			
	-Eastbound Approach		C (15.6)	C (22.0)	E / E
	-Northbound Left		A (9.6)	A (8.3)	E / E
4	<u>Chastain Meadows @ Big Shanty Rd</u>	Signalized	<u>C (20.6)</u>	<u>C (31.3)</u>	<u>E / E</u>
	-Eastbound Approach		C (22.1)	C (31.6)	-
	-Westbound Approach		C (25.4)	D (44.9)	-
	-Northbound Approach		B (15.2)	C (23.2)	-
	-Southbound Approach		B (19.2)	C (34.7)	-

Table continued on next page...

	Intersection	Traffic Control	AM Peak	PM Peak	LOS STD
5	<u>George Busbee Pkwy @ Big Shanty Rd</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>C (25.7)</u> C (28.2) C (32.6) B (18.9) B (20.0)	<u>D (37.6)</u> C (34.4) D (45.0) D (36.8) D (35.1)	<u>E / E</u> - - - -
6	<u>Chastain Rd @ George Busbee Pkwy</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>C (33.6)</u> D (37.3) B (14.7) E (78.9) E (64.2)	<u>E (68.0)</u> D (47.5) D (50.0) F (104.2) F (114.9)	<u>E / E</u> - - - -
7	<u>Chastain Rd @ Town Park Dr</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>A (2.4)</u> A (0.8) A (0.7) E (69.7) E (74.8)	<u>C (28.3)</u> A (1.2) C (21.7) E (75.1) F (100.0)	<u>E / E</u> - - - -
8	<u>Chastain Rd @ I-575 SB Ramps</u> -Eastbound Approach -Westbound Approach -Southbound Approach	Signalized	<u>E (73.0)</u> A (9.0) B (17.2) F (178.5)	<u>C (33.1)</u> B (11.7) A (5.6) F (105.9)	<u>E / E</u> - - -
9	<u>Chastain Rd @ I-575 NB Ramps</u> -Eastbound Approach -Westbound Approach -Northbound Approach	Signalized	<u>C (29.2)</u> C (34.9) A (0.9) E (68.6)	<u>C (25.8)</u> C (31.0) A (1.5) F (85.3)	<u>E / E</u> - - -
10	<u>Chastain Rd @ Chastain Lakes Dr</u> -Eastbound Left -Southbound Approach	Stop-Controlled on SB Approach	B (10.1) C (17.1)	A (9.1) C (15.8)	E / E E / E
11	<u>Chastain Rd @ Chastain Meadows</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>B (11.7)</u> A (0.2) A (5.7) E (74.3) E (77.9)	<u>D (51.7)</u> A (9.4) C (22.2) F (107.9) F (92.3)	<u>E / E</u> - - - -
12	<u>Chastain Meadows @ Private Dr</u> -Westbound Approach -Southbound Left	Stop-Controlled on WB Approach	B (12.8) A (7.7)	C (19.7) A (9.4)	E / E E / E

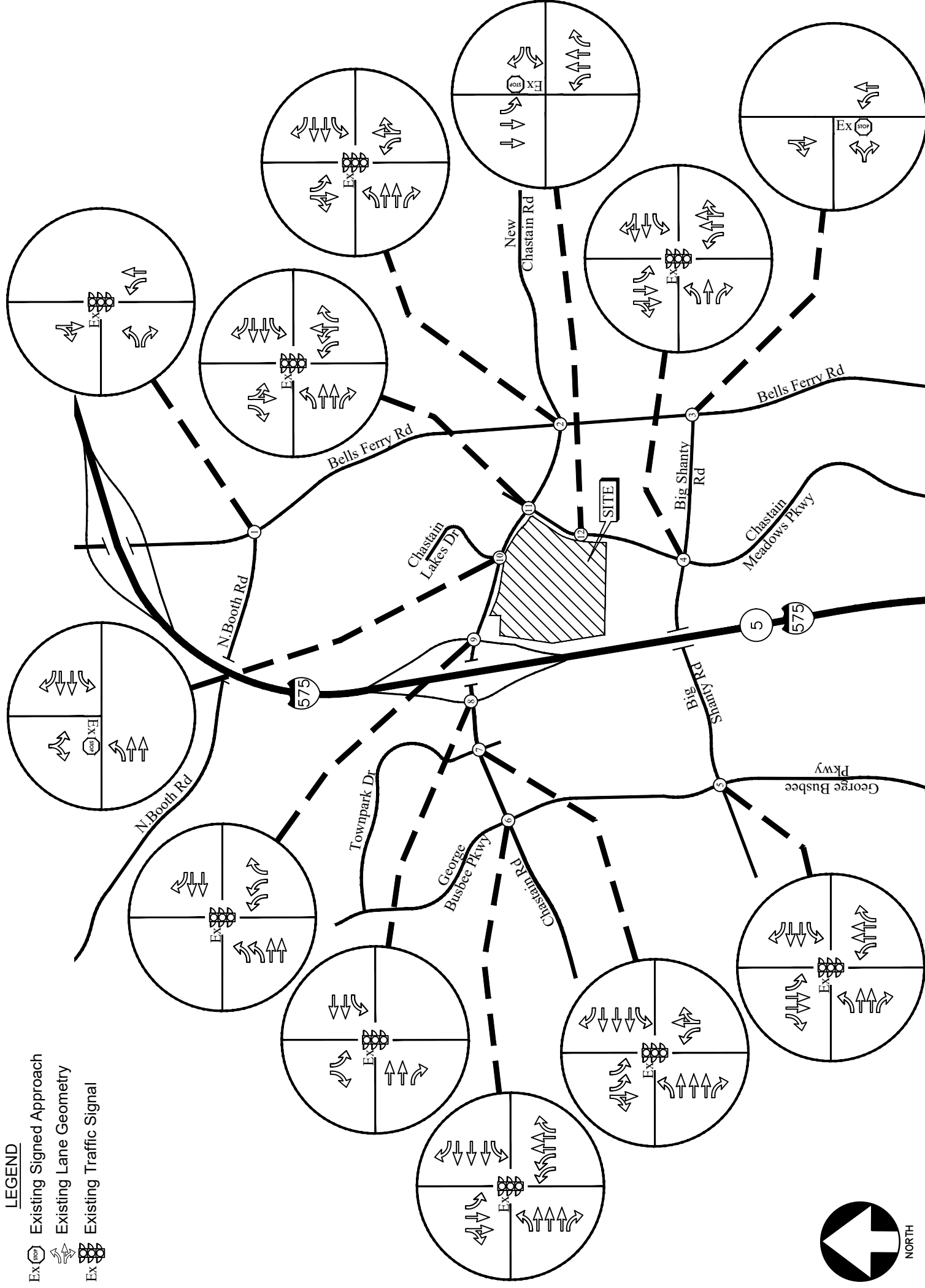
The results of existing traffic operations analysis indicate that a few of the study intersections are operating below the level-of-service “E” standard during the AM and PM peak hours. These areas are addressed in the Future 2022 Traffic Analysis section.



EXISTING WEEKDAY PEAK HOUR VOLUMES

LEGEND

- Ex  Existing Signed Approach
-  Existing Lane Geometry
- Ex  Existing Traffic Signal



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

5.0 PROJECT DESCRIPTION

The proposed McCamy mixed-use development will be located in the southeast corner of Interstate 575 and Chastain Road in Kennesaw, Georgia. The development will consist of:

- 52,000 square foot supermarket
- 70,000 square feet of retail space
- 68,500 square feet of restaurant space
- 190,000 square feet of office space
- 250 hotel rooms
- 164 townhome units
- 600 multifamily units with first floor retail
- 300 attached senior living units

The development proposes one full-access and one right-in/right-out driveway on Chastain Road as well as one full-access driveway and one right-in/right-out driveway on Chastain Meadows Parkway.

5.1 Site Plan

A site plan is shown in Figure 4. A larger size drawing and a digital copy of the site plan are also provided with this report.

5.1.1 *Planned Bicycle and Pedestrian Facilities*

The on and/or off-site provisions for non-motorized travel included in the planned construction of the proposed development are as follows:

- The proposed development will be comprised of residential, retail, and office uses. Pedestrian connections are proposed between the mixed-uses on the site.
- The site benefits from public access to adjacent streets and internal connectivity between some of the parcels.
- There is opportunity for the site to sponsor a future bike share program with the Town Center CID for future tenants.
- Current plans for bicycle and pedestrian facilities by the local municipality and/or Town Center CID include:
 - Construction of wide sidewalks on Big Shanty Road from Chastain Meadows Parkway to Bells Ferry Road – construction beginning in Summer 2019
 - Bells Ferry Road trail from the Bells Ferry Trailhead to Big Shanty Road – construction beginning in Spring 2019
 - Busbee Drive multi-use trail from the Skip Spann roundabout to Chastain Road – construction beginning in 2020
 - Multi-use trail at the proposed Bixby development at the corner of George Busbee Parkway and Busbee Drive.

5.1.2 *Planned Transit Facilities*

There is no planned public transit service near the site.

5.2 Consistency with Adopted Comprehensive Plan

The following is an explanation as to how the proposed DRI relates to the local government's Comprehensive Plan, particularly the transportation and capital improvements element, and any transportation improvements listed in the Short-Term Work Program(s) within the vicinity of the DRI. The property is located within a "Community Activity Center" according to the Cobb County 2030 Comprehensive Plan Future Land Use Map 2018.

5.3 Project Phasing

A phasing schedule shall be provided for any proposed DRIs involving multiple phases. The phasing schedule shall include the types and amounts of land uses to be developed and should be identified by phase, the site location of each land use by phase, the amenities to be developed with each phase, and all transportation elements. The transportation elements shall focus upon infrastructure in place, access to the development, and internal mobility during each phase analyzed. This project has been evaluated for the complete build-out of the development in 2022.

5.4 Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 10th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation for the development was based on the following ITE Land Uses: 220 – *Multifamily Housing (Low-Rise)*, 231 – *Mid-Rise Residential with 1st-Floor Commercial*, 252 – *Senior Adult Housing – Attached*, 310 – *Hotel*, 710 – *General Office Building*, 820 – *Shopping Center*, 850 – *Supermarket*, 931 – *Quality Restaurant* and 934 – *Fast-Food Restaurant with Drive-Through Window*. Due to the nature of the development, pass-by and mixed-use reductions have been applied per ITE standards. A table showing how internal captures were calculated is included in the Appendix. Due to the development's direct access to CobbLinc Route 45 on Chastain Road and its proximity to the Kennesaw State University campus, a multimodal transportation reduction of 5% was applied based on ITE standards. The calculated trip generation for the development is shown in Table 4.

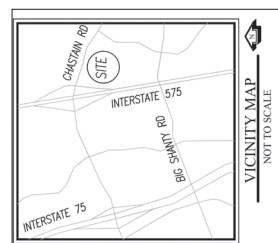
Land Use	Size	AM Peak Hour			PM Peak Hour			24-Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-way
220 – Multifamily Housing (Low-Rise)	164 Units	18	58	76	58	34	92	1,199
231 – Mid-Rise Residential with 1st-Floor Commercial	600 Units	50	130	180	151	65	216	2,064
252 – Senior Adult Housing -Attached	300 Units	21	39	60	41	33	74	1,181
310 – Hotel	250 Rooms	71	49	120	82	79	161	2,396
710 – General Office Building	190,000 sf	176	29	205	34	175	209	1,978
820 – Shopping Center	70,000 sf	116	71	187	200	217	417	4,717
850 – Supermarket	52,000 sf	119	80	199	245	235	480	4,899
934 – Fast-Food Restaurant with Drive-Through Window	5,000 sf	102	99	201	85	78	163	2,355
931 – Quality Restaurant	63,500 sf	26	25	51	319	157	476	5,712
Total Trips (Without Reductions)		699	580	1,279	1,215	1,073	2,288	26,501

<i>Internal Capture for Residential/Hotel</i>	-34	-33	-67	-86	-76	-162	-1,789
<i>Internal Capture for Retail/Restaurant</i>	-40	-41	-81	-93	-93	-186	-2,135
<i>Internal Capture for Office</i>	-8	-8	-16	-11	-21	-32	-386
Subtotal Trips (with Internal Capture Reductions)	617	498	1,115	1,025	883	1,908	22,191
<i>Pass-by for Shopping Center (0%) 34%</i>	0	0	0	-60	-65	-125	-1,250
<i>Pass-by for Supermarket (0%) 36%</i>	0	0	0	-79	-75	-154	-1,540
<i>Pass-by for Fast-Food Restaurant (49%) 50%</i>	-48	-46	-94	-37	-33	70	-700
<i>Pass-by for Quality Restaurant (0%) 44%</i>	0	0	0	-127	-56	-183	-1,830
Subtotal Trips (with Pass-by Reductions)	569	452	1,021	722	654	1,376	16,871
<i>Residential and Retail Alternative Mode Reduction (5%)</i>	-26	-28	-54	-59	-45	-104	-1,226
<i>Office Alternative Mode Reduction (5%)</i>	-9	-1	-10	-2	-9	-11	-99
New External Trips (with reductions)	534	423	957	661	600	1,261	15,546

*Daily pass-by reduction estimated to be least of the applied PM peak hour pass-by rate or ten times the PM pass-by volume

5.5 Trip Distribution

The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on a review of the existing travel patterns in the area and the locations of major roadways and highways that will serve the development. The site-generated peak hour traffic volumes, shown in Table 4, were assigned to the study area intersections based on this distribution. The outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figure 5.

[illegible]

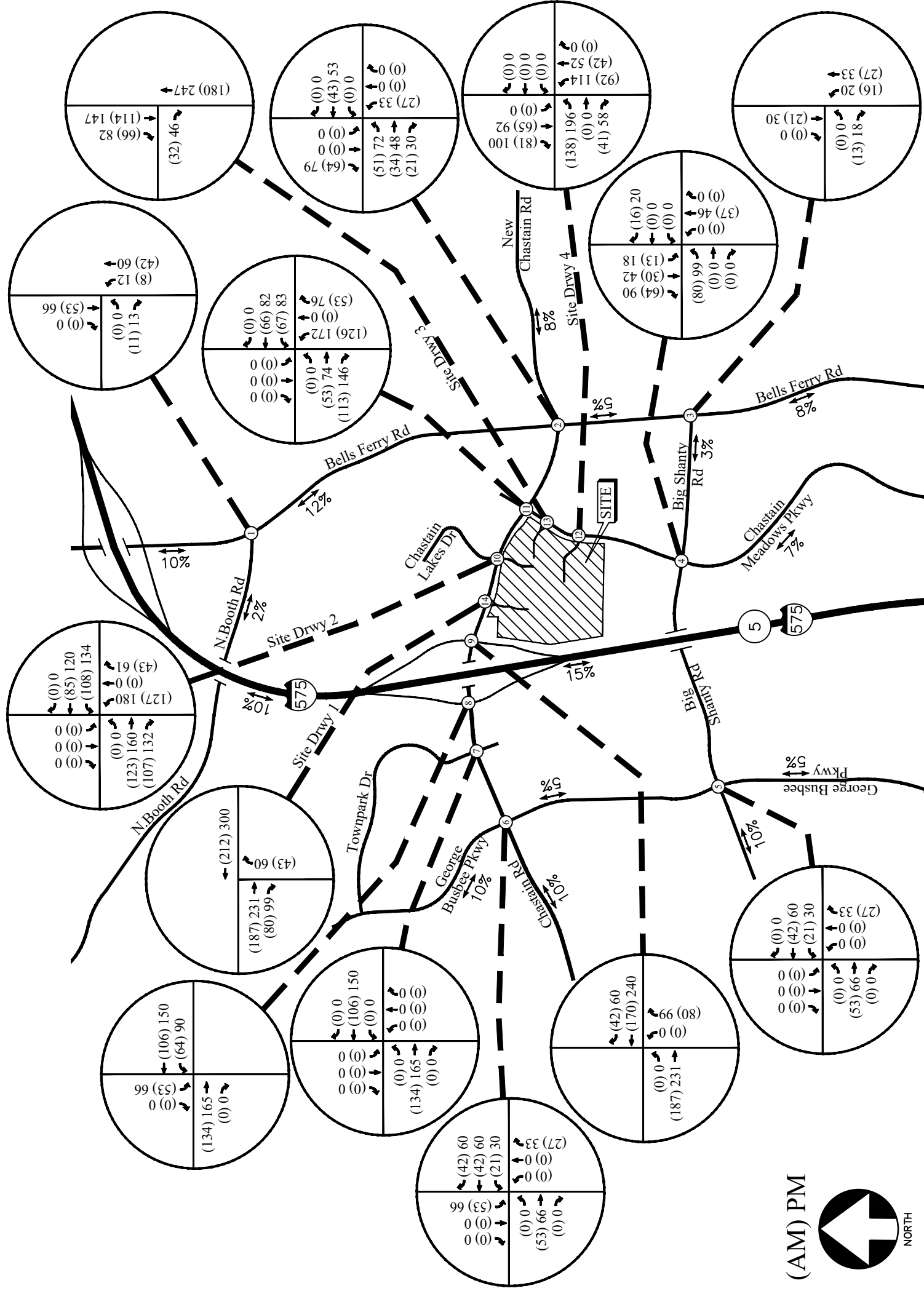
OWNER/DEVELOPER:
 HOPE AND LAND REAL ESTATE
 13130 CUMBERLAND BOULEVARD SE, SUITE 300
 ATLANTA, GA 30339
 404-248-0808

SITE PLANNER:
 HOGUE REALTIES, ROAD, NORTHEAST
 ATLANTA, GA 30326
 404-248-1960

TRAFFIC CONSULTANTS:
 LAR ENGINEERING
 121650 KINGSTON COURT, SUITE O
 MARIETTA, GA 30067
 770-690-4236

LOT SUMMARY	
LOT TYPE	AREA
RETAIL	20.94 AC
HOUSING	34.39 AC
OFFICE	7.37 AC
TOTAL SITE ACRES	62.5 AC





OUTER LEG TRIP DISTRIBUTION AND SITE-GENERATED PEAK HOUR VOLUMES

6.0 FUTURE 2022 TRAFFIC ANALYSIS

The future traffic operations are analyzed for the “No-Build” and “Build” conditions at full build out of the development in the year 2022. This provides a basis of reference for determining both the contribution of the site to overall traffic conditions and the additional improvements needed to provide sufficient site access and capacity for passing traffic.

Improvements that are identified as “System Improvements” are recommended to address deficiencies in the roadway network and can be considered as benefitting traffic that may or may not include site-generated traffic and are recommended for the municipality to use in future planning efforts. “Site Mitigation Improvements” are recommended as directly benefitting proposed site-generated traffic.

6.1 Future “No-Build” Conditions

The “No-Build” (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth. The Future “No-Build” volumes consist of the existing traffic volumes (Figure 2) plus increases for annual growth of through traffic.

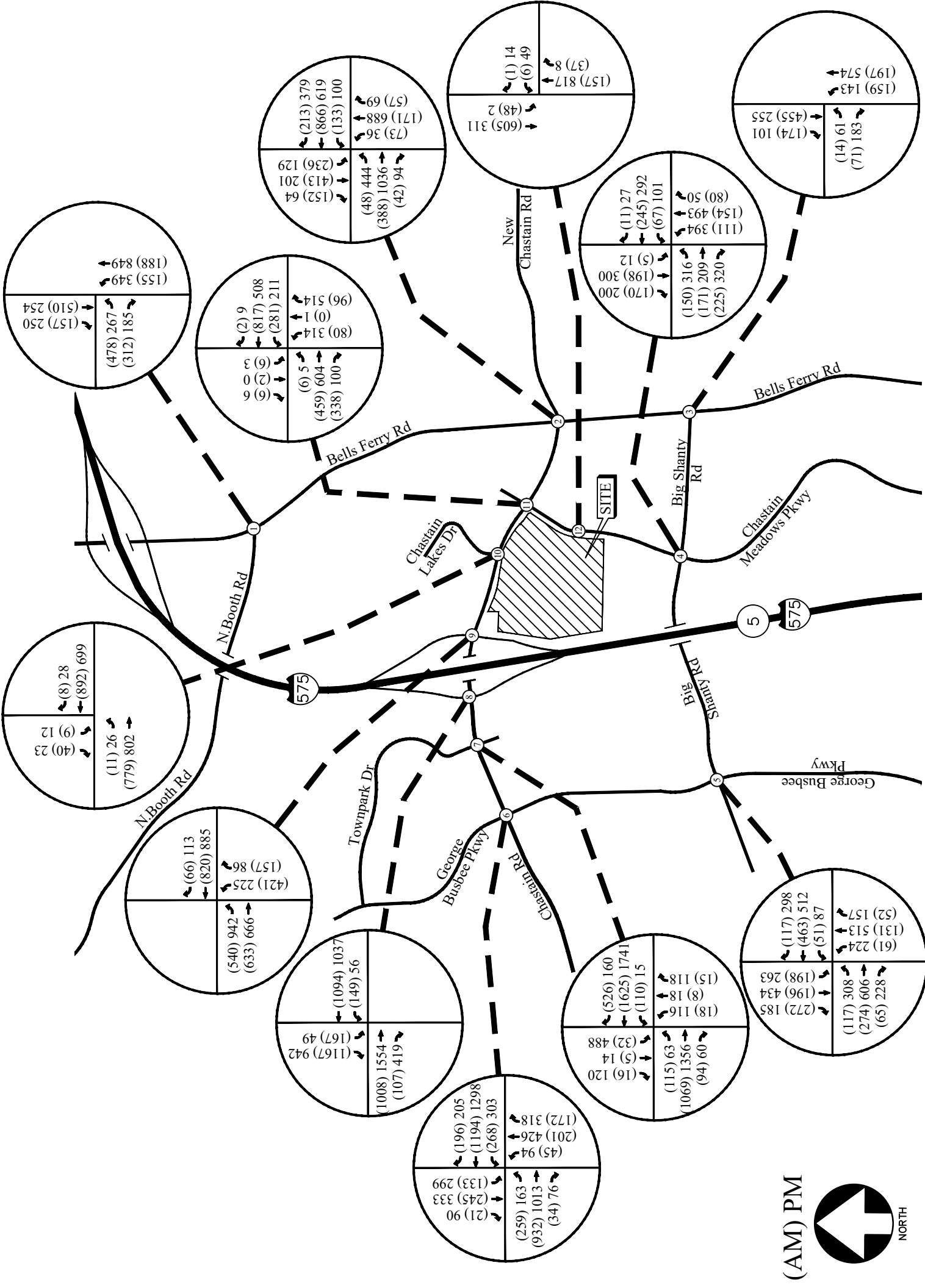
6.1.1 Annual Traffic Growth

In order to evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the growth over the last five years revealed growth of approximately 2% in the area. This growth factor was applied to the existing traffic volumes between collector and arterial roadways in order to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future “No-Build” 2022 volumes on the roadway are shown in Figure 6.

6.1.2 Planned and Programmed Improvements in Study Area

The following improvements have been identified in GDOT TransPi, and/or the local comprehensive transportation plan. These improvements are within the vicinity of the proposed development.

TABLE 5 — PLANNED AND PROGRAMMED IMPROVEMENTS				
ARC#/GDOT#/ County#	Project	Type of Improvement	Network Year	Source
CO-297B/ 0010706/D7280	Big Shanty Road widening Phase 4 between Chastain Meadows Pkwy to Bells Ferry Rd	Widening	Long Range 2030	ARC/GDOT/ COBB DOT



FUTURE (NO-BUILD) 2022 PEAK HOUR VOLUMES

6.1.3 Future “No-Build” 2022 Traffic Operations

The future “No-Build” traffic operations were analyzed using the volumes in Figure 6 and the results are shown in Table 6. The results of the analysis, including the recommended system improvements, are discussed in detail in the next section.

TABLE 6 — FUTURE “NO-BUILD” INTERSECTION OPERATIONS						
Intersection		No-Build Condition: LOS (Delay)				
		NO IMPROVEMENTS		SYSTEM IMPROVEMENTS		LOS STD
		AM Peak	PM Peak	AM Peak	PM Peak	
1	Bells Ferry Rd @ N. Booth Rd	E (62.5)	C (34.0)	E (62.5)	C (34.0)	E / E
	-Eastbound Approach	F (85.0)	F (101.9)	F (85.0)	F (101.9)	-
	-Northbound Approach	B (18.4)	B (14.3)	B (18.4)	B (14.3)	-
	-Southbound Approach	E (58.4)	C (20.1)	E (58.4)	C (20.1)	-
2	Chastain Rd @ Bells Ferry Rd	E (59.3)	F (254.4)	E (59.4)	E (56.8)	E / E
	-Eastbound Approach	C (32.1)	F (252.5)	D (35.6)	D (49.1)	-
	-Westbound Approach	D (37.1)	F (151.2)	D (37.1)	D (40.0)	-
	-Northbound Approach	D (36.5)	F (453.7)	C (34.1)	F (92.6)	-
	-Southbound Approach	F (110.3)	D (48.9)	F (109.7)	D (44.7)	-
3	Bells Ferry Rd @ Big Shanty Rd					
	-Eastbound Approach	C (16.9)	D (27.3)	C (16.9)	D (27.3)	E / E
	-Northbound Left	A (9.8)	A (8.4)	A (9.8)	A (8.4)	E / E
4	Chastain Meadows @ Big Shanty Rd	C (21.5)	D (35.0)	C (21.5)	D (35.0)	E / E
	-Eastbound Approach	C (23.0)	D (36.7)	C (23.0)	D (36.7)	-
	-Westbound Approach	C (26.8)	D (46.6)	C (26.8)	D (46.6)	-
	-Northbound Approach	B (15.6)	C (26.7)	B (15.6)	C (26.7)	-
	-Southbound Approach	C (20.1)	D (38.0)	C (20.1)	D (38.0)	-
5	George Busbee Pkwy @ Big Shanty Rd	C (25.9)	D (40.3)	C (25.9)	D (40.3)	E / E
	-Eastbound Approach	C (27.6)	D (36.7)	C (27.6)	D (36.7)	-
	-Westbound Approach	C (31.9)	D (47.4)	C (31.9)	D (47.4)	-
	-Northbound Approach	B (19.8)	D (39.3)	B (19.8)	D (39.3)	-
	-Southbound Approach	C (21.5)	D (38.5)	C (21.5)	D (38.5)	-
6	Chastain Rd @ George Busbee Pkwy	D (35.7)	F (98.3)	C (32.5)	E (73.7)	E / E
	-Eastbound Approach	D (40.2)	D (49.0)	C (34.4)	D (43.0)	-
	-Westbound Approach	B (16.9)	E (76.2)	B (14.4)	B (19.1)	-
	-Northbound Approach	F (80.7)	F (142.7)	F (80.7)	F (142.7)	-
	-Southbound Approach	E (63.8)	F (195.3)	E (63.8)	F (195.3)	-
7	Chastain Rd @ Town Park Dr	A (2.4)	C (32.9)	A (2.5)	C (32.9)	E / E
	-Eastbound Approach	A (0.9)	A (1.4)	A (0.9)	A (1.4)	-
	-Westbound Approach	A (0.8)	C (23.3)	A (0.8)	C (23.3)	-
	-Northbound Approach	E (69.6)	F (75.1)	E (69.6)	F (75.1)	-
	-Southbound Approach	E (74.9)	F (125.5)	E (74.9)	F (125.5)	-
8	Chastain Rd @ I-575 SB Ramps	F (111.3)	D (36.3)	D (35.4)	C (26.7)	E / E
	-Eastbound Approach	A (9.4)	B (16.4)	A (7.9)	B (11.2)	-
	-Westbound Approach	B (17.1)	A (7.0)	B (13.7)	A (1.2)	-
	-Southbound Approach	F (284.4)	F (108.3)	E (78.5)	F (85.7)	-
Table continued on next page...						

Intersection		NO IMPROVEMENTS		SYSTEM IMPROVEMENTS		LOS STD
		AM Peak	PM Peak	AM Peak	PM Peak	
9	<u>Chastain Rd @ I-575 NB Ramps</u>	<u>C (29.7)</u>	<u>C (26.1)</u>	<u>C (29.8)</u>	<u>C (26.7)</u>	<u>E / E</u>
	-Eastbound Approach	D (35.5)	C (29.4)	D (35.6)	C (30.4)	-
	-Westbound Approach	A (1.1)	A (4.7)	A (1.1)	A (4.7)	-
	-Northbound Approach	E (69.3)	F (87.1)	E (69.3)	F (87.1)	-
10	<u>Chastain Rd @ Chastain Lakes Dr</u>					
	-Eastbound Left	B (10.4)	A (9.3)	B (10.4)	A (9.3)	E / E
	-Southbound Approach	C (19.0)	C (17.1)	C (19.0)	C (17.1)	E / E
11	<u>Chastain Rd @ Chastain Meadows</u>	<u>B (11.9)</u>	<u>E (78.1)</u>	<u>B (11.9)</u>	<u>E (78.2)</u>	<u>E / E</u>
	-Eastbound Approach	A (0.3)	A (9.7)	A (0.3)	A (9.7)	-
	-Westbound Approach	A (6.0)	C (22.5)	A (6.0)	C (22.7)	-
	-Northbound Approach	E (73.7)	F (176.6)	E (73.7)	F (176.6)	-
	-Southbound Approach	E (77.9)	F (92.3)	E (77.9)	F (92.3)	-
12	<u>Chastain Meadows @ Private Dr</u>					
	-Westbound Approach	B (13.4)	C (22.0)	B (13.4)	C (22.0)	E / E
	-Southbound Left	A (7.8)	A (9.6)	A (7.8)	A (9.6)	E / E

6.1.4 Recommendations for System Improvements

A summary of the system improvements, which address deficiencies that are found within the existing road network for the “No-Build” conditions, is provided below. These are recommended for the local municipality to use in planning future transportation projects. The following improvements have been recommended in order to bring the level-of-service back to the acceptable standard of “E”:

Chastain Road/New Chastain Road at Bells Ferry Road

- Install a second eastbound left turn lane on Chastain Road with a second northbound receiving lane on Bells Ferry Road.
- Install a second northbound through lane on Bells Ferry Road.

Chastain Road at George Busbee Parkway

- Install a second westbound left turn lane on Chastain Road.

Chastain Road at I-575 Southbound Ramps

- Install a second southbound right turn lane on the interstate ramp with one operating as yield-controlled and one continuing to operate as free-flow.

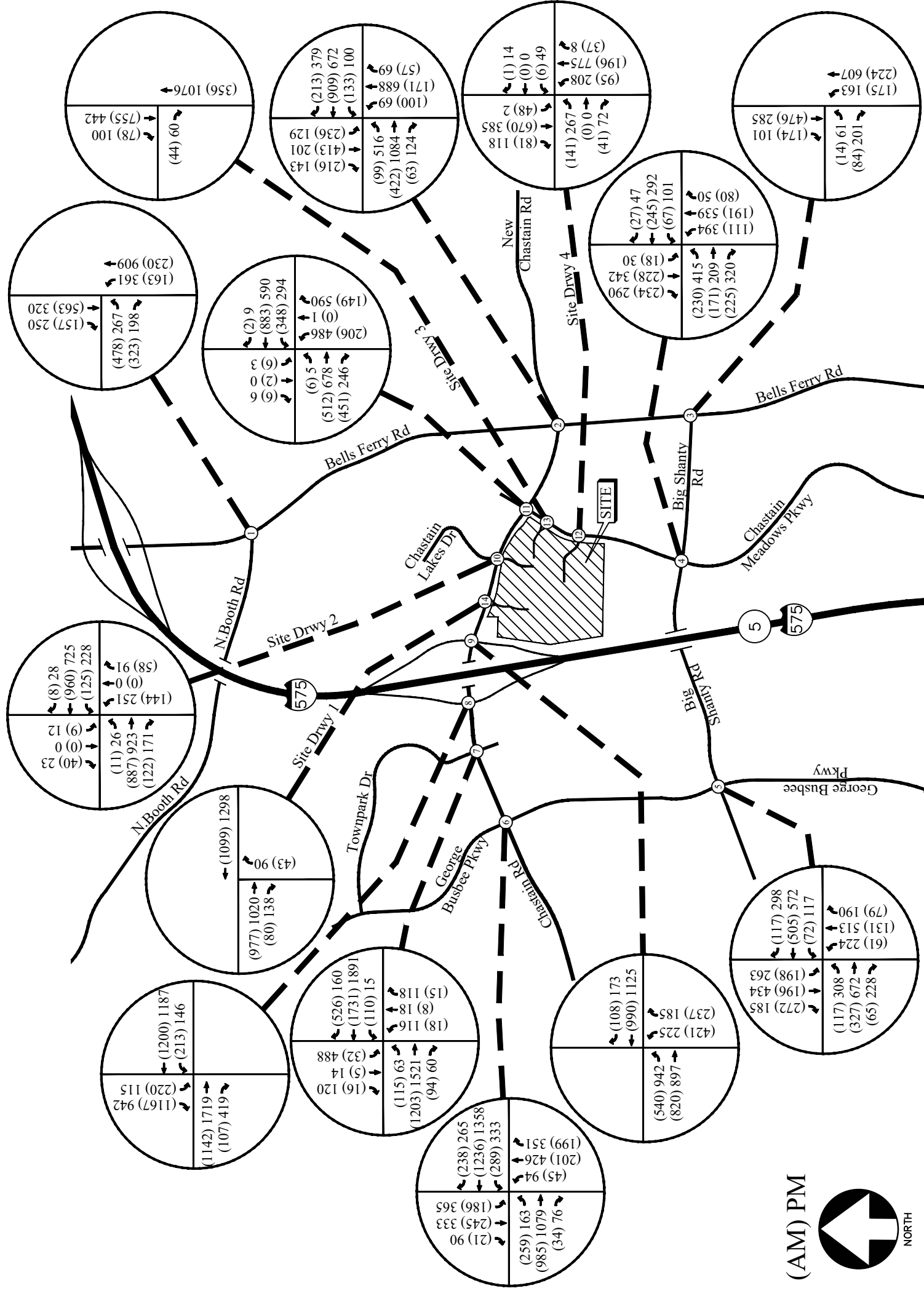
6.2 Future “Build” Conditions

The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the added traffic from the proposed development. In order to evaluate future traffic operations in this area, the additional traffic volumes from the site (Figure 5) and pass-by volumes were added to base traffic volumes (Figure 6) to calculate the future traffic volumes after the construction of the development. These total future traffic volumes in 2022 are shown in Figure 7.

6.2.1 Site Access Configuration

The following access configuration was utilized when modeling the proposed site driveway intersections:

- Site Driveway 1: Right-in/right-out driveway on Chastain Road, east of I-575
 - This driveway is proposed to consist of one entering and one exiting lane.
 - It is recommended that an eastbound right turn lane be installed on Chastain Road for entering traffic.
 - The intersection is proposed to be unsignalized with a STOP sign on the northbound (driveway) approach.
- Site Driveway 2: Full-access driveway on Chastain Road, aligned with Chastain Lakes Drive
 - This driveway is proposed to consist of one entering and two exiting lanes.
 - Entering left turn movements are proposed to be made from the existing westbound turn lane on Chastain Road.
 - It is recommended that an eastbound right turn lane be installed on Chastain Road for entering traffic.
 - A preliminary signal warrant analysis indicates that the intersection will meet MUTCD thresholds for a traffic signal. Therefore, a traffic signal should be installed with construction of the development.
- Site Driveway 3: Right-in/right-out driveway on Chastain Meadows Parkway, south of Chastain Road
 - This driveway is proposed to consist of one entering and one exiting lane.
 - It is recommended that a southbound right turn lane be installed on Chastain Meadows Parkway for entering traffic.
 - At the request of Cobb County DOT, the existing median opening at this driveway location will be closed, prohibiting all left-ins and left-outs at the intersection. It has also been requested that the northbound left turn lane at the intersection of Chastain Road at Chastain Meadows Parkway be extended to this intersection to allow for more storage/queueing space.
- Site Driveway 4: Full-access driveway on Chastain Meadows Parkway, at existing median opening
 - This driveway is proposed to consist of one entering and two exiting lanes.
 - Entering left turn movements are proposed to be made from the existing northbound turn lane on Chastain Meadows Parkway.
 - It is recommended that a southbound right turn lane be installed on Chastain Meadows Parkway for entering traffic.
 - A preliminary signal warrant analysis indicates that the intersection will meet MUTCD thresholds for a traffic signal during the peak hours. Therefore, a traffic signal should be installed with construction of the development.



FUTURE (BUILD) 2022 PEAK HOUR VOLUMES

6.2.2 Future “Build” 2022 Traffic Operations

The “Build” conditions are evaluated to determine effectiveness of the recommended system and site mitigation improvements. The results of the “Build” 2022 operations analysis with the assumed site access configuration are shown in Table 7.

TABLE 7 — FUTURE “BUILD” INTERSECTION OPERATIONS						
Intersection		Build Condition: LOS (Delay)				
		NO IMPROVEMENTS		WITH SYSTEM & SITE IMPROVEMENTS		LOS STD
		AM Peak	PM Peak	AM Peak	PM Peak	
1	Bells Ferry Rd @ N. Booth Rd	F (87.2)	D (35.4)	E (70.9)	D (35.4)	E / E
	-Eastbound Approach	F (85.0)	F (103.1)	E (69.2)	F (103.1)	-
	-Northbound Approach	C (25.6)	B (16.5)	D (36.4)	B (16.5)	-
	-Southbound Approach	F (123.2)	C (22.2)	F (91.6)	C (22.2)	-
2	Chastain Rd @ Bells Ferry Rd	F (110.3)	F (346.6)	E (65.2)	E (58.1)	E / E
	-Eastbound Approach	C (34.2)	F (426.0)	D (46.8)	D (49.3)	-
	-Westbound Approach	D (48.7)	F (268.2)	E (56.4)	D (46.6)	-
	-Northbound Approach	D (36.4)	F (436.7)	D (37.7)	F (88.1)	-
	-Southbound Approach	F (258.3)	D (48.6)	F (97.2)	D (54.0)	-
3	Bells Ferry Rd @ Big Shanty Rd					
	-Eastbound Approach	C (18.1)	E (37.6)	C (18.1)	E (37.6)	E / E
	-Northbound Left	B (10.1)	A (8.6)	B (10.1)	A (8.6)	E / E
4	Chastain Meadows @ Big Shanty Rd	C (23.9)	E (77.3)	C (23.9)	E (77.3)	E / E
	-Eastbound Approach	C (24.5)	F (155.7)	C (24.5)	F (155.7)	-
	-Westbound Approach	C (32.6)	D (48.0)	C (32.6)	D (48.0)	-
	-Northbound Approach	B (17.4)	D (36.5)	B (17.4)	D (36.5)	-
	-Southbound Approach	C (22.2)	D (45.7)	C (22.2)	D (45.7)	-
5	Busbee Pkwy @ Big Shanty Rd	C (26.2)	D (41.3)	C (26.2)	D (41.4)	E / E
	-Eastbound Approach	C (27.3)	D (38.1)	C (27.3)	D (39.0)	-
	-Westbound Approach	C (30.8)	D (46.1)	C (30.8)	D (46.3)	-
	-Northbound Approach	C (21.1)	D (41.2)	C (21.1)	D (40.9)	-
	-Southbound Approach	C (22.7)	D (40.5)	C (22.7)	D (40.0)	-
6	Chastain Rd @ Busbee Pkwy	D (38.2)	F (155.8)	C (34.3)	E (78.9)	E / E
	-Eastbound Approach	D (42.7)	D (49.4)	D (35.9)	D (47.3)	-
	-Westbound Approach	B (19.4)	F (117.3)	B (16.1)	C (23.3)	-
	-Northbound Approach	F (80.7)	F (142.7)	F (80.7)	F (142.6)	-
	-Southbound Approach	E (65.9)	F (414.8)	E (65.9)	F (206.0)	-
7	Chastain Rd @ Town Park Dr	A (2.3)	C (32.1)	A (2.4)	C (32.1)	E / E
	-Eastbound Approach	A (0.9)	A (1.4)	A (0.9)	A (1.5)	-
	-Westbound Approach	A (0.8)	C (24.7)	A (0.8)	C (24.8)	-
	-Northbound Approach	E (69.6)	E (75.1)	E (69.6)	E (75.1)	-
	-Southbound Approach	E (74.9)	F (125.5)	E (74.9)	F (125.5)	-
8	Chastain Rd @ I-575 SB Ramps	F (117.0)	D (45.9)	D (35.9)	C (31.5)	E / E
	-Eastbound Approach	B (11.5)	C (23.9)	B (11.8)	B (16.5)	-
	-Westbound Approach	C (21.1)	C (34.0)	B (18.0)	B (15.8)	-
	-Southbound Approach	F (309.9)	F (105.3)	E (75.8)	F (81.6)	-
Table continued on next page...						

Intersection		NO IMPROVEMENTS		WITH SYSTEM & SITE IMPROVEMENTS		LOS STD
		AM Peak	PM Peak	AM Peak	PM Peak	
9	<u>Chastain Rd @ I-575 NB Ramps</u>	<u>C (29.9)</u>	<u>D (39.1)</u>	<u>C (29.9)</u>	<u>D (39.8)</u>	<u>E / E</u>
	-Eastbound Approach	D (38.1)	C (24.8)	D (38.2)	C (25.9)	-
	-Westbound Approach	A (1.8)	D (52.9)	A (1.8)	D (52.9)	-
	-Northbound Approach	E (69.3)	F (87.5)	E (69.3)	F (87.5)	-
10	<u>Chastain Rd @ Chastain Lakes/Drwy 2</u>	<u>A (8.2)</u>	<u>C (27.2)</u>	<u>A (8.3)</u>	<u>C (27.2)</u>	<u>E / E</u>
	-Eastbound Approach	A (0.7)	B (18.9)	A (0.7)	B (18.9)	-
	-Westbound Approach	A (1.3)	B (18.3)	A (1.3)	B (18.3)	-
	-Northbound Approach	E (60.9)	E (69.5)	E (62.6)	E (69.5)	-
	-Southbound Approach	F (81.1)	F (88.7)	F (81.1)	F (88.7)	-
11	<u>Chastain Rd @ Chastain Meadows</u>	<u>C (25.8)</u>	<u>F (148.6)</u>	<u>C (25.8)</u>	<u>D (46.9)</u>	<u>E / E</u>
	-Eastbound Approach	C (34.5)	D (47.6)	C (34.5)	D (40.9)	-
	-Westbound Approach	A (9.3)	C (29.3)	A (9.3)	C (24.6)	-
	-Northbound Approach	E (68.1)	F (311.0)	E (68.1)	E (68.6)	-
	-Southbound Approach	E (77.9)	F (92.3)	E (77.9)	F (92.3)	-
12	<u>Chastain Meadows @ Private Dr/Drwy 4</u>			<u>B (11.7)</u>	<u>B (18.6)</u>	<u>E / E</u>
	-Eastbound Approach	F (**)	F (**)	D (53.0)	D (50.7)	E / E
	-Westbound Approach	C (22.5)	F (129.0)	D (49.1)	D (44.4)	E / E
	-Northbound Left	A (9.7)	A (8.8)	A (4.4)	B (10.3)	E / E
	-Southbound Left	A (7.9)	A (9.5)	A (4.2)	A (7.8)	E / E
13	<u>Chastain Meadows @ Site Drwy 3 (RIRO)</u>					
	-Northbound Right	B (11.6)	B (10.1)	B (11.6)	B (10.1)	E / E
14	<u>Chastain Rd @ Site Drwy 1 (RIRO)</u>					
	-Eastbound Right	B (13.4)	B (13.9)	B (13.4)	B (13.9)	E / E

**Delay exceeds 300 seconds

6.2.3 Recommendations for Site Mitigation Improvements

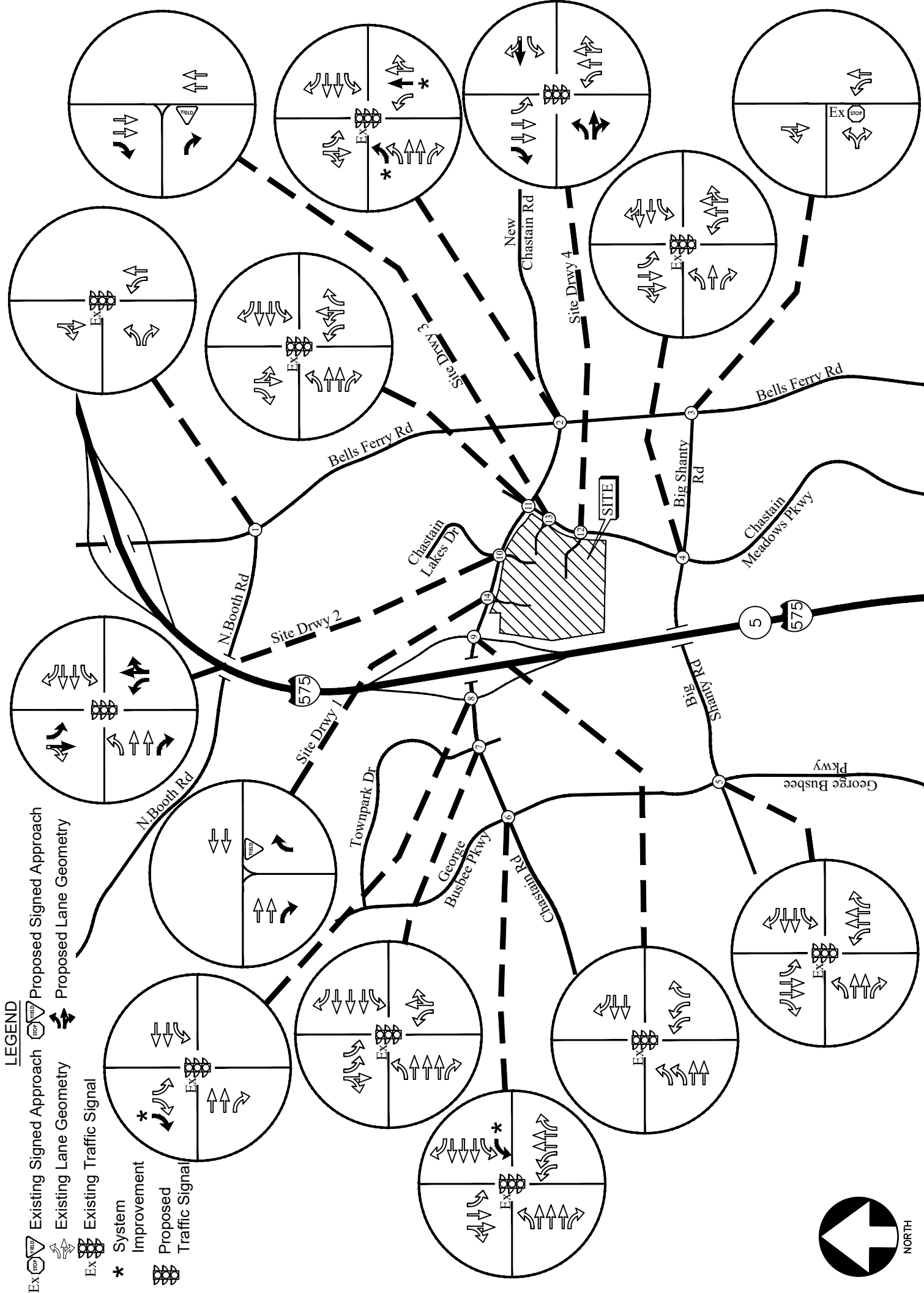
Improvements that are identified as mitigation improvements are recommended as directly benefitting proposed site-generated traffic. Along with the recommended system improvements (Section 6.1.4) and updating the signal timing at several intersections, the following improvements have been recommended in order to bring the level-of-service back to the acceptable standard of “E” after the addition of site traffic:

Chastain Road at Chastain Meadows Parkway

- Install right turn permissive + overlap signal phasing for the northbound right turn movement on Chastain Meadows Parkway.

LEGEND

- Ex Existing Signed Approach
- Ex Existing Lane Geometry
- Ex Existing Traffic Signal
- * System Improvement
- Proposed Traffic Signal
- Proposed Signed Approach
- Proposed Lane Geometry



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the added traffic from the proposed McCamy mixed-use development located in the southeast corner of Interstate 575 and Chastain Road in Kennesaw, Georgia.

The development will consist of:

- 52,000 square foot supermarket
- 70,000 square feet of retail space
- 68,500 square feet of restaurant space
- 190,000 square feet of office space
- 250 hotel rooms
- 164 townhome units
- 600 multifamily units with first floor retail
- 300 attached senior living units

The development proposes one full-access and one right-in/right-out driveway on Chastain Road as well as one full-access driveway and one right-in/right-out driveway on Chastain Meadows Parkway. Existing and future operations after completion of the project were analyzed at the intersections of:

1. Bells Ferry Road at N. Booth Road
2. Bells Ferry Road at Chastain Road/New Chastain Road
3. Bells Ferry Road at Big Shanty Road
4. Chastain Meadows Parkway at Big Shanty Road
5. Big Shanty Road at George Busbee Parkway
6. Chastain Road at George Busbee Parkway
7. Chastain Road at Town Park Drive/Chastain Center Boulevard
8. Chastain Road at I-575 Southbound Ramps
9. Chastain Road at I-575 Northbound Ramps
10. Chastain Road at Chastain Lakes Drive
11. Chastain Road at Chastain Meadows Parkway
12. Chastain Meadows Parkway at Proposed Site Access

The analysis includes the evaluation of Future operations for “No-Build” and “Build” conditions, which account for increases in annual growth of through traffic and added traffic from the proposed development, respectively. The results of the analysis are listed below:

7.1 System Recommendations and Improvements (2022)

A summary of the system improvements, which address deficiencies that are found within the existing road network for the “No-Build” conditions and are recommended for the local municipality to use in planning future transportation projects, is provided in Section 6.1.4.

7.2 Site Access Configuration

The following access configuration was utilized when modeling the proposed site driveway intersections:

- Site Driveway 1: Right-in/right-out driveway on Chastain Road, east of I-575
 - This driveway is proposed to consist of one entering and one exiting lane.

- It is recommended that an eastbound right turn lane be installed on Chastain Road for entering traffic.
- The intersection is proposed to be unsignalized with a STOP sign on the northbound (driveway) approach.
- Site Driveway 2: Full-access driveway on Chastain Road, aligned with Chastain Lakes Drive
 - This driveway is proposed to consist of one entering and two exiting lanes.
 - Entering left turn movements are proposed to be made from the existing westbound turn lane on Chastain Road.
 - It is recommended that an eastbound right turn lane be installed on Chastain Road for entering traffic.
 - A preliminary signal warrant analysis indicates that the intersection will meet MUTCD thresholds for a traffic signal. Therefore, a traffic signal should be installed with construction of the development.
- Site Driveway 3: Right-in/right-out driveway on Chastain Meadows Parkway, south of Chastain Road
 - This driveway is proposed to consist of one entering and one exiting lane.
 - It is recommended that a southbound right turn lane be installed on Chastain Meadows Parkway for entering traffic.
 - At the request of Cobb County DOT, the existing median opening at this driveway location will be closed, prohibiting all left-ins and left-outs at the intersection. It has also been requested that the northbound left turn lane at the intersection of Chastain Road at Chastain Meadows Parkway be extended to this intersection to allow for more storage/queueing space.
- Site Driveway 4: Full-access driveway on Chastain Meadows Parkway, at existing median opening
 - This driveway is proposed to consist of one entering and two exiting lanes.
 - Entering left turn movements are proposed to be made from the existing northbound turn lane on Chastain Meadows Parkway.
 - It is recommended that a southbound right turn lane be installed on Chastain Meadows Parkway for entering traffic.
 - A preliminary signal warrant analysis indicates that the intersection will meet MUTCD thresholds for a traffic signal during the peak hours. Therefore, a traffic signal should be installed with construction of the development.

7.3 Site Mitigation Improvements (2022)

Improvements that are identified as mitigation improvements are recommended as directly benefitting proposed site-generated traffic and are summarized in Section 6.2.3.

Appendix

Existing Intersection Traffic Counts	
GRTA Letter of Understanding.....	
Linear Regression of Daily Traffic.....	
Internal Capture Calculations	
Fact Sheets for Planned and Programmed Improvements.....	
Existing Intersection Analysis.....	
Future “No-Build” Intersection Analysis	
Future “No-Build” Improved Intersection Analysis.....	
Future “Build” Intersection Analysis	
Future “Build” Improved Intersection Analysis	
Traffic Volume Worksheets	

Existing Intersection Traffic Counts

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TMC Data

Bells Ferry Rd @ N. Booth Rd

7-9 am | 4-6 pm

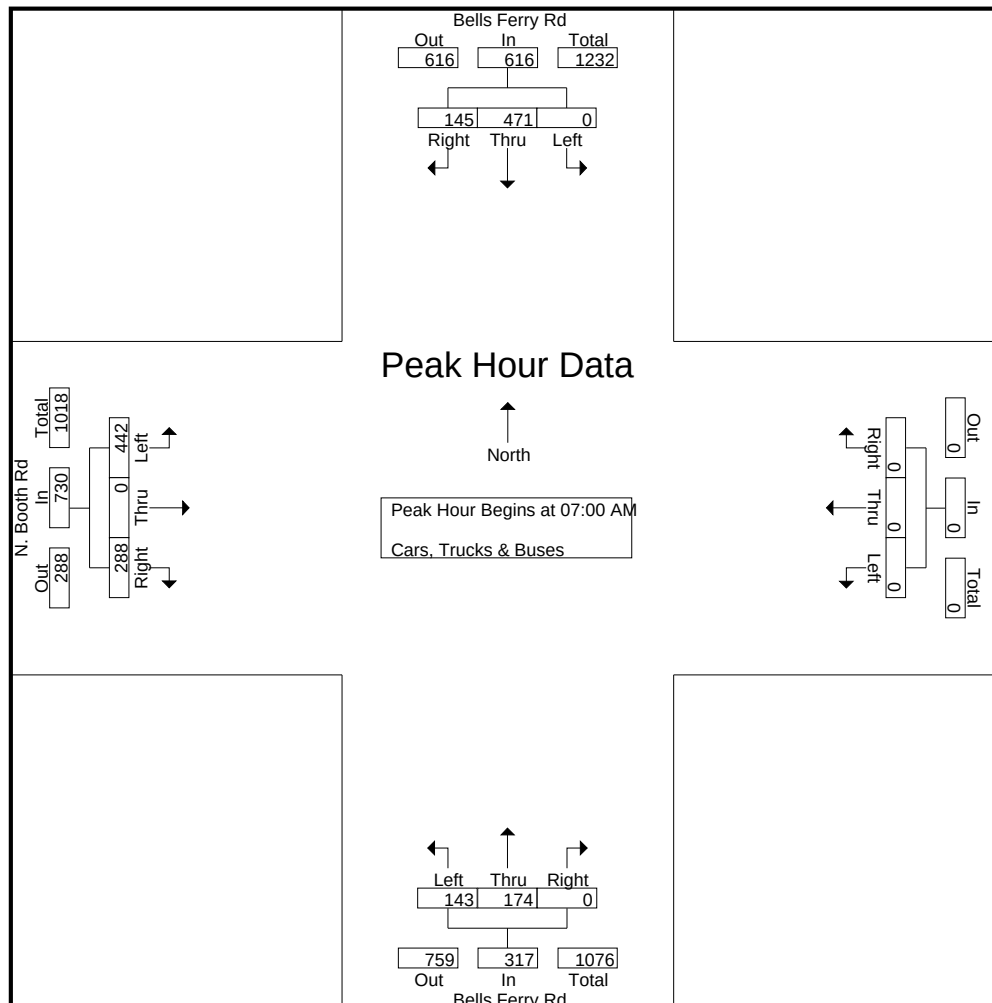
File Name : 20180269

Site Code : 20180269

Start Date : 11/14/2018

Page No : 2

	Bells Ferry Rd Northbound				Bells Ferry Rd Southbound				N. Booth Rd Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	35	38	0	73	0	103	28	131	76	0	68	144	0	0	0	0	348
07:15 AM	43	43	0	86	0	151	55	206	123	0	73	196	0	0	0	0	488
07:30 AM	42	48	0	90	0	115	33	148	132	0	75	207	0	0	0	0	445
07:45 AM	23	45	0	68	0	102	29	131	111	0	72	183	0	0	0	0	382
Total Volume	143	174	0	317	0	471	145	616	442	0	288	730	0	0	0	0	1663
% App. Total	45.1	54.9	0		0	76.5	23.5		60.5	0	39.5		0	0	0		
PHF	.831	.906	.000	.881	.000	.780	.659	.748	.837	.000	.960	.882	.000	.000	.000	.000	.852



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Bells Ferry Rd @ N. Booth Rd

7-9 am | 4-6 pm

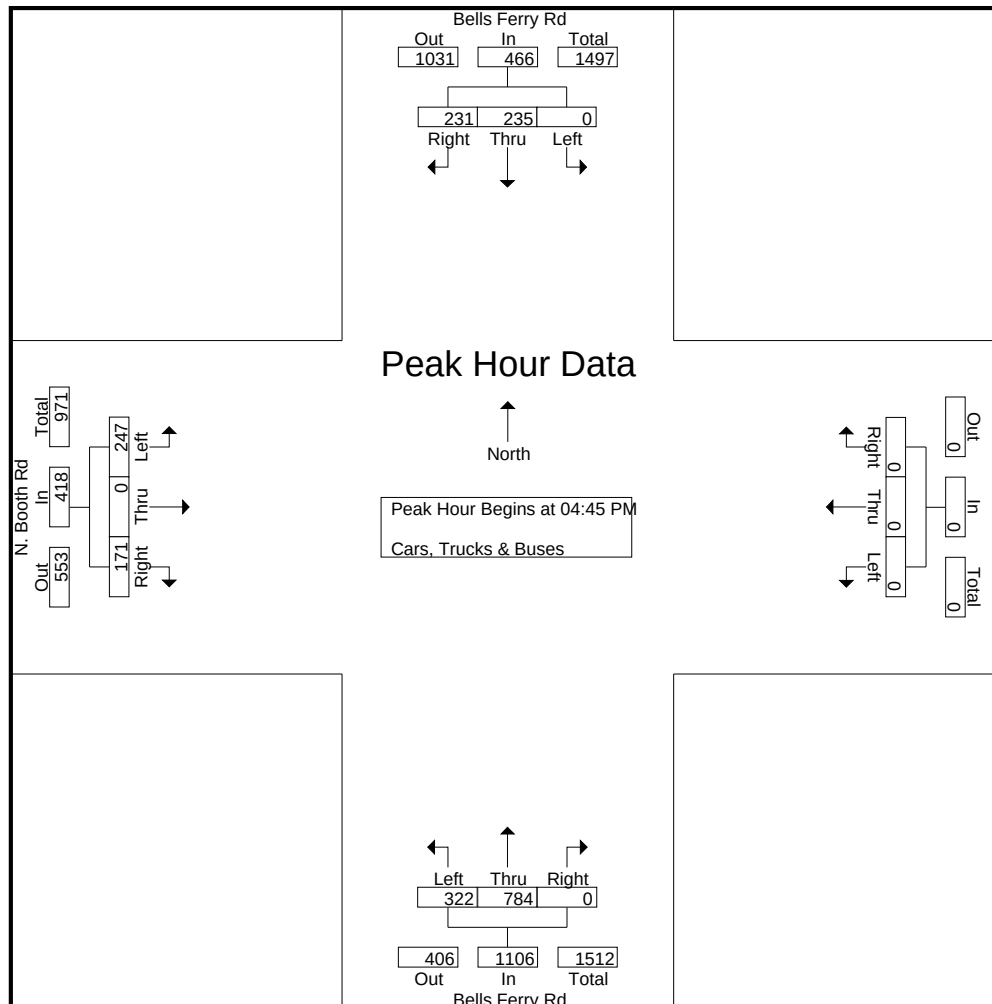
File Name : 20180269

Site Code : 20180269

Start Date : 11/14/2018

Page No : 3

	Bells Ferry Rd Northbound				Bells Ferry Rd Southbound				N. Booth Rd Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	76	192	0	268	0	59	45	104	58	0	39	97	0	0	0	0	469
05:00 PM	88	191	0	279	0	58	52	110	76	0	42	118	0	0	0	0	507
05:15 PM	82	212	0	294	0	66	75	141	59	0	41	100	0	0	0	0	535
05:30 PM	76	189	0	265	0	52	59	111	54	0	49	103	0	0	0	0	479
Total Volume	322	784	0	1106	0	235	231	466	247	0	171	418	0	0	0	0	1990
% App. Total	29.1	70.9	0		0	50.4	49.6		59.1	0	40.9		0	0	0		
PHF	.915	.925	.000	.940	.000	.890	.770	.826	.813	.000	.872	.886	.000	.000	.000	.000	.930



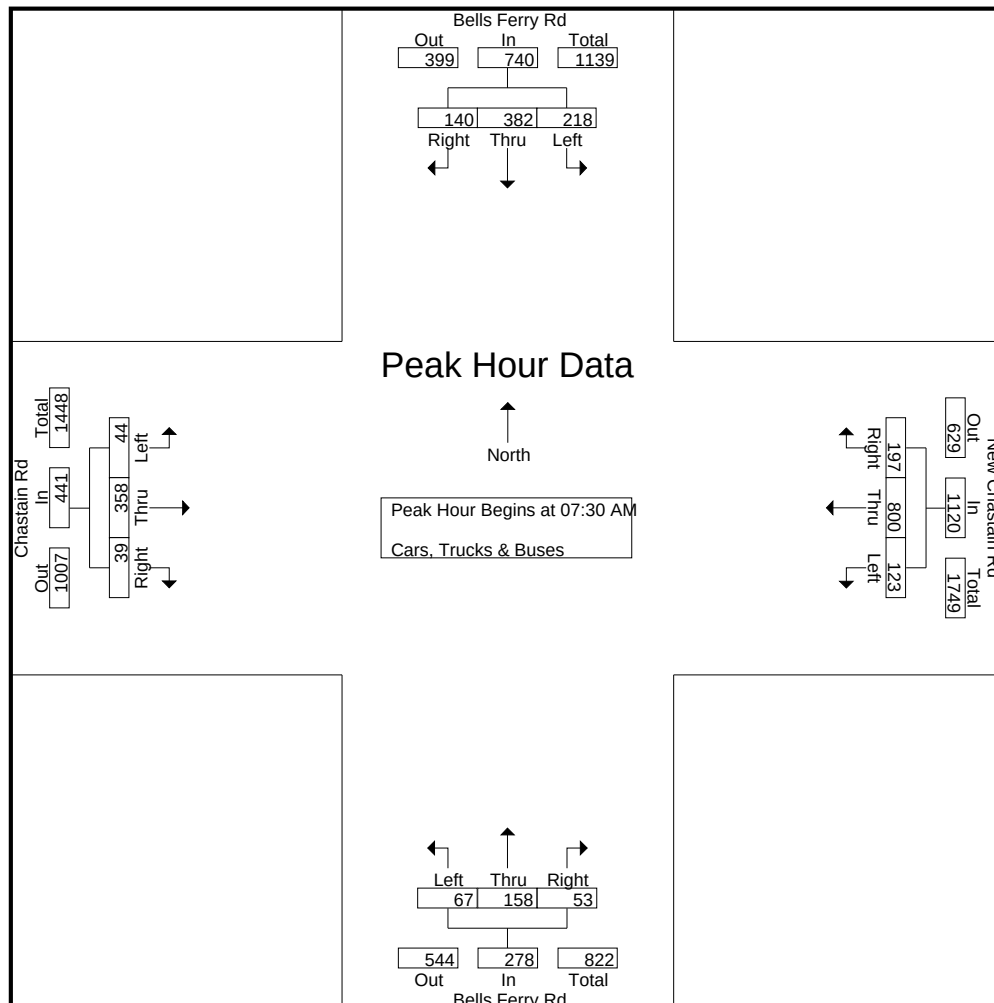
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TMC Data
Bells Ferry Rd @
Chastain Rd / New Chastain Rd
7-9 am | 4-6 pm

File Name : 20180265
Site Code : 20180265
Start Date : 11/14/2018
Page No : 2

	Bells Ferry Rd Northbound				Bells Ferry Rd Southbound				Chastain Rd Eastbound				New Chastain Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	19	35	19	73	78	114	41	233	9	92	9	110	27	177	64	268	684
07:45 AM	24	33	12	69	58	111	46	215	14	96	11	121	34	229	32	295	700
08:00 AM	9	51	8	68	48	78	22	148	10	95	11	116	28	209	48	285	617
08:15 AM	15	39	14	68	34	79	31	144	11	75	8	94	34	185	53	272	578
Total Volume	67	158	53	278	218	382	140	740	44	358	39	441	123	800	197	1120	2579
% App. Total	24.1	56.8	19.1		29.5	51.6	18.9		10	81.2	8.8		11	71.4	17.6		
PHF	.698	.775	.697	.952	.699	.838	.761	.794	.786	.932	.886	.911	.904	.873	.770	.949	.921



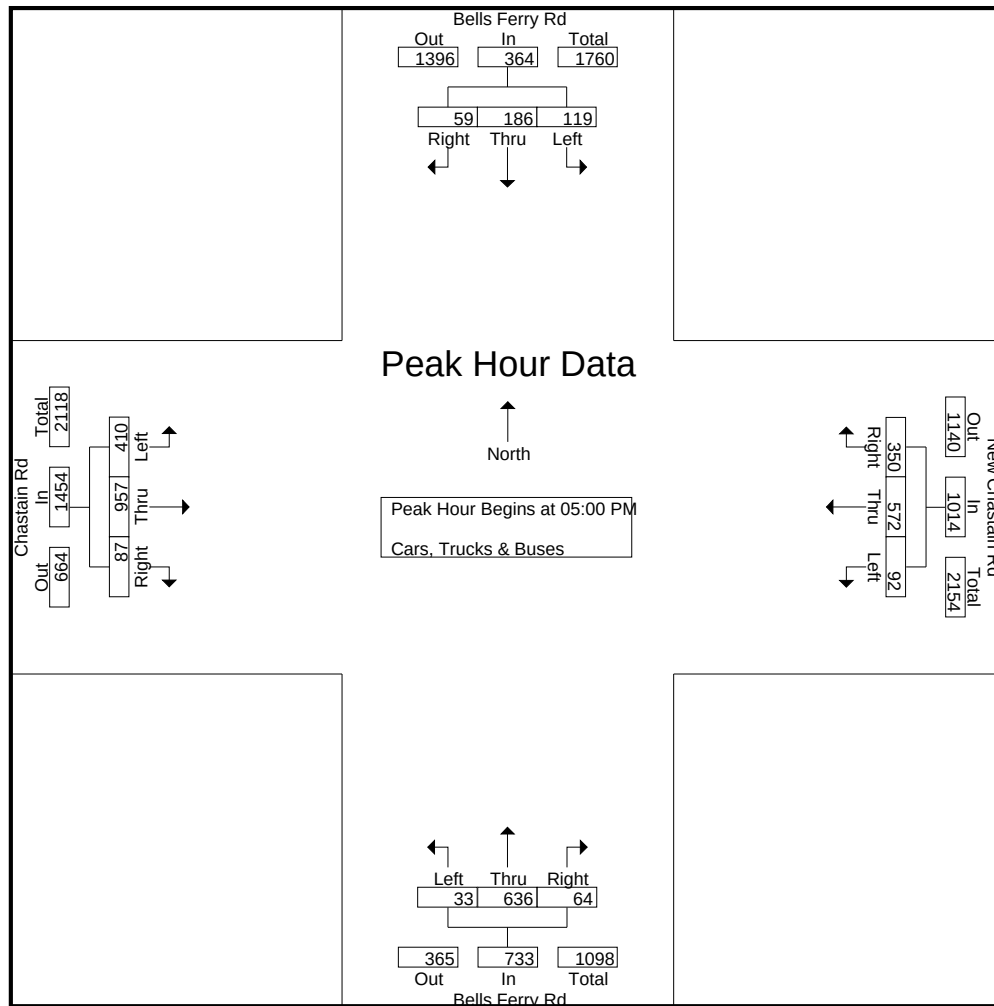
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TMC Data
Bells Ferry Rd @
Chastain Rd / New Chastain Rd
7-9 am | 4-6 pm

File Name : 20180265
Site Code : 20180265
Start Date : 11/14/2018
Page No : 3

	Bells Ferry Rd Northbound				Bells Ferry Rd Southbound				Chastain Rd Eastbound				New Chastain Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	7	178	16	201	29	51	17	97	93	231	17	341	21	125	86	232	871
05:15 PM	7	162	14	183	29	51	17	97	109	259	34	402	29	148	93	270	952
05:30 PM	9	171	12	192	27	43	4	74	98	265	20	383	20	157	84	261	910
05:45 PM	10	125	22	157	34	41	21	96	110	202	16	328	22	142	87	251	832
Total Volume	33	636	64	733	119	186	59	364	410	957	87	1454	92	572	350	1014	3565
% App. Total	4.5	86.8	8.7		32.7	51.1	16.2		28.2	65.8	6		9.1	56.4	34.5		
PHF	.825	.893	.727	.912	.875	.912	.702	.938	.932	.903	.640	.904	.793	.911	.941	.939	.936



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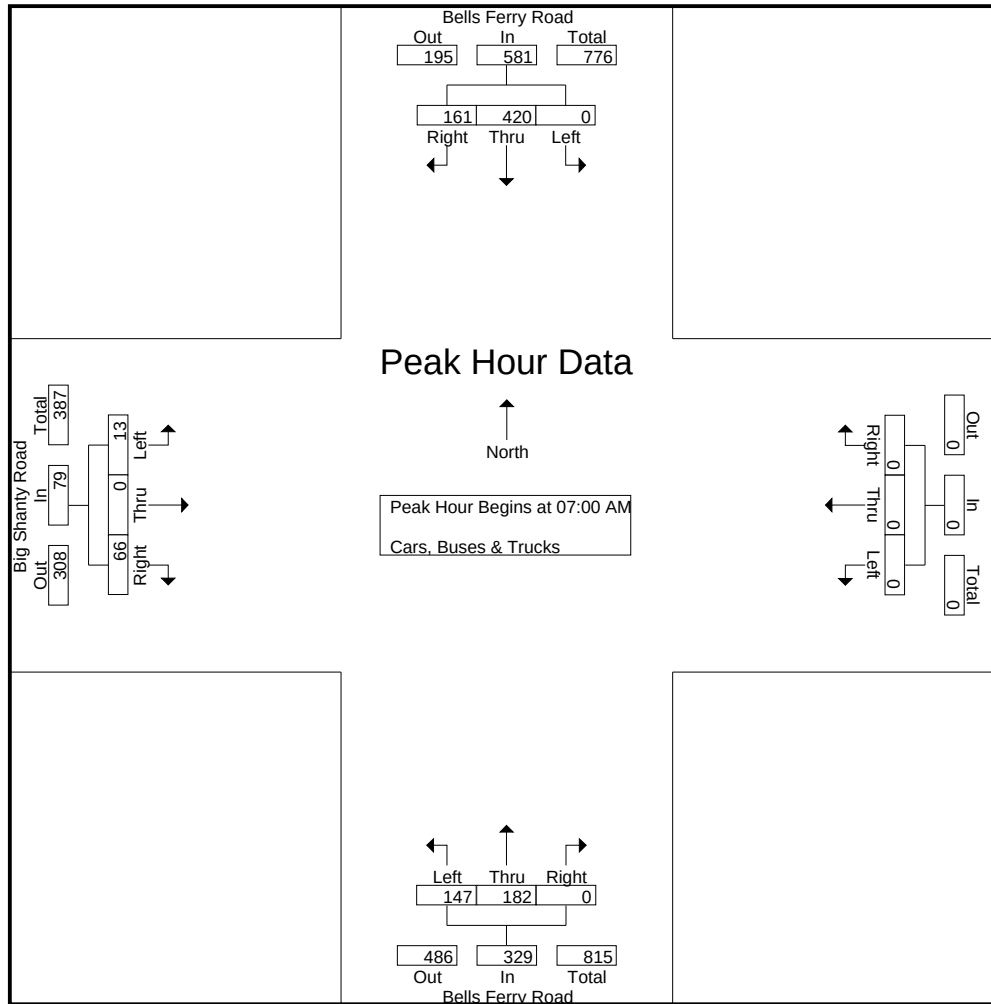
File Name : 20180266

Site Code : 20180266

Start Date : 11/8/2018

Page No : 2

	Bells Ferry Road Northbound				Bells Ferry Road Southbound				Big Shanty Road Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	35	43	0	78	0	102	28	130	2	0	15	17	0	0	0	0	225
07:15 AM	33	46	0	79	0	106	30	136	3	0	17	20	0	0	0	0	235
07:30 AM	32	57	0	89	0	114	49	163	4	0	13	17	0	0	0	0	269
07:45 AM	47	36	0	83	0	98	54	152	4	0	21	25	0	0	0	0	260
Total Volume	147	182	0	329	0	420	161	581	13	0	66	79	0	0	0	0	989
% App. Total	44.7	55.3	0		0	72.3	27.7		16.5	0	83.5		0	0	0		
PHF	.782	.798	.000	.924	.000	.921	.745	.891	.813	.000	.786	.790	.000	.000	.000	.000	.919



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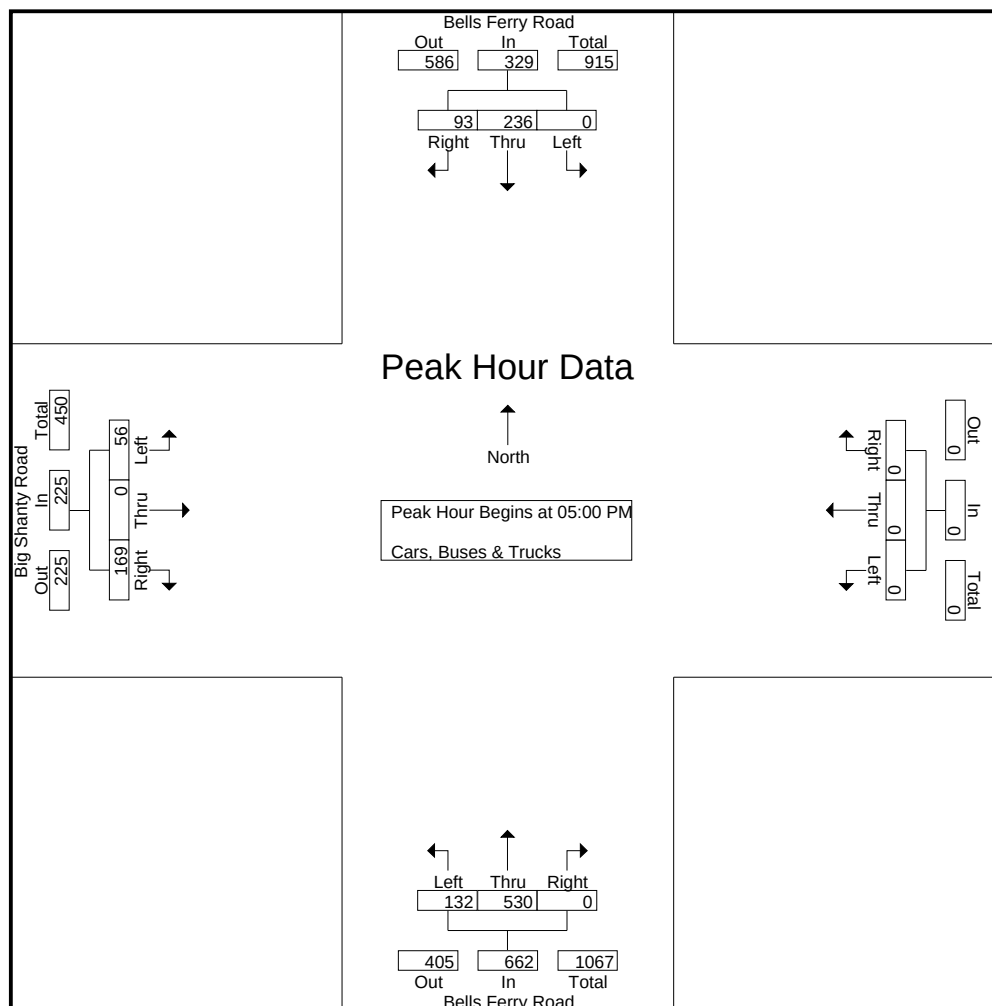
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Site Code : 20180266

Start Date : 11/8/2018

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	Bells Ferry Road Northbound				Bells Ferry Road Southbound				Big Shanty Road Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	28	143	0	171	0	48	30	78	8	0	61	69	0	0	0	0	318
05:15 PM	27	121	0	148	0	74	18	92	24	0	36	60	0	0	0	0	300
05:30 PM	39	131	0	170	0	62	28	90	10	0	35	45	0	0	0	0	305
05:45 PM	38	135	0	173	0	52	17	69	14	0	37	51	0	0	0	0	293
Total Volume	132	530	0	662	0	236	93	329	56	0	169	225	0	0	0	0	1216
% App. Total	19.9	80.1	0		0	71.7	28.3		24.9	0	75.1		0	0	0		
PHF	.846	.927	.000	.957	.000	.797	.775	.894	.583	.000	.693	.815	.000	.000	.000	.000	.956



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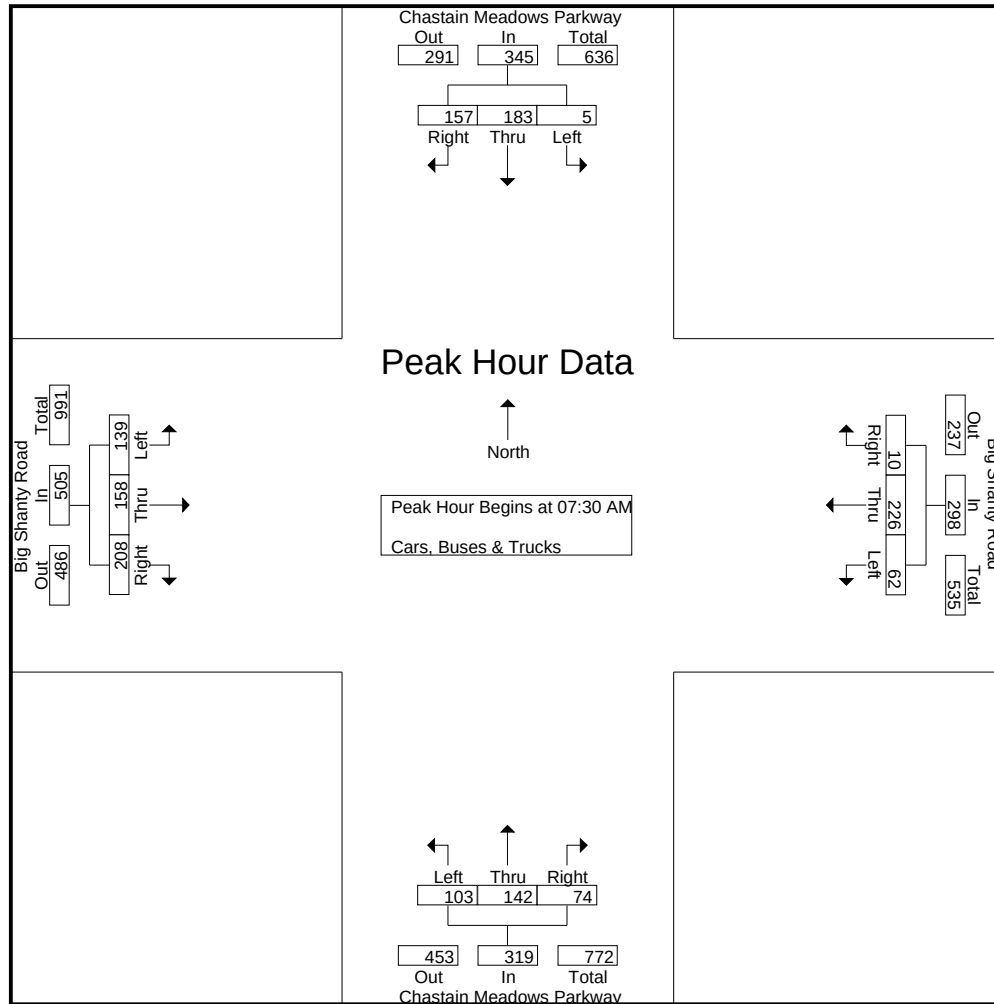
File Name : 20180267

Site Code : 20180267

Start Date : 11/8/2018

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	Chastain Meadows Parkway Northbound				Chastain Meadows Parkway Southbound				Big Shanty Road Eastbound				Big Shanty Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	24	26	8	58	1	44	37	82	40	37	62	139	14	55	3	72	351
07:45 AM	35	47	29	111	2	51	51	104	35	56	56	147	26	66	4	96	458
08:00 AM	17	39	21	77	0	43	43	86	32	32	44	108	10	50	1	61	332
08:15 AM	27	30	16	73	2	45	26	73	32	33	46	111	12	55	2	69	326
Total Volume	103	142	74	319	5	183	157	345	139	158	208	505	62	226	10	298	1467
% App. Total	32.3	44.5	23.2		1.4	53	45.5		27.5	31.3	41.2		20.8	75.8	3.4		
PHF	.736	.755	.638	.718	.625	.897	.770	.829	.869	.705	.839	.859	.596	.856	.625	.776	.801



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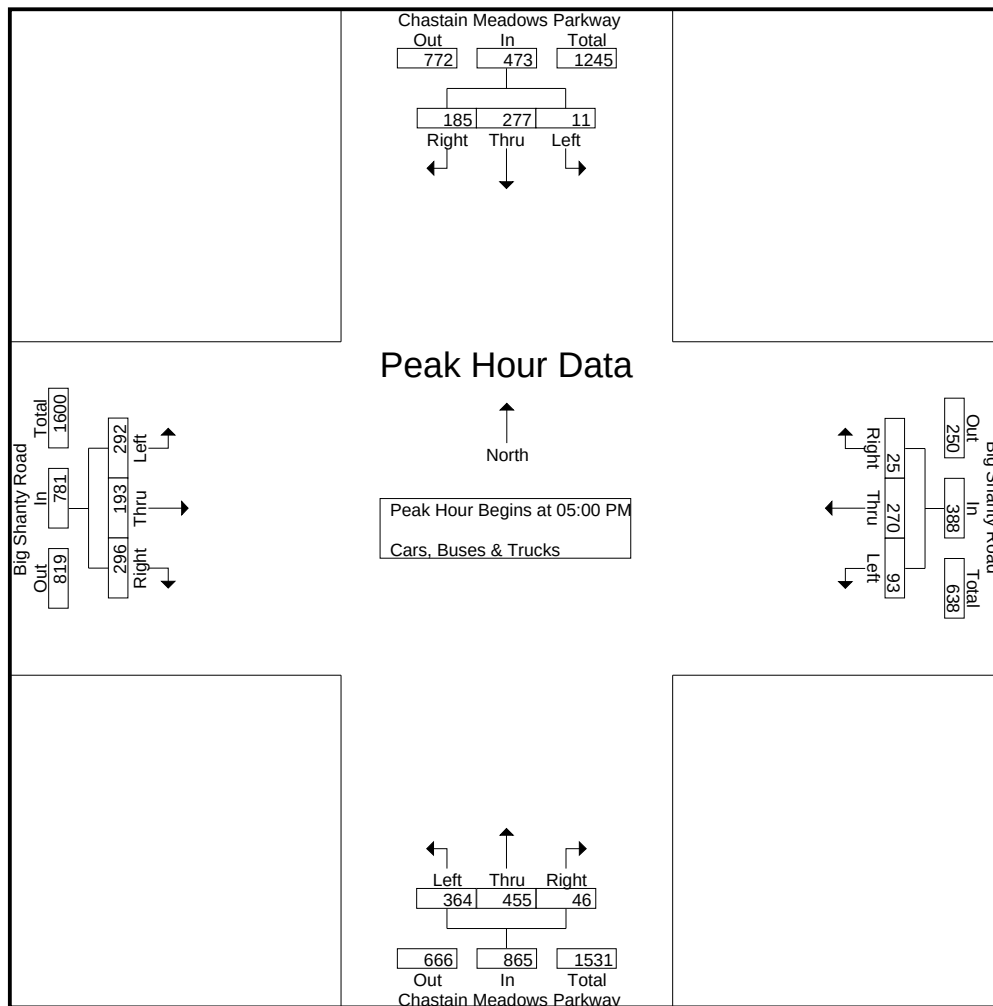
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Site Code : 20180267

Start Date : 11/8/2018

Page No : 3

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Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	93	120	16	229	4	91	61	156	73	62	83	218	29	89	3	121	724
05:15 PM	72	90	9	171	3	57	42	102	101	65	77	243	15	65	6	86	602
05:30 PM	116	125	14	255	3	70	43	116	50	28	72	150	26	51	9	86	607
05:45 PM	83	120	7	210	1	59	39	99	68	38	64	170	23	65	7	95	574
Total Volume	364	455	46	865	11	277	185	473	292	193	296	781	93	270	25	388	2507
% App. Total	42.1	52.6	5.3		2.3	58.6	39.1		37.4	24.7	37.9		24	69.6	6.4		
PHF	.784	.910	.719	.848	.688	.761	.758	.758	.723	.742	.892	.803	.802	.758	.694	.802	.866



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TMC Data

Big Shanty Rd @ George Busbee Pkwy

7-9 am | 4-6 pm

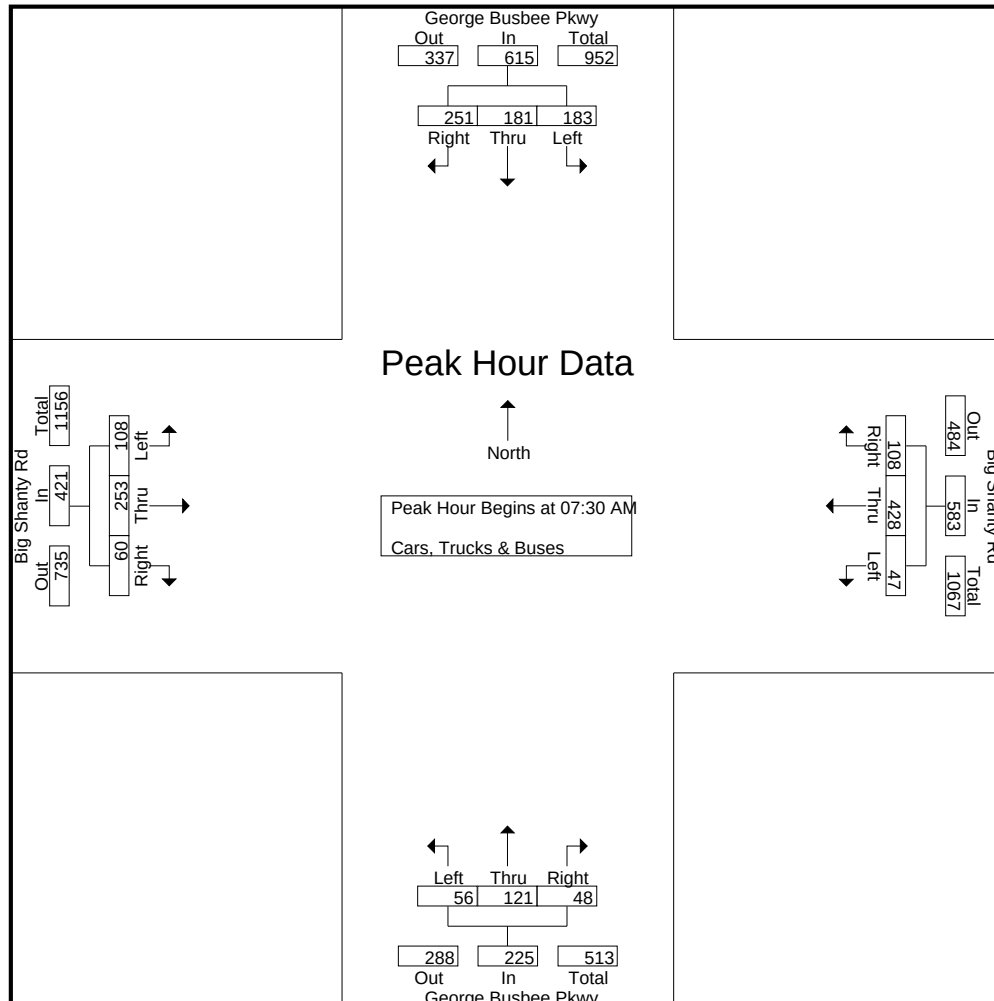
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Site Code : 20180268

Start Date : 11/14/2018

Page No : 2

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Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	9	28	8	45	49	52	68	169	28	88	12	128	15	104	34	153	495
07:45 AM	24	35	14	73	51	51	74	176	26	63	19	108	14	146	27	187	544
08:00 AM	8	29	15	52	38	36	62	136	26	50	17	93	8	97	21	126	407
08:15 AM	15	29	11	55	45	42	47	134	28	52	12	92	10	81	26	117	398
Total Volume	56	121	48	225	183	181	251	615	108	253	60	421	47	428	108	583	1844
% App. Total	24.9	53.8	21.3		29.8	29.4	40.8		25.7	60.1	14.3		8.1	73.4	18.5		
PHF	.583	.864	.800	.771	.897	.870	.848	.874	.964	.719	.789	.822	.783	.733	.794	.779	.847



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TMC Data

Big Shanty Rd @ George Busbee Pkwy

7-9 am | 4-6 pm

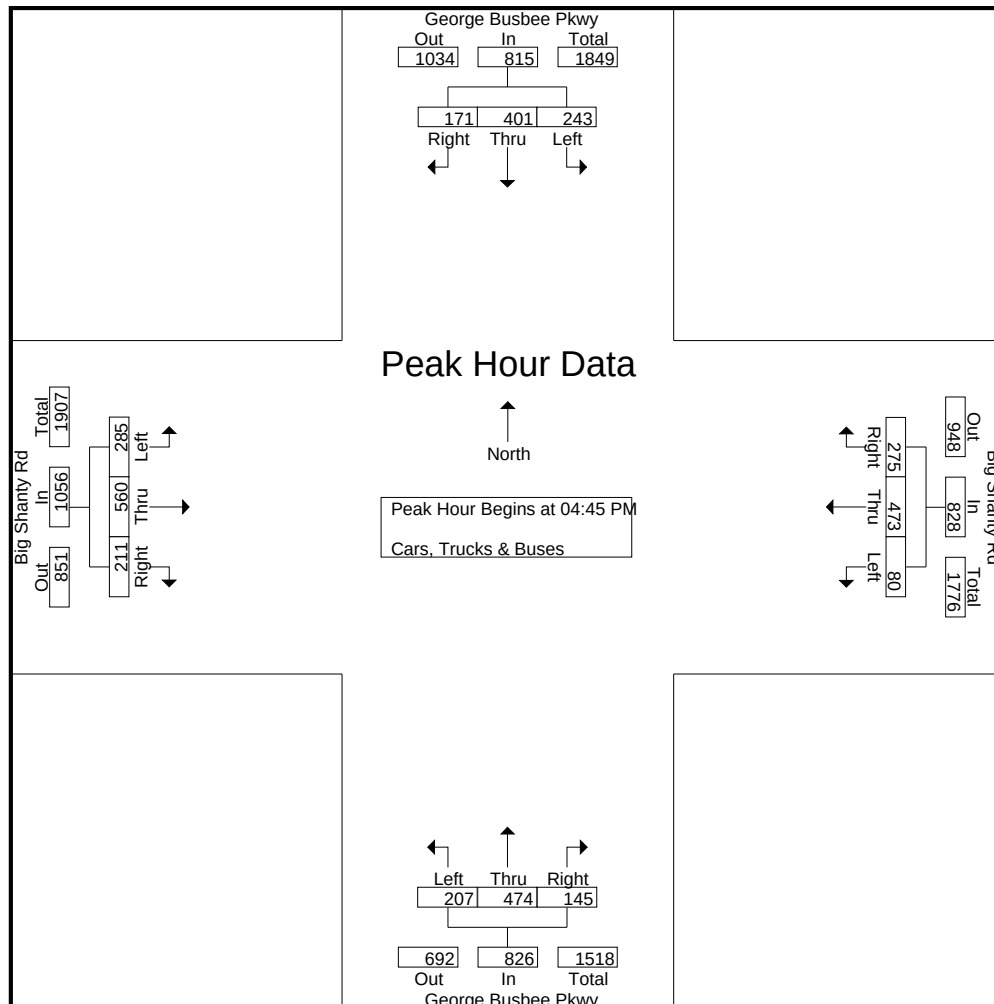
File Name : 20180268

Site Code : 20180268

Start Date : 11/14/2018

Page No : 3

	George Busbee Pkwy Northbound				George Busbee Pkwy Southbound				Big Shanty Rd Eastbound				Big Shanty Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	54	105	39	198	57	93	47	197	80	139	58	277	19	109	53	181	853
05:00 PM	57	116	41	214	72	120	54	246	73	171	53	297	26	128	71	225	982
05:15 PM	51	120	33	204	62	110	33	205	66	151	60	277	18	118	70	206	892
05:30 PM	45	133	32	210	52	78	37	167	66	99	40	205	17	118	81	216	798
Total Volume	207	474	145	826	243	401	171	815	285	560	211	1056	80	473	275	828	3525
% App. Total	25.1	57.4	17.6		29.8	49.2	21		27	53	20		9.7	57.1	33.2		
PHF	.908	.891	.884	.965	.844	.835	.792	.828	.891	.819	.879	.889	.769	.924	.849	.920	.897



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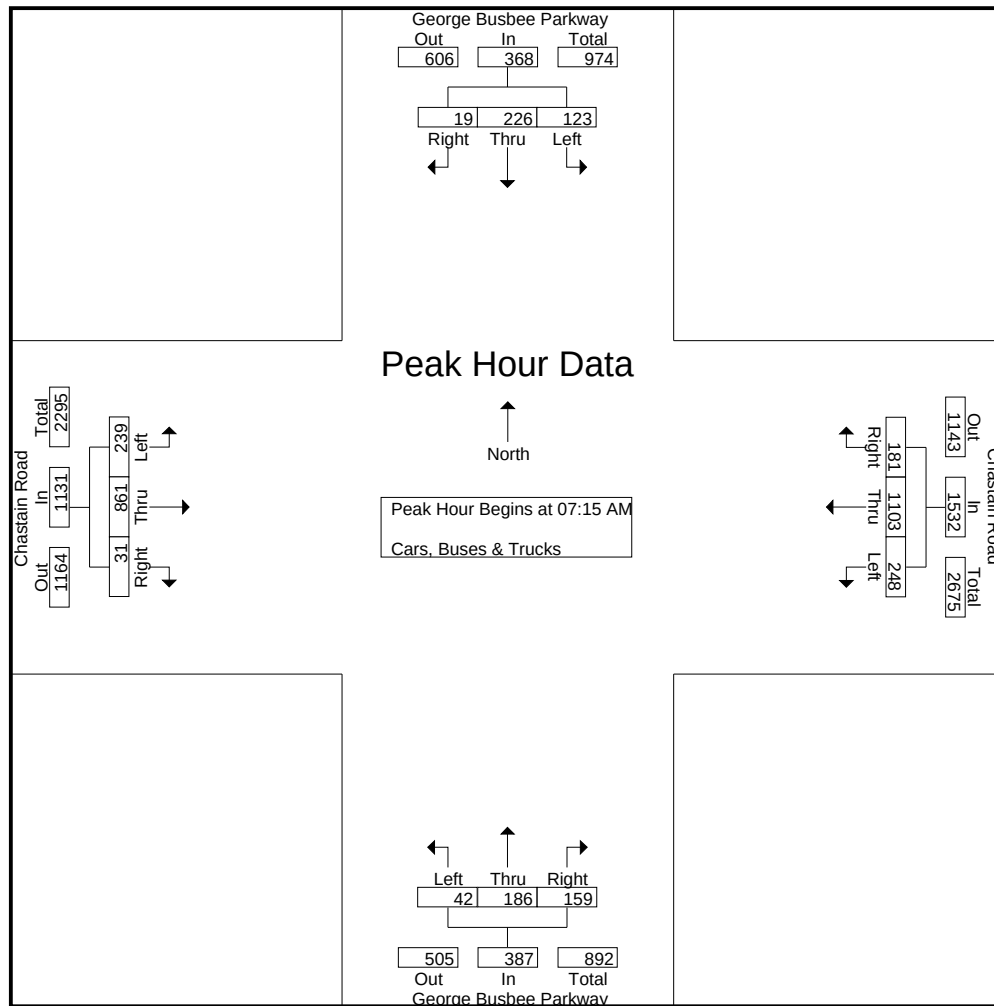
File Name : 20180259

Site Code : 20180259

Start Date : 11/8/2018

Page No : 2

	George Busbee Parkway Northbound				George Busbee Parkway Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	12	39	35	86	30	69	6	105	57	190	6	253	56	278	35	369	813
07:30 AM	11	43	47	101	27	61	4	92	63	216	10	289	63	300	51	414	896
07:45 AM	13	55	42	110	32	53	8	93	54	231	6	291	61	273	60	394	888
08:00 AM	6	49	35	90	34	43	1	78	65	224	9	298	68	252	35	355	821
Total Volume	42	186	159	387	123	226	19	368	239	861	31	1131	248	1103	181	1532	3418
% App. Total	10.9	48.1	41.1		33.4	61.4	5.2		21.1	76.1	2.7		16.2	72	11.8		
PHF	.808	.845	.846	.880	.904	.819	.594	.876	.919	.932	.775	.949	.912	.919	.754	.925	.954



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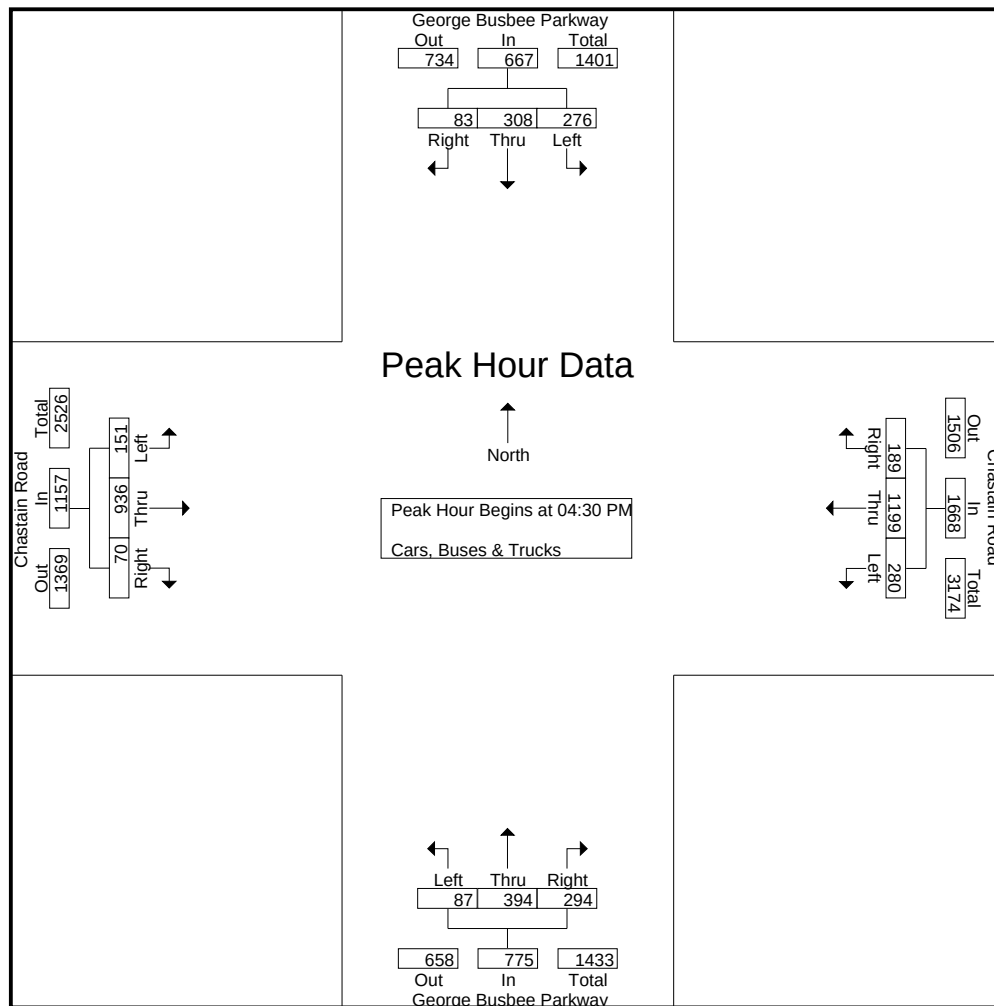
File Name : 20180259

Site Code : 20180259

Start Date : 11/8/2018

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	George Busbee Parkway Northbound				George Busbee Parkway Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	25	78	79	182	68	68	18	154	32	254	21	307	71	318	58	447	1090
04:45 PM	21	102	62	185	61	84	19	164	50	239	14	303	65	283	39	387	1039
05:00 PM	17	108	73	198	84	84	24	192	35	213	18	266	80	277	51	408	1064
05:15 PM	24	106	80	210	63	72	22	157	34	230	17	281	64	321	41	426	1074
Total Volume	87	394	294	775	276	308	83	667	151	936	70	1157	280	1199	189	1668	4267
% App. Total	11.2	50.8	37.9		41.4	46.2	12.4		13.1	80.9	6.1		16.8	71.9	11.3		
PHF	.870	.912	.919	.923	.821	.917	.865	.868	.755	.921	.833	.942	.875	.934	.815	.933	.979



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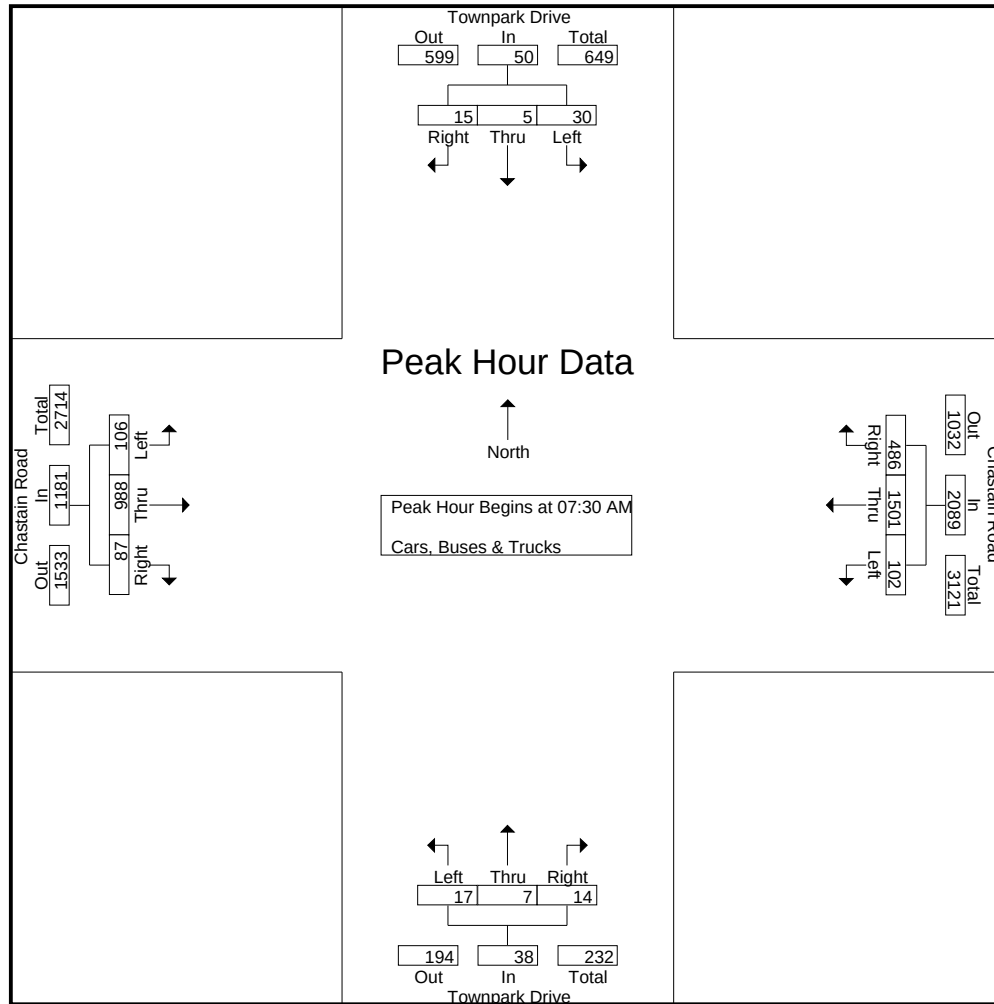
File Name : 20180260

Site Code : 20180260

Start Date : 11/8/2018

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	Townpark Drive Northbound				Townpark Drive Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	1	2	8	9	1	4	14	21	250	19	290	19	414	95	528	840
07:45 AM	4	2	4	10	8	1	6	15	23	259	23	305	25	394	115	534	864
08:00 AM	3	3	3	9	6	2	2	10	36	233	24	293	32	355	141	528	840
08:15 AM	5	1	5	11	7	1	3	11	26	246	21	293	26	338	135	499	814
Total Volume	17	7	14	38	30	5	15	50	106	988	87	1181	102	1501	486	2089	3358
% App. Total	44.7	18.4	36.8		60	10	30		9	83.7	7.4		4.9	71.9	23.3		
PHF	.850	.583	.700	.864	.833	.625	.625	.833	.736	.954	.906	.968	.797	.906	.862	.978	.972



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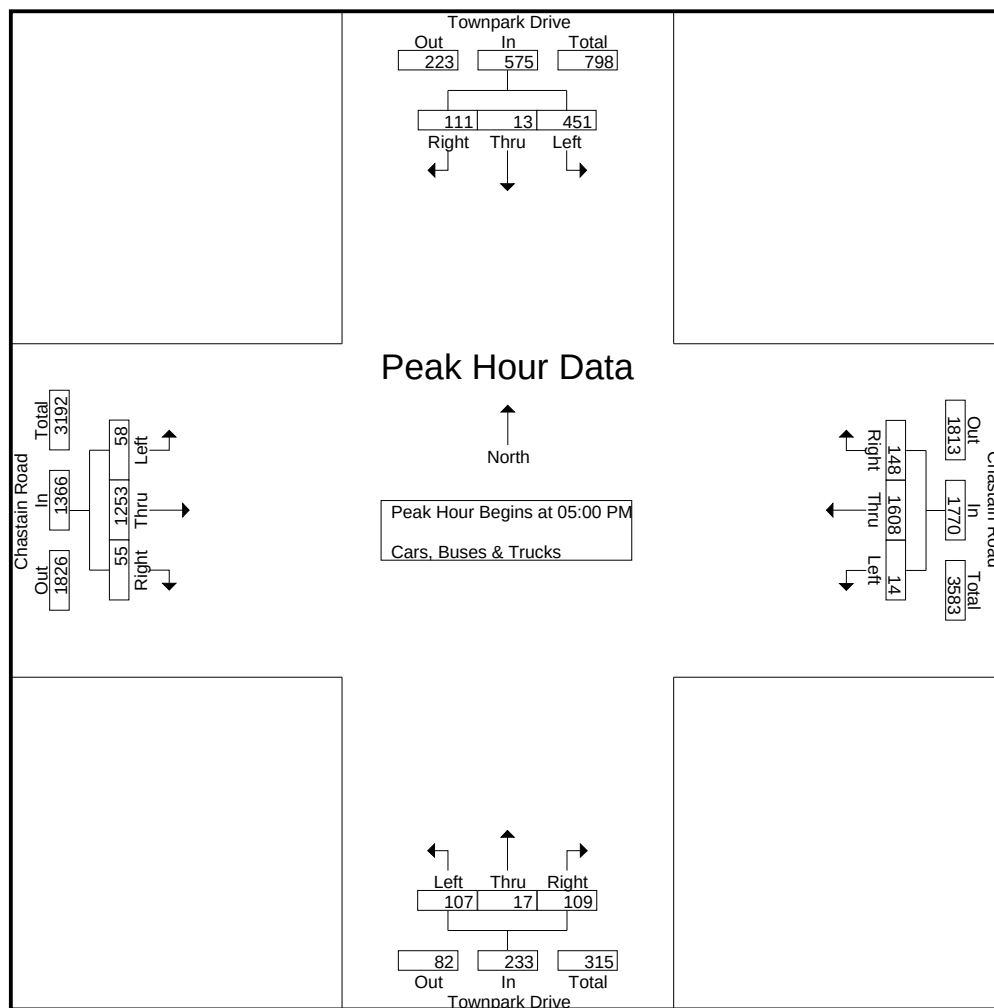
File Name : 20180260

Site Code : 20180260

Start Date : 11/8/2018

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	Townpark Drive Northbound				Townpark Drive Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	31	5	27	63	100	4	25	129	8	351	10	369	1	408	38	447	1008
05:15 PM	16	1	25	42	74	2	20	96	15	341	18	374	3	426	36	465	977
05:30 PM	31	9	31	71	147	4	36	187	19	329	13	361	4	382	34	420	1039
05:45 PM	29	2	26	57	130	3	30	163	16	232	14	262	6	392	40	438	920
Total Volume	107	17	109	233	451	13	111	575	58	1253	55	1366	14	1608	148	1770	3944
% App. Total	45.9	7.3	46.8		78.4	2.3	19.3		4.2	91.7	4		0.8	90.8	8.4		
PHF	.863	.472	.879	.820	.767	.813	.771	.769	.763	.892	.764	.913	.583	.944	.925	.952	.949



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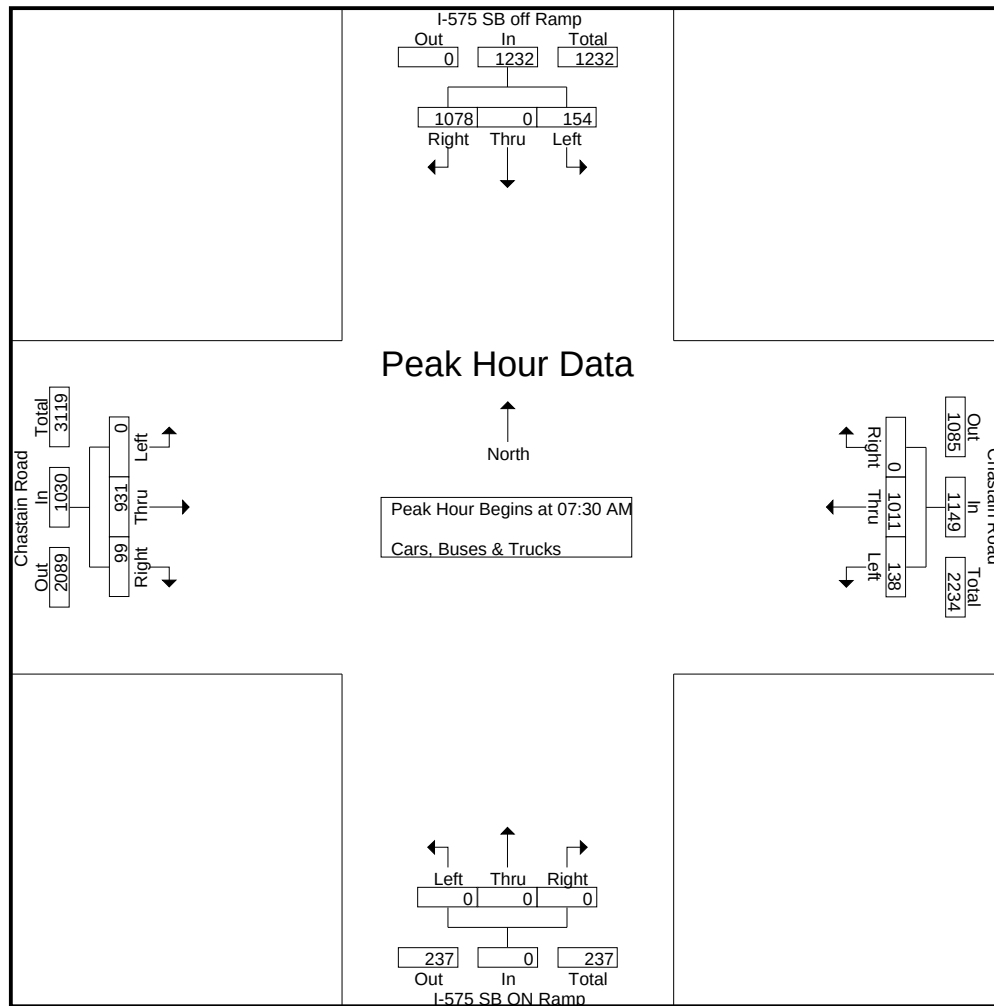
File Name : 20180261

Site Code : 20180261

Start Date : 11/8/2018

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	I-575 SB ON Ramp Northbound				I-575 SB off Ramp Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	35	0	280	315	0	236	22	258	33	248	0	281	854
07:45 AM	0	0	0	0	42	0	282	324	0	244	27	271	40	252	0	292	887
08:00 AM	0	0	0	0	39	0	270	309	0	217	25	242	35	258	0	293	844
08:15 AM	0	0	0	0	38	0	246	284	0	234	25	259	30	253	0	283	826
Total Volume	0	0	0	0	154	0	1078	1232	0	931	99	1030	138	1011	0	1149	3411
% App. Total	0	0	0	0	12.5	0	87.5		0	90.4	9.6		12	88	0		
PHF	.000	.000	.000	.000	.917	.000	.956	.951	.000	.954	.917	.950	.863	.980	.000	.980	.961



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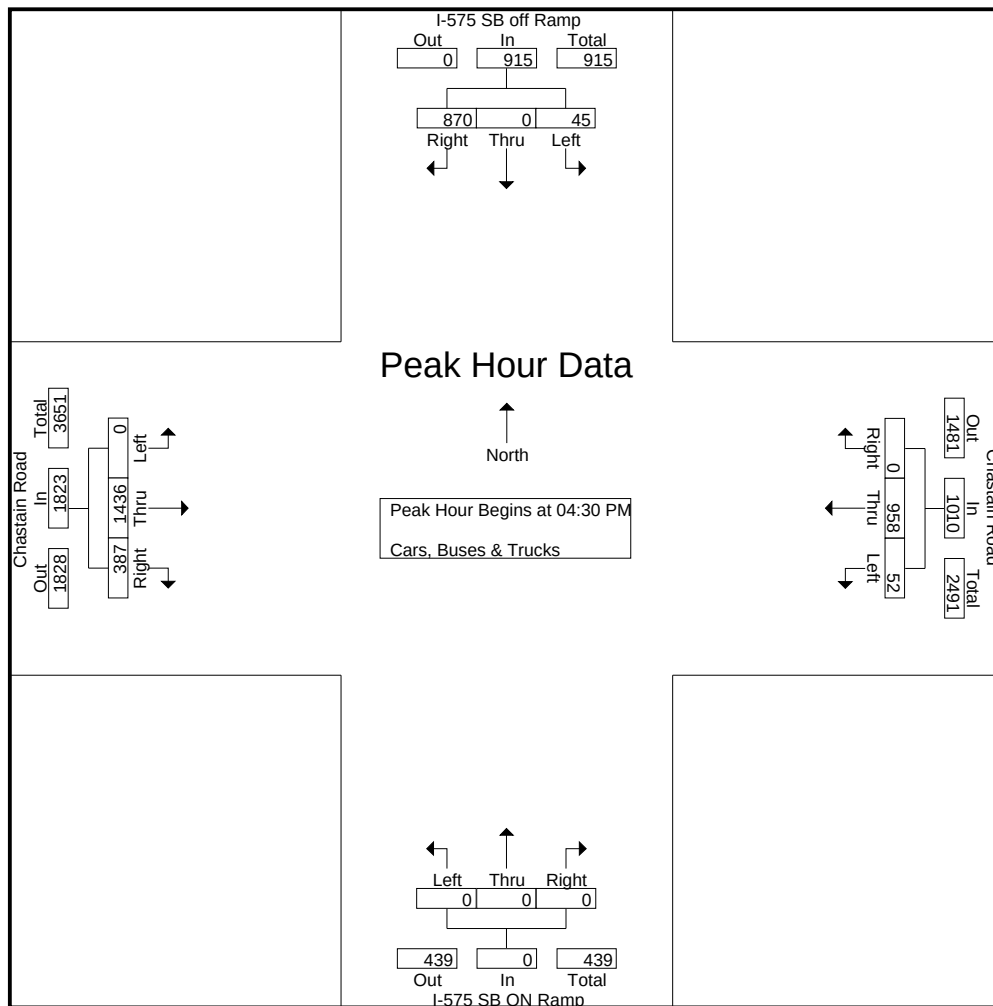
File Name : 20180261

Site Code : 20180261

Start Date : 11/8/2018

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	I-575 SB ON Ramp Northbound				I-575 SB off Ramp Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	15	0	234	249	0	389	75	464	11	264	0	275	988
04:45 PM	0	0	0	0	10	0	200	210	0	345	96	441	12	218	0	230	881
05:00 PM	0	0	0	0	11	0	215	226	0	367	111	478	14	232	0	246	950
05:15 PM	0	0	0	0	9	0	221	230	0	335	105	440	15	244	0	259	929
Total Volume	0	0	0	0	45	0	870	915	0	1436	387	1823	52	958	0	1010	3748
% App. Total	0	0	0		4.9	0	95.1		0	78.8	21.2		5.1	94.9	0		
PHF	.000	.000	.000	.000	.750	.000	.929	.919	.000	.923	.872	.953	.867	.907	.000	.918	.948



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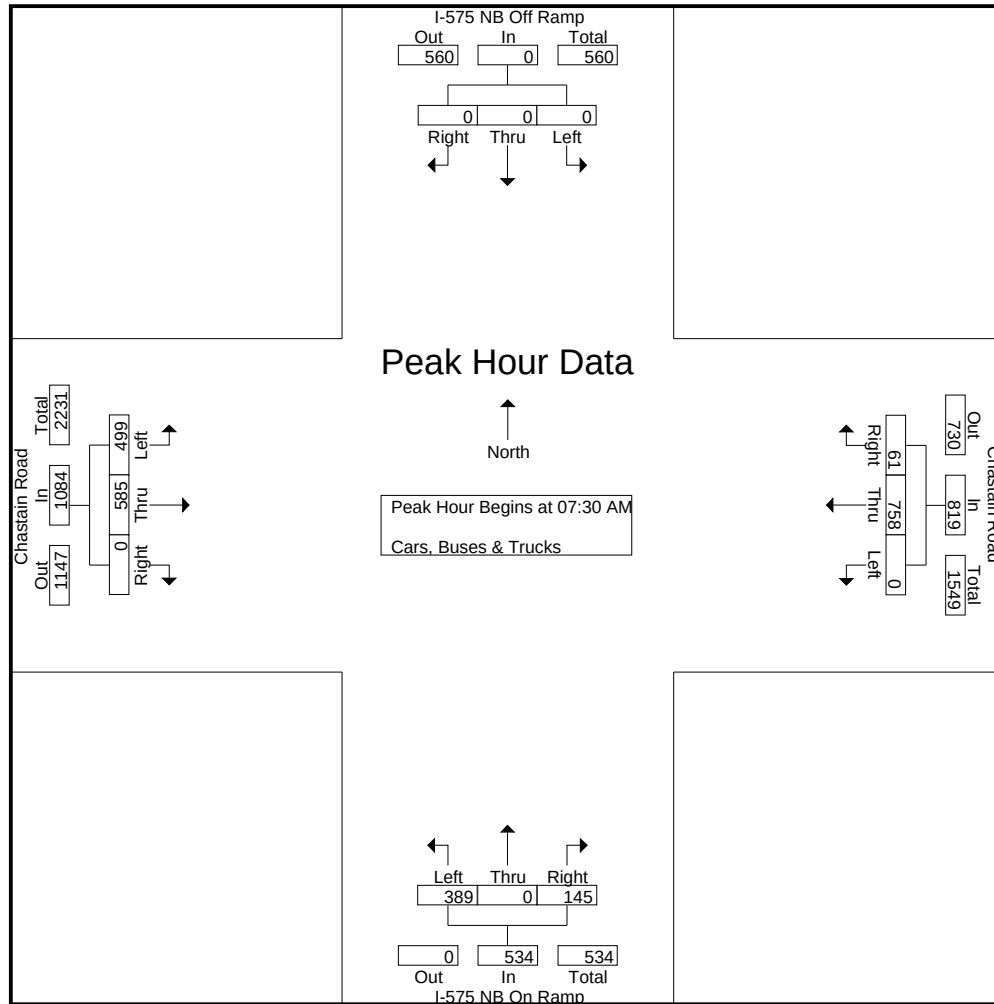
File Name : 20180262

Site Code : 20180262

Start Date : 11/8/2018

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	I-575 NB On Ramp Northbound				I-575 NB Off Ramp Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	94	0	26	120	0	0	0	0	129	138	0	267	0	186	13	199	586
07:45 AM	109	0	39	148	0	0	0	0	122	164	0	286	0	182	19	201	635
08:00 AM	100	0	34	134	0	0	0	0	116	143	0	259	0	193	15	208	601
08:15 AM	86	0	46	132	0	0	0	0	132	140	0	272	0	197	14	211	615
Total Volume	389	0	145	534	0	0	0	0	499	585	0	1084	0	758	61	819	2437
% App. Total	72.8	0	27.2		0	0	0		46	54	0		0	92.6	7.4		
PHF	.892	.000	.788	.902	.000	.000	.000	.000	.945	.892	.000	.948	.000	.962	.803	.970	.959



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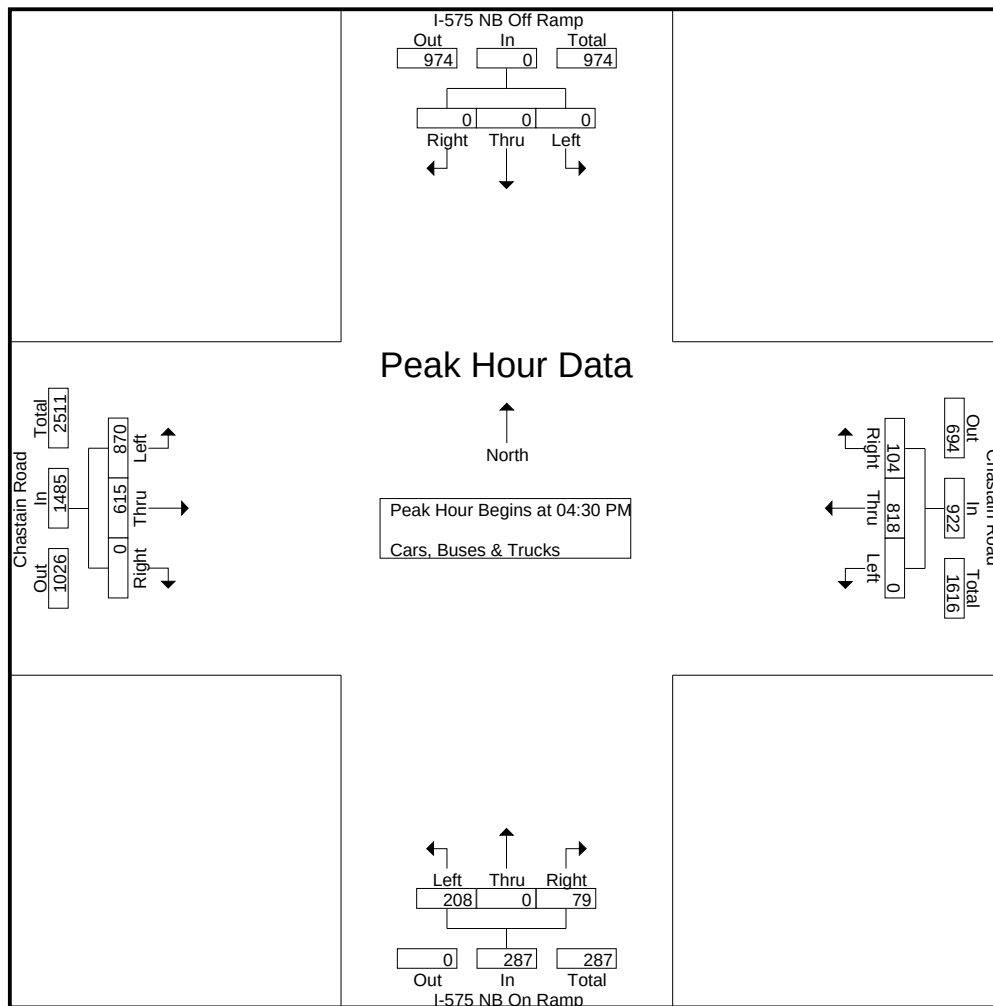
File Name : 20180262

Site Code : 20180262

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	I-575 NB On Ramp Northbound				I-575 NB Off Ramp Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	56	0	19	75	0	0	0	0	226	177	0	403	0	217	28	245	723
04:45 PM	46	0	20	66	0	0	0	0	215	145	0	360	0	202	28	230	656
05:00 PM	51	0	18	69	0	0	0	0	221	157	0	378	0	195	25	220	667
05:15 PM	55	0	22	77	0	0	0	0	208	136	0	344	0	204	23	227	648
Total Volume	208	0	79	287	0	0	0	0	870	615	0	1485	0	818	104	922	2694
% App. Total	72.5	0	27.5		0	0	0		58.6	41.4	0		0	88.7	11.3		
PHF	.929	.000	.898	.932	.000	.000	.000	.000	.962	.869	.000	.921	.000	.942	.929	.941	.932



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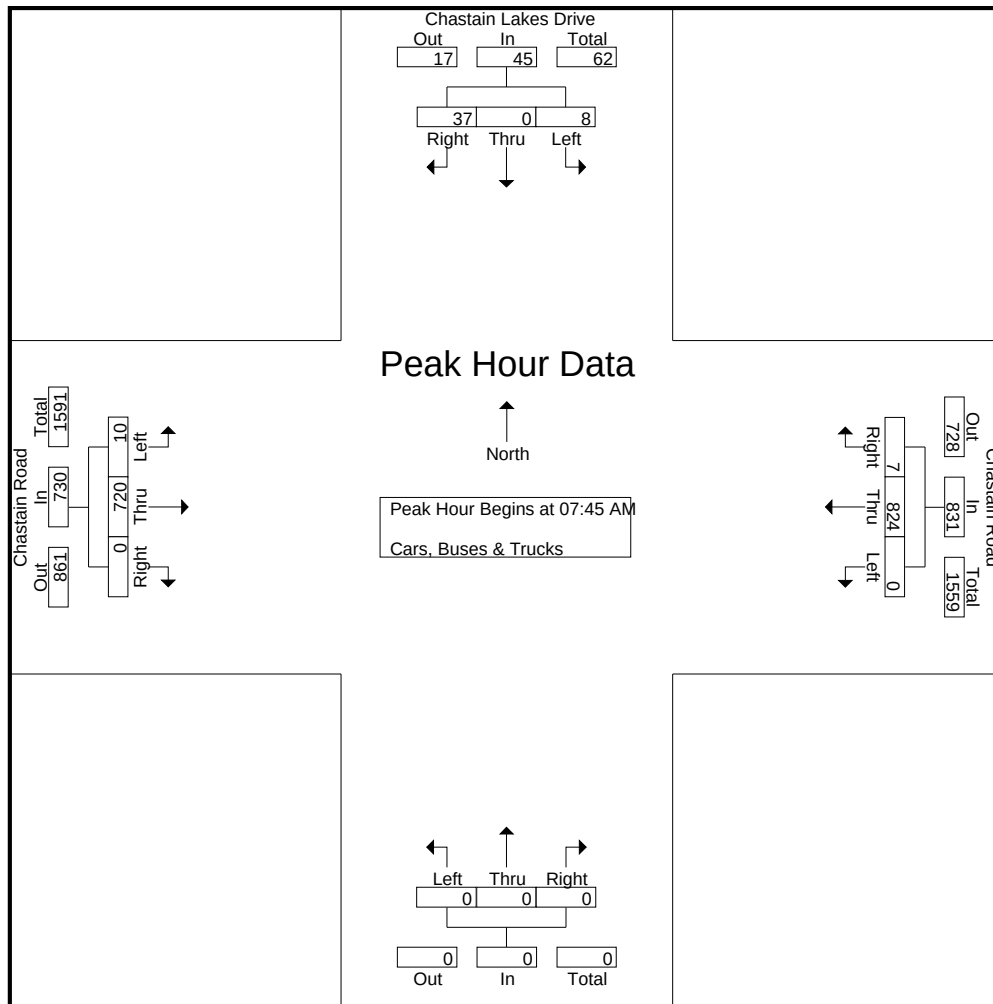
File Name : 20180263

Site Code : 20180263

Start Date : 11/8/2018

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	Northbound				Chastain Lakes Drive Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	4	0	16	20	3	200	0	203	0	237	3	240	463
08:00 AM	0	0	0	0	3	0	5	8	2	175	0	177	0	196	1	197	382
08:15 AM	0	0	0	0	1	0	7	8	2	184	0	186	0	187	2	189	383
08:30 AM	0	0	0	0	0	0	9	9	3	161	0	164	0	204	1	205	378
Total Volume	0	0	0	0	8	0	37	45	10	720	0	730	0	824	7	831	1606
% App. Total	0	0	0		17.8	0	82.2		1.4	98.6	0		0	99.2	0.8		
PHF	.000	.000	.000	.000	.500	.000	.578	.563	.833	.900	.000	.899	.000	.869	.583	.866	.867



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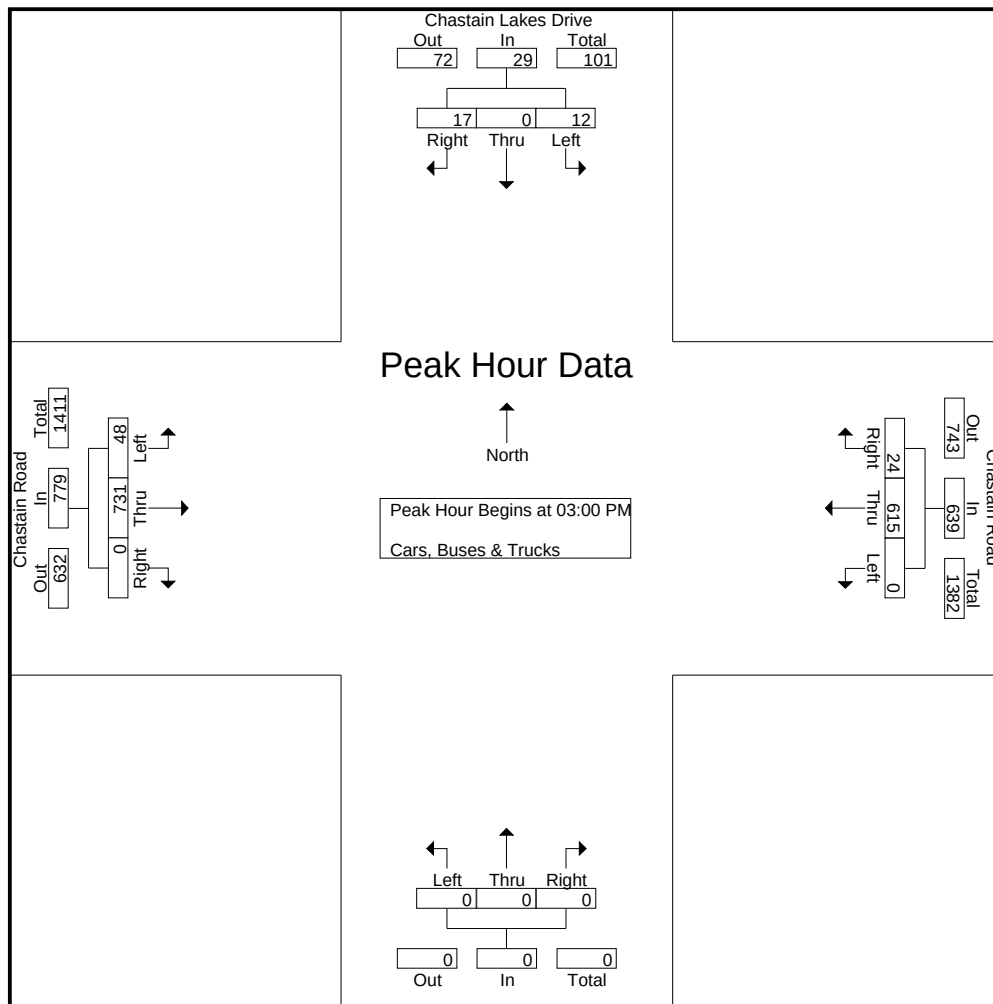
File Name : 20180263

Site Code : 20180263

Start Date : 11/8/2018

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	Northbound				Chastain Lakes Drive Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	0	0	6	6	12	161	0	173	0	167	3	170	349
03:15 PM	0	0	0	0	5	0	4	9	9	211	0	220	0	188	4	192	421
03:30 PM	0	0	0	0	4	0	3	7	15	173	0	188	0	127	9	136	331
03:45 PM	0	0	0	0	3	0	4	7	12	186	0	198	0	133	8	141	346
Total Volume	0	0	0	0	12	0	17	29	48	731	0	779	0	615	24	639	1447
% App. Total	0	0	0		41.4	0	58.6		6.2	93.8	0		0	96.2	3.8		
PHF	.000	.000	.000	.000	.600	.000	.708	.806	.800	.866	.000	.885	.000	.818	.667	.832	.859



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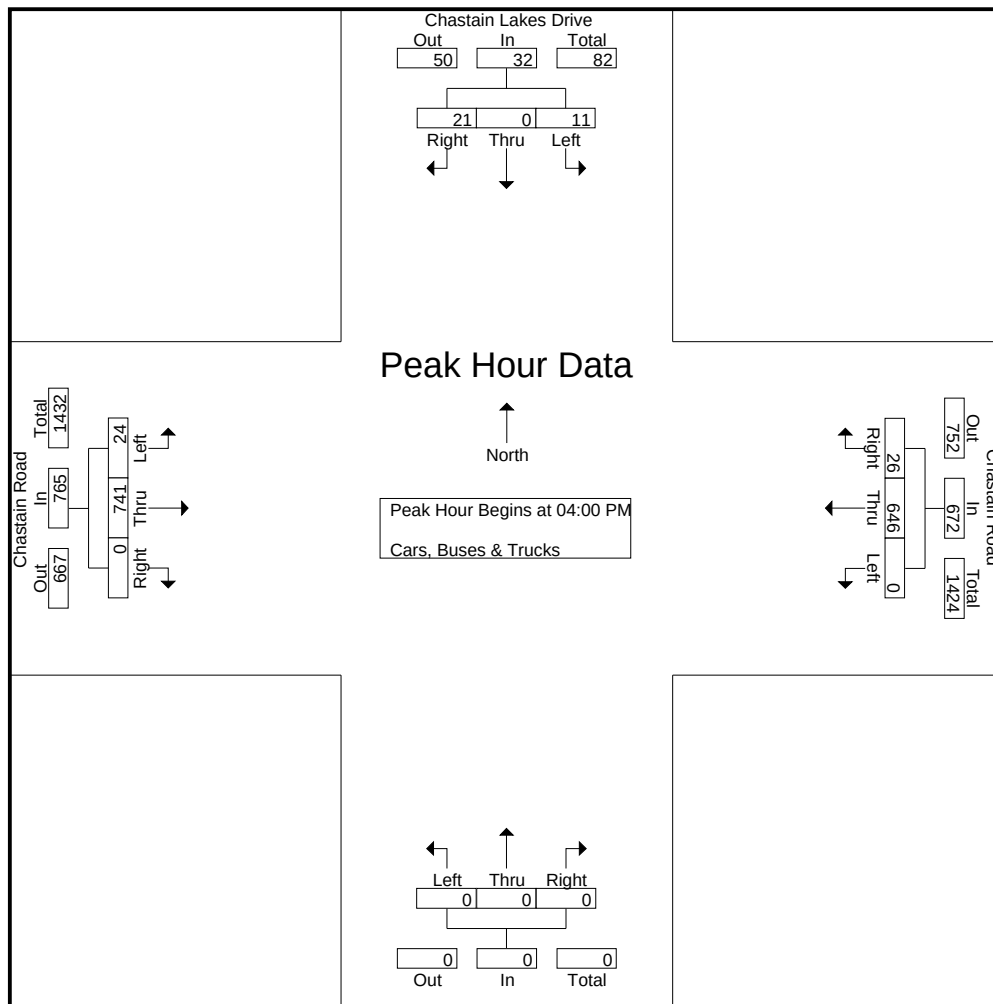
File Name : 20180263

Site Code : 20180263

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	Northbound				Chastain Lakes Drive Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	2	0	6	8	8	202	0	210	0	135	7	142	360
04:15 PM	0	0	0	0	4	0	5	9	6	188	0	194	0	160	5	165	368
04:30 PM	0	0	0	0	3	0	8	11	8	188	0	196	0	169	6	175	382
04:45 PM	0	0	0	0	2	0	2	4	2	163	0	165	0	182	8	190	359
Total Volume	0	0	0	0	11	0	21	32	24	741	0	765	0	646	26	672	1469
% App. Total	0	0	0		34.4	0	65.6		3.1	96.9	0		0	96.1	3.9		
PHF	.000	.000	.000	.000	.688	.000	.656	.727	.750	.917	.000	.911	.000	.887	.813	.884	.961



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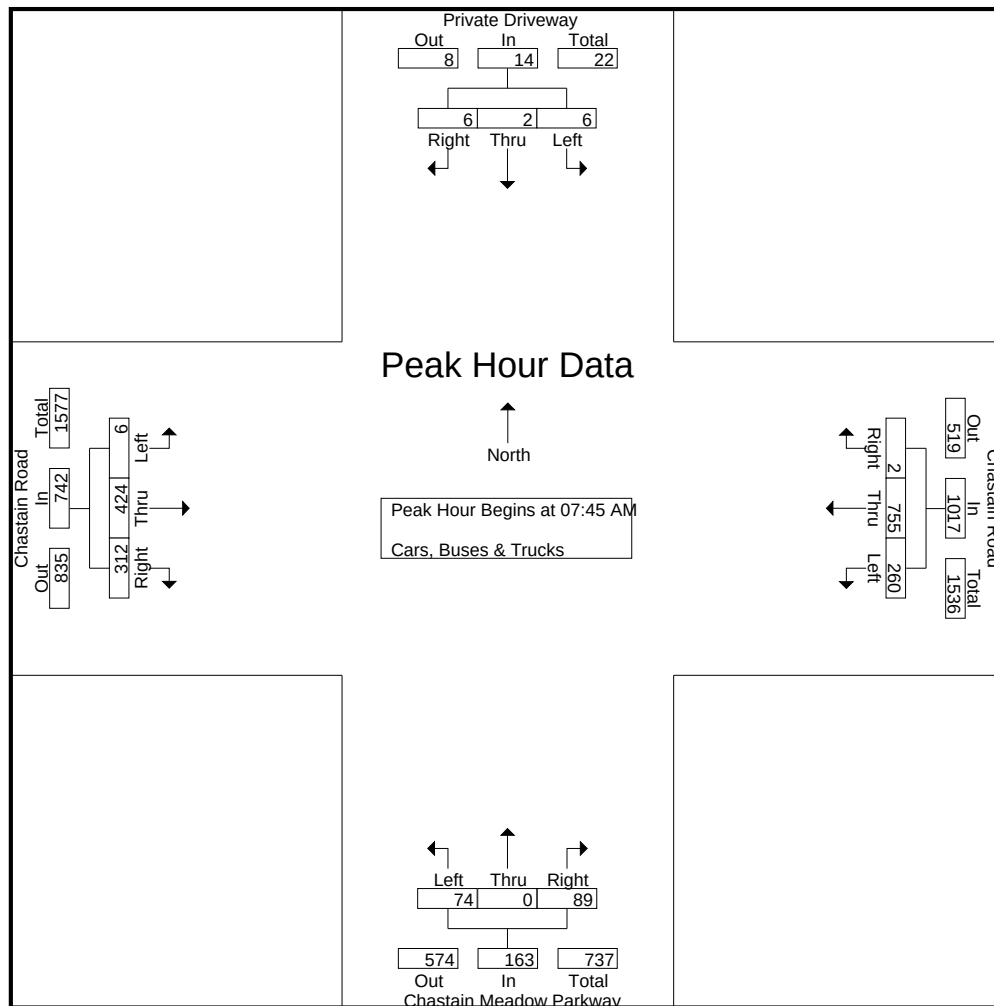
File Name : 20180264

Site Code : 20180264

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	Chastain Meadow Parkway Northbound				Private Driveway Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	15	0	21	36	0	1	2	3	0	118	85	203	74	225	0	299	541
08:00 AM	14	0	19	33	1	0	1	2	1	115	75	191	56	184	1	241	467
08:15 AM	15	0	24	39	2	0	2	4	5	96	74	175	60	171	1	232	450
08:30 AM	30	0	25	55	3	1	1	5	0	95	78	173	70	175	0	245	478
Total Volume	74	0	89	163	6	2	6	14	6	424	312	742	260	755	2	1017	1936
% App. Total	45.4	0	54.6		42.9	14.3	42.9		0.8	57.1	42		25.6	74.2	0.2		
PHF	.617	.000	.890	.741	.500	.500	.750	.700	.300	.898	.918	.914	.878	.839	.500	.850	.895



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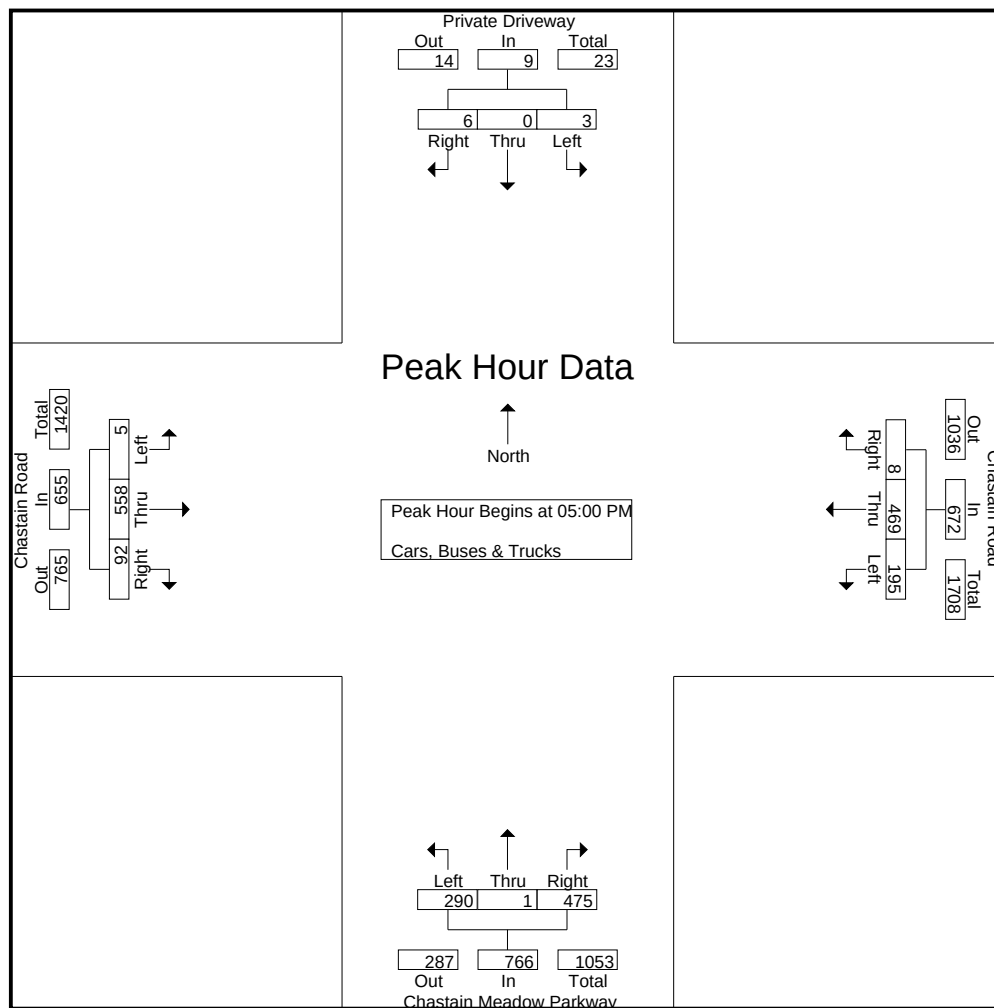
File Name : 20180264

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	Chastain Meadow Parkway Northbound				Private Driveway Southbound				Chastain Road Eastbound				Chastain Road Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	78	0	116	194	1	0	2	3	1	152	22	175	54	95	3	152	524
05:15 PM	73	1	121	195	1	0	1	2	1	131	23	155	42	130	1	173	525
05:30 PM	68	0	115	183	1	0	2	3	1	140	26	167	47	123	2	172	525
05:45 PM	71	0	123	194	0	0	1	1	2	135	21	158	52	121	2	175	528
Total Volume	290	1	475	766	3	0	6	9	5	558	92	655	195	469	8	672	2102
% App. Total	37.9	0.1	62		33.3	0	66.7		0.8	85.2	14		29	69.8	1.2		
PHF	.929	.250	.965	.982	.750	.000	.750	.750	.625	.918	.885	.936	.903	.902	.667	.960	.995

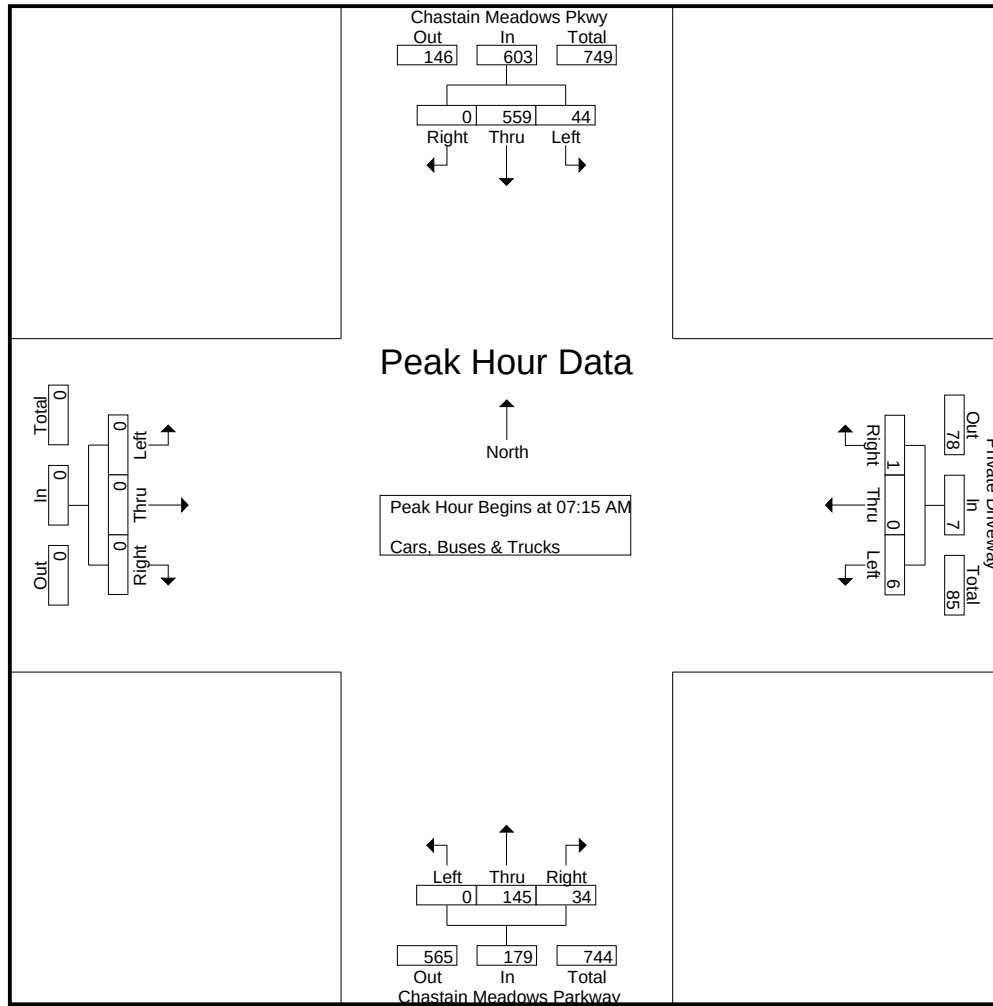


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	Chastain Meadows Parkway Northbound				Chastain Meadows Pkwy Southbound				Eastbound				Private Driveway Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	31	4	35	6	141	0	147	0	0	0	0	2	0	0	2	184
07:30 AM	0	43	7	50	9	158	0	167	0	0	0	0	0	0	0	0	217
07:45 AM	0	37	13	50	16	143	0	159	0	0	0	0	1	0	1	2	211
08:00 AM	0	34	10	44	13	117	0	130	0	0	0	0	3	0	0	3	177
Total Volume	0	145	34	179	44	559	0	603	0	0	0	0	6	0	1	7	789
% App. Total	0	81	19		7.3	92.7	0		0	0	0		85.7	0	14.3		
PHF	.000	.843	.654	.895	.688	.884	.000	.903	.000	.000	.000	.000	.500	.000	.250	.583	.909

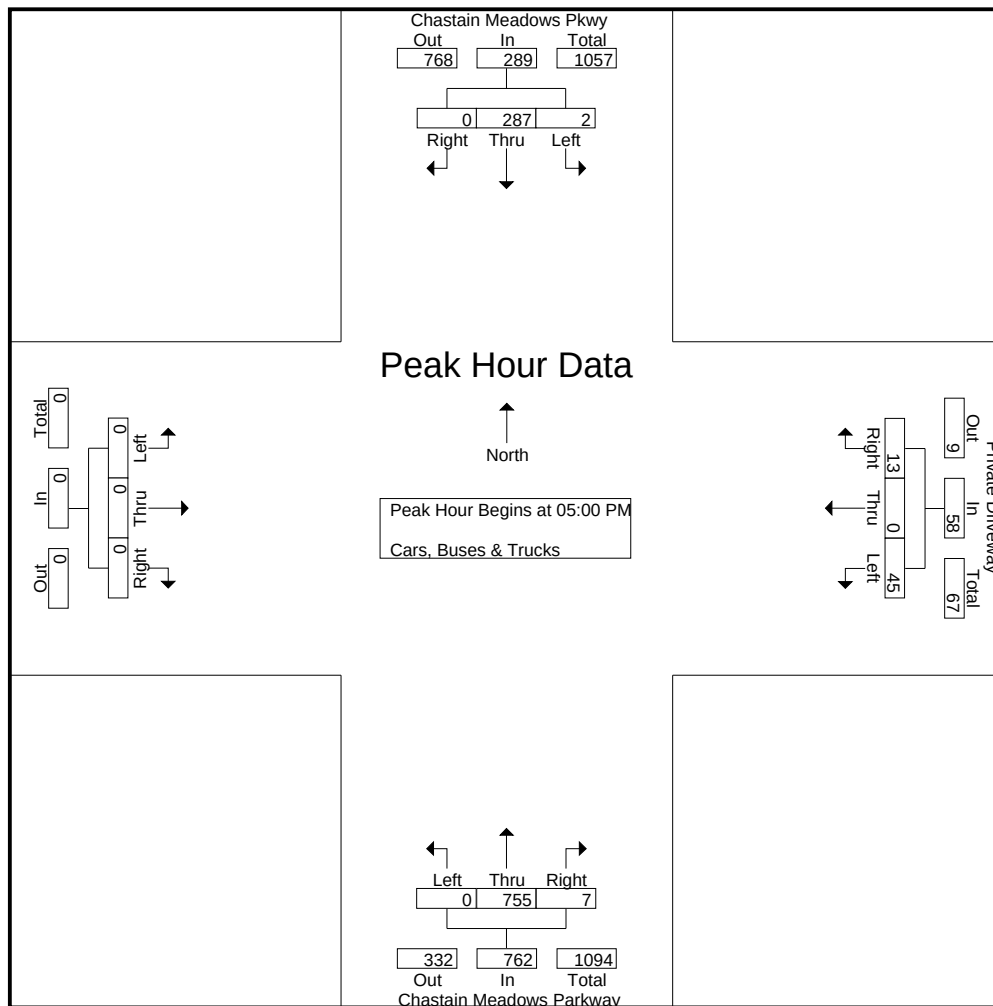


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	Chastain Meadows Parkway Northbound				Chastain Meadows Pkwy Southbound				Eastbound				Private Driveway Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	189	2	191	1	77	0	78	0	0	0	0	18	0	5	23	292
05:15 PM	0	193	2	195	1	64	0	65	0	0	0	0	10	0	4	14	274
05:30 PM	0	181	1	182	0	74	0	74	0	0	0	0	11	0	2	13	269
05:45 PM	0	192	2	194	0	72	0	72	0	0	0	0	6	0	2	8	274
Total Volume	0	755	7	762	2	287	0	289	0	0	0	0	45	0	13	58	1109
% App. Total	0	99.1	0.9		0.7	99.3	0		0	0	0		77.6	0	22.4		
PHF	.000	.978	.875	.977	.500	.932	.000	.926	.000	.000	.000	.000	.625	.000	.650	.630	.949



GRTA Letter of Understanding



LETTER OF UNDERSTANDING

October 22, 2018

Mason Zimmerman
Dan Biber
Pope and Land
3330 Cumberland Boulevard SE
Suite 300
Atlanta, GA 30339

RE: Big Shanty Mixed Use Development (DRI #:2860)

Dear Mr. Zimmerman and Mr. Biber:

The purpose of this letter is to inform you of the GRTA staff recommendation regarding your request for expedited review of the **Big Shanty Mixed Use Development (DRI #: 2860)**, Development of Regional Impact (DRI). Based on the information presented during the Pre-Review/Methodology meeting on October 15, 2018, the DRI meets the eligibility criteria for requesting expedited review under the DRI *Procedures and Principles for GRTA Development of Regional Impact Review* Section 3-102.F., Livable Centers Initiative. A Trip Generation and Access Analysis are required as part of the review under these criteria. Some of the following items were discussed in the meeting and should assist you and your team in preparing the DRI Review Package. Additional information may be requested for submittal in conjunction with DRI Review Package. Please see the notes below for this basic information.

Project Overview

- This proposed development is located in Cobb County on the southeast corner of Interstate 575 and Chastain Road.
- The DRI trigger for this development is a rezoning application.
- The proposed mixed-use redevelopment consists of 52,000 SF supermarket, 70,000 SF of retail space, 68,500 SF of restaurant space, 190,000 SF of office space, 250 hotel rooms, and 1,064 residential units.
- The development currently proposes access via four driveways. There will be one full-access driveway on Chastain Meadows Parkway, one right in/right out driveway on Chastain Meadows Parkway, one full access driveway on Chastain Road, and one right in/right out driveway on Chastain Road.
- Trip generation is estimated at 26,501 gross daily trips based on the Institute of transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017.
- The project will be built in one phase, to be completed by 2022.
- The applicant is applying for approval under GRTA's expedited review process under Section 3-1-2 F., Livable Centers Initiative (LCI). The site is in the Town Center LCI study area.

Methodology for Analysis

- All intersections identified as within the study network shall be analyzed during the AM and PM peak period for (1) existing conditions, (2) future “no-build” conditions and (3) future “build” conditions. This DRI shall be reviewed in one phase completed by 2022.
- A 2% annual background traffic rate shall be used for all roadways. Trip generation information for any other major developments currently underway in the study area shall be taken into consideration.
- Capacity analysis shall be based on turning movement counts collected not more than 12-months prior to the date of the actual DRI submittal to GRTA. As appropriate, pedestrian counts and heavy vehicle counts shall be collected with vehicle counts and considered within the capacity analysis. Turning movement counts shall be collected while local schools are in session and ordinarily not between the week of Thanksgiving and the second week of January or any week of a major holiday.
- Mixed-use, alternative mode and pass-by reductions are allowed per the ITE Trip Generation Manual. An alternative mode reduction of 5% is allowed due to the project site’s proximity to Kennesaw State University.
- The Level of Service (LOS) standard for all analyses shall be LOS E from the proposed property’s location in a Major activity Center.
- Default values should not be assumed in the traffic modeling. Existing conditions shall be taken into account.
- The applicant shall research TIP, STIP, RTP, and GDOT’s construction work program, as well as any local government plans (SPLOST, CIP, etc.), to determine the open-to-traffic date, sponsor, cost of the project, funding source(s), for future roadway projects in the project vicinity. This information shall be included within the traffic analysis.

STUDY NETWORK

1. Chastain Road at George Busbee Parkway
2. Chastain Road at Townpark Drive
3. Chastain Road at I-575 Southbound Ramps
4. Chastain Road at I-575 Northbound Ramps
5. Chastain Road at Chastain Lakes Drive
6. Chastain Road at Chastain Meadows Parkway
7. Chastain Road at Bells Ferry Road
8. Bells Ferry Road at Big Shanty Road
9. Chastain Meadows Parkway at Big Shanty Road
10. Big Shanty Road at George Busbee Parkway
11. Bells Ferry at North Booth Road
12. All Site Accesses

ADDITIONAL INFORMATION

Every roadway segment and intersection listed above will be analyzed for “required improvements.” If the existing LOS for the segment or intersection is below the applicable level of service for a particular time period (e.g., A.M. peak period, P.M. peak period, etc.), then the measured LOS service for that segment and time periods is the standard by which the “base” and “future” traffic conditions will be designed. For example, if the City’s LOS standard is LOS D, but an intersection or segment currently operates at LOS E for a certain peak period, then the LOS standard for that intersection or segment for “base” and “future” conditions becomes LOS E (only for that intersection and only for that peak period). The “base” is the phase year traffic without the development traffic (also called future “no-build” conditions) and the “future” is the phase year with the development traffic (also called future “build” conditions). As required in the technical guidelines, specific “required improvements” will be identified to bring the “base” LOS and “future” LOS for every roadway segment and intersection up to the applicable LOS standard. If the existing LOS for the segment or intersection is LOS F, then the future “no-build” and future “build” LOS standard will be LOS E. The improvements required to achieve the desired LOS standard will be provided in a table and graphic

within the study. The traffic study should indicate the existing roadway laneage at each studied intersection as well as the laneage required (to meet the LOS standard) for future “no-build” and future “build” conditions. The improvements may include both programmed improvements and improvements identified in the study.

The planned and programmed improvement should indicate the project sponsor, the anticipated funding by source (federal, state, city/county, developer, CID, etc.), the year open-to-traffic, and estimate of the total project cost. All other required improvements identified in the study should, to the extent known, identify the cost, sponsor, funding, and timing. If any of these elements are not known, please state as “unknown.”

The future "no-build" and the future "build" analyses should NOT automatically include/assume the additional lanes/capacity associated with planned and programmed improvement projects unless those roadway projects are currently under construction. Instead, the traffic consultant should recommend the additional laneage required to satisfy the level of service standard.

DRI REVIEW PACKAGE CHECKLIST

Please use the DRI Review Package Checklist to help you prepare your GRTA DRI Review Package for expedited review of your application. The Checklist reflects the understandings set forth in this letter, and is incorporated into this letter by reference.

The site plan shall be prepared in accordance with Section 4-104 of the DRI Review Package Technical Guidelines and it shall be dated, and shall be at a scale of 1"= 200' or larger (showing more detail). The site plan shall be consistent with GRTA's Site Plan Information Guidelines, which represents the minimum required information on site plans.

The applicant shall indicate on the site plans all adjacent land uses, current zoning, and future land use as indicated on the future land use map. Additionally, all existing and proposed sidewalks, existing and proposed pedestrian trails, and existing and proposed roadway laneage should be indicated on the site plan.

DRI REVIEW PACKAGE SUBMITTAL

At the time you are ready to submit your DRI Review Package to GRTA, please note the following:

- Provide one (1) paper copy of all materials – of the Transportation analysis and of the Site Plan
- Provide one (1) CD-ROM with electronic versions of all submittal documents:
 - Provide a PDF of each document
 - Provide the native format for each document
 - .dwg is the preferred CAD format (AutoCAD)
 - .doc is the preferred word processing format (Word)
 - .xls is the preferred spreadsheet format (Excel)
 - .sy 9 or .sy 10 is the preferred capacity analysis format (Synchro)

As part of the completeness certification process, please have your consultant forward one copy of the completed GRTA DRI Review Package (traffic analysis, site plan, CD) to the GDOT District Office, Regional Commission and local government Planning & Development and Transportation group (contact information provided below). GRTA shall be copied on each of the transmittal letters

SRTA/GRTA	ATLANTA REGIONAL COMMISSION	COBB COUNTY ZONING	GDOT DISTRICT 7	COBB COUNTY DOT
Emily Estes 245 Peachtree Center Ave. Suite 2200 Atlanta, GA 30303	Andrew Smith International Tower 229 Peachtree St. NE Suite 100 Atlanta, GA 30303	John Pederson Planning and Zoning 1150 Powder Springs Suite 400 Marietta GA 30064	Paul DeNard 5025 New Peachtree Road NE Chamblee, GA 30341	Amy Diaz 1890 County Services Parkway Marietta, GA 30008

Expedited Review Recommendation

Once the DRI Review Package has been submitted and determined complete, and ARC with Cobb County have confirmed the LCI consistency qualification, GRTA staff will make a recommendation regarding your request for expedited review under Section 2-202.B of the *Procedures and Principles for GRTA Development of Regional Impact Review*. If the County and/or ARC do not confirm consistency with the LCI as required, then the study network and other methodology assumptions may need to be revised for a Non-Expedited Review.

If you have any questions, please feel free to contact me (404) 893-6171 or by email at eestes@srta.ga.gov.

Sincerely,

Emily Estes
Planner

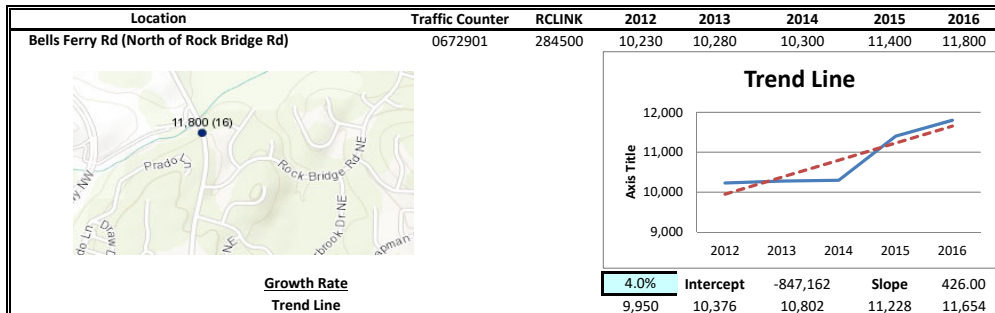
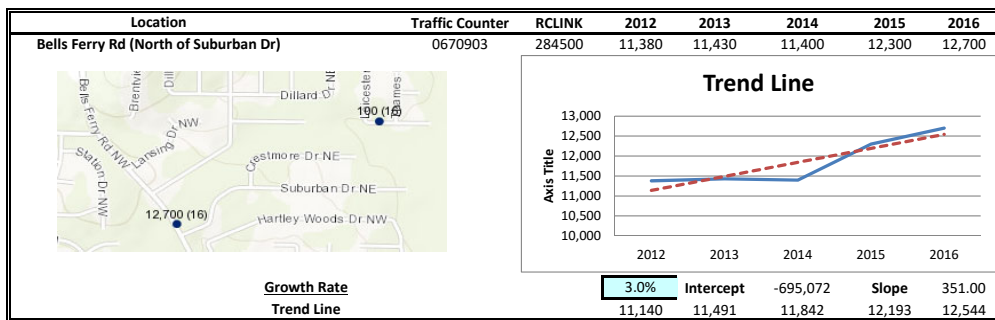
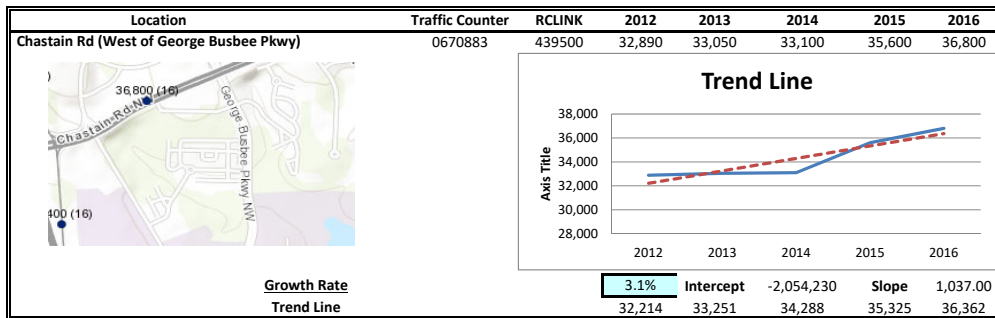
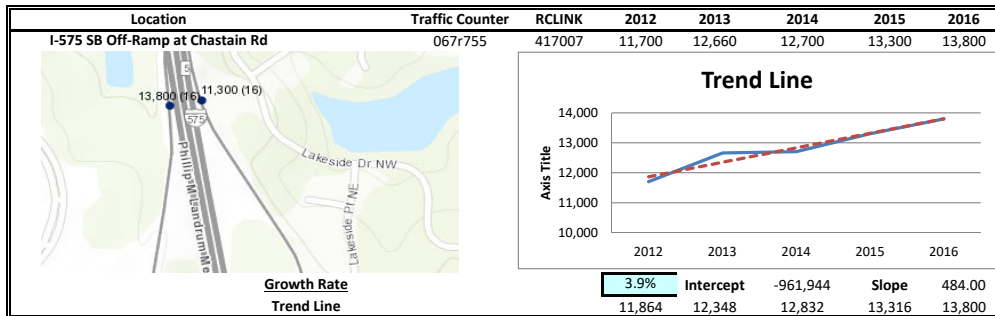
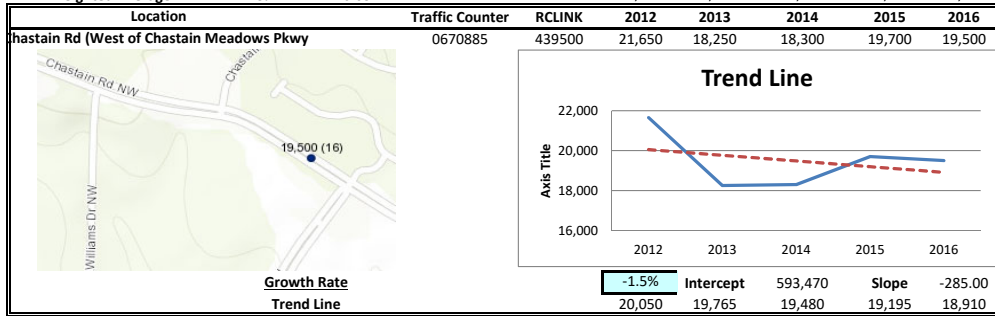
Cc:

Jon West, DCA
Annie Gillespie, SRTA/GRTA
Renaud Marshall, SRTA/GRTA
Andrew Smith, ARC
Paul DeNard, GDOT District 7
Amy Diaz, Cobb County DOT
Ashley White, Cobb County DOT
John Pederson, Cobb County Zoning
Alisha Smith, TCCID
Cody Zanni, Kimley-Horn and Associates

Abdul Amer, A & R Engineering, Inc.
Abby Rettig, A & R Engineering, Inc.

Linear Regression of Daily Traffic

Location	Growth Rate	R Squared	Station ID	Route	2012	2013	2014	2015	2016
Chastain Rd (West of Chastain I	-1.5%	0.11	0670885	439500	21,650	18,250	18,300	19,700	19,500
I-575 SB Off-Ramp at Chastain I	3.9%	0.94	067r755	417007	11,700	12,660	12,700	13,300	13,800
Chastain Rd (West of George Bt	3.1%	0.83	0670883	439500	32,890	33,050	33,100	35,600	36,800
Bells Ferry Rd (North of Suburb	3.0%	0.81	0670903	284500	11,380	11,430	11,400	12,300	12,700
Bells Ferry Rd (North of Rock Br	4.0%	0.82	0672901	284500	10,230	10,280	10,300	11,400	11,800
Weighted Average	2.3%	0.63	Sum of Count Stations =		87,850	85,670	85,800	92,300	94,600

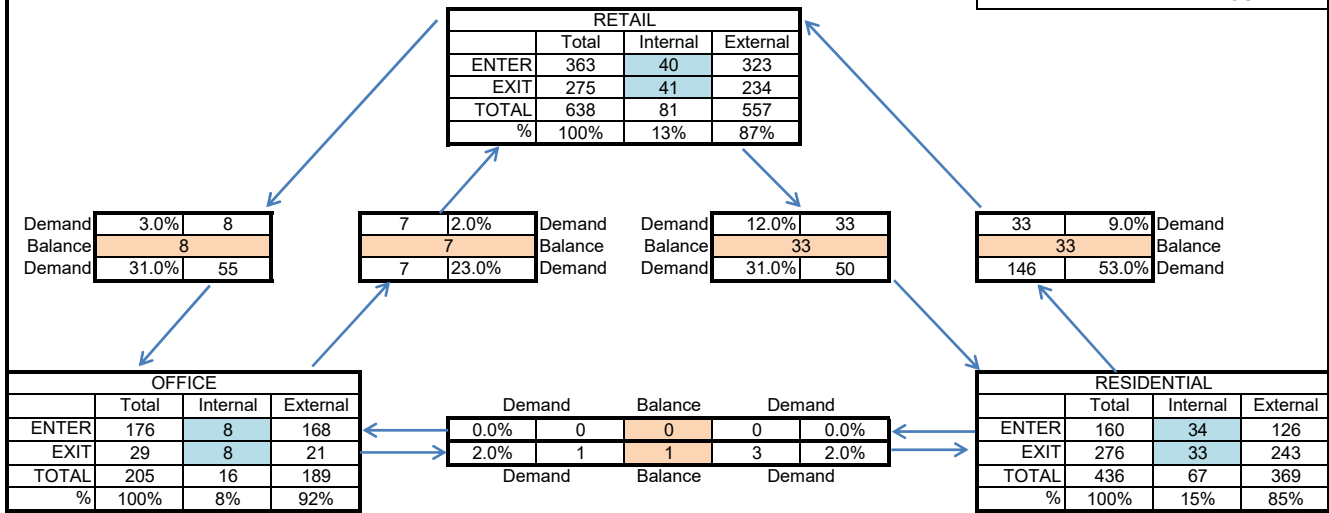
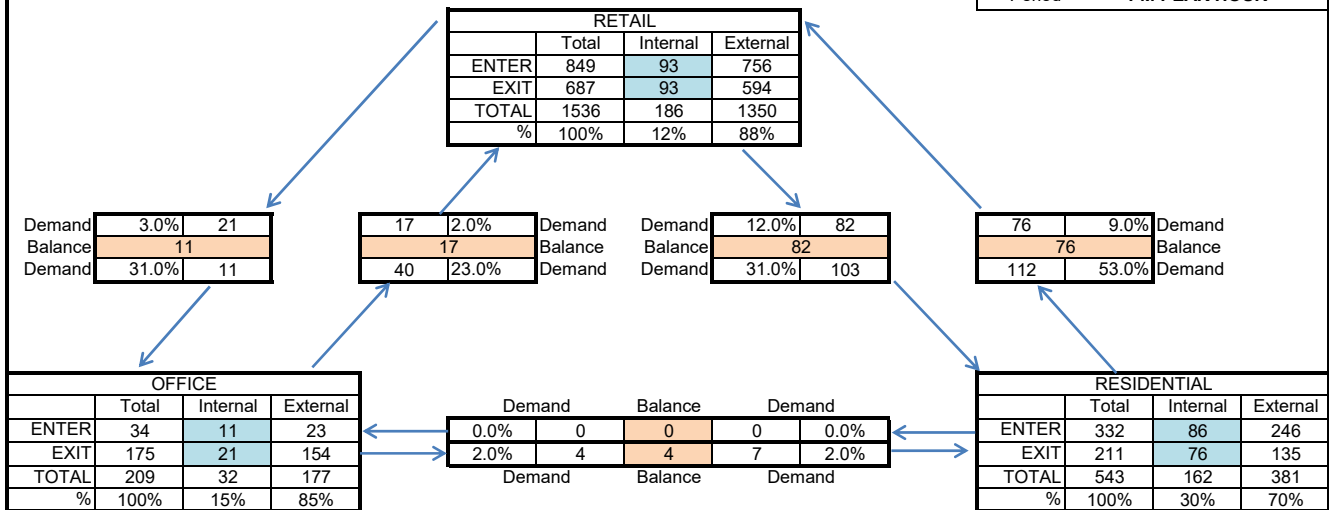
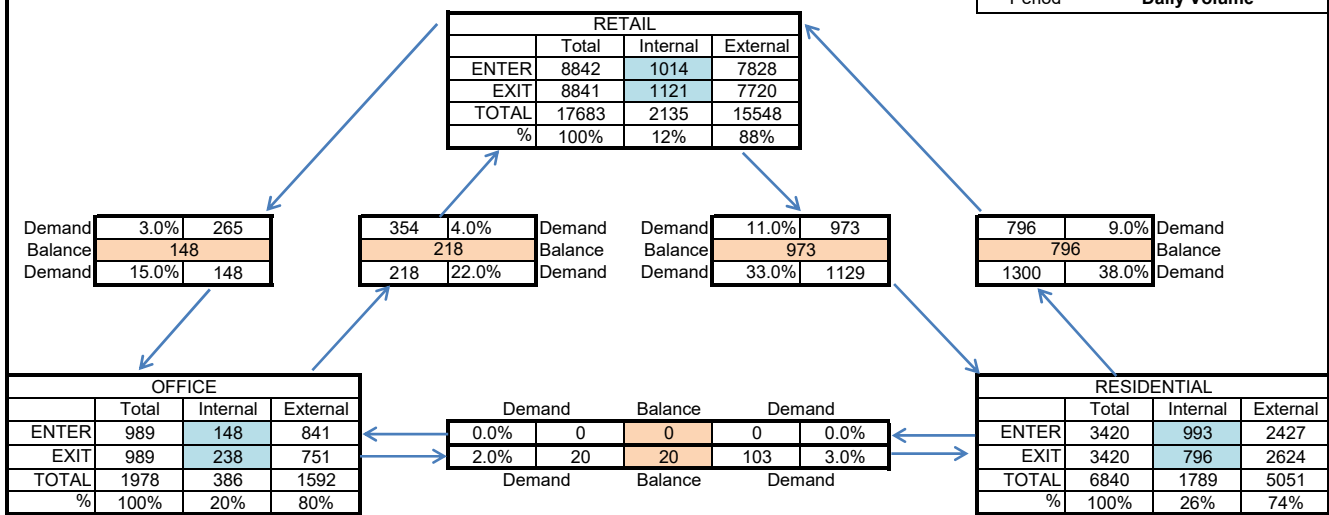


Internal Capture Calculations

Analyst _____

File: 2. Multi-Use Development - 18-117 Revised.xls

Date 2/27/2019

Period **AM PEAK HOUR**Period **PM PEAK HOUR**Period **Daily Volume**

**Fact Sheets for Planned and Programmed
Improvements**

Short Title

BIG SHANTY ROAD WIDENING - PHASE IV FROM
CHASTAIN MEADOWS PARKWAY TO BELLS FERRY
ROAD

GDOT Project No.

N/A

Federal ID No.

Status

Long Range

Service Type

Roadway / General Purpose Capacity

Sponsor

Cobb County

Jurisdiction

Cobb County

Analysis Level

In the Region's Air Quality Conformity Analysis

Existing Thru Lane

2

LCI

☐

Planned Thru Lane

4

Flex

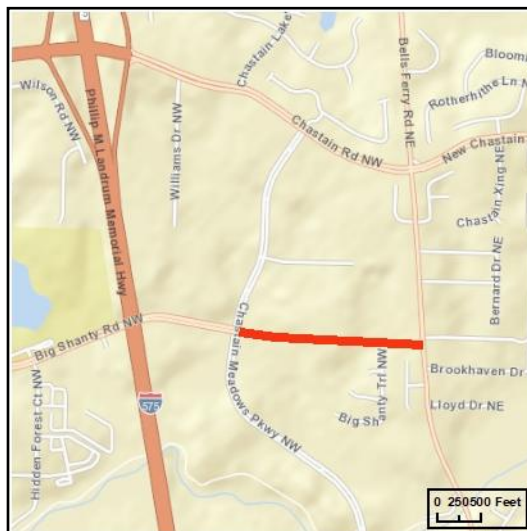
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Network Year

2030

Corridor Length

0.4 miles



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Detailed Description and Justification

This project involves adding one general purpose lane in each direction along Big Shanty Road between Chastain Meadows Parkway and Bells Ferry Road.

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
ALL	Local Jurisdiction/Municipality Funds		LR 2024-2030	\$5,400,000	\$0,000	\$0,000	\$0,000	\$5,400,000
				\$5,400,000	\$0,000	\$0,000	\$0,000	\$5,400,000

SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquisition
 UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases



For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.



PRECONSTRUCTION STATUS REPORT

PROJ ID	COUNTY	DESCRIPTION
0010706	Cobb	CR 171/BIG SHANTY FM CHASTAIN MEADOWS PKWY TO BELLS FERRY RD
Mgmt Let Date:	2019-06-21	CR 171/Big Shanty Road from CS 3540/Chastain Meadows Pkwy to CR 2845/Bells Ferry Road: Cobb County, GA. The project begins at Chastain Meadows Pkwy and runs along both sides of Big Shanty Rd and ends at Bells Ferry Rd for a project length of 0.4 miles. The existing lane widths are 12' and the existing shoulder varies from 6' to 10'. There is existing 30" curb and gutter along the entire project, excluding the last 500'. The proposed sidewalk will be 5' wide and approx. 2050' long. Retaining walls are proposed, 5' tall or less and 25' to 30' long.

PROJ NO:**SPONSOR:**Cobb
County
Lawing,
Mark**MPO TIP#:****PROJ MGR:****MPO:**

Atlanta TMA

PROJ LENGTH (MI):

0.41

TYPE WORK:

TE-Bike/Ped Facility

LET

Local Let

RESPONSIBILITY:**BIKE PROVISIONS INCLUDED?** N**DOT DIST:**

7

CONG DIST:

011

HOUSE DIST:

044

SENATE DIST:

037

Phase**FY****Approved****Approved FY Estimate*****Fund****Phase Status**

Construction

\$937,500.00

L220

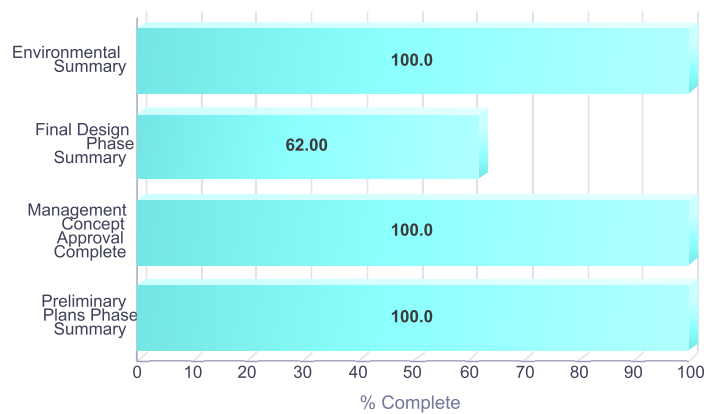
PRECST

Right of Way

0.00

LOC

AUTHORIZED



Activity	Actual Start Date	Actual Finish Date
Preliminary Plans Phase Summary	2013-11-14	2014-03-25
Environmental Summary	2012-09-14	2013-11-14
Management Concept Approval Complete	2012-10-15	2012-10-15
Final Design Phase Summary	2015-01-22	

Right of Way Acquisition Information:

Preliminary Parcel Count: 3

Total Parcel Count:

2

Acquired by :

LOC

Existing Intersection Analysis

Timings
1: Bells Ferry Rd & N. Booth Rd

2018 Existing AM
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	442	288	143	174	471
Future Volume (vph)	442	288	143	174	471
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	33.0	33.0	12.0	57.0	45.0
Total Split (%)	36.7%	36.7%	13.3%	63.3%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2018 Existing AM
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	442	288	143	174	471	145		
Future Volume (veh/h)	442	288	143	174	471	145		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	442	288	143	174	471	145		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	470	420	268	951	549	169		
Arrive On Green	0.30	0.30	0.07	0.57	0.45	0.45		
Sat Flow, veh/h	1587	1417	1587	1667	1224	377		
Grp Volume(v), veh/h	442	288	143	174	0	616		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1600		
Q Serve(g_s), s	24.4	16.2	4.1	4.5	0.0	31.1		
Cycle Q Clear(g_c), s	24.4	16.2	4.1	4.5	0.0	31.1		
Prop In Lane	1.00	1.00	1.00			0.24		
Lane Grp Cap(c), veh/h	470	420	268	951	0	718		
V/C Ratio(X)	0.94	0.69	0.53	0.18	0.00	0.86		
Avail Cap(c_a), veh/h	476	425	286	951	0	718		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	30.9	28.0	18.0	9.3	0.0	22.3		
Incr Delay (d2), s/veh	39.2	4.6	1.6	0.4	0.0	14.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	22.3	11.1	3.4	3.9	0.0	23.2		
LnGrp Delay(d),s/veh	70.1	32.6	19.6	9.7	0.0	36.7		
LnGrp LOS	E	C	B	A		D		
Approach Vol, veh/h	730			317	616			
Approach Delay, s/veh	55.3			14.2	36.7			
Approach LOS	E			B	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	46.4				57.3		32.7
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	7.0	39.0				51.0		27.0
Max Q Clear Time (g_c+I1), s	6.1	33.1				6.5		26.4
Green Ext Time (p_c), s	0.0	4.9				26.5		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			40.5					
HCM 2010 LOS			D					

Timings
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2018 Existing AM
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	44	358	39	123	800	197	67	158	218	382
Future Volume (vph)	44	358	39	123	800	197	67	158	218	382
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	15.0	42.0	42.0	15.0	42.0	42.0	15.0	44.0	19.0	48.0
Total Split (%)	12.5%	35.0%	35.0%	12.5%	35.0%	35.0%	12.5%	36.7%	15.8%	40.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 72 (60%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	42 s	19 s	44 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	42 s	15 s	48 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2018 Existing AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	358	39	123	800	197	67	158	53	218	382	140
Future Volume (veh/h)	44	358	39	123	800	197	67	158	53	218	382	140
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	44	358	0	123	800	0	67	158	53	218	382	140
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	1059	474	419	1167	522	143	333	112	422	397	146
Arrive On Green	0.03	0.33	0.00	0.07	0.37	0.00	0.04	0.28	0.28	0.10	0.34	0.34
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	1195	401	1587	1165	427
Grp Volume(v), veh/h	44	358	0	123	800	0	67	0	211	218	0	522
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	0	1596	1587	0	1591
Q Serve(g_s), s	2.2	10.2	0.0	6.0	25.6	0.0	3.6	0.0	13.2	11.5	0.0	38.6
Cycle Q Clear(g_c), s	2.2	10.2	0.0	6.0	25.6	0.0	3.6	0.0	13.2	11.5	0.0	38.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.27
Lane Grp Cap(c), veh/h	216	1059	474	419	1167	522	143	0	445	422	0	543
V/C Ratio(X)	0.20	0.34	0.00	0.29	0.69	0.00	0.47	0.00	0.47	0.52	0.00	0.96
Avail Cap(c_a), veh/h	277	1059	474	427	1167	522	189	0	499	422	0	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	30.0	0.0	23.9	32.0	0.0	33.3	0.0	36.0	26.3	0.0	38.8
Incr Delay (d2), s/veh	0.5	0.9	0.0	0.4	3.3	0.0	2.4	0.0	0.8	1.1	0.0	46.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	8.0	0.0	4.8	17.4	0.0	3.0	0.0	9.9	8.8	0.0	31.9
LnGrp Delay(d),s/veh	27.3	30.8	0.0	24.3	35.4	0.0	35.7	0.0	36.8	27.4	0.0	84.9
LnGrp LOS	C	C		C	D		D		D	C		F
Approach Vol, veh/h	402				923				278			
Approach Delay, s/veh	30.4				33.9				36.5			
Approach LOS	C				C				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	50.7	19.0	39.9	14.4	46.6	11.5	47.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	8.5	35.5	12.5	37.5	8.5	35.5	8.5	41.5				
Max Q Clear Time (g_c+I1), s	4.2	27.6	13.5	15.2	8.0	12.2	5.6	40.6				
Green Ext Time (p_c), s	0.0	6.7	0.0	2.7	0.0	17.3	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			44.4									
HCM 2010 LOS			D									

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	66	147	182	420	161
Future Vol, veh/h	13	66	147	182	420	161
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	-	115	-	-	-
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	13	66	147	182	420	161

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1063	545	632
Stage 1	545	-	-
Stage 2	518	-	-
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	247	538	951
Stage 1	581	-	-
Stage 2	598	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	206	538	951
Mov Cap-2 Maneuver	206	-	-
Stage 1	483	-	-
Stage 2	598	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	4.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	951	-	425	-
HCM Lane V/C Ratio	0.168	-	0.202	-
HCM Control Delay (s)	9.6	-	15.6	-
HCM Lane LOS	A	-	C	-
HCM 95th %tile Q(veh)	0.6	-	0.8	-

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2018 Existing AM
02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	139	158	208	62	226	103	142	5	183
Future Volume (vph)	139	158	208	62	226	103	142	5	183
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	19.0	41.0	19.0	17.0	39.0	19.0	46.0	16.0	43.0
Total Split (%)	15.8%	34.2%	15.8%	14.2%	32.5%	15.8%	38.3%	13.3%	35.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 67.9
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
19 s	43 s	19 s	39 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	46 s	17 s	41 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2018 Existing AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	158	208	62	226	10	103	142	74	5	183	157
Future Volume (veh/h)	139	158	208	62	226	10	103	142	74	5	183	157
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	139	158	208	62	226	10	103	142	74	5	183	157
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	360	322	367	307	457	20	408	693	343	447	463	374
Arrive On Green	0.10	0.19	0.19	0.05	0.15	0.15	0.07	0.34	0.34	0.01	0.28	0.28
Sat Flow, veh/h	1587	1667	1417	1587	3090	136	1587	2054	1017	1587	1665	1347
Grp Volume(v), veh/h	139	158	208	62	115	121	103	108	108	5	173	167
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1643	1587	1583	1487	1587	1583	1429
Q Serve(g_s), s	4.6	5.4	8.1	2.1	4.2	4.3	2.9	3.1	3.3	0.1	5.6	6.0
Cycle Q Clear(g_c), s	4.6	5.4	8.1	2.1	4.2	4.3	2.9	3.1	3.3	0.1	5.6	6.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.68	1.00		0.94
Lane Grp Cap(c), veh/h	360	322	367	307	234	243	408	535	502	447	440	397
V/C Ratio(X)	0.39	0.49	0.57	0.20	0.49	0.50	0.25	0.20	0.22	0.01	0.39	0.42
Avail Cap(c_a), veh/h	518	907	865	486	812	842	616	987	927	674	912	823
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	22.8	20.4	21.1	24.8	24.8	14.9	14.9	15.0	16.3	18.6	18.7
Incr Delay (d2), s/veh	0.7	1.2	1.4	0.3	1.6	1.6	0.3	0.2	0.2	0.0	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.7	4.6	5.9	1.7	3.5	3.7	2.3	2.4	2.5	0.1	4.5	4.4
LnGrp Delay(d),s/veh	20.6	24.0	21.8	21.5	26.4	26.4	15.2	15.1	15.2	16.3	19.1	19.4
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	B
Approach Vol, veh/h	505				298				319			
Approach Delay, s/veh	22.1				25.4				15.2			
Approach LOS	C				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	24.1	12.7	15.9	6.9	27.9	9.8	18.7				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	36.5	12.5	32.5	9.5	39.5	10.5	34.5				
Max Q Clear Time (g_c+I1), s	4.9	8.0	6.6	6.3	2.1	5.3	4.1	10.1				
Green Ext Time (p_c), s	0.1	9.6	0.2	2.2	0.0	10.4	0.1	2.2				
Intersection Summary												
HCM 2010 Ctrl Delay	20.6											
HCM 2010 LOS	C											

Timings 5: George Busbee Pkwy & Big Shanty Rd

2018 Existing AM
02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	108	253	60	47	428	108	56	121	48	183	181	251
Future Volume (vph)	108	253	60	47	428	108	56	121	48	183	181	251
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0
Total Split (%)	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 8 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
12 s	38 s	12 s	38 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	38 s	12 s	38 s

HCM 2010 Signalized Intersection Summary
5: George Busbee Pkwy & Big Shanty Rd

2018 Existing AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	253	60	47	428	108	56	121	48	183	181	251
Future Volume (veh/h)	108	253	60	47	428	108	56	121	48	183	181	251
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	108	253	60	47	428	108	56	121	48	183	181	251
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	868	388	354	778	348	496	1233	552	617	1314	588
Arrive On Green	0.06	0.27	0.27	0.04	0.25	0.25	0.04	0.39	0.39	0.06	0.41	0.41
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417
Grp Volume(v), veh/h	108	253	60	47	428	108	56	121	48	183	181	251
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417
Q Serve(g_s), s	5.0	6.3	3.2	2.2	11.8	6.2	2.1	2.4	2.1	6.5	3.5	12.6
Cycle Q Clear(g_c), s	5.0	6.3	3.2	2.2	11.8	6.2	2.1	2.4	2.1	6.5	3.5	12.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	868	388	354	778	348	496	1233	552	617	1314	588
V/C Ratio(X)	0.38	0.29	0.15	0.13	0.55	0.31	0.11	0.10	0.09	0.30	0.14	0.43
Avail Cap(c_a), veh/h	286	1029	460	399	1029	460	537	1233	552	617	1314	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	28.6	27.5	26.6	32.9	30.8	16.9	19.4	19.3	17.0	18.2	20.8
Incr Delay (d2), s/veh	0.8	0.2	0.2	0.2	0.6	0.5	0.1	0.2	0.3	0.3	0.2	2.3
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(95%),veh/ln	4.1	5.0	2.3	1.7	9.0	4.5	1.6	2.0	1.6	0.8	2.9	9.1
LnGrp Delay(d),s/veh	27.1	28.8	27.7	26.8	33.5	31.3	17.0	19.5	19.6	17.3	18.4	23.1
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	C
Approach Vol, veh/h	421				583		225				615	
Approach Delay, s/veh	28.2				32.6		18.9				20.0	
Approach LOS	C				C		B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	48.5	12.0	30.1	12.0	45.9	9.1	32.9				
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5				
Max Green Setting (Gmax), s	6.5	31.0	6.5	32.5	6.5	31.0	6.5	32.5				
Max Q Clear Time (g_c+I1), s	4.1	14.6	7.0	13.8	8.5	4.4	4.2	8.3				
Green Ext Time (p_c), s	0.0	2.1	0.0	10.8	0.0	2.3	0.0	12.8				
Intersection Summary												
HCM 2010 Ctrl Delay			25.7									
HCM 2010 LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
6: George Busbee Pkwy & Chastain Rd

2018 Existing AM
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			  		 	 			 
Traffic Volume (vph)	239	861	31	248	1103	181	42	186	159	123	226
Future Volume (vph)	239	861	31	248	1103	181	42	186	159	123	226
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	45.0	60.0	60.0	45.0	60.0	60.0	23.0	22.0	22.0	23.0	22.0
Total Split (%)	30.0%	40.0%	40.0%	30.0%	40.0%	40.0%	15.3%	14.7%	14.7%	15.3%	14.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 80 (53%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 180
 Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
45 s	60 s	23 s	22 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
45 s	60 s	23 s	22 s

HCM 2010 Signalized Intersection Summary
6: George Busbee Pkwy & Chastain Rd

2018 Existing AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	861	31	248	1103	181	42	186	159	123	226	19
Future Volume (veh/h)	239	861	31	248	1103	181	42	186	159	123	226	19
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	239	861	0	248	1103	0	42	186	0	123	226	19
Adj No. of Lanes	1	3	1	1	3	1	2	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	2239	697	267	2252	701	85	231	103	198	381	32
Arrive On Green	0.17	0.49	0.00	0.34	0.99	0.00	0.03	0.07	0.00	0.08	0.13	0.13
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	3079	3167	1417	1587	2960	247
Grp Volume(v), veh/h	239	861	0	248	1103	0	42	186	0	123	120	125
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1540	1583	1417	1587	1583	1623
Q Serve(g_s), s	22.2	17.8	0.0	22.6	0.7	0.0	2.0	8.7	0.0	10.5	10.7	10.9
Cycle Q Clear(g_c), s	22.2	17.8	0.0	22.6	0.7	0.0	2.0	8.7	0.0	10.5	10.7	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	263	2239	697	267	2252	701	85	231	103	198	204	209
V/C Ratio(X)	0.91	0.38	0.00	0.93	0.49	0.00	0.50	0.80	0.00	0.62	0.59	0.60
Avail Cap(c_a), veh/h	402	2239	697	402	2252	701	328	317	142	235	204	209
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.5	23.9	0.0	48.9	0.4	0.0	71.9	68.5	0.0	56.5	61.6	61.7
Incr Delay (d2), s/veh	22.2	0.5	0.0	26.5	0.7	0.0	4.5	11.0	0.0	3.7	4.5	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.9	12.0	0.0	17.1	0.6	0.0	1.6	7.5	0.0	8.3	8.6	8.9
LnGrp Delay(d),s/veh	83.7	24.4	0.0	75.3	1.1	0.0	76.4	79.4	0.0	60.2	66.1	66.4
LnGrp LOS	F	C		E	A		E	E		E	E	E
Approach Vol, veh/h	1100			1351			228			368		
Approach Delay, s/veh	37.3			14.7			78.9			64.2		
Approach LOS	D			B			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.8	80.7	19.5	18.0	32.3	80.3	11.1	26.3				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0				
Max Green Setting (Gmax), s	38.0	53.5	16.0	15.0	38.0	53.5	16.0	15.0				
Max Q Clear Time (g_c+I1), s	24.2	2.7	12.5	10.7	24.6	19.8	4.0	12.9				
Green Ext Time (p_c), s	0.6	45.3	0.1	0.3	0.7	31.1	0.1	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				33.6								
HCM 2010 LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
7: Townpark Dr & Chastain Rd

2018 Existing AM
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	106	988	87	102	1501	486	17	7	30	5
Future Volume (vph)	106	988	87	102	1501	486	17	7	30	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	95.0	95.0	15.0	95.0	95.0	15.0	25.0	15.0	25.0
Total Split (%)	10.0%	63.3%	63.3%	10.0%	63.3%	63.3%	10.0%	16.7%	10.0%	16.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 79 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	95 s	15 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	95 s	15 s	25 s

HCM 2010 Signalized Intersection Summary

7: Townpark Dr & Chastain Rd

2018 Existing AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	988	87	102	1501	486	17	7	14	30	5	15
Future Volume (veh/h)	106	988	87	102	1501	486	17	7	14	30	5	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	106	988	0	102	1501	486	17	7	0	30	5	15
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	3184	991	497	3182	991	113	56	0	73	15	45
Arrive On Green	0.07	1.00	0.00	0.07	1.00	1.00	0.02	0.03	0.00	0.02	0.04	0.04
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	368	1104
Grp Volume(v), veh/h	106	988	0	102	1501	486	17	7	0	30	0	20
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1472
Q Serve(g_s), s	3.0	0.0	0.0	2.9	0.0	0.0	1.5	0.6	0.0	1.4	0.0	2.0
Cycle Q Clear(g_c), s	3.0	0.0	0.0	2.9	0.0	0.0	1.5	0.6	0.0	1.4	0.0	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.75
Lane Grp Cap(c), veh/h	253	3184	991	497	3182	991	113	56	0	73	0	60
V/C Ratio(X)	0.42	0.31	0.00	0.21	0.47	0.49	0.15	0.12	0.00	0.41	0.00	0.34
Avail Cap(c_a), veh/h	279	3184	991	524	3182	991	155	183	0	133	0	162
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.59	0.59	0.59	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.6	0.0	0.0	5.6	0.0	0.0	68.3	70.3	0.0	72.2	0.0	70.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.1	0.3	1.0	0.6	1.0	0.0	3.7	0.0	3.3
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(95%),veh/ln	2.3	0.1	0.0	2.1	0.2	0.5	1.3	0.5	0.0	1.2	0.0	1.5
LnGrp Delay(d),s/veh	6.6	0.2	0.0	5.7	0.3	1.0	69.0	71.3	0.0	75.8	0.0	73.3
LnGrp LOS	A	A		A	A	A	E	E		E		E
Approach Vol, veh/h	1094			2089			24			50		
Approach Delay, s/veh	0.8			0.7			69.7			74.8		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	111.9	12.1	13.5	12.4	112.0	11.0	14.6				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	88.0	6.5	16.5	7.5	88.0	6.5	16.5				
Max Q Clear Time (g_c+I1), s	5.0	2.0	3.4	2.6	4.9	2.0	3.5	4.0				
Green Ext Time (p_c), s	0.1	82.6	0.0	0.0	0.1	82.6	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				2.4								
HCM 2010 LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2018 Existing AM
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	931	99	138	1011	154	1078
Future Volume (vph)	931	99	138	1011	154	1078
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	84.0	84.0	26.0	110.0	40.0	40.0
Total Split (%)	56.0%	56.0%	17.3%	73.3%	26.7%	26.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 84 (56%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2018 Existing AM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑
Traffic Volume (vph)	0	931	99	138	1011	0	0	0	0	154	0	1078
Future Volume (vph)	0	931	99	138	1011	0	0	0	0	154	0	1078
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		1417
Flt Permitted		1.00	1.00	0.23	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	379	3167					1583		1417
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	931	99	138	1011	0	0	0	0	154	0	1078
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	0	0	0	757
Lane Group Flow (vph)	0	931	57	138	1011	0	0	0	0	154	0	321
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		86.5	86.5	103.5	103.5					33.0		33.0
Effective Green, g (s)		86.5	86.5	103.5	103.5					33.0		33.0
Actuated g/C Ratio		0.58	0.58	0.69	0.69					0.22		0.22
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1826	817	341	2185					348		311
v/s Ratio Prot		c0.29		0.03	c0.32					0.10		
v/s Ratio Perm			0.04	0.25								c0.23
v/c Ratio		0.51	0.07	0.40	0.46					0.44		1.03
Uniform Delay, d1		19.0	14.0	10.6	10.6					50.6		58.5
Progression Factor		0.46	0.11	1.42	1.59					1.00		1.00
Incremental Delay, d2		1.0	0.2	0.7	0.6					0.9		138.1
Delay (s)		9.8	1.7	15.7	17.5					51.5		196.6
Level of Service		A	A	B	B					D		F
Approach Delay (s)		9.0			17.2			0.0			178.5	
Approach LOS		A			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			73.0			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			117.1%			ICU Level of Service				H		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2018 Existing AM
02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	499	585	758	61	389	1	145
Future Volume (vph)	499	585	758	61	389	1	145
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	44.0	107.0	63.0	63.0	43.0	43.0	43.0
Total Split (%)	29.3%	71.3%	42.0%	42.0%	28.7%	28.7%	28.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 28 (19%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

 Ø1	 Ø2 (R)	 Ø4
44 s	63 s	43 s
 Ø6 (R)		
107 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2018 Existing AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	499	585	0	0	758	61	389	1	145	0	0	0
Future Volume (veh/h)	499	585	0	0	758	61	389	1	145	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	499	585	0	0	758	0	390	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	561	2418	0	0	1693	758	454	0	203			
Arrive On Green	0.18	0.76	0.00	0.00	1.00	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	499	585	0	0	758	0	390	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	23.7	8.0	0.0	0.0	0.0	0.0	18.0	0.0	0.0			
Cycle Q Clear(g_c), s	23.7	8.0	0.0	0.0	0.0	0.0	18.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	561	2418	0	0	1693	758	454	0	203			
V/C Ratio(X)	0.89	0.24	0.00	0.00	0.45	0.00	0.86	0.00	0.00			
Avail Cap(c_a), veh/h	760	2418	0	0	1693	758	751	0	335			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.86	0.86	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	59.9	5.1	0.0	0.0	0.0	0.0	62.8	0.0	0.0			
Incr Delay (d2), s/veh	9.8	0.2	0.0	0.0	0.9	0.0	5.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	15.9	6.4	0.0	0.0	0.4	0.0	13.0	0.0	0.0			
LnGrp Delay(d),s/veh	69.6	5.3	0.0	0.0	0.9	0.0	68.6	0.0	0.0			
LnGrp LOS	E	A			A		E					
Approach Vol, veh/h	1084				758				390			
Approach Delay, s/veh	34.9				0.9				68.6			
Approach LOS	C				A				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	34.3	86.7		29.0		121.0						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	37.0	56.5		35.5		100.5						
Max Q Clear Time (g_c+I1), s	25.7	2.0		20.0		10.0						
Green Ext Time (p_c), s	1.6	36.4		1.5		49.2						
Intersection Summary												
HCM 2010 Ctrl Delay			29.2									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection

Int Delay, s/veh 0.5

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations	↘	↗	↗	↘	↘	↗
Traffic Vol, veh/h	10	720	824	7	8	37
Future Vol, veh/h	10	720	824	7	8	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	720	824	7	8	37

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	955	0	-	0	1383	474
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	715	-	-	-	135	537
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	715	-	-	-	133	537
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	619	-

Approach EB WB SB

HCM Control Delay, s	0.1	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h)	715	-	-	-	349
HCM Lane V/C Ratio	0.016	-	-	-	0.148
HCM Control Delay (s)	10.1	-	-	-	17.1
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Timings
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2018 Existing AM
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations		 			 						
Traffic Volume (vph)	6	424	312	260	755	2	74	0	89	2	6
Future Volume (vph)	6	424	312	260	755	2	74	0	89	2	6
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm
Protected Phases		6		5	2		4	4		8	
Permitted Phases	6		6	2		2			4		8
Detector Phase	6	6	6	5	2	2	4	4	4	8	8
Switch Phase											
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0
Total Split (s)	53.0	53.0	53.0	36.0	89.0	89.0	41.0	41.0	41.0	20.0	20.0
Total Split (%)	35.3%	35.3%	35.3%	24.0%	59.3%	59.3%	27.3%	27.3%	27.3%	13.3%	13.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?											
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
89 s	41 s	20 s
 Ø5	 Ø6 (R)	
36 s	53 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2018 Existing AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	424	312	260	755	2	74	0	89	6	2	6
Future Volume (veh/h)	6	424	312	260	755	2	74	0	89	6	2	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	6	424	0	260	755	0	74	0	89	6	2	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	512	2082	931	789	2439	1091	250	0	111	21	7	25
Arrive On Green	1.00	1.00	0.00	0.07	0.77	0.00	0.08	0.00	0.08	0.02	0.02	0.02
Sat Flow, veh/h	706	3167	1417	1587	3167	1417	3175	0	1417	1205	402	1417
Grp Volume(v), veh/h	6	424	0	260	755	0	74	0	89	8	0	6
Grp Sat Flow(s),veh/h/ln	706	1583	1417	1587	1583	1417	1587	0	1417	1606	0	1417
Q Serve(g_s), s	0.0	0.0	0.0	7.6	10.8	0.0	3.3	0.0	9.3	0.7	0.0	0.6
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.6	10.8	0.0	3.3	0.0	9.3	0.7	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.75		1.00
Lane Grp Cap(c), veh/h	512	2082	931	789	2439	1091	250	0	111	28	0	25
V/C Ratio(X)	0.01	0.20	0.00	0.33	0.31	0.00	0.30	0.00	0.80	0.28	0.00	0.24
Avail Cap(c_a), veh/h	512	2082	931	991	2439	1091	730	0	326	139	0	123
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.80	0.80	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	6.1	5.2	0.0	65.2	0.0	67.9	72.7	0.0	72.7
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.3	0.0	0.7	0.0	13.4	5.3	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	6.1	7.9	0.0	2.6	0.0	7.3	0.7	0.0	0.5
LnGrp Delay(d),s/veh	0.0	0.2	0.0	6.3	5.5	0.0	65.8	0.0	81.3	78.1	0.0	77.6
LnGrp LOS	A	A		A	A		E		F	E		E
Approach Vol, veh/h	430				1015				163		14	
Approach Delay, s/veh	0.2				5.7				74.3		77.9	
Approach LOS	A				A				E		E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	122.1		18.3		16.9	105.1	9.7					
Change Period (Y+Rc), s	6.5		6.5		6.5	6.5	7.0					
Max Green Setting (Gmax), s	82.5		34.5		29.5	46.5	13.0					
Max Q Clear Time (g_c+l1), s	12.8		11.3		9.6	2.0	2.7					
Green Ext Time (p_c), s	36.3		0.5		0.8	28.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	11.7											
HCM 2010 LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	1	145	34	44	559
Future Vol, veh/h	6	1	145	34	44	559
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	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	1	145	34	44	559

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	581	98	0
Stage 1	178	-	-
Stage 2	403	-	-
Critical Hdwy	6.84	6.94	-
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	-
Pot Cap-1 Maneuver	445	939	-
Stage 1	835	-	-
Stage 2	644	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	429	939	-
Mov Cap-2 Maneuver	429	-	-
Stage 1	835	-	-
Stage 2	621	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 429 939 1374	-	-
HCM Lane V/C Ratio	-	- 0.015 0.001 0.035	-	-
HCM Control Delay (s)	-	- 13.5 8.8 7.7	-	-
HCM Lane LOS	-	- B A A	-	-
HCM 95th %tile Q(veh)	-	- 0 0 0.1	-	-

Timings
1: Bells Ferry Rd & N. Booth Rd

2018 Existing PM
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	247	171	322	784	235
Future Volume (vph)	247	171	322	784	235
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	42.0	42.0	38.0	138.0	100.0
Total Split (%)	23.3%	23.3%	21.1%	76.7%	55.6%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 18 (10%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2018 Existing PM
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	247	171	322	784	235	231		
Future Volume (veh/h)	247	171	322	784	235	231		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	247	171	322	784	235	231		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	269	240	635	1274	506	498		
Arrive On Green	0.17	0.17	0.08	0.76	0.66	0.66		
Sat Flow, veh/h	1587	1417	1587	1667	773	760		
Grp Volume(v), veh/h	247	171	322	784	0	466		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1533		
Q Serve(g_s), s	27.6	20.5	11.6	37.7	0.0	27.1		
Cycle Q Clear(g_c), s	27.6	20.5	11.6	37.7	0.0	27.1		
Prop In Lane	1.00	1.00	1.00			0.50		
Lane Grp Cap(c), veh/h	269	240	635	1274	0	1004		
V/C Ratio(X)	0.92	0.71	0.51	0.62	0.00	0.46		
Avail Cap(c_a), veh/h	317	283	797	1274	0	1004		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	73.6	70.7	10.8	9.5	0.0	15.4		
Incr Delay (d2), s/veh	39.4	7.0	0.6	2.3	0.0	1.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	21.4	13.3	8.7	25.0	0.0	17.5		
LnGrp Delay(d),s/veh	113.0	77.6	11.4	11.7	0.0	16.9		
LnGrp LOS	F	E	B	B		B		
Approach Vol, veh/h	418			1106	466			
Approach Delay, s/veh	98.5			11.6	16.9			
Approach LOS	F			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	19.6	124.0				143.6		36.4
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	33.0	94.0				132.0		36.0
Max Q Clear Time (g_c+I1), s	13.6	29.1				39.7		29.6
Green Ext Time (p_c), s	1.0	52.9				69.9		0.9
Intersection Summary								
HCM 2010 Ctrl Delay			31.1					
HCM 2010 LOS			C					

Timings 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2018 Existing PM
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	410	957	87	92	572	350	33	636	119	186
Future Volume (vph)	410	957	87	92	572	350	33	636	119	186
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	33.0	51.0	51.0	15.0	33.0	33.0	15.0	59.0	15.0	59.0
Total Split (%)	23.6%	36.4%	36.4%	10.7%	23.6%	23.6%	10.7%	42.1%	10.7%	42.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 72 (51%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 135
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
33 s	33 s	15 s	59 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	51 s	15 s	59 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2018 Existing PM
02/27/2019

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	410	957	87	92	572	350	33	636	64	119	186	59				
Future Volume (veh/h)	410	957	87	92	572	350	33	636	64	119	186	59				
Number	1	6	16	5	2	12	7	4	14	3	8	18				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700				
Adj Flow Rate, veh/h	410	957	0	92	572	0	33	636	64	119	186	59				
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94				
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	362	1017	455	161	603	270	433	559	56	146	496	157				
Arrive On Green	0.19	0.32	0.00	0.06	0.19	0.00	0.03	0.38	0.38	0.06	0.41	0.41				
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	1490	150	1587	1214	385				
Grp Volume(v), veh/h	410	957	0	92	572	0	33	0	700	119	0	245				
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	0	1640	1587	0	1599				
Q Serve(g_s), s	26.5	41.2	0.0	6.5	25.0	0.0	1.8	0.0	52.5	6.4	0.0	15.0				
Cycle Q Clear(g_c), s	26.5	41.2	0.0	6.5	25.0	0.0	1.8	0.0	52.5	6.4	0.0	15.0				
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.24				
Lane Grp Cap(c), veh/h	362	1017	455	161	603	270	433	0	615	146	0	653				
V/C Ratio(X)	1.13	0.94	0.00	0.57	0.95	0.00	0.08	0.00	1.14	0.82	0.00	0.38				
Avail Cap(c_a), veh/h	362	1017	455	164	603	270	489	0	615	148	0	653				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	0.85	0.85	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00				
Uniform Delay (d), s/veh	40.0	46.2	0.0	44.1	56.0	0.0	26.1	0.0	43.8	34.0	0.0	28.9				
Incr Delay (d2), s/veh	270.4	20.2	0.0	4.7	38.5	0.0	0.1	0.0	270.7	34.5	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(95%),veh/ln	74.1	27.7	0.0	5.5	20.4	0.0	1.4	0.0	126.0	7.6	0.0	10.9				
LnGrp Delay(d),s/veh	310.4	66.5	0.0	48.8	94.4	0.0	26.1	0.0	314.4	68.5	0.0	29.3				
LnGrp LOS	F	E		D	F		C		F	E		C				
Approach Vol, veh/h	1367				664				733							
Approach Delay, s/veh	139.6				88.1				301.4							
Approach LOS	F				F				F							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	33.0	33.2	14.8	59.0	14.7	51.4	10.1	63.7								
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5								
Max Green Setting (Gmax), s	26.5	26.5	8.5	52.5	8.5	44.5	8.5	52.5								
Max Q Clear Time (g_c+l1), s	28.5	27.0	8.4	54.5	8.5	43.2	3.8	17.0								
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.3	0.0	3.9								
Intersection Summary																
HCM 2010 Ctrl Delay	155.3															
HCM 2010 LOS	F															

Intersection

Int Delay, s/veh 5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	169	132	530	236	93
Future Vol, veh/h	56	169	132	530	236	93
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	56	169	132	530	236	93

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1123	295	343
Stage 1	295	-	-
Stage 2	828	-	-
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	227	744	1216
Stage 1	755	-	-
Stage 2	429	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	201	744	1216
Mov Cap-2 Maneuver	201	-	-
Stage 1	670	-	-
Stage 2	429	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22	1.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1216	-	445	-	-
HCM Lane V/C Ratio	0.113	-	0.527	-	-
HCM Control Delay (s)	8.3	-	22	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	3.2	-	-

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2018 Existing PM
02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	292	193	296	93	270	364	455	11	277
Future Volume (vph)	292	193	296	93	270	364	455	11	277
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	25.0	40.0	30.0	20.0	35.0	30.0	55.0	15.0	40.0
Total Split (%)	19.2%	30.8%	23.1%	15.4%	26.9%	23.1%	42.3%	11.5%	30.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 92.5
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
30 s	40 s	25 s	35 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	55 s	20 s	40 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2018 Existing PM
02/27/2019

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	292	193	296	93	270	25	364	455	46	11	277	185				
Future Volume (veh/h)	292	193	296	93	270	25	364	455	46	11	277	185				
Number	3	8	18	7	4	14	1	6	16	5	2	12				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700				
Adj Flow Rate, veh/h	292	193	296	93	270	25	364	455	46	11	277	185				
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0				
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87				
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	390	400	600	293	392	36	479	1262	127	325	487	316				
Arrive On Green	0.17	0.24	0.24	0.07	0.13	0.13	0.18	0.43	0.43	0.01	0.26	0.26				
Sat Flow, veh/h	1587	1667	1417	1587	2933	270	1587	2906	293	1587	1844	1195				
Grp Volume(v), veh/h	292	193	296	93	145	150	364	247	254	11	237	225				
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1619	1587	1583	1615	1587	1583	1456				
Q Serve(g_s), s	16.0	10.5	16.0	5.2	9.2	9.3	16.7	11.0	11.1	0.5	13.6	14.2				
Cycle Q Clear(g_c), s	16.0	10.5	16.0	5.2	9.2	9.3	16.7	11.0	11.1	0.5	13.6	14.2				
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.18	1.00		0.82				
Lane Grp Cap(c), veh/h	390	400	600	293	212	216	479	688	702	325	418	385				
V/C Ratio(X)	0.75	0.48	0.49	0.32	0.68	0.69	0.76	0.36	0.36	0.03	0.57	0.59				
Avail Cap(c_a), veh/h	396	530	710	393	429	438	543	730	744	433	504	463				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Uniform Delay (d), s/veh	30.3	34.4	22.1	35.9	43.5	43.5	21.5	19.9	20.0	27.7	33.5	33.7				
Incr Delay (d2), s/veh	8.0	0.9	0.6	0.6	3.9	4.0	5.7	0.3	0.3	0.0	1.2	1.4				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(95%),veh/ln	12.3	8.6	10.5	4.2	7.6	7.9	12.7	8.5	8.7	0.4	10.1	9.8				
LnGrp Delay(d),s/veh	38.2	35.3	22.7	36.5	47.4	47.6	27.2	20.3	20.3	27.7	34.7	35.1				
LnGrp LOS	D	D	C	D	D	D	C	C	C	C	C	D				
Approach Vol, veh/h	781				388				865							
Approach Delay, s/veh	31.6				44.9				23.2							
Approach LOS	C				D				C							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	25.8	34.3	24.6	20.6	7.9	52.2	13.4	31.8								
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5								
Max Green Setting (Gmax), s	23.5	33.5	18.5	28.5	8.5	48.5	13.5	33.5								
Max Q Clear Time (g_c+I1), s	18.7	16.2	18.0	11.3	2.5	13.1	7.2	18.0								
Green Ext Time (p_c), s	0.6	11.6	0.1	2.8	0.0	19.0	0.1	2.7								
Intersection Summary																
HCM 2010 Ctrl Delay	31.3															
HCM 2010 LOS	C															

Timings 5: George Busbee Pkwy & Big Shanty Rd

2018 Existing PM
02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	285	560	211	80	473	275	207	474	145	243	401	171
Future Volume (vph)	285	560	211	80	473	275	207	474	145	243	401	171
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	25.0	51.0	51.0	15.0	41.0	41.0	21.0	42.0	42.0	22.0	43.0	43.0
Total Split (%)	19.2%	39.2%	39.2%	11.5%	31.5%	31.5%	16.2%	32.3%	32.3%	16.9%	33.1%	33.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
21 s	43 s	25 s	41 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
22 s	42 s	15 s	51 s

HCM 2010 Signalized Intersection Summary
5: George Busbee Pkwy & Big Shanty Rd

2018 Existing PM
02/27/2019

																								
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations																								
Traffic Volume (veh/h)	285	560	211	80	473	275	207	474	145	243	401	171												
Future Volume (veh/h)	285	560	211	80	473	275	207	474	145	243	401	171												
Number	3	8	18	7	4	14	1	6	16	5	2	12												
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0												
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00												
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667												
Adj Flow Rate, veh/h	285	560	211	80	473	275	207	474	145	243	401	171												
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90												
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2												
Cap, veh/h	375	1118	500	283	821	367	400	935	418	385	983	440												
Arrive On Green	0.14	0.35	0.35	0.05	0.26	0.26	0.11	0.30	0.30	0.12	0.31	0.31												
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417												
Grp Volume(v), veh/h	285	560	211	80	473	275	207	474	145	243	401	171												
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417												
Q Serve(g_s), s	16.6	18.1	14.7	4.8	16.9	23.2	11.7	16.1	10.4	13.7	13.0	12.3												
Cycle Q Clear(g_c), s	16.6	18.1	14.7	4.8	16.9	23.2	11.7	16.1	10.4	13.7	13.0	12.3												
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00												
Lane Grp Cap(c), veh/h	375	1118	500	283	821	367	400	935	418	385	983	440												
V/C Ratio(X)	0.76	0.50	0.42	0.28	0.58	0.75	0.52	0.51	0.35	0.63	0.41	0.39												
Avail Cap(c_a), veh/h	385	1118	500	320	865	387	421	935	418	394	983	440												
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Uniform Delay (d), s/veh	29.1	33.0	32.0	32.9	41.9	44.3	27.4	38.0	36.0	27.6	35.4	35.1												
Incr Delay (d2), s/veh	8.8	0.4	0.6	0.5	0.9	7.9	1.0	2.0	2.3	3.2	1.3	2.6												
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0												
%ile BackOfQ(95%),veh/ln	12.8	12.5	9.8	3.8	12.0	15.0	8.9	11.7	7.8	10.4	9.8	8.9												
LnGrp Delay(d),s/veh	38.0	33.4	32.5	33.4	42.8	52.1	28.5	39.9	38.2	30.7	36.6	37.7												
LnGrp LOS	D	C	C	C	D	D	C	D	D	C	D	D												
Approach Vol, veh/h	1056			828			826			815														
Approach Delay, s/veh	34.4			45.0			36.8			35.1														
Approach LOS	C			D			D			D														
Timer	1	2	3	4	5	6	7	8																
Assigned Phs	1	2	3	4	5	6	7	8																
Phs Duration (G+Y+Rc), s	19.3	47.4	24.2	39.2	21.3	45.4	11.9	51.4																
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5																
Max Green Setting (Gmax), s	15.5	36.0	19.5	35.5	16.5	35.0	9.5	45.5																
Max Q Clear Time (g_c+I1), s	13.7	15.0	18.6	25.2	15.7	18.1	6.8	20.1																
Green Ext Time (p_c), s	0.1	4.8	0.1	8.5	0.1	4.5	0.0	19.5																
Intersection Summary																								
HCM 2010 Ctrl Delay				37.6																				
HCM 2010 LOS				D																				
Notes																								
User approved pedestrian interval to be less than phase max green.																								

Timings
6: George Busbee Pkwy & Chastain Rd

2018 Existing PM
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			  		 	 			 
Traffic Volume (vph)	151	936	70	280	1199	189	87	394	294	276	308
Future Volume (vph)	151	936	70	280	1199	189	87	394	294	276	308
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	35.0	75.0	75.0	35.0	75.0	75.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	20.6%	44.1%	44.1%	20.6%	44.1%	44.1%	17.6%	17.6%	17.6%	17.6%	17.6%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 147 (86%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 180
 Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
35 s	75 s	30 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
35 s	75 s	30 s	30 s

HCM 2010 Signalized Intersection Summary

6: George Busbee Pkwy & Chastain Rd

2018 Existing PM
02/27/2019

																												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR																
Lane Configurations																												
Traffic Volume (veh/h)	151	936	70	280	1199	189	87	394	294	276	308	83																
Future Volume (veh/h)	151	936	70	280	1199	189	87	394	294	276	308	83																
Number	1	6	16	5	2	12	7	4	14	3	8	18																
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0																
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00																
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00																
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700																
Adj Flow Rate, veh/h	151	936	0	280	1199	0	87	394	0	276	308	83																
Adj No. of Lanes	1	3	1	1	3	1	2	2	1	1	2	0																
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, %	2	2	2	2	2	2	2	2	2	2	2	2																
Cap, veh/h	170	1836	572	261	2097	653	124	427	191	269	569	151																
Arrive On Green	0.11	0.40	0.00	0.33	0.92	0.00	0.04	0.13	0.00	0.14	0.23	0.23																
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	3079	3167	1417	1587	2477	657																
Grp Volume(v), veh/h	151	936	0	280	1199	0	87	394	0	276	195	196																
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1540	1583	1417	1587	1583	1551																
Q Serve(g_s), s	16.0	26.3	0.0	28.0	7.4	0.0	4.7	20.9	0.0	23.0	18.4	18.9																
Cycle Q Clear(g_c), s	16.0	26.3	0.0	28.0	7.4	0.0	4.7	20.9	0.0	23.0	18.4	18.9																
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.42																
Lane Grp Cap(c), veh/h	170	1836	572	261	2097	653	124	427	191	269	364	356																
V/C Ratio(X)	0.89	0.51	0.00	1.07	0.57	0.00	0.70	0.92	0.00	1.03	0.54	0.55																
Avail Cap(c_a), veh/h	261	1836	572	261	2097	653	417	428	192	269	364	356																
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00																
Upstream Filter(I)	1.00	1.00	0.00	0.82	0.82	0.00	1.00	1.00	0.00	1.00	1.00	1.00																
Uniform Delay (d), s/veh	74.9	38.1	0.0	57.0	3.9	0.0	80.6	72.7	0.0	55.9	57.5	57.7																
Incr Delay (d2), s/veh	25.0	1.0	0.0	186.4	0.9	0.0	7.3	35.2	0.0	137.8	1.6	1.8																
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(95%),veh/ln	12.9	16.7	0.0	46.3	5.1	0.0	3.9	16.7	0.0	18.5	12.9	13.0																
LnGrp Delay(d),s/veh	99.9	39.1	0.0	243.4	4.8	0.0	87.9	107.8	0.0	193.7	59.1	59.5																
LnGrp LOS	F	D		F	A		F	F		F	E	E																
Approach Vol, veh/h	1087				1479				481																			
Approach Delay, s/veh	47.5				50.0				104.2																			
Approach LOS	D				D				F																			
Timer	1	2	3	4	5	6	7	8																				
Assigned Phs	1	2	3	4	5	6	7	8																				
Phs Duration (G+Y+Rc), s	25.2	84.9	30.0	29.9	35.0	75.1	13.8	46.1																				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0																				
Max Green Setting (Gmax), s	28.0	68.5	23.0	23.0	28.0	68.5	23.0	23.0																				
Max Q Clear Time (g_c+I1), s	18.0	9.4	25.0	22.9	30.0	28.3	6.7	20.9																				
Green Ext Time (p_c), s	0.3	53.9	0.0	0.0	0.0	37.7	0.2	0.7																				
Intersection Summary																												
HCM 2010 Ctrl Delay	68.0																											
HCM 2010 LOS	E																											
Notes																												
User approved pedestrian interval to be less than phase max green.																												

Timings
7: Townpark Dr & Chastain Rd

2018 Existing PM
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	58	1253	55	14	1608	148	107	17	451	13
Future Volume (vph)	58	1253	55	14	1608	148	107	17	451	13
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	88.0	88.0	15.0	88.0	88.0	36.0	31.0	36.0	31.0
Total Split (%)	8.8%	51.8%	51.8%	8.8%	51.8%	51.8%	21.2%	18.2%	21.2%	18.2%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 153 (90%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	88 s	36 s	31 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	88 s	36 s	31 s

HCM 2010 Signalized Intersection Summary

7: Townpark Dr & Chastain Rd

2018 Existing PM
02/27/2019

																								
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations																								
Traffic Volume (veh/h)	58	1253	55	14	1608	148	107	17	109	451	13	111												
Future Volume (veh/h)	58	1253	55	14	1608	148	107	17	109	451	13	111												
Number	1	6	16	5	2	12	7	4	14	3	8	18												
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0												
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00												
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700												
Adj Flow Rate, veh/h	58	1253	0	14	1608	148	107	17	0	451	13	111												
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95												
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2												
Cap, veh/h	187	2765	861	327	2704	842	206	59	0	485	17	149												
Arrive On Green	0.06	1.00	0.00	0.01	0.59	0.59	0.08	0.04	0.00	0.16	0.12	0.12												
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	151	1288												
Grp Volume(v), veh/h	58	1253	0	14	1608	148	107	17	0	451	0	124												
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1439												
Q Serve(g_s), s	2.5	0.0	0.0	0.6	37.7	8.0	10.9	1.7	0.0	24.6	0.0	14.2												
Cycle Q Clear(g_c), s	2.5	0.0	0.0	0.6	37.7	8.0	10.9	1.7	0.0	24.6	0.0	14.2												
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.90												
Lane Grp Cap(c), veh/h	187	2765	861	327	2704	842	206	59	0	485	0	167												
V/C Ratio(X)	0.31	0.45	0.00	0.04	0.59	0.18	0.52	0.29	0.00	0.93	0.00	0.74												
Avail Cap(c_a), veh/h	214	2765	861	375	2704	842	340	221	0	498	0	190												
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Upstream Filter(I)	0.77	0.77	0.00	0.68	0.68	0.68	1.00	1.00	0.00	1.00	0.00	1.00												
Uniform Delay (d), s/veh	17.4	0.0	0.0	13.1	21.6	15.6	71.8	79.9	0.0	70.7	0.0	72.7												
Incr Delay (d2), s/veh	0.7	0.4	0.0	0.0	0.7	0.3	2.0	2.7	0.0	33.1	0.0	13.7												
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0												
%ile BackOfQ(95%),veh/ln	1.9	0.2	0.0	0.5	21.4	5.6	8.5	1.5	0.0	18.5	0.0	10.4												
LnGrp Delay(d),s/veh	18.1	0.4	0.0	13.2	22.3	15.9	73.9	82.6	0.0	103.8	0.0	86.4												
LnGrp LOS	B	A		B	C	B	E	F		F		F												
Approach Vol, veh/h	1311			1770			124			575														
Approach Delay, s/veh	1.2			21.7			75.1			100.0														
Approach LOS	A			C			E			F														
Timer	1	2	3	4	5	6	7	8																
Assigned Phs	1	2	3	4	5	6	7	8																
Phs Duration (G+Y+Rc), s	12.2	108.0	35.3	14.5	9.9	110.3	21.6	28.2																
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5																
Max Green Setting (Gmax), s	7.5	81.0	27.5	22.5	7.5	81.0	27.5	22.5																
Max Q Clear Time (g_c+I1), s	4.5	39.7	26.6	3.7	2.6	2.0	12.9	16.2																
Green Ext Time (p_c), s	0.0	40.9	0.2	0.4	0.0	77.4	0.3	0.2																
Intersection Summary																								
HCM 2010 Ctrl Delay				28.3																				
HCM 2010 LOS				C																				
Notes																								
User approved pedestrian interval to be less than phase max green.																								

Timings
8: I-575 SB Ramps & Chastain Rd

2018 Existing PM
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	1436	387	52	958	45	870
Future Volume (vph)	1436	387	52	958	45	870
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	110.0	110.0	15.0	125.0	45.0	45.0
Total Split (%)	64.7%	64.7%	8.8%	73.5%	26.5%	26.5%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 100 (59%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2018 Existing PM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑
Traffic Volume (vph)	0	1436	387	52	958	0	0	0	0	45	0	870
Future Volume (vph)	0	1436	387	52	958	0	0	0	0	45	0	870
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		1417
Flt Permitted		1.00	1.00	0.12	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	201	3167					1583		1417
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1436	387	52	958	0	0	0	0	45	0	870
RTOR Reduction (vph)	0	0	103	0	0	0	0	0	0	0	0	641
Lane Group Flow (vph)	0	1436	284	52	958	0	0	0	0	45	0	229
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		112.8	112.8	125.7	125.7					30.8		30.8
Effective Green, g (s)		112.8	112.8	125.7	125.7					30.8		30.8
Actuated g/C Ratio		0.66	0.66	0.74	0.74					0.18		0.18
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2101	940	196	2341					286		256
v/s Ratio Prot		c0.45		0.01	c0.30					0.03		
v/s Ratio Perm			0.20	0.19								c0.16
v/c Ratio		0.68	0.30	0.27	0.41					0.16		0.89
Uniform Delay, d1		17.6	12.0	12.2	8.3					58.7		68.0
Progression Factor		0.68	0.31	0.31	0.62					1.00		1.00
Incremental Delay, d2		1.6	0.7	0.7	0.5					0.3		40.3
Delay (s)		13.7	4.5	4.4	5.6					58.9		108.3
Level of Service		B	A	A	A					E		F
Approach Delay (s)		11.7			5.6			0.0			105.9	
Approach LOS		B			A			A			F	
Intersection Summary												
HCM 2000 Control Delay			33.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			101.1%			ICU Level of Service				G		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

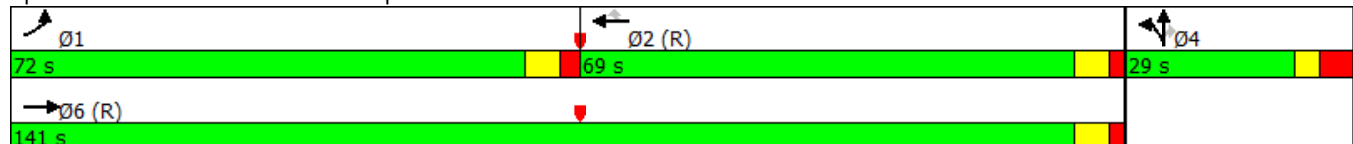
2018 Existing PM
02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	870	615	818	104	208	0	79
Future Volume (vph)	870	615	818	104	208	0	79
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	72.0	141.0	69.0	69.0	29.0	29.0	29.0
Total Split (%)	42.4%	82.9%	40.6%	40.6%	17.1%	17.1%	17.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 75 (44%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd



HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2018 Existing PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	870	615	0	0	818	104	208	0	79	0	0	0
Future Volume (veh/h)	870	615	0	0	818	104	208	0	79	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	870	615	0	0	818	0	208	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	924	2655	0	0	1574	704	252	0	112			
Arrive On Green	0.50	1.00	0.00	0.00	0.99	0.00	0.08	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	870	615	0	0	818	0	208	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	45.4	0.0	0.0	0.0	0.5	0.0	11.0	0.0	0.0			
Cycle Q Clear(g_c), s	45.4	0.0	0.0	0.0	0.5	0.0	11.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	924	2655	0	0	1574	704	252	0	112			
V/C Ratio(X)	0.94	0.23	0.00	0.00	0.52	0.00	0.83	0.00	0.00			
Avail Cap(c_a), veh/h	1177	2655	0	0	1574	704	401	0	179			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.70	0.70	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	41.0	0.0	0.0	0.0	0.2	0.0	77.1	0.0	0.0			
Incr Delay (d2), s/veh	11.7	0.1	0.0	0.0	1.2	0.0	8.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	26.9	0.1	0.0	0.0	0.7	0.0	8.8	0.0	0.0			
LnGrp Delay(d),s/veh	52.7	0.1	0.0	0.0	1.5	0.0	85.3	0.0	0.0			
LnGrp LOS	D	A			A		F					
Approach Vol, veh/h	1485				818			208				
Approach Delay, s/veh	31.0				1.5			85.3				
Approach LOS	C				A			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	58.0	91.0		21.0		149.0						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	65.0	62.5		21.5		134.5						
Max Q Clear Time (g_c+I1), s	47.4	2.5		13.0		2.0						
Green Ext Time (p_c), s	3.6	41.6		0.5		65.4						
Intersection Summary												
HCM 2010 Ctrl Delay			25.8									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	741	646	26	11	21
Future Vol, veh/h	24	741	646	26	11	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	741	646	26	11	21

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	700	0	0 1109 337
Stage 1	-	-	- 673 -
Stage 2	-	-	- 436 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	893	-	- 204 659
Stage 1	-	-	- 468 -
Stage 2	-	-	- 619 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	893	-	- 198 659
Mov Cap-2 Maneuver	-	-	- 198 -
Stage 1	-	-	- 455 -
Stage 2	-	-	- 619 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	893	-	-	-	366
HCM Lane V/C Ratio	0.028	-	-	-	0.091
HCM Control Delay (s)	9.1	-	-	-	15.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Timings
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2018 Existing PM
02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	
Lane Configurations		 			 							
Traffic Volume (vph)	5	558	92	195	469	8	290	1	475	0	6	
Future Volume (vph)	5	558	92	195	469	8	290	1	475	0	6	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm	
Protected Phases		6		5	2		4	4		8		
Permitted Phases	6		6	2		2			4		8	
Detector Phase	6	6	6	5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0	
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0	
Total Split (s)	67.0	67.0	67.0	20.0	87.0	87.0	63.0	63.0	63.0	20.0	20.0	
Total Split (%)	39.4%	39.4%	39.4%	11.8%	51.2%	51.2%	37.1%	37.1%	37.1%	11.8%	11.8%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 55 (32%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
87 s	63 s	20 s
 Ø5	 Ø6 (R)	
20 s	67 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2018 Existing PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	558	92	195	469	8	290	1	475	3	0	6
Future Volume (veh/h)	5	558	92	195	469	8	290	1	475	3	0	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	5	558	0	195	469	0	291	0	475	3	0	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	1330	595	488	1703	762	1055	0	471	19	0	17
Arrive On Green	0.84	0.84	0.00	0.08	0.54	0.00	0.33	0.00	0.33	0.01	0.00	0.01
Sat Flow, veh/h	920	3167	1417	1587	3167	1417	3175	0	1417	1587	0	1417
Grp Volume(v), veh/h	5	558	0	195	469	0	291	0	475	3	0	6
Grp Sat Flow(s),veh/h/ln	920	1583	1417	1587	1583	1417	1587	0	1417	1587	0	1417
Q Serve(g_s), s	0.1	7.4	0.0	11.6	13.7	0.0	11.5	0.0	56.5	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.1	7.4	0.0	11.6	13.7	0.0	11.5	0.0	56.5	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	429	1330	595	488	1703	762	1055	0	471	19	0	17
V/C Ratio(X)	0.01	0.42	0.00	0.40	0.28	0.00	0.28	0.00	1.01	0.15	0.00	0.35
Avail Cap(c_a), veh/h	429	1330	595	488	1703	762	1055	0	471	121	0	108
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.48	0.48	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	8.5	0.0	23.5	21.3	0.0	41.7	0.0	56.7	83.1	0.0	83.3
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.3	0.2	0.0	0.1	0.0	91.7	3.7	0.0	11.8
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(95%),veh/ln	0.1	5.9	0.0	7.6	8.8	0.0	8.7	0.0	61.5	0.3	0.0	0.6
LnGrp Delay(d),s/veh	7.9	9.4	0.0	23.7	21.5	0.0	41.9	0.0	148.4	86.8	0.0	95.1
LnGrp LOS	A	A		C	C		D		F	F		F
Approach Vol, veh/h	563			664			766			9		
Approach Delay, s/veh	9.4			22.2			107.9			92.3		
Approach LOS	A			C			F			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4	5	6		8				
Phs Duration (G+Y+Rc), s	97.9			63.0	20.0	77.9		9.1				
Change Period (Y+Rc), s	6.5			6.5	6.5	6.5		7.0				
Max Green Setting (Gmax), s	80.5			56.5	13.5	60.5		13.0				
Max Q Clear Time (g_c+I1), s	15.7			58.5	13.6	9.4		2.7				
Green Ext Time (p_c), s	28.9			0.0	0.0	25.9		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	51.7											
HCM 2010 LOS	D											
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection

Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	13	755	7	2	287
Future Vol, veh/h	45	13	755	7	2	287
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	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	13	755	7	2	287

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	954	401	0
Stage 1	799	-	-
Stage 2	155	-	-
Critical Hdwy	6.84	6.94	-
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	-
Pot Cap-1 Maneuver	257	599	-
Stage 1	403	-	-
Stage 2	857	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	256	599	-
Mov Cap-2 Maneuver	256	-	-
Stage 1	403	-	-
Stage 2	855	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 256 599	817	-
HCM Lane V/C Ratio	-	- 0.185 0.023	0.003	-
HCM Control Delay (s)	-	- 22.2 11.2	9.4	-
HCM Lane LOS	-	- C B	A	-
HCM 95th %tile Q(veh)	-	- 0.7 0.1	0	-

Future “No-Build” Intersection Analysis

Timings
1: Bells Ferry Rd & N. Booth Rd

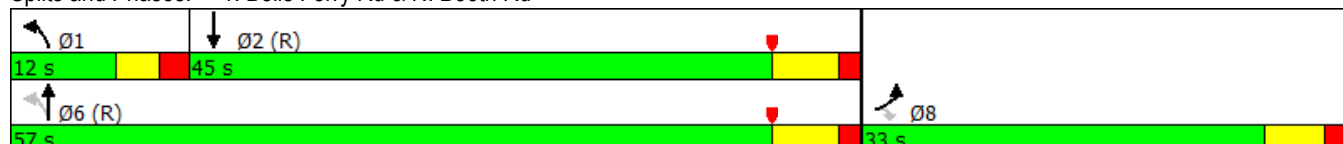
2022 Future No-Build AM
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	478	312	155	188	510
Future Volume (vph)	478	312	155	188	510
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	33.0	33.0	12.0	57.0	45.0
Total Split (%)	36.7%	36.7%	13.3%	63.3%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future No-Build AM
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	478	312	155	188	510	157		
Future Volume (veh/h)	478	312	155	188	510	157		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	478	312	155	188	510	157		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	476	425	223	944	538	166		
Arrive On Green	0.30	0.30	0.07	0.57	0.44	0.44		
Sat Flow, veh/h	1587	1417	1587	1667	1224	377		
Grp Volume(v), veh/h	478	312	155	188	0	667		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1600		
Q Serve(g_s), s	27.0	17.8	4.5	5.0	0.0	36.0		
Cycle Q Clear(g_c), s	27.0	17.8	4.5	5.0	0.0	36.0		
Prop In Lane	1.00	1.00	1.00			0.24		
Lane Grp Cap(c), veh/h	476	425	223	944	0	704		
V/C Ratio(X)	1.00	0.73	0.69	0.20	0.00	0.95		
Avail Cap(c_a), veh/h	476	425	233	944	0	704		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	31.5	28.3	20.1	9.5	0.0	24.2		
Incr Delay (d2), s/veh	86.1	6.7	8.5	0.5	0.0	34.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	41.7	12.3	4.5	4.3	0.0	30.2		
LnGrp Delay(d),s/veh	117.6	35.0	28.6	10.0	0.0	58.4		
LnGrp LOS	F	D	C	A		E		
Approach Vol, veh/h	790			343	667			
Approach Delay, s/veh	85.0			18.4	58.4			
Approach LOS	F			B	E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.4	45.6				57.0		33.0
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	7.0	39.0				51.0		27.0
Max Q Clear Time (g_c+l1), s	6.5	38.0				7.0		29.0
Green Ext Time (p_c), s	0.0	0.9				28.6		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			62.5					
HCM 2010 LOS			E					

Timings 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build AM
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	388	42	133	866	213	73	171	236	413
Future Volume (vph)	48	388	42	133	866	213	73	171	236	413
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	15.0	42.0	42.0	15.0	42.0	42.0	15.0	44.0	19.0	48.0
Total Split (%)	12.5%	35.0%	35.0%	12.5%	35.0%	35.0%	12.5%	36.7%	15.8%	40.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 72 (60%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	42 s	19 s	44 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	42 s	15 s	48 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	388	42	133	866	213	73	171	57	236	413	152
Future Volume (veh/h)	48	388	42	133	866	213	73	171	57	236	413	152
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	48	388	0	133	866	0	73	171	57	236	413	152
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	188	1019	456	398	1138	509	131	343	114	418	402	148
Arrive On Green	0.03	0.32	0.00	0.07	0.36	0.00	0.04	0.29	0.29	0.10	0.35	0.35
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	1197	399	1587	1163	428
Grp Volume(v), veh/h	48	388	0	133	866	0	73	0	228	236	0	565
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	0	1596	1587	0	1591
Q Serve(g_s), s	2.4	11.4	0.0	6.7	28.9	0.0	3.9	0.0	14.3	12.4	0.0	41.5
Cycle Q Clear(g_c), s	2.4	11.4	0.0	6.7	28.9	0.0	3.9	0.0	14.3	12.4	0.0	41.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.27
Lane Grp Cap(c), veh/h	188	1019	456	398	1138	509	131	0	457	418	0	550
V/C Ratio(X)	0.26	0.38	0.00	0.33	0.76	0.00	0.56	0.00	0.50	0.56	0.00	1.03
Avail Cap(c_a), veh/h	248	1019	456	398	1138	509	172	0	499	418	0	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	31.4	0.0	24.8	33.9	0.0	33.0	0.0	35.6	26.1	0.0	39.3
Incr Delay (d2), s/veh	0.7	1.1	0.0	0.5	5.0	0.0	3.7	0.0	0.8	1.8	0.0	105.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	8.8	0.0	5.4	19.4	0.0	3.3	0.0	10.5	9.5	0.0	61.8
LnGrp Delay(d),s/veh	29.1	32.5	0.0	25.3	38.9	0.0	36.7	0.0	36.5	27.9	0.0	144.8
LnGrp LOS	C	C		C	D		D		D	C		F
Approach Vol, veh/h	436				999				301			
Approach Delay, s/veh	32.1				37.1				36.5			
Approach LOS	C				D				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	49.6	19.0	40.9	15.0	45.1	11.9	48.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	8.5	35.5	12.5	37.5	8.5	35.5	8.5	41.5				
Max Q Clear Time (g_c+I1), s	4.4	30.9	14.4	16.3	8.7	13.4	5.9	43.5				
Green Ext Time (p_c), s	0.0	4.1	0.0	2.9	0.0	17.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	59.3											
HCM 2010 LOS	E											

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	71	159	197	455	174
Future Vol, veh/h	14	71	159	197	455	174
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	71	159	197	455	174
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1137	583	676	0	-	0
Stage 1	583	-	-	-	-	-
Stage 2	554	-	-	-	-	-
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	223	512	915	-	-	-
Stage 1	558	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	181	512	915	-	-	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.9	4.4		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	915	-	393	-	-	
HCM Lane V/C Ratio	0.187	-	0.233	-	-	
HCM Control Delay (s)	9.8	-	16.9	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.7	-	0.9	-	-	

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build AM

02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	150	171	225	67	245	111	154	5	198
Future Volume (vph)	150	171	225	67	245	111	154	5	198
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	19.0	41.0	19.0	17.0	39.0	19.0	46.0	16.0	43.0
Total Split (%)	15.8%	34.2%	15.8%	14.2%	32.5%	15.8%	38.3%	13.3%	35.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 69.3

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
19 s	43 s	19 s	39 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	46 s	17 s	41 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build AM
02/27/2019

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	150	171	225	67	245	11	111	154	80	5	198	170				
Future Volume (veh/h)	150	171	225	67	245	11	111	154	80	5	198	170				
Number	3	8	18	7	4	14	1	6	16	5	2	12				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700				
Adj Flow Rate, veh/h	150	171	225	67	245	11	111	154	80	5	198	170				
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0				
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81				
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	360	337	386	301	469	21	404	718	355	445	475	386				
Arrive On Green	0.10	0.20	0.20	0.05	0.15	0.15	0.07	0.35	0.35	0.01	0.29	0.29				
Sat Flow, veh/h	1587	1667	1417	1587	3088	138	1587	2054	1016	1587	1661	1351				
Grp Volume(v), veh/h	150	171	225	67	125	131	111	117	117	5	188	180				
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1642	1587	1583	1487	1587	1583	1428				
Q Serve(g_s), s	5.2	6.1	9.2	2.3	4.9	4.9	3.2	3.5	3.7	0.1	6.5	6.9				
Cycle Q Clear(g_c), s	5.2	6.1	9.2	2.3	4.9	4.9	3.2	3.5	3.7	0.1	6.5	6.9				
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.68	1.00		0.95				
Lane Grp Cap(c), veh/h	360	337	386	301	240	249	404	554	520	445	453	409				
V/C Ratio(X)	0.42	0.51	0.58	0.22	0.52	0.52	0.27	0.21	0.23	0.01	0.42	0.44				
Avail Cap(c_a), veh/h	492	859	829	466	768	797	589	934	877	659	863	778				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Uniform Delay (d), s/veh	20.7	23.7	21.1	22.2	26.2	26.2	15.3	15.3	15.4	16.8	19.4	19.5				
Incr Delay (d2), s/veh	0.8	1.2	1.4	0.4	1.8	1.7	0.4	0.2	0.2	0.0	0.6	0.7				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(95%),veh/ln	4.2	5.2	6.8	1.9	4.0	4.2	2.6	2.7	2.8	0.1	5.2	5.0				
LnGrp Delay(d),s/veh	21.5	24.9	22.5	22.5	27.9	27.9	15.7	15.5	15.6	16.8	20.0	20.3				
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	C				
Approach Vol, veh/h	546				323				345							
Approach Delay, s/veh	23.0				26.8				15.6							
Approach LOS	C				C				B							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	11.2	25.7	13.4	16.7	6.9	29.9	10.1	20.0								
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5								
Max Green Setting (Gmax), s	12.5	36.5	12.5	32.5	9.5	39.5	10.5	34.5								
Max Q Clear Time (g_c+l1), s	5.2	8.9	7.2	6.9	2.1	5.7	4.3	11.2								
Green Ext Time (p_c), s	0.1	10.3	0.2	2.4	0.0	11.3	0.1	2.3								
Intersection Summary																
HCM 2010 Ctrl Delay	21.5															
HCM 2010 LOS	C															

Timings
5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build AM
02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	117	274	65	51	463	117	61	131	52	198	196	272
Future Volume (vph)	117	274	65	51	463	117	61	131	52	198	196	272
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0
Total Split (%)	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 8 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
12 s	38 s	12 s	38 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	38 s	12 s	38 s

HCM 2010 Signalized Intersection Summary

5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build AM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	274	65	51	463	117	61	131	52	198	196	272
Future Volume (veh/h)	117	274	65	51	463	117	61	131	52	198	196	272
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	117	274	65	51	463	117	61	131	52	198	196	272
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	903	404	358	817	366	470	1194	534	594	1270	568
Arrive On Green	0.06	0.29	0.29	0.04	0.26	0.26	0.04	0.38	0.38	0.06	0.40	0.40
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417
Grp Volume(v), veh/h	117	274	65	51	463	117	61	131	52	198	196	272
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417
Q Serve(g_s), s	5.4	6.8	3.4	2.3	12.7	6.7	2.3	2.7	2.4	6.5	4.0	14.2
Cycle Q Clear(g_c), s	5.4	6.8	3.4	2.3	12.7	6.7	2.3	2.7	2.4	6.5	4.0	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	903	404	358	817	366	470	1194	534	594	1270	568
V/C Ratio(X)	0.41	0.30	0.16	0.14	0.57	0.32	0.13	0.11	0.10	0.33	0.15	0.48
Avail Cap(c_a), veh/h	284	1029	460	401	1029	460	508	1194	534	594	1270	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	28.0	26.8	25.7	32.2	30.0	17.6	20.2	20.1	18.2	19.1	22.2
Incr Delay (d2), s/veh	1.0	0.2	0.2	0.2	0.6	0.5	0.1	0.2	0.4	0.3	0.3	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	5.4	2.5	1.9	9.5	4.8	1.9	2.2	1.8	1.6	3.2	10.0
LnGrp Delay(d),s/veh	26.6	28.2	27.0	25.9	32.9	30.5	17.8	20.4	20.5	18.5	19.4	25.1
LnGrp LOS	C	C	C	C	C	C	B	C	C	B	B	C
Approach Vol, veh/h	456				631				244			
Approach Delay, s/veh	27.6				31.9				19.8			
Approach LOS	C				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	47.1	12.0	31.3	12.0	44.7	9.3	34.0				
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5				
Max Green Setting (Gmax), s	6.5	31.0	6.5	32.5	6.5	31.0	6.5	32.5				
Max Q Clear Time (g_c+I1), s	4.3	16.2	7.4	14.7	8.5	4.7	4.3	8.8				
Green Ext Time (p_c), s	0.0	2.2	0.0	11.1	0.0	2.5	0.0	13.6				
Intersection Summary												
HCM 2010 Ctrl Delay	25.9											
HCM 2010 LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build AM
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			  		 	 			 
Traffic Volume (vph)	259	932	34	268	1194	196	45	201	172	133	245
Future Volume (vph)	259	932	34	268	1194	196	45	201	172	133	245
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	45.0	60.0	60.0	45.0	60.0	60.0	23.0	22.0	22.0	23.0	22.0
Total Split (%)	30.0%	40.0%	40.0%	30.0%	40.0%	40.0%	15.3%	14.7%	14.7%	15.3%	14.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 80 (53%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
45 s	60 s	23 s	22 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
45 s	60 s	23 s	22 s

HCM 2010 Signalized Intersection Summary
6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build AM
02/27/2019

																								
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations																								
Traffic Volume (veh/h)	259	932	34	268	1194	196	45	201	172	133	245	21												
Future Volume (veh/h)	259	932	34	268	1194	196	45	201	172	133	245	21												
Number	1	6	16	5	2	12	7	4	14	3	8	18												
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0												
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00												
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700												
Adj Flow Rate, veh/h	259	932	0	268	1194	0	45	201	0	133	245	21												
Adj No. of Lanes	1	3	1	1	3	1	2	2	1	1	2	0												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96												
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2												
Cap, veh/h	282	2138	666	287	2150	669	87	246	110	206	408	35												
Arrive On Green	0.18	0.47	0.00	0.36	0.95	0.00	0.03	0.08	0.00	0.09	0.14	0.14												
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	3079	3167	1417	1587	2954	251												
Grp Volume(v), veh/h	259	932	0	268	1194	0	45	201	0	133	130	136												
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1540	1583	1417	1587	1583	1622												
Q Serve(g_s), s	24.0	20.5	0.0	24.4	4.6	0.0	2.2	9.4	0.0	11.3	11.6	11.8												
Cycle Q Clear(g_c), s	24.0	20.5	0.0	24.4	4.6	0.0	2.2	9.4	0.0	11.3	11.6	11.8												
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15												
Lane Grp Cap(c), veh/h	282	2138	666	287	2150	669	87	246	110	206	218	224												
V/C Ratio(X)	0.92	0.44	0.00	0.93	0.56	0.00	0.52	0.82	0.00	0.64	0.60	0.61												
Avail Cap(c_a), veh/h	402	2138	666	402	2150	669	328	317	142	235	218	224												
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00												
Upstream Filter(I)	1.00	1.00	0.00	0.90	0.90	0.00	1.00	1.00	0.00	1.00	1.00	1.00												
Uniform Delay (d), s/veh	60.6	26.5	0.0	47.1	2.3	0.0	71.9	68.1	0.0	55.6	60.7	60.8												
Incr Delay (d2), s/veh	26.4	0.7	0.0	30.7	0.9	0.0	4.8	13.5	0.0	5.0	4.5	4.7												
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0												
%ile BackOfQ(95%),veh/ln	18.5	13.5	0.0	18.6	3.1	0.0	1.8	8.1	0.0	8.9	9.1	9.5												
LnGrp Delay(d),s/veh	87.0	27.2	0.0	77.7	3.2	0.0	76.7	81.6	0.0	60.6	65.2	65.5												
LnGrp LOS	F	C		E	A		E	F		E	E	E												
Approach Vol, veh/h	1191			1462			246			399														
Approach Delay, s/veh	40.2			16.9			80.7			63.8														
Approach LOS	D			B			F			E														
Timer	1	2	3	4	5	6	7	8																
Assigned Phs	1	2	3	4	5	6	7	8																
Phs Duration (G+Y+Rc), s	33.7	77.4	20.3	18.6	34.1	77.0	11.2	27.7																
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0																
Max Green Setting (Gmax), s	38.0	53.5	16.0	15.0	38.0	53.5	16.0	15.0																
Max Q Clear Time (g_c+I1), s	26.0	6.6	13.3	11.4	26.4	22.5	4.2	13.8																
Green Ext Time (p_c), s	0.7	43.5	0.1	0.3	0.7	29.4	0.1	0.2																
Intersection Summary																								
HCM 2010 Ctrl Delay	35.7																							
HCM 2010 LOS	D																							
Notes																								
User approved pedestrian interval to be less than phase max green.																								

Timings
7: Townpark Dr & Chastain Rd

2022 Future No-Build AM

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	115	1069	94	110	1625	526	18	8	32	5
Future Volume (vph)	115	1069	94	110	1625	526	18	8	32	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	95.0	95.0	15.0	95.0	95.0	15.0	25.0	15.0	25.0
Total Split (%)	10.0%	63.3%	63.3%	10.0%	63.3%	63.3%	10.0%	16.7%	10.0%	16.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 79 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	95 s	15 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	95 s	15 s	25 s

HCM 2010 Signalized Intersection Summary

7: Townpark Dr & Chastain Rd

2022 Future No-Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	1069	94	110	1625	526	18	8	15	32	5	16
Future Volume (veh/h)	115	1069	94	110	1625	526	18	8	15	32	5	16
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	115	1069	0	110	1625	526	18	8	0	32	5	16
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	3170	987	468	3166	986	114	57	0	76	14	46
Arrive On Green	0.07	1.00	0.00	0.07	1.00	1.00	0.02	0.03	0.00	0.02	0.04	0.04
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	350	1119
Grp Volume(v), veh/h	115	1069	0	110	1625	526	18	8	0	32	0	21
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1469
Q Serve(g_s), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Cycle Q Clear(g_c), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.76
Lane Grp Cap(c), veh/h	233	3170	987	468	3166	986	114	57	0	76	0	61
V/C Ratio(X)	0.49	0.34	0.00	0.23	0.51	0.53	0.16	0.14	0.00	0.42	0.00	0.35
Avail Cap(c_a), veh/h	256	3170	987	493	3166	986	155	183	0	133	0	162
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.00	0.54	0.54	0.54	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.7	0.0	0.0	68.2	70.3	0.0	72.1	0.0	69.9
Incr Delay (d2), s/veh	1.5	0.3	0.0	0.1	0.3	1.1	0.6	1.1	0.0	3.8	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.1	0.0	2.4	0.2	0.6	1.3	0.6	0.0	1.2	0.0	1.6
LnGrp Delay(d),s/veh	7.1	0.3	0.0	5.8	0.3	1.1	68.8	71.4	0.0	75.9	0.0	73.3
LnGrp LOS	A	A		A	A	A	E	E		E		E
Approach Vol, veh/h	1184			2261			26			53		
Approach Delay, s/veh	0.9			0.8			69.6			74.9		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	111.4	12.2	13.7	12.6	111.5	11.1	14.7				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	88.0	6.5	16.5	7.5	88.0	6.5	16.5				
Max Q Clear Time (g_c+I1), s	5.3	2.0	3.5	2.7	5.1	2.0	3.6	4.1				
Green Ext Time (p_c), s	0.1	84.0	0.0	0.0	0.1	84.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				2.4								
HCM 2010 LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build AM
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↙	↑↑	↙	↑
Traffic Volume (vph)	1008	107	149	1094	167	1167
Future Volume (vph)	1008	107	149	1094	167	1167
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	84.0	84.0	26.0	110.0	40.0	40.0
Total Split (%)	56.0%	56.0%	17.3%	73.3%	26.7%	26.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 84 (56%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build AM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑
Traffic Volume (vph)	0	1008	107	149	1094	0	0	0	0	167	0	1167
Future Volume (vph)	0	1008	107	149	1094	0	0	0	0	167	0	1167
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		1417
Flt Permitted		1.00	1.00	0.20	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	335	3167					1583		1417
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1008	107	149	1094	0	0	0	0	167	0	1167
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	0	819
Lane Group Flow (vph)	0	1008	61	149	1094	0	0	0	0	167	0	348
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		86.1	86.1	103.5	103.5					33.0		33.0
Effective Green, g (s)		86.1	86.1	103.5	103.5					33.0		33.0
Actuated g/C Ratio		0.57	0.57	0.69	0.69					0.22		0.22
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1817	813	317	2185					348		311
v/s Ratio Prot		c0.32		0.03	c0.35					0.11		
v/s Ratio Perm			0.04	0.29								c0.25
v/c Ratio		0.55	0.08	0.47	0.50					0.48		1.12
Uniform Delay, d1		20.0	14.2	11.6	11.0					51.0		58.5
Progression Factor		0.45	0.10	1.30	1.50					1.00		1.00
Incremental Delay, d2		1.2	0.2	1.0	0.7					1.0		259.1
Delay (s)		10.2	1.5	16.0	17.2					52.1		317.6
Level of Service		B	A	B	B					D		F
Approach Delay (s)		9.4			17.1			0.0			284.4	
Approach LOS		A			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			111.3			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			20.5			
Intersection Capacity Utilization			125.8%			ICU Level of Service			H			
Analysis Period (min)			60									
c Critical Lane Group												

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build AM
02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	540	633	820	66	421	1	157
Future Volume (vph)	540	633	820	66	421	1	157
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	44.0	107.0	63.0	63.0	43.0	43.0	43.0
Total Split (%)	29.3%	71.3%	42.0%	42.0%	28.7%	28.7%	28.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 28 (19%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

 Ø1	 Ø2 (R)	 Ø4
44 s	63 s	43 s
 Ø6 (R)		
107 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	633	0	0	820	66	421	1	157	0	0	0
Future Volume (veh/h)	540	633	0	0	820	66	421	1	157	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	540	633	0	0	820	0	422	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	601	2385	0	0	1620	725	487	0	217			
Arrive On Green	0.20	0.75	0.00	0.00	1.00	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	540	633	0	0	820	0	422	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	25.7	9.2	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Cycle Q Clear(g_c), s	25.7	9.2	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	601	2385	0	0	1620	725	487	0	217			
V/C Ratio(X)	0.90	0.27	0.00	0.00	0.51	0.00	0.87	0.00	0.00			
Avail Cap(c_a), veh/h	760	2385	0	0	1620	725	751	0	335			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.82	0.82	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	58.9	5.7	0.0	0.0	0.0	0.0	62.0	0.0	0.0			
Incr Delay (d2), s/veh	11.3	0.2	0.0	0.0	1.1	0.0	7.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	17.0	7.1	0.0	0.0	0.5	0.0	14.0	0.0	0.0			
LnGrp Delay(d),s/veh	70.2	5.9	0.0	0.0	1.1	0.0	69.3	0.0	0.0			
LnGrp LOS	E	A			A		E					
Approach Vol, veh/h	1173				820				422			
Approach Delay, s/veh	35.5				1.1				69.3			
Approach LOS	D				A				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.3	83.2		30.5		119.5						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	37.0	56.5		35.5		100.5						
Max Q Clear Time (g_c+l1), s	27.7	2.0		21.5		11.2						
Green Ext Time (p_c), s	1.6	39.4		1.5		54.6						
Intersection Summary												
HCM 2010 Ctrl Delay			29.7									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	779	892	8	9	40
Future Vol, veh/h	11	779	892	8	9	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	779	892	8	9	40
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1023	0	-	0	1483	507
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	674	-	-	-	116	511
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	596	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	674	-	-	-	114	511
Mov Cap-2 Maneuver	-	-	-	-	114	-
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	596	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		19		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	674	-	-	-	312	
HCM Lane V/C Ratio	0.019	-	-	-	0.178	
HCM Control Delay (s)	10.4	-	-	-	19	
HCM Lane LOS	B	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

Timings

2022 Future No-Build AM

11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	6	459	338	281	817	2	80	0	96	2	6	
Future Volume (vph)	6	459	338	281	817	2	80	0	96	2	6	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm	
Protected Phases		6		5	2		4	4		8		
Permitted Phases	6		6	2		2			4		8	
Detector Phase	6	6	6	5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0	
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0	
Total Split (s)	53.0	53.0	53.0	36.0	89.0	89.0	41.0	41.0	41.0	20.0	20.0	
Total Split (%)	35.3%	35.3%	35.3%	24.0%	59.3%	59.3%	27.3%	27.3%	27.3%	13.3%	13.3%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
89 s	41 s	20 s
 Ø5	 Ø6 (R)	
36 s	53 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future No-Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	459	338	281	817	2	80	0	96	6	2	6
Future Volume (veh/h)	6	459	338	281	817	2	80	0	96	6	2	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	6	459	0	281	817	0	80	0	96	6	2	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	478	2045	915	769	2423	1084	266	0	119	21	7	25
Arrive On Green	1.00	1.00	0.00	0.08	0.77	0.00	0.08	0.00	0.08	0.02	0.02	0.02
Sat Flow, veh/h	666	3167	1417	1587	3167	1417	3175	0	1417	1205	402	1417
Grp Volume(v), veh/h	6	459	0	281	817	0	80	0	96	8	0	6
Grp Sat Flow(s),veh/h/ln	666	1583	1417	1587	1583	1417	1587	0	1417	1606	0	1417
Q Serve(g_s), s	0.0	0.0	0.0	8.5	12.2	0.0	3.6	0.0	10.0	0.7	0.0	0.6
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.5	12.2	0.0	3.6	0.0	10.0	0.7	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.75		1.00
Lane Grp Cap(c), veh/h	478	2045	915	769	2423	1084	266	0	119	28	0	25
V/C Ratio(X)	0.01	0.22	0.00	0.37	0.34	0.00	0.30	0.00	0.81	0.28	0.00	0.24
Avail Cap(c_a), veh/h	478	2045	915	960	2423	1084	730	0	326	139	0	123
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.72	0.72	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	6.4	5.6	0.0	64.6	0.0	67.5	72.7	0.0	72.7
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.2	0.3	0.0	0.6	0.0	13.3	5.3	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	6.4	8.7	0.0	2.9	0.0	7.8	0.7	0.0	0.5
LnGrp Delay(d),s/veh	0.0	0.3	0.0	6.6	5.8	0.0	65.2	0.0	80.8	78.1	0.0	77.6
LnGrp LOS	A	A		A	A		E		F	E		E
Approach Vol, veh/h	465				1098				176		14	
Approach Delay, s/veh	0.3				6.0				73.7		77.9	
Approach LOS	A				A				E		E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4	5	6	8					
Phs Duration (G+Y+Rc), s	121.3			19.1	17.9	103.4	9.7					
Change Period (Y+Rc), s	6.5			6.5	6.5	6.5	7.0					
Max Green Setting (Gmax), s	82.5			34.5	29.5	46.5	13.0					
Max Q Clear Time (g_c+I1), s	14.2			12.0	10.5	2.0	2.7					
Green Ext Time (p_c), s	39.8			0.6	0.9	30.3	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	11.9											
HCM 2010 LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	1	157	37	48	605
Future Vol, veh/h	6	1	157	37	48	605
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	0	-	-	150	-
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	6	1	157	37	48	605
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	624	106	0	0	211	0
Stage 1	191	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	417	928	-	-	1357	-
Stage 1	822	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	401	928	-	-	1357	-
Mov Cap-2 Maneuver	401	-	-	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.4	0	0.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 401 928	1357	-		
HCM Lane V/C Ratio	-	- 0.016 0.001	0.038	-		
HCM Control Delay (s)	-	- 14.1 8.9	7.8	-		
HCM Lane LOS	-	- B A	A	-		
HCM 95th %tile Q(veh)	-	- 0.1 0	0.1	-		

Timings
1: Bells Ferry Rd & N. Booth Rd

2022 Future No-Build PM

02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	267	185	349	849	254
Future Volume (vph)	267	185	349	849	254
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	42.0	42.0	38.0	138.0	100.0
Total Split (%)	23.3%	23.3%	21.1%	76.7%	55.6%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 18 (10%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future No-Build PM
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	267	185	349	849	254	250		
Future Volume (veh/h)	267	185	349	849	254	250		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	267	185	349	849	254	250		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	287	256	589	1254	489	481		
Arrive On Green	0.18	0.18	0.09	0.75	0.63	0.63		
Sat Flow, veh/h	1587	1417	1587	1667	772	760		
Grp Volume(v), veh/h	267	185	349	849	0	504		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1533		
Q Serve(g_s), s	29.8	22.1	13.4	46.2	0.0	32.4		
Cycle Q Clear(g_c), s	29.8	22.1	13.4	46.2	0.0	32.4		
Prop In Lane	1.00	1.00	1.00			0.50		
Lane Grp Cap(c), veh/h	287	256	589	1254	0	970		
V/C Ratio(X)	0.93	0.72	0.59	0.68	0.00	0.52		
Avail Cap(c_a), veh/h	317	283	735	1254	0	970		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	72.6	69.5	13.4	11.2	0.0	18.1		
Incr Delay (d2), s/veh	46.1	8.2	1.0	3.0	0.0	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	23.5	14.3	9.9	29.7	0.0	20.5		
LnGrp Delay(d),s/veh	118.7	77.7	14.4	14.2	0.0	20.1		
LnGrp LOS	F	E	B	B		C		
Approach Vol, veh/h	452			1198	504			
Approach Delay, s/veh	101.9			14.3	20.1			
Approach LOS	F			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	21.5	120.0				141.5		38.5
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	33.0	94.0				132.0		36.0
Max Q Clear Time (g_c+I1), s	15.4	34.4				48.2		31.8
Green Ext Time (p_c), s	1.1	52.1				69.8		0.7
Intersection Summary								
HCM 2010 Ctrl Delay			34.0					
HCM 2010 LOS			C					

Timings
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build PM

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	444	1036	94	100	619	379	36	688	129	201
Future Volume (vph)	444	1036	94	100	619	379	36	688	129	201
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	33.0	51.0	51.0	15.0	33.0	33.0	15.0	59.0	15.0	59.0
Total Split (%)	23.6%	36.4%	36.4%	10.7%	23.6%	23.6%	10.7%	42.1%	10.7%	42.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 72 (51%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
33 s	33 s	15 s	59 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	51 s	15 s	59 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	444	1036	94	100	619	379	36	688	69	129	201	64
Future Volume (veh/h)	444	1036	94	100	619	379	36	688	69	129	201	64
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	444	1036	0	100	619	0	36	688	69	129	201	64
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	352	1007	450	148	599	268	417	559	56	148	496	158
Arrive On Green	0.19	0.32	0.00	0.06	0.19	0.00	0.03	0.38	0.38	0.06	0.41	0.41
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	1491	150	1587	1212	386
Grp Volume(v), veh/h	444	1036	0	100	619	0	36	0	757	129	0	265
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	0	1640	1587	0	1599
Q Serve(g_s), s	26.5	44.5	0.0	7.1	26.5	0.0	1.9	0.0	52.5	7.0	0.0	16.4
Cycle Q Clear(g_c), s	26.5	44.5	0.0	7.1	26.5	0.0	1.9	0.0	52.5	7.0	0.0	16.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.24
Lane Grp Cap(c), veh/h	352	1007	450	148	599	268	417	0	615	148	0	653
V/C Ratio(X)	1.26	1.03	0.00	0.68	1.03	0.00	0.09	0.00	1.23	0.87	0.00	0.41
Avail Cap(c_a), veh/h	352	1007	450	148	599	268	471	0	615	148	0	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.4	47.8	0.0	44.5	56.8	0.0	26.1	0.0	43.8	34.0	0.0	29.3
Incr Delay (d2), s/veh	490.6	84.6	0.0	12.3	109.7	0.0	0.1	0.0	430.3	54.1	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(95%),veh/ln	110.8	56.3	0.0	6.5	37.3	0.0	1.5	0.0	175.1	9.0	0.0	11.8
LnGrp Delay(d),s/veh	532.9	132.4	0.0	56.8	166.5	0.0	26.2	0.0	474.0	88.2	0.0	29.7
LnGrp LOS	F	F		E	F		C		F	F		C
Approach Vol, veh/h	1480				719				793			
Approach Delay, s/veh	252.5				151.2				453.7			
Approach LOS	F				F				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.0	33.0	15.0	59.0	15.0	51.0	10.3	63.7				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	26.5	26.5	8.5	52.5	8.5	44.5	8.5	52.5				
Max Q Clear Time (g_c+I1), s	28.5	28.5	9.0	54.5	9.1	46.5	3.9	18.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3				
Intersection Summary												
HCM 2010 Ctrl Delay	254.4											
HCM 2010 LOS	F											

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	183	143	574	255	101
Future Vol, veh/h	61	183	143	574	255	101
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	183	143	574	255	101
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1201	315	367	0	-	0
Stage 1	315	-	-	-	-	-
Stage 2	886	-	-	-	-	-
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	204	725	1192	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	725	1192	-	-	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	27.3	1.7		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1192	-	411	-	-	
HCM Lane V/C Ratio	0.124	-	0.612	-	-	
HCM Control Delay (s)	8.4	-	27.3	-	-	
HCM Lane LOS	A	-	D	-	-	
HCM 95th %tile Q(veh)	0.4	-	4.5	-	-	

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build PM

02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	316	209	320	101	292	394	493	12	300
Future Volume (vph)	316	209	320	101	292	394	493	12	300
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	25.0	40.0	30.0	20.0	35.0	30.0	55.0	15.0	40.0
Total Split (%)	19.2%	30.8%	23.1%	15.4%	26.9%	23.1%	42.3%	11.5%	30.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 98

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
30 s	40 s	25 s	35 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	55 s	20 s	40 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build PM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	209	320	101	292	27	394	493	50	12	300	200
Future Volume (veh/h)	316	209	320	101	292	27	394	493	50	12	300	200
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	316	209	320	101	292	27	394	493	50	12	300	200
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	397	614	288	412	38	476	1286	130	313	483	313
Arrive On Green	0.17	0.24	0.24	0.07	0.14	0.14	0.19	0.44	0.44	0.01	0.26	0.26
Sat Flow, veh/h	1587	1667	1417	1587	2933	269	1587	2905	294	1587	1842	1197
Grp Volume(v), veh/h	316	209	320	101	157	162	394	268	275	12	257	243
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1619	1587	1583	1615	1587	1583	1456
Q Serve(g_s), s	18.5	12.1	18.3	5.9	10.4	10.6	19.2	12.5	12.6	0.6	15.8	16.4
Cycle Q Clear(g_c), s	18.5	12.1	18.3	5.9	10.4	10.6	19.2	12.5	12.6	0.6	15.8	16.4
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.18	1.00		0.82
Lane Grp Cap(c), veh/h	378	397	614	288	223	228	476	701	715	313	415	381
V/C Ratio(X)	0.84	0.53	0.52	0.35	0.70	0.71	0.83	0.38	0.38	0.04	0.62	0.64
Avail Cap(c_a), veh/h	378	505	705	372	408	418	505	701	715	412	480	441
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	36.6	22.9	36.8	45.3	45.4	23.0	20.6	20.7	29.2	35.9	36.1
Incr Delay (d2), s/veh	17.0	1.1	0.7	0.7	4.1	4.2	11.5	0.3	0.3	0.0	1.9	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.9	9.6	11.6	4.8	8.4	8.7	14.8	9.3	9.6	0.5	11.5	11.1
LnGrp Delay(d),s/veh	49.3	37.7	23.6	37.6	49.4	49.6	34.4	21.0	21.0	29.2	37.8	38.6
LnGrp LOS	D	D	C	D	D	D	C	C	C	C	D	D
Approach Vol, veh/h	845				420				937			
Approach Delay, s/veh	36.7				46.6				26.7			
Approach LOS	D				D				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.0	35.5	25.0	22.0	8.0	55.4	14.2	32.8				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	23.5	33.5	18.5	28.5	8.5	48.5	13.5	33.5				
Max Q Clear Time (g_c+l1), s	21.2	18.4	20.5	12.6	2.6	14.6	7.9	20.3				
Green Ext Time (p_c), s	0.4	10.6	0.0	2.9	0.0	20.0	0.1	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay	35.0											
HCM 2010 LOS	D											

Timings
5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build PM

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	606	228	87	512	298	224	513	157	263	434	185
Future Volume (vph)	308	606	228	87	512	298	224	513	157	263	434	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	25.0	51.0	51.0	15.0	41.0	41.0	21.0	42.0	42.0	22.0	43.0	43.0
Total Split (%)	19.2%	39.2%	39.2%	11.5%	31.5%	31.5%	16.2%	32.3%	32.3%	16.9%	33.1%	33.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
21 s	43 s	25 s	41 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
22 s	42 s	15 s	51 s

HCM 2010 Signalized Intersection Summary

5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build PM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	308	606	228	87	512	298	224	513	157	263	434	185
Future Volume (veh/h)	308	606	228	87	512	298	224	513	157	263	434	185
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	308	606	228	87	512	298	224	513	157	263	434	185
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1131	506	274	824	369	384	893	400	366	932	417
Arrive On Green	0.15	0.36	0.36	0.05	0.26	0.26	0.11	0.28	0.28	0.13	0.29	0.29
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417
Grp Volume(v), veh/h	308	606	228	87	512	298	224	513	157	263	434	185
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417
Q Serve(g_s), s	18.0	19.8	16.0	5.2	18.5	25.6	12.9	18.0	11.6	15.3	14.6	13.8
Cycle Q Clear(g_c), s	18.0	19.8	16.0	5.2	18.5	25.6	12.9	18.0	11.6	15.3	14.6	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	1131	506	274	824	369	384	893	400	366	932	417
V/C Ratio(X)	0.83	0.54	0.45	0.32	0.62	0.81	0.58	0.57	0.39	0.72	0.47	0.44
Avail Cap(c_a), veh/h	372	1131	506	306	865	387	391	893	400	366	932	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	33.2	32.0	32.7	42.4	45.1	28.4	40.0	37.7	29.1	37.5	37.2
Incr Delay (d2), s/veh	16.1	0.5	0.6	0.7	1.3	12.7	2.2	2.7	2.9	6.9	1.7	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.6	13.6	10.5	4.2	13.0	16.9	9.8	13.0	8.5	11.8	10.8	9.7
LnGrp Delay(d),s/veh	45.7	33.7	32.7	33.3	43.7	57.8	30.6	42.7	40.6	36.0	39.2	40.7
LnGrp LOS	D	C	C	C	D	E	C	D	D	D	D	D
Approach Vol, veh/h	1142				897				894			
Approach Delay, s/veh	36.7				47.4				39.3			
Approach LOS	D				D				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.4	45.3	25.0	39.3	22.0	43.7	12.4	51.9				
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5				
Max Green Setting (Gmax), s	15.5	36.0	19.5	35.5	16.5	35.0	9.5	45.5				
Max Q Clear Time (g_c+I1), s	14.9	16.6	20.0	27.6	17.3	20.0	7.2	21.8				
Green Ext Time (p_c), s	0.0	5.2	0.0	6.2	0.0	4.7	0.0	19.4				
Intersection Summary												
HCM 2010 Ctrl Delay	40.3											
HCM 2010 LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build PM

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			  		 	 			 
Traffic Volume (vph)	163	1013	76	303	1298	205	94	426	318	299	333
Future Volume (vph)	163	1013	76	303	1298	205	94	426	318	299	333
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	35.0	75.0	75.0	35.0	75.0	75.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	20.6%	44.1%	44.1%	20.6%	44.1%	44.1%	17.6%	17.6%	17.6%	17.6%	17.6%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 147 (86%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
35 s	75 s	30 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
35 s	75 s	30 s	30 s

HCM 2010 Signalized Intersection Summary

6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	1013	76	303	1298	205	94	426	318	299	333	90
Future Volume (veh/h)	163	1013	76	303	1298	205	94	426	318	299	333	90
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	163	1013	0	303	1298	0	94	426	0	299	333	90
Adj No. of Lanes	1	3	1	1	3	1	2	2	1	1	2	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1833	571	261	2061	642	132	428	192	258	564	150
Arrive On Green	0.11	0.40	0.00	0.33	0.91	0.00	0.04	0.14	0.00	0.14	0.23	0.23
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	3079	3167	1417	1587	2474	659
Grp Volume(v), veh/h	163	1013	0	303	1298	0	94	426	0	299	211	212
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1540	1583	1417	1587	1583	1550
Q Serve(g_s), s	17.2	29.1	0.0	28.0	10.6	0.0	5.1	22.8	0.0	23.0	20.2	20.8
Cycle Q Clear(g_c), s	17.2	29.1	0.0	28.0	10.6	0.0	5.1	22.8	0.0	23.0	20.2	20.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	182	1833	571	261	2061	642	132	428	192	258	361	353
V/C Ratio(X)	0.89	0.55	0.00	1.16	0.63	0.00	0.71	0.99	0.00	1.16	0.59	0.60
Avail Cap(c_a), veh/h	261	1833	571	261	2061	642	417	428	192	258	361	353
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.75	0.75	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.2	39.0	0.0	57.0	4.9	0.0	80.3	73.4	0.0	54.6	58.5	58.7
Incr Delay (d2), s/veh	29.8	1.2	0.0	320.0	1.1	0.0	7.3	81.4	0.0	330.5	2.5	2.8
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(95%),veh/ln	14.0	18.2	0.0	63.8	7.2	0.0	4.2	21.2	0.0	42.6	14.1	14.1
LnGrp Delay(d),s/veh	104.0	40.2	0.0	377.0	6.0	0.0	87.6	154.8	0.0	385.1	61.0	61.5
LnGrp LOS	F	D		F	A		F	F		F	E	E
Approach Vol, veh/h	1176				1601				520			
Approach Delay, s/veh	49.0				76.2				142.7			
Approach LOS	D				E				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.5	83.5	30.0	30.0	35.0	75.0	14.3	45.7				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0				
Max Green Setting (Gmax), s	28.0	68.5	23.0	23.0	28.0	68.5	23.0	23.0				
Max Q Clear Time (g_c+I1), s	19.2	12.6	25.0	24.8	30.0	31.1	7.1	22.8				
Green Ext Time (p_c), s	0.3	52.7	0.0	0.0	0.0	35.9	0.2	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	98.3											
HCM 2010 LOS	F											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
7: Townpark Dr & Chastain Rd

2022 Future No-Build PM

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	63	1356	60	15	1741	160	116	18	488	14
Future Volume (vph)	63	1356	60	15	1741	160	116	18	488	14
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	88.0	88.0	15.0	88.0	88.0	36.0	31.0	36.0	31.0
Total Split (%)	8.8%	51.8%	51.8%	8.8%	51.8%	51.8%	21.2%	18.2%	21.2%	18.2%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 153 (90%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	88 s	36 s	31 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	88 s	36 s	31 s

HCM 2010 Signalized Intersection Summary
7: Townpark Dr & Chastain Rd

2022 Future No-Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1356	60	15	1741	160	116	18	118	488	14	120
Future Volume (veh/h)	63	1356	60	15	1741	160	116	18	118	488	14	120
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	63	1356	0	15	1741	160	116	18	0	488	14	120
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	2742	854	302	2683	835	203	59	0	498	17	148
Arrive On Green	0.06	1.00	0.00	0.01	0.59	0.59	0.08	0.04	0.00	0.16	0.11	0.11
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	150	1289
Grp Volume(v), veh/h	63	1356	0	15	1741	160	116	18	0	488	0	134
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1439
Q Serve(g_s), s	2.7	0.0	0.0	0.6	43.2	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.6	43.2	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.90
Lane Grp Cap(c), veh/h	166	2742	854	302	2683	835	203	59	0	498	0	165
V/C Ratio(X)	0.38	0.49	0.00	0.05	0.65	0.19	0.57	0.31	0.00	0.98	0.00	0.81
Avail Cap(c_a), veh/h	192	2742	854	348	2683	835	329	221	0	498	0	190
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.00	0.64	0.64	0.64	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.8	0.0	0.0	13.4	23.2	16.1	71.4	80.0	0.0	71.0	0.0	73.5
Incr Delay (d2), s/veh	1.0	0.5	0.0	0.0	0.8	0.3	2.6	2.9	0.0	62.3	0.0	23.8
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(95%),veh/ln	2.2	0.2	0.0	0.5	23.9	6.0	9.1	1.6	0.0	22.3	0.0	11.6
LnGrp Delay(d),s/veh	20.8	0.5	0.0	13.5	24.0	16.5	73.9	82.9	0.0	133.3	0.0	97.3
LnGrp LOS	C	A		B	C	B	E	F		F		F
Approach Vol, veh/h	1419			1916			134			622		
Approach Delay, s/veh	1.4			23.3			75.1			125.5		
Approach LOS	A			C			E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	107.3	36.0	14.5	10.0	109.5	22.5	28.0				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	81.0	27.5	22.5	7.5	81.0	27.5	22.5				
Max Q Clear Time (g_c+I1), s	4.7	45.2	28.8	3.8	2.6	2.0	13.8	17.5				
Green Ext Time (p_c), s	0.0	35.6	0.0	0.5	0.0	78.1	0.3	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				32.9								
HCM 2010 LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build PM
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	1554	419	56	1037	49	942
Future Volume (vph)	1554	419	56	1037	49	942
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	110.0	110.0	15.0	125.0	45.0	45.0
Total Split (%)	64.7%	64.7%	8.8%	73.5%	26.5%	26.5%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 170
Actuated Cycle Length: 170
Offset: 100 (59%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build PM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑
Traffic Volume (vph)	0	1554	419	56	1037	0	0	0	0	49	0	942
Future Volume (vph)	0	1554	419	56	1037	0	0	0	0	49	0	942
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		1417
Flt Permitted		1.00	1.00	0.09	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	150	3167					1583		1417
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1554	419	56	1037	0	0	0	0	49	0	942
RTOR Reduction (vph)	0	0	111	0	0	0	0	0	0	0	0	671
Lane Group Flow (vph)	0	1554	308	56	1037	0	0	0	0	49	0	271
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		108.0	108.0	121.0	121.0					35.5		35.5
Effective Green, g (s)		108.0	108.0	121.0	121.0					35.5		35.5
Actuated g/C Ratio		0.64	0.64	0.71	0.71					0.21		0.21
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2011	900	157	2254					330		295
v/s Ratio Prot		c0.49		0.01	c0.33					0.03		
v/s Ratio Perm			0.22	0.24								c0.19
v/c Ratio		0.77	0.34	0.36	0.46					0.15		0.92
Uniform Delay, d1		22.2	14.4	17.4	10.5					54.9		65.8
Progression Factor		0.75	0.35	0.90	0.56					1.00		1.00
Incremental Delay, d2		2.6	0.9	1.2	0.6					0.2		45.2
Delay (s)		19.2	5.9	16.8	6.5					55.1		111.0
Level of Service		B	A	B	A					E		F
Approach Delay (s)		16.4			7.0			0.0			108.3	
Approach LOS		B			A			A			F	
Intersection Summary												
HCM 2000 Control Delay			36.3			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			108.5%			ICU Level of Service				G		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build PM

02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	942	666	885	113	225	0	86
Future Volume (vph)	942	666	885	113	225	0	86
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	72.0	141.0	69.0	69.0	29.0	29.0	29.0
Total Split (%)	42.4%	82.9%	40.6%	40.6%	17.1%	17.1%	17.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 75 (44%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

		
Ø1	Ø2 (R)	Ø4
72 s	69 s	29 s
		
Ø6 (R)		
141 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	942	666	0	0	885	113	225	0	86	0	0	0
Future Volume (veh/h)	942	666	0	0	885	113	225	0	86	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	942	666	0	0	885	0	225	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	992	2638	0	0	1487	665	269	0	120			
Arrive On Green	0.54	1.00	0.00	0.00	0.94	0.00	0.08	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	942	666	0	0	885	0	225	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	49.1	0.0	0.0	0.0	6.5	0.0	11.9	0.0	0.0			
Cycle Q Clear(g_c), s	49.1	0.0	0.0	0.0	6.5	0.0	11.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	992	2638	0	0	1487	665	269	0	120			
V/C Ratio(X)	0.95	0.25	0.00	0.00	0.60	0.00	0.84	0.00	0.00			
Avail Cap(c_a), veh/h	1177	2638	0	0	1487	665	401	0	179			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.59	0.59	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	38.0	0.0	0.0	0.0	2.9	0.0	76.7	0.0	0.0			
Incr Delay (d2), s/veh	12.1	0.1	0.0	0.0	1.8	0.0	10.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	28.3	0.1	0.0	0.0	5.1	0.0	9.5	0.0	0.0			
LnGrp Delay(d),s/veh	50.1	0.1	0.0	0.0	4.7	0.0	87.1	0.0	0.0			
LnGrp LOS	D	A			A		F					
Approach Vol, veh/h	1608				885			225				
Approach Delay, s/veh	29.4				4.7			87.1				
Approach LOS	C				A			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	61.8	86.3		21.9		148.1						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	65.0	62.5		21.5		134.5						
Max Q Clear Time (g_c+l1), s	51.1	8.5		13.9		2.0						
Green Ext Time (p_c), s	3.7	41.4		0.5		74.9						
Intersection Summary												
HCM 2010 Ctrl Delay	26.1											
HCM 2010 LOS	C											
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	802	699	28	12	23
Future Vol, veh/h	26	802	699	28	12	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	802	699	28	12	23
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	750	0	-	0	1189	361
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	855	-	-	-	181	636
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	855	-	-	-	175	636
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	597	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		17.1		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	855	-	-	-	334	
HCM Lane V/C Ratio	0.031	-	-	-	0.108	
HCM Control Delay (s)	9.3	-	-	-	17.1	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	

Timings

2022 Future No-Build PM

11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	
Lane Configurations		 			 							
Traffic Volume (vph)	5	604	100	211	508	9	314	1	514	0	6	
Future Volume (vph)	5	604	100	211	508	9	314	1	514	0	6	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm	
Protected Phases		6		5	2		4	4		8		
Permitted Phases	6		6	2		2			4		8	
Detector Phase	6	6	6	5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0	
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0	
Total Split (s)	67.0	67.0	67.0	20.0	87.0	87.0	63.0	63.0	63.0	20.0	20.0	
Total Split (%)	39.4%	39.4%	39.4%	11.8%	51.2%	51.2%	37.1%	37.1%	37.1%	11.8%	11.8%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 55 (32%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
87 s	63 s	20 s
 Ø5	 Ø6 (R)	
20 s	67 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future No-Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	604	100	211	508	9	314	1	514	3	0	6
Future Volume (veh/h)	5	604	100	211	508	9	314	1	514	3	0	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	5	604	0	211	508	0	315	0	514	3	0	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	1330	595	470	1703	762	1055	0	471	19	0	17
Arrive On Green	0.84	0.84	0.00	0.08	0.54	0.00	0.33	0.00	0.33	0.01	0.00	0.01
Sat Flow, veh/h	888	3167	1417	1587	3167	1417	3175	0	1417	1587	0	1417
Grp Volume(v), veh/h	5	604	0	211	508	0	315	0	514	3	0	6
Grp Sat Flow(s),veh/h/ln	888	1583	1417	1587	1583	1417	1587	0	1417	1587	0	1417
Q Serve(g_s), s	0.2	8.4	0.0	12.7	15.0	0.0	12.5	0.0	56.5	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.2	8.4	0.0	12.7	15.0	0.0	12.5	0.0	56.5	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	1330	595	470	1703	762	1055	0	471	19	0	17
V/C Ratio(X)	0.01	0.45	0.00	0.45	0.30	0.00	0.30	0.00	1.09	0.15	0.00	0.35
Avail Cap(c_a), veh/h	415	1330	595	470	1703	762	1055	0	471	121	0	108
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.36	0.36	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	8.5	0.0	23.8	21.6	0.0	42.1	0.0	56.7	83.1	0.0	83.3
Incr Delay (d2), s/veh	0.1	1.1	0.0	0.2	0.2	0.0	0.2	0.0	202.2	3.7	0.0	11.8
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(95%),veh/ln	0.1	6.7	0.0	7.9	9.1	0.0	9.3	0.0	87.5	0.3	0.0	0.6
LnGrp Delay(d),s/veh	7.9	9.7	0.0	24.1	21.8	0.0	42.2	0.0	258.9	86.8	0.0	95.1
LnGrp LOS	A	A		C	C		D		F	F		F
Approach Vol, veh/h	609				719				829			
Approach Delay, s/veh	9.7				22.5				176.6			
Approach LOS	A				C				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2				4	5	6	8				
Phs Duration (G+Y+Rc), s	97.9				63.0	20.0	77.9	9.1				
Change Period (Y+Rc), s	6.5				6.5	6.5	6.5	7.0				
Max Green Setting (Gmax), s	80.5				56.5	13.5	60.5	13.0				
Max Q Clear Time (g_c+I1), s	17.0				58.5	14.7	10.4	2.7				
Green Ext Time (p_c), s	31.8				0.0	0.0	28.1	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			78.1									
HCM 2010 LOS			E									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	14	817	8	2	311
Future Vol, veh/h	49	14	817	8	2	311
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	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	14	817	8	2	311
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1021	430	0	0	859	0
Stage 1	855	-	-	-	-	-
Stage 2	166	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	232	573	-	-	778	-
Stage 1	377	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	231	573	-	-	778	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	377	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 231 573	778	-		
HCM Lane V/C Ratio	-	- 0.221 0.025	0.003	-		
HCM Control Delay (s)	-	- 25 11.4	9.6	-		
HCM Lane LOS	-	- D B	A	-		
HCM 95th %tile Q(veh)	-	- 0.8 0.1	0	-		

Future “No-Build” Improved Intersection Analysis

Timings
1: Bells Ferry Rd & N. Booth Rd

2022 Future No-Build AM - Improved
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	478	312	155	188	510
Future Volume (vph)	478	312	155	188	510
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	33.0	33.0	12.0	57.0	45.0
Total Split (%)	36.7%	36.7%	13.3%	63.3%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future No-Build AM - Improved
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	478	312	155	188	510	157		
Future Volume (veh/h)	478	312	155	188	510	157		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	478	312	155	188	510	157		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	476	425	223	944	538	166		
Arrive On Green	0.30	0.30	0.07	0.57	0.44	0.44		
Sat Flow, veh/h	1587	1417	1587	1667	1224	377		
Grp Volume(v), veh/h	478	312	155	188	0	667		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1600		
Q Serve(g_s), s	27.0	17.8	4.5	5.0	0.0	36.0		
Cycle Q Clear(g_c), s	27.0	17.8	4.5	5.0	0.0	36.0		
Prop In Lane	1.00	1.00	1.00			0.24		
Lane Grp Cap(c), veh/h	476	425	223	944	0	704		
V/C Ratio(X)	1.00	0.73	0.69	0.20	0.00	0.95		
Avail Cap(c_a), veh/h	476	425	233	944	0	704		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	31.5	28.3	20.1	9.5	0.0	24.2		
Incr Delay (d2), s/veh	86.1	6.7	8.5	0.5	0.0	34.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	41.7	12.3	4.5	4.3	0.0	30.2		
LnGrp Delay(d),s/veh	117.6	35.0	28.6	10.0	0.0	58.4		
LnGrp LOS	F	D	C	A		E		
Approach Vol, veh/h	790			343	667			
Approach Delay, s/veh	85.0			18.4	58.4			
Approach LOS	F			B	E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.4	45.6				57.0		33.0
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	7.0	39.0				51.0		27.0
Max Q Clear Time (g_c+l1), s	6.5	38.0				7.0		29.0
Green Ext Time (p_c), s	0.0	0.9				28.6		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			62.5					
HCM 2010 LOS			E					

Timings 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build AM - Improved

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations											
Traffic Volume (vph)	48	388	42	133	866	213	73	171	236	413	
Future Volume (vph)	48	388	42	133	866	213	73	171	236	413	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	
Protected Phases	1	6		5	2		7	4	3	8	
Permitted Phases			6	2		2	4		8		
Detector Phase	1	6	6	5	2	2	7	4	3	8	
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0	
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5	
Total Split (s)	15.0	42.0	42.0	15.0	42.0	42.0	15.0	44.0	19.0	48.0	
Total Split (%)	12.5%	35.0%	35.0%	12.5%	35.0%	35.0%	12.5%	36.7%	15.8%	40.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 72 (60%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Natural Cycle: 95

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
15 s	42 s	19 s	44 s
			
Ø5	Ø6 (R)	Ø7	Ø8
15 s	42 s	15 s	48 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	388	42	133	866	213	73	171	57	236	413	152
Future Volume (veh/h)	48	388	42	133	866	213	73	171	57	236	413	152
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	48	388	0	133	866	0	73	171	57	236	413	152
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	1019	456	398	1138	509	131	675	218	488	402	148
Arrive On Green	0.03	0.32	0.00	0.07	0.36	0.00	0.04	0.29	0.29	0.10	0.35	0.35
Sat Flow, veh/h	3079	3167	1417	1587	3167	1417	1587	2356	760	1587	1163	428
Grp Volume(v), veh/h	48	388	0	133	866	0	73	113	115	236	0	565
Grp Sat Flow(s),veh/h/ln	1540	1583	1417	1587	1583	1417	1587	1583	1532	1587	0	1591
Q Serve(g_s), s	1.8	11.4	0.0	6.7	28.9	0.0	3.9	6.6	6.9	12.4	0.0	41.5
Cycle Q Clear(g_c), s	1.8	11.4	0.0	6.7	28.9	0.0	3.9	6.6	6.9	12.4	0.0	41.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		0.27
Lane Grp Cap(c), veh/h	102	1019	456	398	1138	509	131	454	439	488	0	550
V/C Ratio(X)	0.47	0.38	0.00	0.33	0.76	0.00	0.56	0.25	0.26	0.48	0.00	1.03
Avail Cap(c_a), veh/h	218	1019	456	398	1138	509	172	495	479	488	0	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.0	31.4	0.0	24.8	33.9	0.0	33.0	32.9	33.0	25.2	0.0	39.3
Incr Delay (d2), s/veh	3.3	1.1	0.0	0.5	5.0	0.0	3.7	0.3	0.3	0.7	0.0	105.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	8.8	0.0	5.4	19.4	0.0	3.3	5.3	5.4	9.3	0.0	61.8
LnGrp Delay(d),s/veh	60.2	32.5	0.0	25.3	38.9	0.0	36.7	33.2	33.3	25.9	0.0	144.8
LnGrp LOS	E	C		C	D		D	C	C	C		F
Approach Vol, veh/h		436			999			301			801	
Approach Delay, s/veh		35.6			37.1			34.1			109.7	
Approach LOS		D			D			C			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	49.6	19.0	40.9	15.0	45.1	11.9	48.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	8.5	35.5	12.5	37.5	8.5	35.5	8.5	41.5				
Max Q Clear Time (g_c+I1), s	3.8	30.9	14.4	8.9	8.7	13.4	5.9	43.5				
Green Ext Time (p_c), s	0.0	4.1	0.0	3.0	0.0	17.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				59.4								
HCM 2010 LOS				E								

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	71	159	197	455	174
Future Vol, veh/h	14	71	159	197	455	174
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	71	159	197	455	174
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1137	583	676	0	-	0
Stage 1	583	-	-	-	-	-
Stage 2	554	-	-	-	-	-
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	223	512	915	-	-	-
Stage 1	558	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	181	512	915	-	-	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.9	4.4		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	915	-	393	-	-	
HCM Lane V/C Ratio	0.187	-	0.233	-	-	
HCM Control Delay (s)	9.8	-	16.9	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.7	-	0.9	-	-	

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build AM - Improved

02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	150	171	225	67	245	111	154	5	198
Future Volume (vph)	150	171	225	67	245	111	154	5	198
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	19.0	41.0	19.0	17.0	39.0	19.0	46.0	16.0	43.0
Total Split (%)	15.8%	34.2%	15.8%	14.2%	32.5%	15.8%	38.3%	13.3%	35.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 69.3

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
19 s	43 s	19 s	39 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	46 s	17 s	41 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build AM - Improved

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	171	225	67	245	11	111	154	80	5	198	170
Future Volume (veh/h)	150	171	225	67	245	11	111	154	80	5	198	170
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	150	171	225	67	245	11	111	154	80	5	198	170
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	360	337	386	301	469	21	404	718	355	445	475	386
Arrive On Green	0.10	0.20	0.20	0.05	0.15	0.15	0.07	0.35	0.35	0.01	0.29	0.29
Sat Flow, veh/h	1587	1667	1417	1587	3088	138	1587	2054	1016	1587	1661	1351
Grp Volume(v), veh/h	150	171	225	67	125	131	111	117	117	5	188	180
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1642	1587	1583	1487	1587	1583	1428
Q Serve(g_s), s	5.2	6.1	9.2	2.3	4.9	4.9	3.2	3.5	3.7	0.1	6.5	6.9
Cycle Q Clear(g_c), s	5.2	6.1	9.2	2.3	4.9	4.9	3.2	3.5	3.7	0.1	6.5	6.9
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.68	1.00		0.95
Lane Grp Cap(c), veh/h	360	337	386	301	240	249	404	554	520	445	453	409
V/C Ratio(X)	0.42	0.51	0.58	0.22	0.52	0.52	0.27	0.21	0.23	0.01	0.42	0.44
Avail Cap(c_a), veh/h	492	859	829	466	768	797	589	934	877	659	863	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	23.7	21.1	22.2	26.2	26.2	15.3	15.3	15.4	16.8	19.4	19.5
Incr Delay (d2), s/veh	0.8	1.2	1.4	0.4	1.8	1.7	0.4	0.2	0.2	0.0	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	5.2	6.8	1.9	4.0	4.2	2.6	2.7	2.8	0.1	5.2	5.0
LnGrp Delay(d),s/veh	21.5	24.9	22.5	22.5	27.9	27.9	15.7	15.5	15.6	16.8	20.0	20.3
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	C
Approach Vol, veh/h	546				323				345			
Approach Delay, s/veh	23.0				26.8				15.6			
Approach LOS	C				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	25.7	13.4	16.7	6.9	29.9	10.1	20.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	36.5	12.5	32.5	9.5	39.5	10.5	34.5				
Max Q Clear Time (g_c+l1), s	5.2	8.9	7.2	6.9	2.1	5.7	4.3	11.2				
Green Ext Time (p_c), s	0.1	10.3	0.2	2.4	0.0	11.3	0.1	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay	21.5											
HCM 2010 LOS	C											

Timings
5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build AM - Improved
02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	274	65	51	463	117	61	131	52	198	196	272
Future Volume (vph)	117	274	65	51	463	117	61	131	52	198	196	272
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0
Total Split (%)	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 8 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
12 s	38 s	12 s	38 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	38 s	12 s	38 s

HCM 2010 Signalized Intersection Summary
5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	274	65	51	463	117	61	131	52	198	196	272
Future Volume (veh/h)	117	274	65	51	463	117	61	131	52	198	196	272
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	117	274	65	51	463	117	61	131	52	198	196	272
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	903	404	358	817	366	470	1194	534	594	1270	568
Arrive On Green	0.06	0.29	0.29	0.04	0.26	0.26	0.04	0.38	0.38	0.06	0.40	0.40
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417
Grp Volume(v), veh/h	117	274	65	51	463	117	61	131	52	198	196	272
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417
Q Serve(g_s), s	5.4	6.8	3.4	2.3	12.7	6.7	2.3	2.7	2.4	6.5	4.0	14.2
Cycle Q Clear(g_c), s	5.4	6.8	3.4	2.3	12.7	6.7	2.3	2.7	2.4	6.5	4.0	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	903	404	358	817	366	470	1194	534	594	1270	568
V/C Ratio(X)	0.41	0.30	0.16	0.14	0.57	0.32	0.13	0.11	0.10	0.33	0.15	0.48
Avail Cap(c_a), veh/h	284	1029	460	401	1029	460	508	1194	534	594	1270	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	28.0	26.8	25.7	32.2	30.0	17.6	20.2	20.1	18.2	19.1	22.2
Incr Delay (d2), s/veh	1.0	0.2	0.2	0.2	0.6	0.5	0.1	0.2	0.4	0.3	0.3	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	5.4	2.5	1.9	9.5	4.8	1.9	2.2	1.8	1.6	3.2	10.0
LnGrp Delay(d),s/veh	26.6	28.2	27.0	25.9	32.9	30.5	17.8	20.4	20.5	18.5	19.4	25.1
LnGrp LOS	C	C	C	C	C	C	B	C	C	B	B	C
Approach Vol, veh/h	456				631				244			
Approach Delay, s/veh	27.6				31.9				19.8			
Approach LOS	C				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	47.1	12.0	31.3	12.0	44.7	9.3	34.0				
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5				
Max Green Setting (Gmax), s	6.5	31.0	6.5	32.5	6.5	31.0	6.5	32.5				
Max Q Clear Time (g_c+I1), s	4.3	16.2	7.4	14.7	8.5	4.7	4.3	8.8				
Green Ext Time (p_c), s	0.0	2.2	0.0	11.1	0.0	2.5	0.0	13.6				
Intersection Summary												
HCM 2010 Ctrl Delay			25.9									
HCM 2010 LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build AM - Improved

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	259	932	34	268	1194	196	45	201	172	133	245
Future Volume (vph)	259	932	34	268	1194	196	45	201	172	133	245
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	45.0	60.0	60.0	45.0	60.0	60.0	23.0	22.0	22.0	23.0	22.0
Total Split (%)	30.0%	40.0%	40.0%	30.0%	40.0%	40.0%	15.3%	14.7%	14.7%	15.3%	14.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 80 (53%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
45 s	60 s	23 s	22 s
			
Ø5	Ø6 (R)	Ø7	Ø8
45 s	60 s	23 s	22 s

HCM 2010 Signalized Intersection Summary
6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	932	34	268	1194	196	45	201	172	133	245	21
Future Volume (veh/h)	259	932	34	268	1194	196	45	201	172	133	245	21
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	259	932	0	268	1194	0	45	201	0	133	245	21
Adj No. of Lanes	1	3	1	2	3	1	2	2	1	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	2489	775	319	2150	669	87	246	110	206	408	35
Arrive On Green	0.18	0.55	0.00	0.21	0.95	0.00	0.03	0.08	0.00	0.09	0.14	0.14
Sat Flow, veh/h	1587	4550	1417	3079	4550	1417	3079	3167	1417	1587	2954	251
Grp Volume(v), veh/h	259	932	0	268	1194	0	45	201	0	133	130	136
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1540	1517	1417	1540	1583	1417	1587	1583	1622
Q Serve(g_s), s	24.0	17.5	0.0	12.5	4.6	0.0	2.2	9.4	0.0	11.3	11.6	11.8
Cycle Q Clear(g_c), s	24.0	17.5	0.0	12.5	4.6	0.0	2.2	9.4	0.0	11.3	11.6	11.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	282	2489	775	319	2150	669	87	246	110	206	218	224
V/C Ratio(X)	0.92	0.37	0.00	0.84	0.56	0.00	0.52	0.82	0.00	0.64	0.60	0.61
Avail Cap(c_a), veh/h	402	2489	775	780	2150	669	328	317	142	235	218	224
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.90	0.90	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.6	19.4	0.0	58.3	2.3	0.0	71.9	68.1	0.0	55.6	60.7	60.8
Incr Delay (d2), s/veh	26.4	0.4	0.0	5.7	0.9	0.0	4.8	13.5	0.0	5.0	4.5	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.5	11.9	0.0	9.2	3.1	0.0	1.8	8.1	0.0	8.9	9.1	9.5
LnGrp Delay(d),s/veh	87.0	19.8	0.0	64.0	3.2	0.0	76.7	81.6	0.0	60.6	65.2	65.5
LnGrp LOS	F	B		E	A		E	F		E	E	E
Approach Vol, veh/h	1191			1462			246			399		
Approach Delay, s/veh	34.4			14.4			80.7			63.8		
Approach LOS	C			B			F			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.7	77.4	20.3	18.6	22.5	88.5	11.2	27.7				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0				
Max Green Setting (Gmax), s	38.0	53.5	16.0	15.0	38.0	53.5	16.0	15.0				
Max Q Clear Time (g_c+I1), s	26.0	6.6	13.3	11.4	14.5	19.5	4.2	13.8				
Green Ext Time (p_c), s	0.7	43.5	0.1	0.3	1.0	32.1	0.1	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			32.5									
HCM 2010 LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
7: Townpark Dr & Chastain Rd

2022 Future No-Build AM - Improved

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	115	1069	94	110	1625	526	18	8	32	5
Future Volume (vph)	115	1069	94	110	1625	526	18	8	32	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	95.0	95.0	15.0	95.0	95.0	15.0	25.0	15.0	25.0
Total Split (%)	10.0%	63.3%	63.3%	10.0%	63.3%	63.3%	10.0%	16.7%	10.0%	16.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 79 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	95 s	15 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	95 s	15 s	25 s

HCM 2010 Signalized Intersection Summary
7: Townpark Dr & Chastain Rd

2022 Future No-Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	1069	94	110	1625	526	18	8	15	32	5	16
Future Volume (veh/h)	115	1069	94	110	1625	526	18	8	15	32	5	16
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	115	1069	0	110	1625	526	18	8	0	32	5	16
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	3170	987	468	3166	986	114	57	0	76	14	46
Arrive On Green	0.07	1.00	0.00	0.07	1.00	1.00	0.02	0.03	0.00	0.02	0.04	0.04
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	350	1119
Grp Volume(v), veh/h	115	1069	0	110	1625	526	18	8	0	32	0	21
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1469
Q Serve(g_s), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Cycle Q Clear(g_c), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.76
Lane Grp Cap(c), veh/h	233	3170	987	468	3166	986	114	57	0	76	0	61
V/C Ratio(X)	0.49	0.34	0.00	0.23	0.51	0.53	0.16	0.14	0.00	0.42	0.00	0.35
Avail Cap(c_a), veh/h	256	3170	987	493	3166	986	155	183	0	133	0	162
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.62	0.62	0.62	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.7	0.0	0.0	68.2	70.3	0.0	72.1	0.0	69.9
Incr Delay (d2), s/veh	1.5	0.3	0.0	0.2	0.4	1.3	0.6	1.1	0.0	3.8	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.1	0.0	2.4	0.2	0.6	1.3	0.6	0.0	1.2	0.0	1.6
LnGrp Delay(d),s/veh	7.2	0.3	0.0	5.8	0.4	1.3	68.8	71.4	0.0	75.9	0.0	73.3
LnGrp LOS	A	A		A	A	A	E	E		E		E
Approach Vol, veh/h	1184			2261			26			53		
Approach Delay, s/veh	0.9			0.8			69.6			74.9		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	111.4	12.2	13.7	12.6	111.5	11.1	14.7				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	88.0	6.5	16.5	7.5	88.0	6.5	16.5				
Max Q Clear Time (g_c+I1), s	5.3	2.0	3.5	2.7	5.1	2.0	3.6	4.1				
Green Ext Time (p_c), s	0.1	84.0	0.0	0.0	0.1	84.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				2.5								
HCM 2010 LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build AM - Improved
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↙	↑↑	↙	↙↙
Traffic Volume (vph)	1008	107	149	1094	167	1167
Future Volume (vph)	1008	107	149	1094	167	1167
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	84.0	84.0	26.0	110.0	40.0	40.0
Total Split (%)	56.0%	56.0%	17.3%	73.3%	26.7%	26.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 84 (56%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build AM - Improved

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑↑
Traffic Volume (vph)	0	1008	107	149	1094	0	0	0	0	167	0	1167
Future Volume (vph)	0	1008	107	149	1094	0	0	0	0	167	0	1167
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		2493
Flt Permitted		1.00	1.00	0.21	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	354	3167					1583		2493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1008	107	149	1094	0	0	0	0	167	0	1167
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	0	0	0	757
Lane Group Flow (vph)	0	1008	65	149	1094	0	0	0	0	167	0	410
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		91.5	91.5	108.6	108.6					27.9		27.9
Effective Green, g (s)		91.5	91.5	108.6	108.6					27.9		27.9
Actuated g/C Ratio		0.61	0.61	0.72	0.72					0.19		0.19
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1931	864	339	2292					294		463
v/s Ratio Prot		c0.32		0.03	c0.35					0.11		
v/s Ratio Perm			0.05	0.29								c0.16
v/c Ratio		0.52	0.08	0.44	0.48					0.57		0.89
Uniform Delay, d1		16.7	12.0	9.3	8.7					55.6		59.5
Progression Factor		0.45	0.10	1.24	1.52					1.00		1.00
Incremental Delay, d2		1.0	0.2	0.8	0.6					2.5		22.0
Delay (s)		8.6	1.3	12.4	13.9					58.1		81.4
Level of Service		A	A	B	B					E		F
Approach Delay (s)		7.9			13.7			0.0			78.5	
Approach LOS		A			B			A			E	
Intersection Summary												
HCM 2000 Control Delay			35.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			90.7%			ICU Level of Service				E		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build AM - Improved

02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	540	633	820	66	421	1	157
Future Volume (vph)	540	633	820	66	421	1	157
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	44.0	107.0	63.0	63.0	43.0	43.0	43.0
Total Split (%)	29.3%	71.3%	42.0%	42.0%	28.7%	28.7%	28.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 28 (19%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

		
Ø1	Ø2 (R)	Ø4
44 s	63 s	43 s
		
Ø6 (R)		
107 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	633	0	0	820	66	421	1	157	0	0	0
Future Volume (veh/h)	540	633	0	0	820	66	421	1	157	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	540	633	0	0	820	0	422	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	601	2385	0	0	1620	725	487	0	217			
Arrive On Green	0.20	0.75	0.00	0.00	1.00	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	540	633	0	0	820	0	422	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	25.7	9.2	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Cycle Q Clear(g_c), s	25.7	9.2	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	601	2385	0	0	1620	725	487	0	217			
V/C Ratio(X)	0.90	0.27	0.00	0.00	0.51	0.00	0.87	0.00	0.00			
Avail Cap(c_a), veh/h	760	2385	0	0	1620	725	751	0	335			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.84	0.84	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	58.9	5.7	0.0	0.0	0.0	0.0	62.0	0.0	0.0			
Incr Delay (d2), s/veh	11.4	0.2	0.0	0.0	1.1	0.0	7.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	17.1	7.2	0.0	0.0	0.5	0.0	14.0	0.0	0.0			
LnGrp Delay(d),s/veh	70.3	5.9	0.0	0.0	1.1	0.0	69.3	0.0	0.0			
LnGrp LOS	E	A			A		E					
Approach Vol, veh/h	1173				820				422			
Approach Delay, s/veh	35.6				1.1				69.3			
Approach LOS	D				A				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.3	83.2		30.5		119.5						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	37.0	56.5		35.5		100.5						
Max Q Clear Time (g_c+l1), s	27.7	2.0		21.5		11.2						
Green Ext Time (p_c), s	1.6	39.4		1.5		54.6						
Intersection Summary												
HCM 2010 Ctrl Delay			29.8									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	779	892	8	9	40
Future Vol, veh/h	11	779	892	8	9	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	779	892	8	9	40
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1023	0	-	0	1483	507
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	674	-	-	-	116	511
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	596	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	674	-	-	-	114	511
Mov Cap-2 Maneuver	-	-	-	-	114	-
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	596	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		19		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	674	-	-	-	312	
HCM Lane V/C Ratio	0.019	-	-	-	0.178	
HCM Control Delay (s)	10.4	-	-	-	19	
HCM Lane LOS	B	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

Timings

2022 Future No-Build AM - Improved

11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	6	459	338	281	817	2	80	0	96	2	6	
Future Volume (vph)	6	459	338	281	817	2	80	0	96	2	6	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm	
Protected Phases		6		5	2		4	4		8		
Permitted Phases	6		6	2		2			4		8	
Detector Phase	6	6	6	5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0	
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0	
Total Split (s)	53.0	53.0	53.0	36.0	89.0	89.0	41.0	41.0	41.0	20.0	20.0	
Total Split (%)	35.3%	35.3%	35.3%	24.0%	59.3%	59.3%	27.3%	27.3%	27.3%	13.3%	13.3%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
89 s	41 s	20 s
 Ø5	 Ø6 (R)	
36 s	53 s	

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	459	338	281	817	2	80	0	96	6	2	6
Future Volume (veh/h)	6	459	338	281	817	2	80	0	96	6	2	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	6	459	0	281	817	0	80	0	96	6	2	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	478	2045	915	769	2423	1084	266	0	119	21	7	25
Arrive On Green	1.00	1.00	0.00	0.08	0.77	0.00	0.08	0.00	0.08	0.02	0.02	0.02
Sat Flow, veh/h	666	3167	1417	1587	3167	1417	3175	0	1417	1205	402	1417
Grp Volume(v), veh/h	6	459	0	281	817	0	80	0	96	8	0	6
Grp Sat Flow(s),veh/h/ln	666	1583	1417	1587	1583	1417	1587	0	1417	1606	0	1417
Q Serve(g_s), s	0.0	0.0	0.0	8.5	12.2	0.0	3.6	0.0	10.0	0.7	0.0	0.6
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.5	12.2	0.0	3.6	0.0	10.0	0.7	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.75		1.00
Lane Grp Cap(c), veh/h	478	2045	915	769	2423	1084	266	0	119	28	0	25
V/C Ratio(X)	0.01	0.22	0.00	0.37	0.34	0.00	0.30	0.00	0.81	0.28	0.00	0.24
Avail Cap(c_a), veh/h	478	2045	915	960	2423	1084	730	0	326	139	0	123
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.72	0.72	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	6.4	5.6	0.0	64.6	0.0	67.5	72.7	0.0	72.7
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.2	0.3	0.0	0.6	0.0	13.3	5.3	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	6.4	8.7	0.0	2.9	0.0	7.8	0.7	0.0	0.5
LnGrp Delay(d),s/veh	0.0	0.3	0.0	6.6	5.8	0.0	65.2	0.0	80.8	78.1	0.0	77.6
LnGrp LOS	A	A		A	A		E		F	E		E
Approach Vol, veh/h	465				1098				176		14	
Approach Delay, s/veh	0.3				6.0				73.7		77.9	
Approach LOS	A				A				E		E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4	5	6	8					
Phs Duration (G+Y+Rc), s	121.3			19.1	17.9	103.4	9.7					
Change Period (Y+Rc), s	6.5			6.5	6.5	6.5	7.0					
Max Green Setting (Gmax), s	82.5			34.5	29.5	46.5	13.0					
Max Q Clear Time (g_c+l1), s	14.2			12.0	10.5	2.0	2.7					
Green Ext Time (p_c), s	39.8			0.6	0.9	30.3	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	11.9											
HCM 2010 LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	1	157	37	48	605
Future Vol, veh/h	6	1	157	37	48	605
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	0	-	-	150	-
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	6	1	157	37	48	605
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	624	106	0	0	211	0
Stage 1	191	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	417	928	-	-	1357	-
Stage 1	822	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	401	928	-	-	1357	-
Mov Cap-2 Maneuver	401	-	-	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.4	0	0.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 401 928	1357	-		
HCM Lane V/C Ratio	-	- 0.016 0.001	0.038	-		
HCM Control Delay (s)	-	- 14.1 8.9	7.8	-		
HCM Lane LOS	-	- B A	A	-		
HCM 95th %tile Q(veh)	-	- 0.1 0	0.1	-		

Timings
1: Bells Ferry Rd & N. Booth Rd

2022 Future No-Build PM - Improved
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	267	185	349	849	254
Future Volume (vph)	267	185	349	849	254
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	42.0	42.0	38.0	138.0	100.0
Total Split (%)	23.3%	23.3%	21.1%	76.7%	55.6%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 18 (10%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future No-Build PM - Improved
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	267	185	349	849	254	250		
Future Volume (veh/h)	267	185	349	849	254	250		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	267	185	349	849	254	250		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	287	256	589	1254	489	481		
Arrive On Green	0.18	0.18	0.09	0.75	0.63	0.63		
Sat Flow, veh/h	1587	1417	1587	1667	772	760		
Grp Volume(v), veh/h	267	185	349	849	0	504		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1533		
Q Serve(g_s), s	29.8	22.1	13.4	46.2	0.0	32.4		
Cycle Q Clear(g_c), s	29.8	22.1	13.4	46.2	0.0	32.4		
Prop In Lane	1.00	1.00	1.00			0.50		
Lane Grp Cap(c), veh/h	287	256	589	1254	0	970		
V/C Ratio(X)	0.93	0.72	0.59	0.68	0.00	0.52		
Avail Cap(c_a), veh/h	317	283	735	1254	0	970		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	72.6	69.5	13.4	11.2	0.0	18.1		
Incr Delay (d2), s/veh	46.1	8.2	1.0	3.0	0.0	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	23.5	14.3	9.9	29.7	0.0	20.5		
LnGrp Delay(d),s/veh	118.7	77.7	14.4	14.2	0.0	20.1		
LnGrp LOS	F	E	B	B		C		
Approach Vol, veh/h	452			1198	504			
Approach Delay, s/veh	101.9			14.3	20.1			
Approach LOS	F			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	21.5	120.0				141.5		38.5
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	33.0	94.0				132.0		36.0
Max Q Clear Time (g_c+l1), s	15.4	34.4				48.2		31.8
Green Ext Time (p_c), s	1.1	52.1				69.8		0.7
Intersection Summary								
HCM 2010 Ctrl Delay			34.0					
HCM 2010 LOS			C					

Timings 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build PM - Improved
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	 	 			 			 		
Traffic Volume (vph)	444	1036	94	100	619	379	36	688	129	201
Future Volume (vph)	444	1036	94	100	619	379	36	688	129	201
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases			6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	30.0	63.0	63.0	15.0	48.0	48.0	15.0	43.0	19.0	47.0
Total Split (%)	21.4%	45.0%	45.0%	10.7%	34.3%	34.3%	10.7%	30.7%	13.6%	33.6%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 72 (51%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
30 s	48 s	19 s	43 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	63 s	15 s	47 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future No-Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	444	1036	94	100	619	379	36	688	69	129	201	64
Future Volume (veh/h)	444	1036	94	100	619	379	36	688	69	129	201	64
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	444	1036	0	100	619	0	36	688	69	129	201	64
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	488	1379	617	225	1050	470	269	730	73	180	360	115
Arrive On Green	0.16	0.44	0.00	0.05	0.33	0.00	0.03	0.25	0.25	0.07	0.30	0.30
Sat Flow, veh/h	3079	3167	1417	1587	3167	1417	1587	2907	291	1587	1212	386
Grp Volume(v), veh/h	444	1036	0	100	619	0	36	374	383	129	0	265
Grp Sat Flow(s),veh/h/ln	1540	1583	1417	1587	1583	1417	1587	1583	1615	1587	0	1599
Q Serve(g_s), s	19.8	38.4	0.0	5.8	22.7	0.0	2.3	32.5	32.5	8.2	0.0	19.6
Cycle Q Clear(g_c), s	19.8	38.4	0.0	5.8	22.7	0.0	2.3	32.5	32.5	8.2	0.0	19.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		0.24
Lane Grp Cap(c), veh/h	488	1379	617	225	1050	470	269	398	406	180	0	475
V/C Ratio(X)	0.91	0.75	0.00	0.44	0.59	0.00	0.13	0.94	0.94	0.72	0.00	0.56
Avail Cap(c_a), veh/h	517	1379	617	235	1050	470	323	413	421	206	0	475
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.9	33.1	0.0	30.6	38.9	0.0	38.0	51.4	51.4	38.2	0.0	41.4
Incr Delay (d2), s/veh	21.0	3.2	0.0	1.4	2.5	0.0	0.2	43.8	43.8	10.1	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.5	23.6	0.0	4.7	15.6	0.0	1.9	26.2	26.7	7.3	0.0	13.7
LnGrp Delay(d),s/veh	78.9	36.3	0.0	32.0	41.3	0.0	38.2	95.2	95.2	48.3	0.0	42.9
LnGrp LOS	E	D		C	D		D	F	F	D		D
Approach Vol, veh/h	1480				719				793			
Approach Delay, s/veh	49.1				40.0				92.6			
Approach LOS	D				D				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.7	52.9	16.7	41.7	14.1	67.5	10.3	48.1				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	23.5	41.5	12.5	36.5	8.5	56.5	8.5	40.5				
Max Q Clear Time (g_c+I1), s	21.8	24.7	10.2	34.5	7.8	40.4	4.3	21.6				
Green Ext Time (p_c), s	0.3	15.4	0.1	0.6	0.0	14.8	0.0	3.5				
Intersection Summary												
HCM 2010 Ctrl Delay	56.8											
HCM 2010 LOS	E											

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	183	143	574	255	101
Future Vol, veh/h	61	183	143	574	255	101
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	183	143	574	255	101
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1201	315	367	0	-	0
Stage 1	315	-	-	-	-	-
Stage 2	886	-	-	-	-	-
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	204	725	1192	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	725	1192	-	-	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	27.3	1.7		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1192	-	411	-	-	
HCM Lane V/C Ratio	0.124	-	0.612	-	-	
HCM Control Delay (s)	8.4	-	27.3	-	-	
HCM Lane LOS	A	-	D	-	-	
HCM 95th %tile Q(veh)	0.4	-	4.5	-	-	

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build PM - Improved

02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	316	209	320	101	292	394	493	12	300
Future Volume (vph)	316	209	320	101	292	394	493	12	300
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	25.0	40.0	30.0	20.0	35.0	30.0	55.0	15.0	40.0
Total Split (%)	19.2%	30.8%	23.1%	15.4%	26.9%	23.1%	42.3%	11.5%	30.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 98

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
30 s	40 s	25 s	35 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	55 s	20 s	40 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future No-Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	209	320	101	292	27	394	493	50	12	300	200
Future Volume (veh/h)	316	209	320	101	292	27	394	493	50	12	300	200
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	316	209	320	101	292	27	394	493	50	12	300	200
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	397	614	288	412	38	476	1286	130	313	483	313
Arrive On Green	0.17	0.24	0.24	0.07	0.14	0.14	0.19	0.44	0.44	0.01	0.26	0.26
Sat Flow, veh/h	1587	1667	1417	1587	2933	269	1587	2905	294	1587	1842	1197
Grp Volume(v), veh/h	316	209	320	101	157	162	394	268	275	12	257	243
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1619	1587	1583	1615	1587	1583	1456
Q Serve(g_s), s	18.5	12.1	18.3	5.9	10.4	10.6	19.2	12.5	12.6	0.6	15.8	16.4
Cycle Q Clear(g_c), s	18.5	12.1	18.3	5.9	10.4	10.6	19.2	12.5	12.6	0.6	15.8	16.4
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.18	1.00		0.82
Lane Grp Cap(c), veh/h	378	397	614	288	223	228	476	701	715	313	415	381
V/C Ratio(X)	0.84	0.53	0.52	0.35	0.70	0.71	0.83	0.38	0.38	0.04	0.62	0.64
Avail Cap(c_a), veh/h	378	505	705	372	408	418	505	701	715	412	480	441
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	36.6	22.9	36.8	45.3	45.4	23.0	20.6	20.7	29.2	35.9	36.1
Incr Delay (d2), s/veh	17.0	1.1	0.7	0.7	4.1	4.2	11.5	0.3	0.3	0.0	1.9	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.9	9.6	11.6	4.8	8.4	8.7	14.8	9.3	9.6	0.5	11.5	11.1
LnGrp Delay(d),s/veh	49.3	37.7	23.6	37.6	49.4	49.6	34.4	21.0	21.0	29.2	37.8	38.6
LnGrp LOS	D	D	C	D	D	D	C	C	C	C	D	D
Approach Vol, veh/h	845				420				937			
Approach Delay, s/veh	36.7				46.6				26.7			
Approach LOS	D				D				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.0	35.5	25.0	22.0	8.0	55.4	14.2	32.8				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	23.5	33.5	18.5	28.5	8.5	48.5	13.5	33.5				
Max Q Clear Time (g_c+I1), s	21.2	18.4	20.5	12.6	2.6	14.6	7.9	20.3				
Green Ext Time (p_c), s	0.4	10.6	0.0	2.9	0.0	20.0	0.1	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay	35.0											
HCM 2010 LOS	D											

Timings 5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build PM - Improved

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	606	228	87	512	298	224	513	157	263	434	185
Future Volume (vph)	308	606	228	87	512	298	224	513	157	263	434	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	25.0	51.0	51.0	15.0	41.0	41.0	21.0	42.0	42.0	22.0	43.0	43.0
Total Split (%)	19.2%	39.2%	39.2%	11.5%	31.5%	31.5%	16.2%	32.3%	32.3%	16.9%	33.1%	33.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
21 s	43 s	25 s	41 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
22 s	42 s	15 s	51 s

HCM 2010 Signalized Intersection Summary
5: George Busbee Pkwy & Big Shanty Rd

2022 Future No-Build PM - Improved
02/27/2019

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	308	606	228	87	512	298	224	513	157	263	434	185				
Future Volume (veh/h)	308	606	228	87	512	298	224	513	157	263	434	185				
Number	3	8	18	7	4	14	1	6	16	5	2	12				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667				
Adj Flow Rate, veh/h	308	606	228	87	512	298	224	513	157	263	434	185				
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91				
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	372	1131	506	274	824	369	384	893	400	366	932	417				
Arrive On Green	0.15	0.36	0.36	0.05	0.26	0.26	0.11	0.28	0.28	0.13	0.29	0.29				
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417				
Grp Volume(v), veh/h	308	606	228	87	512	298	224	513	157	263	434	185				
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417				
Q Serve(g_s), s	18.0	19.8	16.0	5.2	18.5	25.6	12.9	18.0	11.6	15.3	14.6	13.8				
Cycle Q Clear(g_c), s	18.0	19.8	16.0	5.2	18.5	25.6	12.9	18.0	11.6	15.3	14.6	13.8				
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Lane Grp Cap(c), veh/h	372	1131	506	274	824	369	384	893	400	366	932	417				
V/C Ratio(X)	0.83	0.54	0.45	0.32	0.62	0.81	0.58	0.57	0.39	0.72	0.47	0.44				
Avail Cap(c_a), veh/h	372	1131	506	306	865	387	391	893	400	366	932	417				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Uniform Delay (d), s/veh	29.6	33.2	32.0	32.7	42.4	45.1	28.4	40.0	37.7	29.1	37.5	37.2				
Incr Delay (d2), s/veh	16.1	0.5	0.6	0.7	1.3	12.7	2.2	2.7	2.9	6.9	1.7	3.4				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(95%),veh/ln	14.6	13.6	10.5	4.2	13.0	16.9	9.8	13.0	8.5	11.8	10.8	9.7				
LnGrp Delay(d),s/veh	45.7	33.7	32.7	33.3	43.7	57.8	30.6	42.7	40.6	36.0	39.2	40.7				
LnGrp LOS	D	C	C	C	D	E	C	D	D	D	D	D				
Approach Vol, veh/h	1142				897				894							
Approach Delay, s/veh	36.7				47.4				39.3							
Approach LOS	D				D				D							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	20.4	45.3	25.0	39.3	22.0	43.7	12.4	51.9								
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5								
Max Green Setting (Gmax), s	15.5	36.0	19.5	35.5	16.5	35.0	9.5	45.5								
Max Q Clear Time (g_c+I1), s	14.9	16.6	20.0	27.6	17.3	20.0	7.2	21.8								
Green Ext Time (p_c), s	0.0	5.2	0.0	6.2	0.0	4.7	0.0	19.4								
Intersection Summary																
HCM 2010 Ctrl Delay	40.3															
HCM 2010 LOS	D															
Notes																
User approved pedestrian interval to be less than phase max green.																

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build PM - Improved

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  		 	  		 	 			 
Traffic Volume (vph)	163	1013	76	303	1298	205	94	426	318	299	333
Future Volume (vph)	163	1013	76	303	1298	205	94	426	318	299	333
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	35.0	75.0	75.0	35.0	75.0	75.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	20.6%	44.1%	44.1%	20.6%	44.1%	44.1%	17.6%	17.6%	17.6%	17.6%	17.6%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 147 (86%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
35 s	75 s	30 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
35 s	75 s	30 s	30 s

HCM 2010 Signalized Intersection Summary
6: George Busbee Pkwy & Chastain Rd

2022 Future No-Build PM - Improved
02/27/2019

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	163	1013	76	303	1298	205	94	426	318	299	333	90				
Future Volume (veh/h)	163	1013	76	303	1298	205	94	426	318	299	333	90				
Number	1	6	16	5	2	12	7	4	14	3	8	18				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700				
Adj Flow Rate, veh/h	163	1013	0	303	1298	0	94	426	0	299	333	90				
Adj No. of Lanes	1	3	1	2	3	1	2	2	1	1	2	0				
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, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	182	2075	646	344	2061	642	132	428	192	258	564	150				
Arrive On Green	0.11	0.46	0.00	0.22	0.91	0.00	0.04	0.14	0.00	0.14	0.23	0.23				
Sat Flow, veh/h	1587	4550	1417	3079	4550	1417	3079	3167	1417	1587	2474	659				
Grp Volume(v), veh/h	163	1013	0	303	1298	0	94	426	0	299	211	212				
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1540	1517	1417	1540	1583	1417	1587	1583	1550				
Q Serve(g_s), s	17.2	26.5	0.0	16.2	10.6	0.0	5.1	22.8	0.0	23.0	20.2	20.8				
Cycle Q Clear(g_c), s	17.2	26.5	0.0	16.2	10.6	0.0	5.1	22.8	0.0	23.0	20.2	20.8				
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.43				
Lane Grp Cap(c), veh/h	182	2075	646	344	2061	642	132	428	192	258	361	353				
V/C Ratio(X)	0.89	0.49	0.00	0.88	0.63	0.00	0.71	0.99	0.00	1.16	0.59	0.60				
Avail Cap(c_a), veh/h	261	2075	646	507	2061	642	417	428	192	258	361	353				
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	1.00	0.00	0.75	0.75	0.00	1.00	1.00	0.00	1.00	1.00	1.00				
Uniform Delay (d), s/veh	74.2	32.4	0.0	64.9	4.9	0.0	80.3	73.4	0.0	54.6	58.5	58.7				
Incr Delay (d2), s/veh	29.8	0.8	0.0	10.3	1.1	0.0	7.3	81.4	0.0	330.5	2.5	2.8				
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(95%),veh/ln	14.0	16.7	0.0	11.3	7.2	0.0	4.2	21.2	0.0	42.6	14.1	14.1				
LnGrp Delay(d),s/veh	104.0	33.2	0.0	75.2	6.0	0.0	87.6	154.8	0.0	385.1	61.0	61.5				
LnGrp LOS	F	C		E	A		F	F		F	E	E				
Approach Vol, veh/h	1176				1601				520							
Approach Delay, s/veh	43.0				19.1				142.7							
Approach LOS	D				B				F							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	26.5	83.5	30.0	30.0	26.0	84.0	14.3	45.7								
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0								
Max Green Setting (Gmax), s	28.0	68.5	23.0	23.0	28.0	68.5	23.0	23.0								
Max Q Clear Time (g_c+I1), s	19.2	12.6	25.0	24.8	18.2	28.5	7.1	22.8								
Green Ext Time (p_c), s	0.3	52.7	0.0	0.0	0.8	38.3	0.2	0.1								
Intersection Summary																
HCM 2010 Ctrl Delay	73.7															
HCM 2010 LOS	E															
Notes																
User approved pedestrian interval to be less than phase max green.																

Timings
7: Townpark Dr & Chastain Rd

2022 Future No-Build PM - Improved

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	63	1356	60	15	1741	160	116	18	488	14
Future Volume (vph)	63	1356	60	15	1741	160	116	18	488	14
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	88.0	88.0	15.0	88.0	88.0	36.0	31.0	36.0	31.0
Total Split (%)	8.8%	51.8%	51.8%	8.8%	51.8%	51.8%	21.2%	18.2%	21.2%	18.2%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 153 (90%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	88 s	36 s	31 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	88 s	36 s	31 s

HCM 2010 Signalized Intersection Summary
7: Townpark Dr & Chastain Rd

2022 Future No-Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1356	60	15	1741	160	116	18	118	488	14	120
Future Volume (veh/h)	63	1356	60	15	1741	160	116	18	118	488	14	120
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	63	1356	0	15	1741	160	116	18	0	488	14	120
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	2742	854	302	2683	835	203	59	0	498	17	148
Arrive On Green	0.06	1.00	0.00	0.01	0.59	0.59	0.08	0.04	0.00	0.16	0.11	0.11
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	150	1289
Grp Volume(v), veh/h	63	1356	0	15	1741	160	116	18	0	488	0	134
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1439
Q Serve(g_s), s	2.7	0.0	0.0	0.6	43.2	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.6	43.2	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.90
Lane Grp Cap(c), veh/h	166	2742	854	302	2683	835	203	59	0	498	0	165
V/C Ratio(X)	0.38	0.49	0.00	0.05	0.65	0.19	0.57	0.31	0.00	0.98	0.00	0.81
Avail Cap(c_a), veh/h	192	2742	854	348	2683	835	329	221	0	498	0	190
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.00	0.69	0.69	0.69	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.8	0.0	0.0	13.4	23.2	16.1	71.4	80.0	0.0	71.0	0.0	73.5
Incr Delay (d2), s/veh	1.1	0.5	0.0	0.0	0.9	0.4	2.6	2.9	0.0	62.3	0.0	23.8
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(95%),veh/ln	2.2	0.2	0.0	0.5	24.1	6.1	9.1	1.6	0.0	22.3	0.0	11.6
LnGrp Delay(d),s/veh	20.8	0.5	0.0	13.5	24.0	16.5	73.9	82.9	0.0	133.3	0.0	97.3
LnGrp LOS	C	A		B	C	B	E	F		F		F
Approach Vol, veh/h	1419			1916			134			622		
Approach Delay, s/veh	1.4			23.3			75.1			125.5		
Approach LOS	A			C			E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	107.3	36.0	14.5	10.0	109.5	22.5	28.0				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	81.0	27.5	22.5	7.5	81.0	27.5	22.5				
Max Q Clear Time (g_c+I1), s	4.7	45.2	28.8	3.8	2.6	2.0	13.8	17.5				
Green Ext Time (p_c), s	0.0	35.6	0.0	0.5	0.0	78.1	0.3	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay	32.9											
HCM 2010 LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build PM - Improved
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	1554	419	56	1037	49	942
Future Volume (vph)	1554	419	56	1037	49	942
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	110.0	110.0	15.0	125.0	45.0	45.0
Total Split (%)	64.7%	64.7%	8.8%	73.5%	26.5%	26.5%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 100 (59%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future No-Build PM - Improved

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑↑
Traffic Volume (vph)	0	1554	419	56	1037	0	0	0	0	49	0	942
Future Volume (vph)	0	1554	419	56	1037	0	0	0	0	49	0	942
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		2493
Flt Permitted		1.00	1.00	0.11	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	181	3167					1583		2493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1554	419	56	1037	0	0	0	0	49	0	942
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	0	645
Lane Group Flow (vph)	0	1554	328	56	1037	0	0	0	0	49	0	297
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		119.2	119.2	132.0	132.0					24.5		24.5
Effective Green, g (s)		119.2	119.2	132.0	132.0					24.5		24.5
Actuated g/C Ratio		0.70	0.70	0.78	0.78					0.14		0.14
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2220	993	188	2459					228		359
v/s Ratio Prot		c0.49		0.01	c0.33					0.03		
v/s Ratio Perm			0.23	0.22								c0.12
v/c Ratio		0.70	0.33	0.30	0.42					0.21		0.83
Uniform Delay, d1		14.9	9.9	11.2	6.3					64.3		70.7
Progression Factor		0.80	0.17	0.51	0.08					1.00		1.00
Incremental Delay, d2		1.6	0.8	0.8	0.5					0.5		16.2
Delay (s)		13.6	2.5	6.4	0.9					64.7		86.8
Level of Service		B	A	A	A					E		F
Approach Delay (s)		11.2			1.2			0.0			85.7	
Approach LOS		B			A			A			F	
Intersection Summary												
HCM 2000 Control Delay			26.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			80.1%			ICU Level of Service				D		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build PM - Improved
02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	942	666	885	113	225	0	86
Future Volume (vph)	942	666	885	113	225	0	86
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	72.0	141.0	69.0	69.0	29.0	29.0	29.0
Total Split (%)	42.4%	82.9%	40.6%	40.6%	17.1%	17.1%	17.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 75 (44%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

 Ø1	 Ø2 (R)	 Ø4
72 s	69 s	29 s
 Ø6 (R)		
141 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future No-Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	942	666	0	0	885	113	225	0	86	0	0	0
Future Volume (veh/h)	942	666	0	0	885	113	225	0	86	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	942	666	0	0	885	0	225	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	992	2638	0	0	1487	665	269	0	120			
Arrive On Green	0.54	1.00	0.00	0.00	0.94	0.00	0.08	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	942	666	0	0	885	0	225	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	49.1	0.0	0.0	0.0	6.5	0.0	11.9	0.0	0.0			
Cycle Q Clear(g_c), s	49.1	0.0	0.0	0.0	6.5	0.0	11.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	992	2638	0	0	1487	665	269	0	120			
V/C Ratio(X)	0.95	0.25	0.00	0.00	0.60	0.00	0.84	0.00	0.00			
Avail Cap(c_a), veh/h	1177	2638	0	0	1487	665	401	0	179			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.68	0.68	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	38.0	0.0	0.0	0.0	2.9	0.0	76.7	0.0	0.0			
Incr Delay (d2), s/veh	13.8	0.2	0.0	0.0	1.8	0.0	10.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	29.0	0.1	0.0	0.0	5.1	0.0	9.5	0.0	0.0			
LnGrp Delay(d),s/veh	51.7	0.2	0.0	0.0	4.7	0.0	87.1	0.0	0.0			
LnGrp LOS	D	A			A		F					
Approach Vol, veh/h	1608				885			225				
Approach Delay, s/veh	30.4				4.7			87.1				
Approach LOS	C				A			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	61.8	86.3		21.9		148.1						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	65.0	62.5		21.5		134.5						
Max Q Clear Time (g_c+I1), s	51.1	8.5		13.9		2.0						
Green Ext Time (p_c), s	3.7	41.4		0.5		74.9						
Intersection Summary												
HCM 2010 Ctrl Delay	26.7											
HCM 2010 LOS	C											
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	802	699	28	12	23
Future Vol, veh/h	26	802	699	28	12	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	802	699	28	12	23
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	750	0	-	0	1189	361
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	855	-	-	-	181	636
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	855	-	-	-	175	636
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	597	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		17.1		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	855	-	-	-	334	
HCM Lane V/C Ratio	0.031	-	-	-	0.108	
HCM Control Delay (s)	9.3	-	-	-	17.1	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	

Timings

2022 Future No-Build PM - Improved

11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	5	604	100	211	508	9	314	1	514	0	6
Future Volume (vph)	5	604	100	211	508	9	314	1	514	0	6
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm
Protected Phases		6		5	2		4	4		8	
Permitted Phases	6		6	2		2			4		8
Detector Phase	6	6	6	5	2	2	4	4	4	8	8
Switch Phase											
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0
Total Split (s)	67.0	67.0	67.0	20.0	87.0	87.0	63.0	63.0	63.0	20.0	20.0
Total Split (%)	39.4%	39.4%	39.4%	11.8%	51.2%	51.2%	37.1%	37.1%	37.1%	11.8%	11.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?											
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 55 (32%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
87 s	63 s	20 s
 Ø5	 Ø6 (R)	
20 s	67 s	

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	604	100	211	508	9	314	1	514	3	0	6
Future Volume (veh/h)	5	604	100	211	508	9	314	1	514	3	0	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	5	604	0	211	508	0	315	0	514	3	0	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	1330	595	470	1703	762	1055	0	471	19	0	17
Arrive On Green	0.84	0.84	0.00	0.08	0.54	0.00	0.33	0.00	0.33	0.01	0.00	0.01
Sat Flow, veh/h	888	3167	1417	1587	3167	1417	3175	0	1417	1587	0	1417
Grp Volume(v), veh/h	5	604	0	211	508	0	315	0	514	3	0	6
Grp Sat Flow(s),veh/h/ln	888	1583	1417	1587	1583	1417	1587	0	1417	1587	0	1417
Q Serve(g_s), s	0.2	8.4	0.0	12.7	15.0	0.0	12.5	0.0	56.5	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.2	8.4	0.0	12.7	15.0	0.0	12.5	0.0	56.5	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	1330	595	470	1703	762	1055	0	471	19	0	17
V/C Ratio(X)	0.01	0.45	0.00	0.45	0.30	0.00	0.30	0.00	1.09	0.15	0.00	0.35
Avail Cap(c_a), veh/h	415	1330	595	470	1703	762	1055	0	471	121	0	108
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.86	0.86	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	8.5	0.0	23.8	21.6	0.0	42.1	0.0	56.7	83.1	0.0	83.3
Incr Delay (d2), s/veh	0.1	1.1	0.0	0.6	0.4	0.0	0.2	0.0	202.2	3.7	0.0	11.8
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(95%),veh/ln	0.1	6.7	0.0	9.3	10.6	0.0	9.3	0.0	87.5	0.3	0.0	0.6
LnGrp Delay(d),s/veh	7.9	9.7	0.0	24.4	22.0	0.0	42.2	0.0	258.9	86.8	0.0	95.1
LnGrp LOS	A	A		C	C		D		F	F		F
Approach Vol, veh/h	609				719				829			
Approach Delay, s/veh	9.7				22.7				176.6			
Approach LOS	A				C				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	97.9		63.0		20.0	77.9	9.1					
Change Period (Y+Rc), s	6.5		6.5		6.5	6.5	7.0					
Max Green Setting (Gmax), s	80.5		56.5		13.5	60.5	13.0					
Max Q Clear Time (g_c+l1), s	17.0		58.5		14.7	10.4	2.7					
Green Ext Time (p_c), s	31.8		0.0		0.0	28.1	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			78.2									
HCM 2010 LOS			E									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↕		↰	↱
Traffic Vol, veh/h	49	14	817	8	2	311
Future Vol, veh/h	49	14	817	8	2	311
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	0	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	14	817	8	2	311
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1021	430	0	0	859	0
Stage 1	855	-	-	-	-	-
Stage 2	166	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	232	573	-	-	778	-
Stage 1	377	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	231	573	-	-	778	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	377	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 231 573	778	-		
HCM Lane V/C Ratio	-	- 0.221 0.025	0.003	-		
HCM Control Delay (s)	-	- 25 11.4	9.6	-		
HCM Lane LOS	-	- D B	A	-		
HCM 95th %tile Q(veh)	-	- 0.8 0.1	0	-		

Future “Build” Intersection Analysis

Timings
1: Bells Ferry Rd & N. Booth Rd

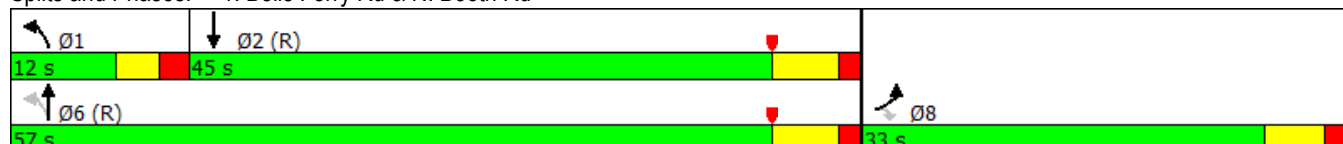
2022 Future Build AM
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	478	323	163	230	563
Future Volume (vph)	478	323	163	230	563
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	33.0	33.0	12.0	57.0	45.0
Total Split (%)	36.7%	36.7%	13.3%	63.3%	50.0%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future Build AM
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	478	323	163	230	563	157		
Future Volume (veh/h)	478	323	163	230	563	157		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	478	323	163	230	563	157		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	476	425	198	944	548	153		
Arrive On Green	0.30	0.30	0.07	0.57	0.44	0.44		
Sat Flow, veh/h	1587	1417	1587	1667	1255	350		
Grp Volume(v), veh/h	478	323	163	230	0	720		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1605		
Q Serve(g_s), s	27.0	18.6	4.8	6.2	0.0	39.3		
Cycle Q Clear(g_c), s	27.0	18.6	4.8	6.2	0.0	39.3		
Prop In Lane	1.00	1.00	1.00			0.22		
Lane Grp Cap(c), veh/h	476	425	198	944	0	701		
V/C Ratio(X)	1.00	0.76	0.82	0.24	0.00	1.03		
Avail Cap(c_a), veh/h	476	425	203	944	0	701		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	31.5	28.6	20.4	9.8	0.0	25.3		
Incr Delay (d2), s/veh	86.1	8.2	26.7	0.6	0.0	97.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	41.7	12.9	6.4	5.5	0.0	65.5		
LnGrp Delay(d),s/veh	117.6	36.8	47.1	10.4	0.0	123.2		
LnGrp LOS	F	D	D	B		F		
Approach Vol, veh/h	801			393	720			
Approach Delay, s/veh	85.0			25.6	123.2			
Approach LOS	F			C	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.7	45.3				57.0		33.0
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	7.0	39.0				51.0		27.0
Max Q Clear Time (g_c+I1), s	6.8	41.3				8.2		29.0
Green Ext Time (p_c), s	0.0	0.0				30.9		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			87.2					
HCM 2010 LOS			F					

Timings 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build AM

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	99	422	63	133	909	213	100	171	236	413
Future Volume (vph)	99	422	63	133	909	213	100	171	236	413
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	15.0	42.0	42.0	15.0	42.0	42.0	15.0	44.0	19.0	48.0
Total Split (%)	12.5%	35.0%	35.0%	12.5%	35.0%	35.0%	12.5%	36.7%	15.8%	40.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 72 (60%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	42 s	19 s	44 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	42 s	15 s	48 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	422	63	133	909	213	100	171	57	236	413	216
Future Volume (veh/h)	99	422	63	133	909	213	100	171	57	236	413	216
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	99	422	0	133	909	0	100	171	57	236	413	216
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	978	437	367	1022	457	152	359	120	435	357	187
Arrive On Green	0.06	0.31	0.00	0.07	0.32	0.00	0.06	0.30	0.30	0.10	0.35	0.35
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	1197	399	1587	1032	540
Grp Volume(v), veh/h	99	422	0	133	909	0	100	0	228	236	0	629
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	0	1596	1587	0	1571
Q Serve(g_s), s	5.1	12.8	0.0	6.8	32.7	0.0	5.2	0.0	14.0	12.3	0.0	41.5
Cycle Q Clear(g_c), s	5.1	12.8	0.0	6.8	32.7	0.0	5.2	0.0	14.0	12.3	0.0	41.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.34
Lane Grp Cap(c), veh/h	181	978	437	367	1022	457	152	0	478	435	0	543
V/C Ratio(X)	0.55	0.43	0.00	0.36	0.89	0.00	0.66	0.00	0.48	0.54	0.00	1.16
Avail Cap(c_a), veh/h	203	978	437	367	1022	457	172	0	499	435	0	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.5	33.1	0.0	26.0	38.6	0.0	31.8	0.0	34.3	25.5	0.0	39.3
Incr Delay (d2), s/veh	2.5	1.3	0.0	0.6	13.3	0.0	7.7	0.0	0.7	1.4	0.0	305.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	9.6	0.0	5.4	22.7	0.0	4.6	0.0	10.3	9.3	0.0	115.5
LnGrp Delay(d),s/veh	33.1	34.4	0.0	26.6	51.9	0.0	39.5	0.0	35.1	26.9	0.0	345.1
LnGrp LOS	C	C		C	D		D		D	C		F
Approach Vol, veh/h	521				1042				328		865	
Approach Delay, s/veh	34.2				48.7				36.4		258.3	
Approach LOS	C				D				D		F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.3	45.2	19.0	42.5	15.0	43.5	13.5	48.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	8.5	35.5	12.5	37.5	8.5	35.5	8.5	41.5				
Max Q Clear Time (g_c+l1), s	7.1	34.7	14.3	16.0	8.8	14.8	7.2	43.5				
Green Ext Time (p_c), s	0.0	0.7	0.0	3.3	0.0	17.1	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			110.3									
HCM 2010 LOS			F									

Intersection

Int Delay, s/veh 3.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations	↔↔		↔	↑	↔	
Traffic Vol, veh/h	14	84	175	224	476	174
Future Vol, veh/h	14	84	175	224	476	174
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	84	175	224	476	174

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	1223	606	699	0	-	0
Stage 1	606	-	-	-	-	-
Stage 2	617	-	-	-	-	-
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	198	497	898	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	497	898	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	18.1	4.4	0
HCM LOS	C		

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	898	-	380	-	-
HCM Lane V/C Ratio	0.21	-	0.277	-	-
HCM Control Delay (s)	10.1	-	18.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.8	-	1.1	-	-

Timings 4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build AM

02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	230	171	225	67	245	111	191	18	228
Future Volume (vph)	230	171	225	67	245	111	191	18	228
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	19.0	41.0	19.0	17.0	39.0	19.0	46.0	16.0	43.0
Total Split (%)	15.8%	34.2%	15.8%	14.2%	32.5%	15.8%	38.3%	13.3%	35.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 72.5

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
19 s	43 s	19 s	39 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	46 s	17 s	41 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	171	225	67	245	27	111	191	80	18	228	234
Future Volume (veh/h)	230	171	225	67	245	27	111	191	80	18	228	234
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	230	171	225	67	245	27	111	191	80	18	228	234
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	388	425	308	399	44	365	792	320	454	496	443
Arrive On Green	0.14	0.23	0.23	0.05	0.14	0.14	0.07	0.36	0.36	0.02	0.31	0.31
Sat Flow, veh/h	1587	1667	1417	1587	2880	314	1587	2203	890	1587	1583	1417
Grp Volume(v), veh/h	230	171	225	67	134	138	111	135	136	18	228	234
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1611	1587	1583	1510	1587	1583	1417
Q Serve(g_s), s	9.0	6.8	10.2	2.8	6.1	6.2	3.6	4.6	4.9	0.6	8.9	10.5
Cycle Q Clear(g_c), s	9.0	6.8	10.2	2.8	6.1	6.2	3.6	4.6	4.9	0.6	8.9	10.5
Prop In Lane	1.00		1.00	1.00		0.20	1.00		0.59	1.00		1.00
Lane Grp Cap(c), veh/h	385	388	425	308	219	223	365	570	543	454	496	443
V/C Ratio(X)	0.60	0.44	0.53	0.22	0.61	0.62	0.30	0.24	0.25	0.04	0.46	0.53
Avail Cap(c_a), veh/h	414	746	730	446	668	679	515	812	774	616	750	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	25.3	22.4	26.5	31.2	31.3	16.7	17.3	17.4	17.3	21.2	21.8
Incr Delay (d2), s/veh	2.1	0.8	1.0	0.4	2.8	2.8	0.5	0.2	0.2	0.0	0.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	5.7	7.3	2.2	5.1	5.3	2.9	3.6	3.7	0.5	7.1	7.6
LnGrp Delay(d),s/veh	24.2	26.1	23.5	26.9	34.0	34.1	17.2	17.5	17.6	17.3	21.9	22.8
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	C	C
Approach Vol, veh/h	626				339			382			480	
Approach Delay, s/veh	24.5				32.6			17.4			22.2	
Approach LOS	C				C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	30.6	17.6	17.2	8.1	34.2	10.3	24.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	36.5	12.5	32.5	9.5	39.5	10.5	34.5				
Max Q Clear Time (g_c+l1), s	5.6	12.5	11.0	8.2	2.6	6.9	4.8	12.2				
Green Ext Time (p_c), s	0.1	11.6	0.1	2.4	0.0	13.8	0.1	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay	23.9											
HCM 2010 LOS	C											

Timings 5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build AM
02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	327	65	72	505	117	61	131	79	198	196	272
Future Volume (vph)	117	327	65	72	505	117	61	131	79	198	196	272
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0
Total Split (%)	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 8 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
12 s	38 s	12 s	38 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	38 s	12 s	38 s

HCM 2010 Signalized Intersection Summary
5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	327	65	72	505	117	61	131	79	198	196	272
Future Volume (veh/h)	117	327	65	72	505	117	61	131	79	198	196	272
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	117	327	65	72	505	117	61	131	79	198	196	272
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	283	927	415	353	865	387	455	1146	513	565	1222	547
Arrive On Green	0.06	0.29	0.29	0.05	0.27	0.27	0.04	0.36	0.36	0.06	0.39	0.39
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417
Grp Volume(v), veh/h	117	327	65	72	505	117	61	131	79	198	196	272
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417
Q Serve(g_s), s	5.3	8.1	3.4	3.2	13.8	6.5	2.4	2.8	3.8	6.5	4.1	14.6
Cycle Q Clear(g_c), s	5.3	8.1	3.4	3.2	13.8	6.5	2.4	2.8	3.8	6.5	4.1	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	283	927	415	353	865	387	455	1146	513	565	1222	547
V/C Ratio(X)	0.41	0.35	0.16	0.20	0.58	0.30	0.13	0.11	0.15	0.35	0.16	0.50
Avail Cap(c_a), veh/h	283	1029	460	384	1029	460	493	1146	513	565	1222	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	27.9	26.2	24.5	31.4	28.8	18.6	21.2	21.6	19.2	20.1	23.3
Incr Delay (d2), s/veh	1.0	0.2	0.2	0.3	0.6	0.4	0.1	0.2	0.6	0.4	0.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	6.4	2.4	2.6	10.2	4.7	1.9	2.2	2.8	1.8	3.3	10.3
LnGrp Delay(d),s/veh	25.7	28.1	26.4	24.8	32.0	29.2	18.7	21.4	22.2	19.6	20.4	26.6
LnGrp LOS	C	C	C	C	C	C	B	C	C	B	C	C
Approach Vol, veh/h	509				694				271			
Approach Delay, s/veh	27.3				30.8				21.1			
Approach LOS	C				C				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	45.6	12.0	32.8	12.0	43.2	10.0	34.8				
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5				
Max Green Setting (Gmax), s	6.5	31.0	6.5	32.5	6.5	31.0	6.5	32.5				
Max Q Clear Time (g_c+I1), s	4.4	16.6	7.3	15.8	8.5	5.8	5.2	10.1				
Green Ext Time (p_c), s	0.0	2.3	0.0	11.5	0.0	2.6	0.0	14.4				
Intersection Summary												
HCM 2010 Ctrl Delay			26.2									
HCM 2010 LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future Build AM

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			  		 	 			 
Traffic Volume (vph)	259	985	34	289	1236	238	45	201	199	186	245
Future Volume (vph)	259	985	34	289	1236	238	45	201	199	186	245
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	45.0	60.0	60.0	45.0	60.0	60.0	23.0	22.0	22.0	23.0	22.0
Total Split (%)	30.0%	40.0%	40.0%	30.0%	40.0%	40.0%	15.3%	14.7%	14.7%	15.3%	14.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 80 (53%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
45 s	60 s	23 s	22 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
45 s	60 s	23 s	22 s

HCM 2010 Signalized Intersection Summary

6: George Busbee Pkwy & Chastain Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	985	34	289	1236	238	45	201	199	186	245	21
Future Volume (veh/h)	259	985	34	289	1236	238	45	201	199	186	245	21
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	259	985	0	289	1236	0	45	201	0	186	245	21
Adj No. of Lanes	1	3	1	1	3	1	2	2	1	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	1997	622	307	2068	644	87	246	110	235	461	39
Arrive On Green	0.18	0.44	0.00	0.39	0.91	0.00	0.03	0.08	0.00	0.11	0.16	0.16
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	3079	3167	1417	1587	2954	251
Grp Volume(v), veh/h	259	985	0	289	1236	0	45	201	0	186	130	136
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1540	1583	1417	1587	1583	1622
Q Serve(g_s), s	24.0	23.3	0.0	26.3	8.1	0.0	2.2	9.4	0.0	16.0	11.4	11.5
Cycle Q Clear(g_c), s	24.0	23.3	0.0	26.3	8.1	0.0	2.2	9.4	0.0	16.0	11.4	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	282	1997	622	307	2068	644	87	246	110	235	247	253
V/C Ratio(X)	0.92	0.49	0.00	0.94	0.60	0.00	0.52	0.82	0.00	0.79	0.53	0.54
Avail Cap(c_a), veh/h	402	1997	622	402	2068	644	328	317	142	235	247	253
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.88	0.88	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.6	30.1	0.0	45.2	4.1	0.0	71.9	68.1	0.0	55.2	58.2	58.3
Incr Delay (d2), s/veh	26.4	0.9	0.0	35.0	1.1	0.0	4.8	13.5	0.0	18.6	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.5	15.1	0.0	20.2	5.7	0.0	1.8	8.1	0.0	12.9	8.8	9.1
LnGrp Delay(d),s/veh	87.0	31.0	0.0	80.2	5.2	0.0	76.7	81.6	0.0	73.8	60.3	60.5
LnGrp LOS	F	C		F	A		E	F		E	E	E
Approach Vol, veh/h	1244				1525				246		452	
Approach Delay, s/veh	42.7				19.4				80.7		65.9	
Approach LOS	D				B				F		E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.7	74.7	23.0	18.6	36.0	72.3	11.2	30.4				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0				
Max Green Setting (Gmax), s	38.0	53.5	16.0	15.0	38.0	53.5	16.0	15.0				
Max Q Clear Time (g_c+I1), s	26.0	10.1	18.0	11.4	28.3	25.3	4.2	13.5				
Green Ext Time (p_c), s	0.7	41.0	0.0	0.3	0.7	27.2	0.1	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay	38.2											
HCM 2010 LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
7: Townpark Dr & Chastain Rd

2022 Future Build AM
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	115	1203	94	110	1731	526	18	8	32	5
Future Volume (vph)	115	1203	94	110	1731	526	18	8	32	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	95.0	95.0	15.0	95.0	95.0	15.0	25.0	15.0	25.0
Total Split (%)	10.0%	63.3%	63.3%	10.0%	63.3%	63.3%	10.0%	16.7%	10.0%	16.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 79 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	95 s	15 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	95 s	15 s	25 s

HCM 2010 Signalized Intersection Summary

7: Townpark Dr & Chastain Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	1203	94	110	1731	526	18	8	15	32	5	16
Future Volume (veh/h)	115	1203	94	110	1731	526	18	8	15	32	5	16
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	115	1203	0	110	1731	526	18	8	0	32	5	16
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	3170	987	425	3166	986	114	57	0	76	14	46
Arrive On Green	0.07	1.00	0.00	0.07	1.00	1.00	0.02	0.03	0.00	0.02	0.04	0.04
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	350	1119
Grp Volume(v), veh/h	115	1203	0	110	1731	526	18	8	0	32	0	21
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1469
Q Serve(g_s), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Cycle Q Clear(g_c), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.76
Lane Grp Cap(c), veh/h	220	3170	987	425	3166	986	114	57	0	76	0	61
V/C Ratio(X)	0.52	0.38	0.00	0.26	0.55	0.53	0.16	0.14	0.00	0.42	0.00	0.35
Avail Cap(c_a), veh/h	243	3170	987	449	3166	986	155	183	0	133	0	162
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.00	0.51	0.51	0.51	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.7	0.0	0.0	68.2	70.3	0.0	72.1	0.0	69.9
Incr Delay (d2), s/veh	1.7	0.3	0.0	0.2	0.4	1.1	0.6	1.1	0.0	3.8	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.2	0.0	2.4	0.2	0.5	1.3	0.6	0.0	1.2	0.0	1.6
LnGrp Delay(d),s/veh	7.3	0.3	0.0	5.8	0.4	1.1	68.8	71.4	0.0	75.9	0.0	73.3
LnGrp LOS	A	A		A	A	A	E	E		E		E
Approach Vol, veh/h	1318			2367			26			53		
Approach Delay, s/veh	0.9			0.8			69.6			74.9		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	111.4	12.2	13.7	12.6	111.5	11.1	14.7				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	88.0	6.5	16.5	7.5	88.0	6.5	16.5				
Max Q Clear Time (g_c+I1), s	5.3	2.0	3.5	2.7	5.1	2.0	3.6	4.1				
Green Ext Time (p_c), s	0.1	84.9	0.0	0.0	0.1	84.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				2.3								
HCM 2010 LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future Build AM

02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↙	↑↑	↙	↑
Traffic Volume (vph)	1142	107	213	1200	220	1167
Future Volume (vph)	1142	107	213	1200	220	1167
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	84.0	84.0	26.0	110.0	40.0	40.0
Total Split (%)	56.0%	56.0%	17.3%	73.3%	26.7%	26.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 84 (56%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future Build AM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑
Traffic Volume (vph)	0	1142	107	213	1200	0	0	0	0	220	0	1167
Future Volume (vph)	0	1142	107	213	1200	0	0	0	0	220	0	1167
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		1417
Flt Permitted		1.00	1.00	0.15	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	257	3167					1583		1417
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1142	107	213	1200	0	0	0	0	220	0	1167
RTOR Reduction (vph)	0	0	43	0	0	0	0	0	0	0	0	811
Lane Group Flow (vph)	0	1142	64	213	1200	0	0	0	0	220	0	356
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		82.9	82.9	103.5	103.5					33.0		33.0
Effective Green, g (s)		82.9	82.9	103.5	103.5					33.0		33.0
Actuated g/C Ratio		0.55	0.55	0.69	0.69					0.22		0.22
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1750	783	297	2185					348		311
v/s Ratio Prot		0.36		c0.06	0.38					0.14		
v/s Ratio Perm			0.04	c0.43								c0.25
v/c Ratio		0.65	0.08	0.72	0.55					0.63		1.14
Uniform Delay, d1		23.5	15.7	16.3	11.6					53.0		58.5
Progression Factor		0.45	0.07	1.30	1.63					1.00		1.00
Incremental Delay, d2		1.9	0.2	7.1	0.8					3.8		299.1
Delay (s)		12.4	1.3	28.2	19.8					56.8		357.6
Level of Service		B	A	C	B					E		F
Approach Delay (s)		11.5			21.1			0.0			309.9	
Approach LOS		B			C			A			F	
Intersection Summary												
HCM 2000 Control Delay			117.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			129.1%			ICU Level of Service				H		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future Build AM
02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	540	820	990	108	421	1	237
Future Volume (vph)	540	820	990	108	421	1	237
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	44.0	107.0	63.0	63.0	43.0	43.0	43.0
Total Split (%)	29.3%	71.3%	42.0%	42.0%	28.7%	28.7%	28.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 28 (19%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

		
Ø1	Ø2 (R)	Ø4
44 s	63 s	43 s
		
Ø6 (R)		
107 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	820	0	0	990	108	421	1	237	0	0	0
Future Volume (veh/h)	540	820	0	0	990	108	421	1	237	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	540	820	0	0	990	0	422	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	605	2385	0	0	1615	723	487	0	217			
Arrive On Green	0.13	0.50	0.00	0.00	1.00	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	540	820	0	0	990	0	422	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	25.9	23.3	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Cycle Q Clear(g_c), s	25.9	23.3	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	605	2385	0	0	1615	723	487	0	217			
V/C Ratio(X)	0.89	0.34	0.00	0.00	0.61	0.00	0.87	0.00	0.00			
Avail Cap(c_a), veh/h	760	2385	0	0	1615	723	751	0	335			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.71	0.71	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	63.6	14.9	0.0	0.0	0.0	0.0	62.0	0.0	0.0			
Incr Delay (d2), s/veh	9.2	0.3	0.0	0.0	1.8	0.0	7.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	16.6	14.8	0.0	0.0	0.7	0.0	14.0	0.0	0.0			
LnGrp Delay(d),s/veh	72.8	15.2	0.0	0.0	1.8	0.0	69.3	0.0	0.0			
LnGrp LOS	E	B			A		E					
Approach Vol, veh/h	1360				990				422			
Approach Delay, s/veh	38.1				1.8				69.3			
Approach LOS	D				A				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.5	83.0		30.5		119.5						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	37.0	56.5		35.5		100.5						
Max Q Clear Time (g_c+I1), s	27.9	2.0		21.5		25.3						
Green Ext Time (p_c), s	1.6	46.7		1.5		61.2						
Intersection Summary												
HCM 2010 Ctrl Delay	29.9											
HCM 2010 LOS	C											
Notes												
User approved volume balancing among the lanes for turning movement.												

Timings
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build AM
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations											
Traffic Volume (vph)	11	887	122	125	960	8	144	0	9	0	
Future Volume (vph)	11	887	122	125	960	8	144	0	9	0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases		2		1	6		3	8		4	
Permitted Phases	2		2	6		6	8		4		
Detector Phase	2	2	2	1	6	6	3	8	4	4	
Switch Phase											
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	4.0	6.0	6.0	6.0	
Minimum Split (s)	22.0	22.0	22.0	15.0	22.0	22.0	15.0	21.5	22.0	22.0	
Total Split (s)	79.0	79.0	79.0	24.0	103.0	103.0	23.0	47.0	24.0	24.0	
Total Split (%)	52.7%	52.7%	52.7%	16.0%	68.7%	68.7%	15.3%	31.3%	16.0%	16.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.5	7.0	7.0	7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead		Lag	Lag	
Lead-Lag Optimize?							Yes		Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
24 s	79 s	23 s	24 s
 Ø6 (R)		 Ø8	
103 s		47 s	

HCM 2010 Signalized Intersection Summary
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	887	122	125	960	8	144	0	58	9	0	40
Future Volume (veh/h)	11	887	122	125	960	8	144	0	58	9	0	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	11	887	0	125	960	8	144	0	58	9	0	40
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	419	2030	908	514	2310	1034	224	0	251	105	0	60
Arrive On Green	1.00	1.00	0.00	0.08	1.00	1.00	0.10	0.00	0.18	0.04	0.00	0.04
Sat Flow, veh/h	578	3167	1417	1587	3167	1417	1587	0	1417	1340	0	1417
Grp Volume(v), veh/h	11	887	0	125	960	8	144	0	58	9	0	40
Grp Sat Flow(s),veh/h/ln	578	1583	1417	1587	1583	1417	1587	0	1417	1340	0	1417
Q Serve(g_s), s	0.0	0.0	0.0	4.1	0.0	0.0	12.7	0.0	5.3	1.0	0.0	4.2
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.1	0.0	0.0	12.7	0.0	5.3	1.0	0.0	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	419	2030	908	514	2310	1034	224	0	251	105	0	60
V/C Ratio(X)	0.03	0.44	0.00	0.24	0.42	0.01	0.64	0.00	0.23	0.09	0.00	0.67
Avail Cap(c_a), veh/h	419	2030	908	628	2310	1034	253	0	378	200	0	161
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	7.2	0.0	0.0	59.2	0.0	53.0	69.3	0.0	70.8
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.2	0.5	0.0	4.7	0.0	0.5	0.4	0.0	12.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.0	3.1	0.3	0.0	9.8	0.0	3.8	0.7	0.0	3.3
LnGrp Delay(d),s/veh	0.1	0.7	0.0	7.5	0.5	0.0	63.9	0.0	53.4	69.6	0.0	83.7
LnGrp LOS	A	A		A	A	A	E		D	E		F
Approach Vol, veh/h	898		1093				202			49		
Approach Delay, s/veh	0.7		1.3				60.9			81.1		
Approach LOS	A		A				E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	6		8					
Phs Duration (G+Y+Rc), s	13.3	103.2	20.2	13.3	116.4		33.6					
Change Period (Y+Rc), s	7.0	7.0	5.5	7.0	7.0		7.0					
Max Green Setting (Gmax), s	17.0	72.0	17.5	17.0	96.0		40.0					
Max Q Clear Time (g_c+I1), s	6.1	2.0	14.7	6.2	2.0		7.3					
Green Ext Time (p_c), s	0.2	58.8	0.1	0.2	74.8		0.4					
Intersection Summary												
HCM 2010 Ctrl Delay			8.2									
HCM 2010 LOS			A									

Timings

11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build AM

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations		 			 						
Traffic Volume (vph)	6	512	451	348	883	2	206	0	149	2	6
Future Volume (vph)	6	512	451	348	883	2	206	0	149	2	6
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm
Protected Phases		6		5	2		4	4		8	
Permitted Phases	6		6	2		2			4		8
Detector Phase	6	6	6	5	2	2	4	4	4	8	8
Switch Phase											
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0
Total Split (s)	53.0	53.0	53.0	36.0	89.0	89.0	41.0	41.0	41.0	20.0	20.0
Total Split (%)	35.3%	35.3%	35.3%	24.0%	59.3%	59.3%	27.3%	27.3%	27.3%	13.3%	13.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?											
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
89 s	41 s	20 s
 Ø5	 Ø6 (R)	
36 s	53 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build AM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	512	451	348	883	2	206	0	149	6	2	6
Future Volume (veh/h)	6	512	451	348	883	2	206	0	149	6	2	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	6	512	0	348	883	0	206	0	149	6	2	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1822	815	603	2294	1026	395	0	176	21	7	25
Arrive On Green	0.19	0.19	0.00	0.11	0.72	0.00	0.12	0.00	0.12	0.02	0.02	0.02
Sat Flow, veh/h	626	3167	1417	1587	3167	1417	3175	0	1417	1205	402	1417
Grp Volume(v), veh/h	6	512	0	348	883	0	206	0	149	8	0	6
Grp Sat Flow(s),veh/h/ln	626	1583	1417	1587	1583	1417	1587	0	1417	1606	0	1417
Q Serve(g_s), s	1.2	20.8	0.0	12.9	16.0	0.0	9.1	0.0	15.4	0.7	0.0	0.6
Cycle Q Clear(g_c), s	1.2	20.8	0.0	12.9	16.0	0.0	9.1	0.0	15.4	0.7	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.75		1.00
Lane Grp Cap(c), veh/h	408	1822	815	603	2294	1026	395	0	176	28	0	25
V/C Ratio(X)	0.01	0.28	0.00	0.58	0.38	0.00	0.52	0.00	0.85	0.28	0.00	0.24
Avail Cap(c_a), veh/h	408	1822	815	747	2294	1026	730	0	326	139	0	123
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	0.46	0.46	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.3	34.2	0.0	11.8	7.9	0.0	61.5	0.0	64.3	72.7	0.0	72.7
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.4	0.2	0.0	1.1	0.0	11.6	5.3	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	14.0	0.0	8.2	10.0	0.0	7.3	0.0	10.8	0.7	0.0	0.5
LnGrp Delay(d),s/veh	26.3	34.6	0.0	12.2	8.1	0.0	62.6	0.0	75.8	78.1	0.0	77.6
LnGrp LOS	C	C		B	A		E		E	E		E
Approach Vol, veh/h	518		1231				355			14		
Approach Delay, s/veh	34.5		9.3				68.1			77.9		
Approach LOS	C		A				E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	115.2		25.2		22.4	92.8	9.7					
Change Period (Y+Rc), s	6.5		6.5		6.5	6.5	7.0					
Max Green Setting (Gmax), s	82.5		34.5		29.5	46.5	13.0					
Max Q Clear Time (g_c+l1), s	18.0		17.4		14.9	22.8	2.7					
Green Ext Time (p_c), s	42.7		1.2		1.0	19.7	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			25.8									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection												
Int Delay, s/veh	44.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	↰
Traffic Vol, veh/h	141	0	41	6	0	1	95	196	37	48	670	81
Future Vol, veh/h	141	0	41	6	0	1	95	196	37	48	670	81
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	0	-	-	0	-	-	145	-	-	150	-	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	2	2	2	2	2
Mvmt Flow	141	0	41	6	0	1	95	196	37	48	670	81

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1145	1291	364	907	1271	127	728	0	0	253	0	0
Stage 1	832	832	-	439	439	-	-	-	-	-	-	-
Stage 2	313	459	-	468	832	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	154	162	633	231	167	900	871	-	-	1309	-	-
Stage 1	330	382	-	567	576	-	-	-	-	-	-	-
Stage 2	672	565	-	545	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 136	137	633	189	141	900	871	-	-	1309	-	-
Mov Cap-2 Maneuver	~ 136	137	-	189	141	-	-	-	-	-	-	-
Stage 1	291	367	-	500	508	-	-	-	-	-	-	-
Stage 2	592	498	-	487	367	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	315.5	22.5	2.8	0.5
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	871	-	-	136	633	189	900	1309	-	-
HCM Lane V/C Ratio	0.119	-	-	1.127	0.07	0.035	0.001	0.04	-	-
HCM Control Delay (s)	9.7	-	-	\$ 404	11.1	24.7	9	7.9	-	-
HCM Lane LOS	A	-	-	F	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	20.1	0.2	0.1	0	0.1	-	-

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

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	44	0	356	755	78
Future Vol, veh/h	0	44	0	356	755	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	44	0	356	755	78

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	411	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	590	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	590	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 590	-
HCM Lane V/C Ratio	- 0.081	-
HCM Control Delay (s)	- 11.6	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Traffic Vol, veh/h	977	80	0	1099	0	43
Future Vol, veh/h	977	80	0	1099	0	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	977	80	0	1099	0	43

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	- 555
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	- 6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	- 3.32
Pot Cap-1 Maneuver	-	0	0 - 475
Stage 1	-	0	0 -
Stage 2	-	0	0 -
Platoon blocked, %	-		-
Mov Cap-1 Maneuver	-	-	- 475
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	475	-	-
HCM Lane V/C Ratio	0.103	-	-
HCM Control Delay (s)	13.4	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-

Timings
1: Bells Ferry Rd & N. Booth Rd

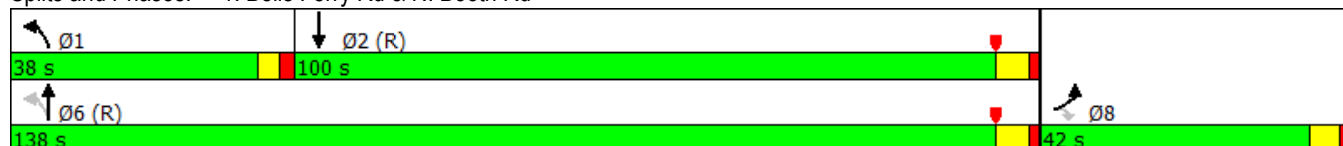
2022 Future Build PM
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	267	198	361	909	320
Future Volume (vph)	267	198	361	909	320
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	42.0	42.0	38.0	138.0	100.0
Total Split (%)	23.3%	23.3%	21.1%	76.7%	55.6%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 18 (10%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future Build PM
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	267	198	361	909	320	250		
Future Volume (veh/h)	267	198	361	909	320	250		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	267	198	361	909	320	250		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	287	256	538	1254	547	427		
Arrive On Green	0.18	0.18	0.10	0.75	0.63	0.63		
Sat Flow, veh/h	1587	1417	1587	1667	868	678		
Grp Volume(v), veh/h	267	198	361	909	0	570		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1547		
Q Serve(g_s), s	29.8	24.0	14.0	53.5	0.0	38.9		
Cycle Q Clear(g_c), s	29.8	24.0	14.0	53.5	0.0	38.9		
Prop In Lane	1.00	1.00	1.00			0.44		
Lane Grp Cap(c), veh/h	287	256	538	1254	0	974		
V/C Ratio(X)	0.93	0.77	0.67	0.72	0.00	0.59		
Avail Cap(c_a), veh/h	317	283	677	1254	0	974		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	72.6	70.2	16.3	12.1	0.0	19.6		
Incr Delay (d2), s/veh	45.8	12.2	1.8	3.8	0.0	2.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	23.5	15.5	11.9	33.8	0.0	24.2		
LnGrp Delay(d),s/veh	118.4	82.4	18.1	15.9	0.0	22.2		
LnGrp LOS	F	F	B	B		C		
Approach Vol, veh/h	465			1270	570			
Approach Delay, s/veh	103.1			16.5	22.2			
Approach LOS	F			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	22.1	119.3				141.4		38.6
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	33.0	94.0				132.0		36.0
Max Q Clear Time (g_c+I1), s	16.0	40.9				55.5		31.8
Green Ext Time (p_c), s	1.1	49.0				68.6		0.7
Intersection Summary								
HCM 2010 Ctrl Delay			35.4					
HCM 2010 LOS			D					

Timings 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build PM

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	516	1084	124	100	672	379	69	688	129	201
Future Volume (vph)	516	1084	124	100	672	379	69	688	129	201
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	33.0	51.0	51.0	15.0	33.0	33.0	15.0	59.0	15.0	59.0
Total Split (%)	23.6%	36.4%	36.4%	10.7%	23.6%	23.6%	10.7%	42.1%	10.7%	42.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 72 (51%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
33 s	33 s	15 s	59 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	51 s	15 s	59 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	516	1084	124	100	672	379	69	688	69	129	201	143
Future Volume (veh/h)	516	1084	124	100	672	379	69	688	69	129	201	143
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	516	1084	0	100	672	0	69	688	69	129	201	143
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	352	1007	450	148	599	268	345	559	56	148	361	256
Arrive On Green	0.19	0.32	0.00	0.06	0.19	0.00	0.04	0.38	0.38	0.06	0.40	0.40
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	1491	150	1587	907	645
Grp Volume(v), veh/h	516	1084	0	100	672	0	69	0	757	129	0	344
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	0	1640	1587	0	1553
Q Serve(g_s), s	26.5	44.5	0.0	7.1	26.5	0.0	3.7	0.0	52.5	7.0	0.0	24.0
Cycle Q Clear(g_c), s	26.5	44.5	0.0	7.1	26.5	0.0	3.7	0.0	52.5	7.0	0.0	24.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.42
Lane Grp Cap(c), veh/h	352	1007	450	148	599	268	345	0	615	148	0	617
V/C Ratio(X)	1.47	1.08	0.00	0.68	1.12	0.00	0.20	0.00	1.23	0.87	0.00	0.56
Avail Cap(c_a), veh/h	352	1007	450	148	599	268	381	0	615	148	0	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.4	47.8	0.0	44.5	56.8	0.0	26.9	0.0	43.8	34.1	0.0	32.7
Incr Delay (d2), s/veh	851.6	155.5	0.0	12.3	242.9	0.0	0.3	0.0	430.3	54.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	174.1	74.1	0.0	6.5	57.2	0.0	3.0	0.0	175.1	9.0	0.0	15.8
LnGrp Delay(d),s/veh	894.0	203.2	0.0	56.8	299.7	0.0	27.1	0.0	474.0	88.2	0.0	33.8
LnGrp LOS	F	F		E	F		C		F	F		C
Approach Vol, veh/h	1600			772			826			473		
Approach Delay, s/veh	426.0			268.2			436.7			48.6		
Approach LOS	F			F			F			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.0	33.0	15.0	59.0	15.0	51.0	11.9	62.1				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	26.5	26.5	8.5	52.5	8.5	44.5	8.5	52.5				
Max Q Clear Time (g_c+I1), s	28.5	28.5	9.0	54.5	9.1	46.5	5.7	26.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6				
Intersection Summary												
HCM 2010 Ctrl Delay	346.6											
HCM 2010 LOS	F											

Intersection

Int Delay, s/veh 7.9

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations	↔↔		↔	↑	↔	
Traffic Vol, veh/h	61	201	163	607	285	101
Future Vol, veh/h	61	201	163	607	285	101
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	201	163	607	285	101

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	1308	346	398	0	-	0
Stage 1	346	-	-	-	-	-
Stage 2	962	-	-	-	-	-
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	176	697	1161	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	150	697	1161	-	-	-
Mov Cap-2 Maneuver	150	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	37.6	1.8	0
HCM LOS	E		

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1161	-	377	-	-
HCM Lane V/C Ratio	0.145	-	0.716	-	-
HCM Control Delay (s)	8.6	-	37.6	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.5	-	6.7	-	-

Timings 4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build PM
02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	415	209	320	101	292	394	539	30	342
Future Volume (vph)	415	209	320	101	292	394	539	30	342
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	25.0	40.0	30.0	20.0	35.0	30.0	55.0	15.0	40.0
Total Split (%)	19.2%	30.8%	23.1%	15.4%	26.9%	23.1%	42.3%	11.5%	30.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 107.6

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
30 s	40 s	25 s	35 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	55 s	20 s	40 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	415	209	320	101	292	47	394	539	50	30	342	290
Future Volume (veh/h)	415	209	320	101	292	47	394	539	50	30	342	290
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	415	209	320	101	292	47	394	539	50	30	342	290
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	366	400	612	287	401	64	427	1279	118	329	445	371
Arrive On Green	0.16	0.24	0.24	0.07	0.15	0.15	0.19	0.44	0.44	0.03	0.27	0.27
Sat Flow, veh/h	1587	1667	1417	1587	2737	436	1587	2931	271	1587	1641	1368
Grp Volume(v), veh/h	415	209	320	101	167	172	394	291	298	30	330	302
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1590	1587	1583	1619	1587	1583	1425
Q Serve(g_s), s	18.5	12.4	18.9	6.1	11.5	11.8	19.6	14.5	14.5	1.5	21.9	22.4
Cycle Q Clear(g_c), s	18.5	12.4	18.9	6.1	11.5	11.8	19.6	14.5	14.5	1.5	21.9	22.4
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.17	1.00		0.96
Lane Grp Cap(c), veh/h	366	400	612	287	232	233	427	691	706	329	430	387
V/C Ratio(X)	1.13	0.52	0.52	0.35	0.72	0.74	0.92	0.42	0.42	0.09	0.77	0.78
Avail Cap(c_a), veh/h	366	490	688	365	396	397	450	691	706	405	465	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	37.7	23.8	37.5	46.4	46.5	24.6	22.2	22.2	28.6	38.2	38.4
Incr Delay (d2), s/veh	278.8	1.1	0.7	0.7	4.3	4.6	32.7	0.4	0.4	0.1	7.4	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	57.0	9.8	12.0	4.9	9.1	9.3	18.1	10.5	10.7	1.2	15.7	14.9
LnGrp Delay(d),s/veh	315.8	38.7	24.5	38.2	50.7	51.1	57.3	22.6	22.6	28.7	45.6	47.6
LnGrp LOS	F	D	C	D	D	D	E	C	C	C	D	D
Approach Vol, veh/h	944				440				983			
Approach Delay, s/veh	155.7				48.0				36.5			
Approach LOS	F				D				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.4	37.5	25.0	23.2	9.6	56.3	14.4	33.9				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	23.5	33.5	18.5	28.5	8.5	48.5	13.5	33.5				
Max Q Clear Time (g_c+I1), s	21.6	24.4	20.5	13.8	3.5	16.5	8.1	20.9				
Green Ext Time (p_c), s	0.3	6.6	0.0	3.0	0.0	22.3	0.1	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay	77.3											
HCM 2010 LOS	E											

Timings
5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build PM

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	672	228	117	572	298	224	513	190	263	434	185
Future Volume (vph)	308	672	228	117	572	298	224	513	190	263	434	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	26.0	52.0	52.0	15.0	41.0	41.0	22.0	41.0	41.0	22.0	41.0	41.0
Total Split (%)	20.0%	40.0%	40.0%	11.5%	31.5%	31.5%	16.9%	31.5%	31.5%	16.9%	31.5%	31.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
22 s	41 s	26 s	41 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
22 s	41 s	15 s	52 s

HCM 2010 Signalized Intersection Summary

5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build PM

02/27/2019

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	308	672	228	117	572	298	224	513	190	263	434	185				
Future Volume (veh/h)	308	672	228	117	572	298	224	513	190	263	434	185				
Number	3	8	18	7	4	14	1	6	16	5	2	12				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667				
Adj Flow Rate, veh/h	308	672	228	117	572	298	224	513	190	263	434	185				
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91				
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	365	1119	500	273	851	381	375	860	385	354	893	399				
Arrive On Green	0.15	0.35	0.35	0.07	0.27	0.27	0.12	0.27	0.27	0.13	0.28	0.28				
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417				
Grp Volume(v), veh/h	308	672	228	117	572	298	224	513	190	263	434	185				
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417				
Q Serve(g_s), s	17.7	22.6	16.1	6.9	21.0	25.3	13.1	18.3	14.7	15.5	14.8	14.0				
Cycle Q Clear(g_c), s	17.7	22.6	16.1	6.9	21.0	25.3	13.1	18.3	14.7	15.5	14.8	14.0				
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Lane Grp Cap(c), veh/h	365	1119	500	273	851	381	375	860	385	354	893	399				
V/C Ratio(X)	0.84	0.60	0.46	0.43	0.67	0.78	0.60	0.60	0.49	0.74	0.49	0.46				
Avail Cap(c_a), veh/h	374	1133	507	282	865	387	391	860	385	354	893	399				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Uniform Delay (d), s/veh	29.4	34.5	32.4	31.6	42.4	44.0	29.3	41.1	39.8	30.2	38.8	38.5				
Incr Delay (d2), s/veh	18.2	0.9	0.6	1.1	2.0	10.6	2.3	3.1	4.5	8.6	1.9	3.9				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(95%),veh/ln	14.5	15.2	10.5	5.5	14.4	16.5	9.9	13.1	10.3	12.1	11.0	9.9				
LnGrp Delay(d),s/veh	47.6	35.4	33.1	32.7	44.5	54.7	31.6	44.2	44.4	38.8	40.7	42.4				
LnGrp LOS	D	D	C	C	D	D	C	D	D	D	D	D				
Approach Vol, veh/h	1208				987				927							
Approach Delay, s/veh	38.1				46.1				41.2							
Approach LOS	D				D				D							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	20.7	43.7	25.3	40.4	22.0	42.3	14.3	51.4								
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5								
Max Green Setting (Gmax), s	16.5	34.0	20.5	35.5	16.5	34.0	9.5	46.5								
Max Q Clear Time (g_c+I1), s	15.1	16.8	19.7	27.3	17.5	20.3	8.9	24.6								
Green Ext Time (p_c), s	0.1	5.1	0.1	7.6	0.0	4.7	0.0	19.0								
Intersection Summary																
HCM 2010 Ctrl Delay	41.3															
HCM 2010 LOS	D															
Notes																
User approved pedestrian interval to be less than phase max green.																

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future Build PM

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			  		 	 			 
Traffic Volume (vph)	163	1079	76	333	1358	265	94	426	351	365	333
Future Volume (vph)	163	1079	76	333	1358	265	94	426	351	365	333
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	35.0	75.0	75.0	35.0	75.0	75.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	20.6%	44.1%	44.1%	20.6%	44.1%	44.1%	17.6%	17.6%	17.6%	17.6%	17.6%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 147 (86%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
35 s	75 s	30 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
35 s	75 s	30 s	30 s

HCM 2010 Signalized Intersection Summary
6: George Busbee Pkwy & Chastain Rd

2022 Future Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	1079	76	333	1358	265	94	426	351	365	333	90
Future Volume (veh/h)	163	1079	76	333	1358	265	94	426	351	365	333	90
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	163	1079	0	333	1358	0	94	426	0	365	333	90
Adj No. of Lanes	1	3	1	1	3	1	2	2	1	1	2	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1833	571	261	2061	642	132	428	192	258	564	150
Arrive On Green	0.11	0.40	0.00	0.33	0.91	0.00	0.04	0.14	0.00	0.14	0.23	0.23
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	3079	3167	1417	1587	2474	659
Grp Volume(v), veh/h	163	1079	0	333	1358	0	94	426	0	365	211	212
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1540	1583	1417	1587	1583	1550
Q Serve(g_s), s	17.2	31.6	0.0	28.0	11.9	0.0	5.1	22.8	0.0	23.0	20.2	20.8
Cycle Q Clear(g_c), s	17.2	31.6	0.0	28.0	11.9	0.0	5.1	22.8	0.0	23.0	20.2	20.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	182	1833	571	261	2061	642	132	428	192	258	361	353
V/C Ratio(X)	0.89	0.59	0.00	1.27	0.66	0.00	0.71	0.99	0.00	1.41	0.59	0.60
Avail Cap(c_a), veh/h	261	1833	571	261	2061	642	417	428	192	258	361	353
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.69	0.69	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.2	39.7	0.0	57.0	4.9	0.0	80.3	73.4	0.0	54.6	58.5	58.7
Incr Delay (d2), s/veh	29.8	1.4	0.0	513.9	1.2	0.0	7.3	81.4	0.0	770.0	2.5	2.8
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(95%),veh/ln	14.0	19.4	0.0	89.1	7.7	0.0	4.2	21.2	0.0	99.3	14.1	14.1
LnGrp Delay(d),s/veh	104.0	41.1	0.0	570.9	6.1	0.0	87.6	154.8	0.0	824.6	61.0	61.5
LnGrp LOS	F	D		F	A		F	F		F	E	E
Approach Vol, veh/h	1242				1691				520			
Approach Delay, s/veh	49.4				117.3				142.7			
Approach LOS	D				F				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.5	83.5	30.0	30.0	35.0	75.0	14.3	45.7				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0				
Max Green Setting (Gmax), s	28.0	68.5	23.0	23.0	28.0	68.5	23.0	23.0				
Max Q Clear Time (g_c+I1), s	19.2	13.9	25.0	24.8	30.0	33.6	7.1	22.8				
Green Ext Time (p_c), s	0.3	52.3	0.0	0.0	0.0	34.0	0.2	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	155.8											
HCM 2010 LOS	F											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
7: Townpark Dr & Chastain Rd

2022 Future Build PM

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	63	1521	60	15	1891	160	116	18	488	14
Future Volume (vph)	63	1521	60	15	1891	160	116	18	488	14
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	88.0	88.0	15.0	88.0	88.0	36.0	31.0	36.0	31.0
Total Split (%)	8.8%	51.8%	51.8%	8.8%	51.8%	51.8%	21.2%	18.2%	21.2%	18.2%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 153 (90%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	88 s	36 s	31 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	88 s	36 s	31 s

HCM 2010 Signalized Intersection Summary

7: Townpark Dr & Chastain Rd

2022 Future Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1521	60	15	1891	160	116	18	118	488	14	120
Future Volume (veh/h)	63	1521	60	15	1891	160	116	18	118	488	14	120
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	63	1521	0	15	1891	160	116	18	0	488	14	120
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	2742	854	267	2683	835	203	59	0	498	17	148
Arrive On Green	0.06	1.00	0.00	0.01	0.59	0.59	0.08	0.04	0.00	0.16	0.11	0.11
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	150	1289
Grp Volume(v), veh/h	63	1521	0	15	1891	160	116	18	0	488	0	134
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1439
Q Serve(g_s), s	2.7	0.0	0.0	0.6	49.6	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.6	49.6	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.90
Lane Grp Cap(c), veh/h	147	2742	854	267	2683	835	203	59	0	498	0	165
V/C Ratio(X)	0.43	0.55	0.00	0.06	0.70	0.19	0.57	0.31	0.00	0.98	0.00	0.81
Avail Cap(c_a), veh/h	173	2742	854	314	2683	835	329	221	0	498	0	190
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.00	0.62	0.62	0.62	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	0.0	0.0	13.4	24.5	16.1	71.4	80.0	0.0	71.0	0.0	73.5
Incr Delay (d2), s/veh	1.2	0.5	0.0	0.1	1.0	0.3	2.6	2.9	0.0	62.3	0.0	23.8
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(95%),veh/ln	2.2	0.2	0.0	0.5	26.8	5.9	9.1	1.6	0.0	22.3	0.0	11.6
LnGrp Delay(d),s/veh	23.8	0.5	0.0	13.5	25.5	16.4	73.9	82.9	0.0	133.3	0.0	97.3
LnGrp LOS	C	A		B	C	B	E	F		F		F
Approach Vol, veh/h	1584			2066			134			622		
Approach Delay, s/veh	1.4			24.7			75.1			125.5		
Approach LOS	A			C			E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	107.3	36.0	14.5	10.0	109.5	22.5	28.0				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	81.0	27.5	22.5	7.5	81.0	27.5	22.5				
Max Q Clear Time (g_c+I1), s	4.7	51.6	28.8	3.8	2.6	2.0	13.8	17.5				
Green Ext Time (p_c), s	0.0	29.3	0.0	0.5	0.0	78.6	0.3	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				32.1								
HCM 2010 LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future Build PM
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	1719	419	146	1187	115	942
Future Volume (vph)	1719	419	146	1187	115	942
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	110.0	110.0	15.0	125.0	45.0	45.0
Total Split (%)	64.7%	64.7%	8.8%	73.5%	26.5%	26.5%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 100 (59%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future Build PM

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑
Traffic Volume (vph)	0	1719	419	146	1187	0	0	0	0	115	0	942
Future Volume (vph)	0	1719	419	146	1187	0	0	0	0	115	0	942
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		1417
Flt Permitted		1.00	1.00	0.06	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	98	3167					1583		1417
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1719	419	146	1187	0	0	0	0	115	0	942
RTOR Reduction (vph)	0	0	104	0	0	0	0	0	0	0	0	671
Lane Group Flow (vph)	0	1719	315	146	1187	0	0	0	0	115	0	271
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		106.0	106.0	121.0	121.0					35.5		35.5
Effective Green, g (s)		106.0	106.0	121.0	121.0					35.5		35.5
Actuated g/C Ratio		0.62	0.62	0.71	0.71					0.21		0.21
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1974	883	139	2254					330		295
v/s Ratio Prot		0.54		c0.05	0.37					0.07		
v/s Ratio Perm			0.22	c0.70								c0.19
v/c Ratio		0.87	0.36	1.05	0.53					0.35		0.92
Uniform Delay, d1		26.4	15.5	45.0	11.3					57.4		65.8
Progression Factor		0.87	0.45	1.86	0.37					1.00		1.00
Incremental Delay, d2		4.9	0.9	186.9	0.7					0.6		45.2
Delay (s)		27.8	7.9	270.5	4.9					58.0		111.0
Level of Service		C	A	F	A					E		F
Approach Delay (s)		23.9			34.0			0.0			105.3	
Approach LOS		C			C			A			F	
Intersection Summary												
HCM 2000 Control Delay			45.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			113.1%			ICU Level of Service				H		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future Build PM
02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	942	897	1125	173	225	0	185
Future Volume (vph)	942	897	1125	173	225	0	185
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	72.0	141.0	69.0	69.0	29.0	29.0	29.0
Total Split (%)	42.4%	82.9%	40.6%	40.6%	17.1%	17.1%	17.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 75 (44%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

		
Ø1	Ø2 (R)	Ø4
72 s	69 s	29 s
		
Ø6 (R)		
141 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	942	897	0	0	1125	173	225	0	185	0	0	0
Future Volume (veh/h)	942	897	0	0	1125	173	225	0	185	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	942	897	0	0	1125	0	225	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	988	2639	0	0	1493	668	267	0	119			
Arrive On Green	0.54	1.00	0.00	0.00	0.32	0.00	0.08	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	942	897	0	0	1125	0	225	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	49.4	0.0	0.0	0.0	54.2	0.0	11.9	0.0	0.0			
Cycle Q Clear(g_c), s	49.4	0.0	0.0	0.0	54.2	0.0	11.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	988	2639	0	0	1493	668	267	0	119			
V/C Ratio(X)	0.95	0.34	0.00	0.00	0.75	0.00	0.84	0.00	0.00			
Avail Cap(c_a), veh/h	1177	2639	0	0	1493	668	401	0	179			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	0.67	0.67	1.00	1.00	1.00			
Upstream Filter(I)	0.43	0.43	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	49.3	0.0	76.7	0.0	0.0			
Incr Delay (d2), s/veh	9.9	0.2	0.0	0.0	3.7	0.0	10.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	27.1	0.1	0.0	0.0	32.6	0.0	9.5	0.0	0.0			
LnGrp Delay(d),s/veh	48.2	0.2	0.0	0.0	52.9	0.0	87.5	0.0	0.0			
LnGrp LOS	D	A			D		F					
Approach Vol, veh/h	1839			1125			225					
Approach Delay, s/veh	24.8			52.9			87.5					
Approach LOS	C			D			F					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	61.5	86.6		21.8		148.2						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	65.0	62.5		21.5		134.5						
Max Q Clear Time (g_c+I1), s	51.4	56.2		13.9		2.0						
Green Ext Time (p_c), s	3.2	6.2		0.4		106.8						
Intersection Summary												
HCM 2010 Ctrl Delay			39.1									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

Timings
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build PM
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations		 			 						
Traffic Volume (vph)	26	923	171	228	725	28	251	0	12	0	
Future Volume (vph)	26	923	171	228	725	28	251	0	12	0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases		2		1	6		3	8		4	
Permitted Phases	2		2	6		6	8		4		
Detector Phase	2	2	2	1	6	6	3	8	4	4	
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	15.0	21.5	21.5	21.5	
Total Split (s)	77.0	77.0	77.0	33.0	110.0	110.0	37.0	60.0	23.0	23.0	
Total Split (%)	45.3%	45.3%	45.3%	19.4%	64.7%	64.7%	21.8%	35.3%	13.5%	13.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
33 s	77 s	37 s	23 s
 Ø6 (R)		 Ø8	
110 s		60 s	

HCM 2010 Signalized Intersection Summary
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	923	171	228	725	28	251	0	91	12	0	23
Future Volume (veh/h)	26	923	171	228	725	28	251	0	91	12	0	23
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	26	923	0	228	725	28	251	0	91	12	0	23
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	444	1937	867	420	2249	1006	320	0	319	81	0	42
Arrive On Green	0.61	0.61	0.00	0.04	0.48	0.48	0.16	0.00	0.23	0.03	0.00	0.03
Sat Flow, veh/h	707	3167	1417	1587	3167	1417	1587	0	1417	1300	0	1417
Grp Volume(v), veh/h	26	923	0	228	725	28	251	0	91	12	0	23
Grp Sat Flow(s),veh/h/ln	707	1583	1417	1587	1583	1417	1587	0	1417	1300	0	1417
Q Serve(g_s), s	2.8	27.2	0.0	8.6	24.1	1.8	25.4	0.0	9.0	1.5	0.0	2.7
Cycle Q Clear(g_c), s	10.2	27.2	0.0	8.6	24.1	1.8	25.4	0.0	9.0	1.5	0.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	444	1937	867	420	2249	1006	320	0	319	81	0	42
V/C Ratio(X)	0.06	0.48	0.00	0.54	0.32	0.03	0.78	0.00	0.29	0.15	0.00	0.55
Avail Cap(c_a), veh/h	444	1937	867	572	2249	1006	355	0	454	176	0	146
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.4	18.1	0.0	13.9	19.2	13.4	64.0	0.0	54.5	80.8	0.0	81.4
Incr Delay (d2), s/veh	0.3	0.8	0.0	1.0	0.4	0.0	10.7	0.0	0.5	0.8	0.0	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	17.7	0.0	6.9	15.9	1.3	17.7	0.0	6.4	1.0	0.0	2.2
LnGrp Delay(d),s/veh	16.7	18.9	0.0	14.9	19.6	13.4	74.7	0.0	55.0	81.6	0.0	92.5
LnGrp LOS	B	B		B	B	B	E		E	F		F
Approach Vol, veh/h	949				981				342			
Approach Delay, s/veh	18.9				18.3				69.5			
Approach LOS	B				B				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	16.7	109.5	33.2	10.5		126.2		43.8				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5		5.5		5.5				
Max Green Setting (Gmax), s	27.5	71.5	31.5	17.5		104.5		54.5				
Max Q Clear Time (g_c+I1), s	10.6	29.2	27.4	4.7		26.1		11.0				
Green Ext Time (p_c), s	0.6	35.8	0.3	0.3		58.8		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay	27.2											
HCM 2010 LOS	C											

Timings
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build PM
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	5	678	246	294	590	9	486	1	590	0	6
Future Volume (vph)	5	678	246	294	590	9	486	1	590	0	6
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm
Protected Phases		6		5	2		4	4		8	
Permitted Phases	6		6	2		2			4		8
Detector Phase	6	6	6	5	2	2	4	4	4	8	8
Switch Phase											
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0
Total Split (s)	67.0	67.0	67.0	20.0	87.0	87.0	63.0	63.0	63.0	20.0	20.0
Total Split (%)	39.4%	39.4%	39.4%	11.8%	51.2%	51.2%	37.1%	37.1%	37.1%	11.8%	11.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?											
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 55 (32%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
87 s	63 s	20 s
 Ø5	 Ø6 (R)	
20 s	67 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build PM
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	678	246	294	590	9	486	1	590	3	0	6
Future Volume (veh/h)	5	678	246	294	590	9	486	1	590	3	0	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	5	678	0	294	590	0	487	0	590	3	0	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	388	1330	595	351	1703	762	1055	0	471	19	0	17
Arrive On Green	0.28	0.28	0.00	0.08	0.54	0.00	0.33	0.00	0.33	0.01	0.00	0.01
Sat Flow, veh/h	823	3167	1417	1587	3167	1417	3175	0	1417	1587	0	1417
Grp Volume(v), veh/h	5	678	0	294	590	0	487	0	590	3	0	6
Grp Sat Flow(s),veh/h/ln	823	1583	1417	1587	1583	1417	1587	0	1417	1587	0	1417
Q Serve(g_s), s	0.7	30.5	0.0	13.5	18.0	0.0	20.6	0.0	56.5	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.7	30.5	0.0	13.5	18.0	0.0	20.6	0.0	56.5	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	388	1330	595	351	1703	762	1055	0	471	19	0	17
V/C Ratio(X)	0.01	0.51	0.00	0.84	0.35	0.00	0.46	0.00	1.25	0.15	0.00	0.35
Avail Cap(c_a), veh/h	388	1330	595	351	1703	762	1055	0	471	121	0	108
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.00	0.26	0.26	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	46.4	0.0	38.1	22.3	0.0	44.8	0.0	56.7	83.1	0.0	83.3
Incr Delay (d2), s/veh	0.1	1.3	0.0	5.0	0.1	0.0	0.3	0.0	473.8	3.7	0.0	11.8
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(95%),veh/ln	0.3	19.4	0.0	10.2	10.2	0.0	14.0	0.0	151.4	0.3	0.0	0.6
LnGrp Delay(d),s/veh	35.7	47.7	0.0	43.1	22.5	0.0	45.1	0.0	530.5	86.8	0.0	95.1
LnGrp LOS	D	D		D	C		D		F	F		F
Approach Vol, veh/h	683				884				1077			
Approach Delay, s/veh	47.6				29.3				311.0			
Approach LOS	D				C				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	97.9		63.0		20.0	77.9	9.1					
Change Period (Y+Rc), s	6.5		6.5		6.5	6.5	7.0					
Max Green Setting (Gmax), s	80.5		56.5		13.5	60.5	13.0					
Max Q Clear Time (g_c+l1), s	20.0		58.5		15.5	32.5	2.7					
Green Ext Time (p_c), s	36.5		0.0		0.0	21.2	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	148.6											
HCM 2010 LOS	F											
Notes												
User approved volume balancing among the lanes for turning movement.												

Intersection

Int Delay, s/veh 411.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱↱		↰	↱↱	↰
Traffic Vol, veh/h	267	0	72	49	0	14	208	775	8	2	385	118
Future Vol, veh/h	267	0	72	49	0	14	208	775	8	2	385	118
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	0	-	-	0	-	-	145	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	267	0	72	49	0	14	208	775	8	2	385	118

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	1243	1654	201	1450	1650	408	401	0	0	815	0	0
Stage 1	405	405	-	1245	1245	-	-	-	-	-	-	-
Stage 2	838	1249	-	205	405	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 131	97	806	92	98	593	1154	-	-	808	-	-
Stage 1	593	597	-	184	244	-	-	-	-	-	-	-
Stage 2	327	243	-	778	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 109	79	806	71	79	593	1154	-	-	808	-	-
Mov Cap-2 Maneuver	~ 109	79	-	71	79	-	-	-	-	-	-	-
Stage 1	482	596	-	149	198	-	-	-	-	-	-	-
Stage 2	~ 259	197	-	704	596	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2273.7	129	1.9	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1154	-	-	109	806	71	593	808	-	-
HCM Lane V/C Ratio	0.188	-	-	2.552	0.093	0.719	0.025	0.003	-	-
HCM Control Delay (s)	8.8	-	-	\$ 2884.2	9.9	162.7	11.2	9.5	-	-
HCM Lane LOS	A	-	-	F	A	F	B	A	-	-
HCM 95th %tile Q(veh)	0.7	-	-	89.2	0.3	5.1	0.1	0	-	-

Notes

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

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	60	0	1076	442	100
Future Vol, veh/h	0	60	0	1076	442	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	0	1076	442	100

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 230	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 772	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 772	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 772	-
HCM Lane V/C Ratio	- 0.081	-
HCM Control Delay (s)	- 10.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection

Int Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Traffic Vol, veh/h	1020	138	0	1298	0	90
Future Vol, veh/h	1020	138	0	1298	0	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1020	138	0	1298	0	90

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	- 526
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	- 6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	- 3.32
Pot Cap-1 Maneuver	-	0	0 - 496
Stage 1	-	0	0 -
Stage 2	-	0	0 -
Platoon blocked, %	-		-
Mov Cap-1 Maneuver	-	-	- 496
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	496	-	-
HCM Lane V/C Ratio	0.187	-	-
HCM Control Delay (s)	13.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.7	-	-

Future “Build” Improved Intersection Analysis

Timings
1: Bells Ferry Rd & N. Booth Rd

2022 Future Build AM - Improved
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	478	323	163	230	563
Future Volume (vph)	478	323	163	230	563
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	37.0	37.0	12.0	63.0	51.0
Total Split (%)	37.0%	37.0%	12.0%	63.0%	51.0%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 26 (26%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd



HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future Build AM - Improved
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	478	323	163	230	563	157		
Future Volume (veh/h)	478	323	163	230	563	157		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	478	323	163	230	563	157		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	492	439	185	950	565	157		
Arrive On Green	0.31	0.31	0.07	0.57	0.45	0.45		
Sat Flow, veh/h	1587	1417	1587	1667	1255	350		
Grp Volume(v), veh/h	478	323	163	230	0	720		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1605		
Q Serve(g_s), s	29.7	20.4	5.5	6.9	0.0	44.8		
Cycle Q Clear(g_c), s	29.7	20.4	5.5	6.9	0.0	44.8		
Prop In Lane	1.00	1.00	1.00			0.22		
Lane Grp Cap(c), veh/h	492	439	185	950	0	722		
V/C Ratio(X)	0.97	0.74	0.88	0.24	0.00	1.00		
Avail Cap(c_a), veh/h	492	439	185	950	0	722		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	34.1	30.8	23.7	10.7	0.0	27.4		
Incr Delay (d2), s/veh	56.6	6.6	48.1	0.6	0.0	64.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	28.2	13.6	11.2	5.9	0.0	41.8		
LnGrp Delay(d),s/veh	90.6	37.4	71.8	11.3	0.0	91.6		
LnGrp LOS	F	D	E	B		F		
Approach Vol, veh/h	801			393	720			
Approach Delay, s/veh	69.2			36.4	91.6			
Approach LOS	E			D	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.0	51.0				63.0		37.0
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	7.0	45.0				57.0		31.0
Max Q Clear Time (g_c+l1), s	7.5	46.8				8.9		31.7
Green Ext Time (p_c), s	0.0	0.0				33.7		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			70.9					
HCM 2010 LOS			E					

Timings
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build AM - Improved

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	99	422	63	133	909	213	100	171	236	413
Future Volume (vph)	99	422	63	133	909	213	100	171	236	413
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases			6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	15.0	48.0	48.0	15.0	48.0	48.0	15.0	58.0	19.0	62.0
Total Split (%)	10.7%	34.3%	34.3%	10.7%	34.3%	34.3%	10.7%	41.4%	13.6%	44.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 72 (51%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
15 s	48 s	19 s	58 s
			
Ø5	Ø6 (R)	Ø7	Ø8
15 s	48 s	15 s	62 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	422	63	133	909	213	100	171	57	236	413	216
Future Volume (veh/h)	99	422	63	133	909	213	100	171	57	236	413	216
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	99	422	0	133	909	0	100	171	57	236	413	216
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	964	431	337	1012	453	135	848	274	547	409	214
Arrive On Green	0.05	0.30	0.00	0.06	0.32	0.00	0.05	0.36	0.36	0.09	0.40	0.40
Sat Flow, veh/h	3079	3167	1417	1587	3167	1417	1587	2356	760	1587	1032	540
Grp Volume(v), veh/h	99	422	0	133	909	0	100	113	115	236	0	629
Grp Sat Flow(s),veh/h/ln	1540	1583	1417	1587	1583	1417	1587	1583	1532	1587	0	1571
Q Serve(g_s), s	4.4	15.0	0.0	8.1	38.3	0.0	5.5	6.9	7.3	12.5	0.0	55.5
Cycle Q Clear(g_c), s	4.4	15.0	0.0	8.1	38.3	0.0	5.5	6.9	7.3	12.5	0.0	55.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		0.34
Lane Grp Cap(c), veh/h	140	964	431	337	1012	453	135	570	552	547	0	623
V/C Ratio(X)	0.71	0.44	0.00	0.39	0.90	0.00	0.74	0.20	0.21	0.43	0.00	1.01
Avail Cap(c_a), veh/h	187	964	431	337	1012	453	148	582	564	547	0	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.9	39.1	0.0	31.7	45.4	0.0	34.8	30.9	31.0	25.2	0.0	42.3
Incr Delay (d2), s/veh	7.8	1.4	0.0	0.7	14.5	0.0	17.9	0.2	0.2	0.5	0.0	81.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.7	10.9	0.0	6.5	25.9	0.0	5.6	5.5	5.6	1.9	0.0	68.7
LnGrp Delay(d),s/veh	73.8	40.5	0.0	32.5	59.9	0.0	52.8	31.1	31.2	25.7	0.0	124.0
LnGrp LOS	E	D		C	E		D	C	C	C		F
Approach Vol, veh/h		521			1042			328			865	
Approach Delay, s/veh		46.8			56.4			37.7			97.2	
Approach LOS		D			E			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	51.3	19.0	56.9	15.0	49.1	13.9	62.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	8.5	41.5	12.5	51.5	8.5	41.5	8.5	55.5				
Max Q Clear Time (g_c+I1), s	6.4	40.3	14.5	9.3	10.1	17.0	7.5	57.5				
Green Ext Time (p_c), s	0.0	1.1	0.0	3.5	0.0	19.7	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				65.2								
HCM 2010 LOS				E								

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	84	175	224	476	174
Future Vol, veh/h	14	84	175	224	476	174
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	84	175	224	476	174

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1223	606	699
Stage 1	606	-	-
Stage 2	617	-	-
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	198	497	898
Stage 1	545	-	-
Stage 2	538	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	157	497	898
Mov Cap-2 Maneuver	157	-	-
Stage 1	431	-	-
Stage 2	538	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	4.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	898	-	380	-	-
HCM Lane V/C Ratio	0.21	-	0.277	-	-
HCM Control Delay (s)	10.1	-	18.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.8	-	1.1	-	-

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build AM - Improved

02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	230	171	225	67	245	111	191	18	228
Future Volume (vph)	230	171	225	67	245	111	191	18	228
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	19.0	41.0	19.0	17.0	39.0	19.0	46.0	16.0	43.0
Total Split (%)	15.8%	34.2%	15.8%	14.2%	32.5%	15.8%	38.3%	13.3%	35.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 72.5

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
19 s	43 s	19 s	39 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	46 s	17 s	41 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	171	225	67	245	27	111	191	80	18	228	234
Future Volume (veh/h)	230	171	225	67	245	27	111	191	80	18	228	234
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	230	171	225	67	245	27	111	191	80	18	228	234
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	388	425	308	399	44	365	792	320	454	496	443
Arrive On Green	0.14	0.23	0.23	0.05	0.14	0.14	0.07	0.36	0.36	0.02	0.31	0.31
Sat Flow, veh/h	1587	1667	1417	1587	2880	314	1587	2203	890	1587	1583	1417
Grp Volume(v), veh/h	230	171	225	67	134	138	111	135	136	18	228	234
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1611	1587	1583	1510	1587	1583	1417
Q Serve(g_s), s	9.0	6.8	10.2	2.8	6.1	6.2	3.6	4.6	4.9	0.6	8.9	10.5
Cycle Q Clear(g_c), s	9.0	6.8	10.2	2.8	6.1	6.2	3.6	4.6	4.9	0.6	8.9	10.5
Prop In Lane	1.00		1.00	1.00		0.20	1.00		0.59	1.00		1.00
Lane Grp Cap(c), veh/h	385	388	425	308	219	223	365	570	543	454	496	443
V/C Ratio(X)	0.60	0.44	0.53	0.22	0.61	0.62	0.30	0.24	0.25	0.04	0.46	0.53
Avail Cap(c_a), veh/h	414	746	730	446	668	679	515	812	774	616	750	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	25.3	22.4	26.5	31.2	31.3	16.7	17.3	17.4	17.3	21.2	21.8
Incr Delay (d2), s/veh	2.1	0.8	1.0	0.4	2.8	2.8	0.5	0.2	0.2	0.0	0.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	5.7	7.3	2.2	5.1	5.3	2.9	3.6	3.7	0.5	7.1	7.6
LnGrp Delay(d),s/veh	24.2	26.1	23.5	26.9	34.0	34.1	17.2	17.5	17.6	17.3	21.9	22.8
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	C	C
Approach Vol, veh/h	626				339				382			
Approach Delay, s/veh	24.5				32.6				17.4			
Approach LOS	C				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	30.6	17.6	17.2	8.1	34.2	10.3	24.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	36.5	12.5	32.5	9.5	39.5	10.5	34.5				
Max Q Clear Time (g_c+l1), s	5.6	12.5	11.0	8.2	2.6	6.9	4.8	12.2				
Green Ext Time (p_c), s	0.1	11.6	0.1	2.4	0.0	13.8	0.1	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay	23.9											
HCM 2010 LOS	C											

Timings 5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build AM - Improved
02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	117	327	65	72	505	117	61	131	79	198	196	272
Future Volume (vph)	117	327	65	72	505	117	61	131	79	198	196	272
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0	12.0	38.0	38.0
Total Split (%)	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%	12.0%	38.0%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 8 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
12 s	38 s	12 s	38 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	38 s	12 s	38 s

HCM 2010 Signalized Intersection Summary
5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	327	65	72	505	117	61	131	79	198	196	272
Future Volume (veh/h)	117	327	65	72	505	117	61	131	79	198	196	272
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	117	327	65	72	505	117	61	131	79	198	196	272
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	283	927	415	353	865	387	455	1146	513	565	1222	547
Arrive On Green	0.06	0.29	0.29	0.05	0.27	0.27	0.04	0.36	0.36	0.06	0.39	0.39
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417
Grp Volume(v), veh/h	117	327	65	72	505	117	61	131	79	198	196	272
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417
Q Serve(g_s), s	5.3	8.1	3.4	3.2	13.8	6.5	2.4	2.8	3.8	6.5	4.1	14.6
Cycle Q Clear(g_c), s	5.3	8.1	3.4	3.2	13.8	6.5	2.4	2.8	3.8	6.5	4.1	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	283	927	415	353	865	387	455	1146	513	565	1222	547
V/C Ratio(X)	0.41	0.35	0.16	0.20	0.58	0.30	0.13	0.11	0.15	0.35	0.16	0.50
Avail Cap(c_a), veh/h	283	1029	460	384	1029	460	493	1146	513	565	1222	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	27.9	26.2	24.5	31.4	28.8	18.6	21.2	21.6	19.2	20.1	23.3
Incr Delay (d2), s/veh	1.0	0.2	0.2	0.3	0.6	0.4	0.1	0.2	0.6	0.4	0.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	6.4	2.4	2.6	10.2	4.7	1.9	2.2	2.8	1.8	3.3	10.3
LnGrp Delay(d),s/veh	25.7	28.1	26.4	24.8	32.0	29.2	18.7	21.4	22.2	19.6	20.4	26.6
LnGrp LOS	C	C	C	C	C	C	B	C	C	B	C	C
Approach Vol, veh/h	509				694				271			
Approach Delay, s/veh	27.3				30.8				21.1			
Approach LOS	C				C				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	45.6	12.0	32.8	12.0	43.2	10.0	34.8				
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5				
Max Green Setting (Gmax), s	6.5	31.0	6.5	32.5	6.5	31.0	6.5	32.5				
Max Q Clear Time (g_c+I1), s	4.4	16.6	7.3	15.8	8.5	5.8	5.2	10.1				
Green Ext Time (p_c), s	0.0	2.3	0.0	11.5	0.0	2.6	0.0	14.4				
Intersection Summary												
HCM 2010 Ctrl Delay			26.2									
HCM 2010 LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future Build AM - Improved

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  		 	  		 	 			 
Traffic Volume (vph)	259	985	34	289	1236	238	45	201	199	186	245
Future Volume (vph)	259	985	34	289	1236	238	45	201	199	186	245
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	45.0	60.0	60.0	45.0	60.0	60.0	23.0	22.0	22.0	23.0	22.0
Total Split (%)	30.0%	40.0%	40.0%	30.0%	40.0%	40.0%	15.3%	14.7%	14.7%	15.3%	14.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 80 (53%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
45 s	60 s	23 s	22 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
45 s	60 s	23 s	22 s

HCM 2010 Signalized Intersection Summary

6: George Busbee Pkwy & Chastain Rd

2022 Future Build AM - Improved

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	985	34	289	1236	238	45	201	199	186	245	21
Future Volume (veh/h)	259	985	34	289	1236	238	45	201	199	186	245	21
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	259	985	0	289	1236	0	45	201	0	186	245	21
Adj No. of Lanes	1	3	1	2	3	1	2	2	1	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	2375	739	340	2068	644	87	246	110	235	461	39
Arrive On Green	0.18	0.52	0.00	0.22	0.91	0.00	0.03	0.08	0.00	0.11	0.16	0.16
Sat Flow, veh/h	1587	4550	1417	3079	4550	1417	3079	3167	1417	1587	2954	251
Grp Volume(v), veh/h	259	985	0	289	1236	0	45	201	0	186	130	136
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1540	1517	1417	1540	1583	1417	1587	1583	1622
Q Serve(g_s), s	24.0	19.8	0.0	13.5	8.1	0.0	2.2	9.4	0.0	16.0	11.4	11.5
Cycle Q Clear(g_c), s	24.0	19.8	0.0	13.5	8.1	0.0	2.2	9.4	0.0	16.0	11.4	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	282	2375	739	340	2068	644	87	246	110	235	247	253
V/C Ratio(X)	0.92	0.41	0.00	0.85	0.60	0.00	0.52	0.82	0.00	0.79	0.53	0.54
Avail Cap(c_a), veh/h	402	2375	739	780	2068	644	328	317	142	235	247	253
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.88	0.88	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.6	21.9	0.0	57.2	4.1	0.0	71.9	68.1	0.0	55.2	58.2	58.3
Incr Delay (d2), s/veh	26.4	0.5	0.0	5.6	1.1	0.0	4.8	13.5	0.0	18.6	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.5	13.2	0.0	9.7	5.7	0.0	1.8	8.1	0.0	12.9	8.8	9.1
LnGrp Delay(d),s/veh	87.0	22.4	0.0	62.8	5.2	0.0	76.7	81.6	0.0	73.8	60.3	60.5
LnGrp LOS	F	C		E	A		E	F		E	E	E
Approach Vol, veh/h	1244				1525				246		452	
Approach Delay, s/veh	35.9				16.1				80.7		65.9	
Approach LOS	D				B				F		E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.7	74.7	23.0	18.6	23.6	84.8	11.2	30.4				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0				
Max Green Setting (Gmax), s	38.0	53.5	16.0	15.0	38.0	53.5	16.0	15.0				
Max Q Clear Time (g_c+I1), s	26.0	10.1	18.0	11.4	15.5	21.8	4.2	13.5				
Green Ext Time (p_c), s	0.7	41.0	0.0	0.3	1.1	30.3	0.1	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay	34.3											
HCM 2010 LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
7: Townpark Dr & Chastain Rd

2022 Future Build AM - Improved

02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  				 	
Traffic Volume (vph)	115	1203	94	110	1731	526	18	8	32	5
Future Volume (vph)	115	1203	94	110	1731	526	18	8	32	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	95.0	95.0	15.0	95.0	95.0	15.0	25.0	15.0	25.0
Total Split (%)	10.0%	63.3%	63.3%	10.0%	63.3%	63.3%	10.0%	16.7%	10.0%	16.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 79 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
15 s	95 s	15 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	95 s	15 s	25 s

HCM 2010 Signalized Intersection Summary

7: Townpark Dr & Chastain Rd

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	1203	94	110	1731	526	18	8	15	32	5	16
Future Volume (veh/h)	115	1203	94	110	1731	526	18	8	15	32	5	16
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	115	1203	0	110	1731	526	18	8	0	32	5	16
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	3170	987	425	3166	986	114	57	0	76	14	46
Arrive On Green	0.07	1.00	0.00	0.07	1.00	1.00	0.02	0.03	0.00	0.02	0.04	0.04
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	350	1119
Grp Volume(v), veh/h	115	1203	0	110	1731	526	18	8	0	32	0	21
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1469
Q Serve(g_s), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Cycle Q Clear(g_c), s	3.3	0.0	0.0	3.1	0.0	0.0	1.6	0.7	0.0	1.5	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.76
Lane Grp Cap(c), veh/h	220	3170	987	425	3166	986	114	57	0	76	0	61
V/C Ratio(X)	0.52	0.38	0.00	0.26	0.55	0.53	0.16	0.14	0.00	0.42	0.00	0.35
Avail Cap(c_a), veh/h	243	3170	987	449	3166	986	155	183	0	133	0	162
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.00	0.60	0.60	0.60	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.7	0.0	0.0	68.2	70.3	0.0	72.1	0.0	69.9
Incr Delay (d2), s/veh	1.7	0.3	0.0	0.2	0.4	1.2	0.6	1.1	0.0	3.8	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.2	0.0	2.4	0.2	0.6	1.3	0.6	0.0	1.2	0.0	1.6
LnGrp Delay(d),s/veh	7.4	0.3	0.0	5.9	0.4	1.2	68.8	71.4	0.0	75.9	0.0	73.3
LnGrp LOS	A	A		A	A	A	E	E		E		E
Approach Vol, veh/h	1318			2367			26			53		
Approach Delay, s/veh	0.9			0.8			69.6			74.9		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	111.4	12.2	13.7	12.6	111.5	11.1	14.7				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	88.0	6.5	16.5	7.5	88.0	6.5	16.5				
Max Q Clear Time (g_c+I1), s	5.3	2.0	3.5	2.7	5.1	2.0	3.6	4.1				
Green Ext Time (p_c), s	0.1	84.9	0.0	0.0	0.1	84.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				2.4								
HCM 2010 LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future Build AM - Improved
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	1142	107	213	1200	220	1167
Future Volume (vph)	1142	107	213	1200	220	1167
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	84.0	84.0	26.0	110.0	40.0	40.0
Total Split (%)	56.0%	56.0%	17.3%	73.3%	26.7%	26.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 84 (56%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future Build AM - Improved

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑↑
Traffic Volume (vph)	0	1142	107	213	1200	0	0	0	0	220	0	1167
Future Volume (vph)	0	1142	107	213	1200	0	0	0	0	220	0	1167
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		2493
Flt Permitted		1.00	1.00	0.16	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	273	3167					1583		2493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1142	107	213	1200	0	0	0	0	220	0	1167
RTOR Reduction (vph)	0	0	41	0	0	0	0	0	0	0	0	740
Lane Group Flow (vph)	0	1142	66	213	1200	0	0	0	0	220	0	427
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		87.0	87.0	107.2	107.2					29.3		29.3
Effective Green, g (s)		87.0	87.0	107.2	107.2					29.3		29.3
Actuated g/C Ratio		0.58	0.58	0.71	0.71					0.20		0.20
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1836	821	310	2263					309		486
v/s Ratio Prot		0.36		c0.06	0.38					0.14		
v/s Ratio Perm			0.05	c0.43								c0.17
v/c Ratio		0.62	0.08	0.69	0.53					0.71		0.88
Uniform Delay, d1		20.7	13.9	14.1	9.8					56.4		58.6
Progression Factor		0.54	0.07	1.32	1.65					1.00		1.00
Incremental Delay, d2		1.6	0.2	5.4	0.8					7.9		19.4
Delay (s)		12.8	1.2	24.0	17.0					64.3		78.0
Level of Service		B	A	C	B					E		E
Approach Delay (s)		11.8			18.0			0.0			75.8	
Approach LOS		B			B			A			E	
Intersection Summary												
HCM 2000 Control Delay			35.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			94.0%			ICU Level of Service				F		
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future Build AM - Improved

02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	540	820	990	108	421	1	237
Future Volume (vph)	540	820	990	108	421	1	237
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	44.0	107.0	63.0	63.0	43.0	43.0	43.0
Total Split (%)	29.3%	71.3%	42.0%	42.0%	28.7%	28.7%	28.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 28 (19%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

		
Ø1	Ø2 (R)	Ø4
44 s	63 s	43 s
		
Ø6 (R)		
107 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	820	0	0	990	108	421	1	237	0	0	0
Future Volume (veh/h)	540	820	0	0	990	108	421	1	237	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	540	820	0	0	990	0	422	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	605	2385	0	0	1615	723	487	0	217			
Arrive On Green	0.13	0.50	0.00	0.00	1.00	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	540	820	0	0	990	0	422	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	25.9	23.3	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Cycle Q Clear(g_c), s	25.9	23.3	0.0	0.0	0.0	0.0	19.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	605	2385	0	0	1615	723	487	0	217			
V/C Ratio(X)	0.89	0.34	0.00	0.00	0.61	0.00	0.87	0.00	0.00			
Avail Cap(c_a), veh/h	760	2385	0	0	1615	723	751	0	335			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.73	0.73	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	63.6	14.9	0.0	0.0	0.0	0.0	62.0	0.0	0.0			
Incr Delay (d2), s/veh	9.4	0.3	0.0	0.0	1.8	0.0	7.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	16.7	14.8	0.0	0.0	0.7	0.0	14.0	0.0	0.0			
LnGrp Delay(d),s/veh	73.0	15.2	0.0	0.0	1.8	0.0	69.3	0.0	0.0			
LnGrp LOS	E	B			A		E					
Approach Vol, veh/h	1360				990			422				
Approach Delay, s/veh	38.2				1.8			69.3				
Approach LOS	D				A			E				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.5	83.0		30.5		119.5						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	37.0	56.5		35.5		100.5						
Max Q Clear Time (g_c+I1), s	27.9	2.0		21.5		25.3						
Green Ext Time (p_c), s	1.6	46.7		1.5		61.2						
Intersection Summary												
HCM 2010 Ctrl Delay			29.9									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Timings
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build AM - Improved
02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations		 			 						
Traffic Volume (vph)	11	887	122	125	960	8	144	0	9	0	
Future Volume (vph)	11	887	122	125	960	8	144	0	9	0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases		6		5	2		7	4		8	
Permitted Phases	6		6	2		2	4		8		
Detector Phase	6	6	6	5	2	2	7	4	8	8	
Switch Phase											
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	4.0	6.0	6.0	6.0	
Minimum Split (s)	22.0	22.0	22.0	15.0	22.0	22.0	15.0	22.0	21.5	21.5	
Total Split (s)	91.0	91.0	91.0	15.0	106.0	106.0	20.0	44.0	24.0	24.0	
Total Split (%)	60.7%	60.7%	60.7%	10.0%	70.7%	70.7%	13.3%	29.3%	16.0%	16.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	4.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.5	7.0	7.0	7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

 Ø2 (R)		 Ø4
106 s		44 s
 Ø5	 Ø6 (R)	 Ø7
15 s	91 s	20 s
		24 s

HCM 2010 Signalized Intersection Summary
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	887	122	125	960	8	144	0	58	9	0	40
Future Volume (veh/h)	11	887	122	125	960	8	144	0	58	9	0	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	11	887	0	125	960	8	144	0	58	9	0	40
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	420	2039	912	514	2315	1036	221	0	249	105	0	60
Arrive On Green	1.00	1.00	0.00	0.08	1.00	1.00	0.10	0.00	0.18	0.04	0.00	0.04
Sat Flow, veh/h	578	3167	1417	1587	3167	1417	1587	0	1417	1340	0	1417
Grp Volume(v), veh/h	11	887	0	125	960	8	144	0	58	9	0	40
Grp Sat Flow(s),veh/h/ln	578	1583	1417	1587	1583	1417	1587	0	1417	1340	0	1417
Q Serve(g_s), s	0.0	0.0	0.0	4.1	0.0	0.0	12.7	0.0	5.3	1.0	0.0	4.2
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.1	0.0	0.0	12.7	0.0	5.3	1.0	0.0	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	2039	912	514	2315	1036	221	0	249	105	0	60
V/C Ratio(X)	0.03	0.44	0.00	0.24	0.41	0.01	0.65	0.00	0.23	0.09	0.00	0.67
Avail Cap(c_a), veh/h	420	2039	912	534	2315	1036	221	0	349	200	0	161
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	7.2	0.0	0.0	59.4	0.0	53.2	69.3	0.0	70.8
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.2	0.5	0.0	6.8	0.0	0.5	0.4	0.0	12.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	0.0	3.1	0.3	0.0	10.0	0.0	3.8	0.7	0.0	3.3
LnGrp Delay(d),s/veh	0.1	0.7	0.0	7.4	0.5	0.0	66.3	0.0	53.6	69.6	0.0	83.7
LnGrp LOS	A	A		A	A	A	E		D	E		F
Approach Vol, veh/h	898		1093				202			49		
Approach Delay, s/veh	0.7		1.3				62.6			81.1		
Approach LOS	A		A				E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6	7	8				
Phs Duration (G+Y+Rc), s	116.7		33.3		13.1	103.6	20.0	13.3				
Change Period (Y+Rc), s	7.0		7.0		7.0	7.0	5.5	7.0				
Max Green Setting (Gmax), s	99.0		37.0		8.0	84.0	14.5	17.0				
Max Q Clear Time (g_c+I1), s	2.0		7.3		6.1	2.0	14.7	6.2				
Green Ext Time (p_c), s	76.7		0.4		0.1	67.0	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			8.3									
HCM 2010 LOS			A									

Timings

11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build AM - Improved

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	
Lane Configurations		 			 							
Traffic Volume (vph)	6	512	451	348	883	2	206	0	149	2	6	
Future Volume (vph)	6	512	451	348	883	2	206	0	149	2	6	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	NA	Perm	
Protected Phases		6		5	2		4	4		8		
Permitted Phases	6		6	2		2			4		8	
Detector Phase	6	6	6	5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0	
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	38.5	20.0	20.0	
Total Split (s)	53.0	53.0	53.0	36.0	89.0	89.0	41.0	41.0	41.0	20.0	20.0	
Total Split (%)	35.3%	35.3%	35.3%	24.0%	59.3%	59.3%	27.3%	27.3%	27.3%	13.3%	13.3%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
89 s	41 s	20 s
 Ø5	 Ø6 (R)	
36 s	53 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	512	451	348	883	2	206	0	149	6	2	6
Future Volume (veh/h)	6	512	451	348	883	2	206	0	149	6	2	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	6	512	0	348	883	0	206	0	149	6	2	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1822	815	603	2294	1026	395	0	176	21	7	25
Arrive On Green	0.19	0.19	0.00	0.11	0.72	0.00	0.12	0.00	0.12	0.02	0.02	0.02
Sat Flow, veh/h	626	3167	1417	1587	3167	1417	3175	0	1417	1205	402	1417
Grp Volume(v), veh/h	6	512	0	348	883	0	206	0	149	8	0	6
Grp Sat Flow(s),veh/h/ln	626	1583	1417	1587	1583	1417	1587	0	1417	1606	0	1417
Q Serve(g_s), s	1.2	20.8	0.0	12.9	16.0	0.0	9.1	0.0	15.4	0.7	0.0	0.6
Cycle Q Clear(g_c), s	1.2	20.8	0.0	12.9	16.0	0.0	9.1	0.0	15.4	0.7	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.75		1.00
Lane Grp Cap(c), veh/h	408	1822	815	603	2294	1026	395	0	176	28	0	25
V/C Ratio(X)	0.01	0.28	0.00	0.58	0.38	0.00	0.52	0.00	0.85	0.28	0.00	0.24
Avail Cap(c_a), veh/h	408	1822	815	747	2294	1026	730	0	326	139	0	123
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.00	0.55	0.55	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.3	34.2	0.0	11.8	7.9	0.0	61.5	0.0	64.3	72.7	0.0	72.7
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.5	0.3	0.0	1.1	0.0	11.6	5.3	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	14.0	0.0	8.5	10.3	0.0	7.3	0.0	10.8	0.7	0.0	0.5
LnGrp Delay(d),s/veh	26.3	34.6	0.0	12.3	8.2	0.0	62.6	0.0	75.8	78.1	0.0	77.6
LnGrp LOS	C	C		B	A		E		E	E		E
Approach Vol, veh/h	518		1231				355			14		
Approach Delay, s/veh	34.5		9.3				68.1			77.9		
Approach LOS	C		A				E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	115.2		25.2		22.4	92.8	9.7					
Change Period (Y+Rc), s	6.5		6.5		6.5	6.5	7.0					
Max Green Setting (Gmax), s	82.5		34.5		29.5	46.5	13.0					
Max Q Clear Time (g_c+l1), s	18.0		17.4		14.9	22.8	2.7					
Green Ext Time (p_c), s	42.7		1.2		1.0	19.7	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			25.8									
HCM 2010 LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

Timings
12: Chastain Meadows Pkwy & Site Drwy 4/Private Drwy

2022 Future Build AM - Improved
02/27/2019

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	141	0	6	0	95	196	48	670	81
Future Volume (vph)	141	0	6	0	95	196	48	670	81
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	49.0	49.0	49.0	49.0	71.0	71.0	71.0	71.0	71.0
Total Split (%)	40.8%	40.8%	40.8%	40.8%	59.2%	59.2%	59.2%	59.2%	59.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 12: Chastain Meadows Pkwy & Site Drwy 4/Private Drwy

 Ø2 (R)	 Ø4
71 s	49 s
 Ø6 (R)	 Ø8
71 s	49 s

HCM 2010 Signalized Intersection Summary
12: Chastain Meadows Pkwy & Site Drwy 4/Private Drwy

2022 Future Build AM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	0	41	6	0	1	95	196	37	48	670	81
Future Volume (veh/h)	141	0	41	6	0	1	95	196	37	48	670	81
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	1667	1700	1667	1667	1667
Adj Flow Rate, veh/h	141	0	41	6	0	1	95	196	37	48	670	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	0	171	188	0	171	602	2058	381	920	2442	1093
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.12	0.77	0.77	0.77	0.77	0.77	0.00
Sat Flow, veh/h	1410	0	1417	1360	0	1417	764	2668	495	1143	3167	1417
Grp Volume(v), veh/h	141	0	41	6	0	1	95	115	118	48	670	0
Grp Sat Flow(s),veh/h/ln	1410	0	1417	1360	0	1417	764	1583	1579	1143	1583	1417
Q Serve(g_s), s	11.7	0.0	3.1	0.5	0.0	0.1	4.9	2.1	2.2	1.3	7.4	0.0
Cycle Q Clear(g_c), s	11.8	0.0	3.1	3.6	0.0	0.1	12.3	2.1	2.2	3.5	7.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	229	0	171	188	0	171	602	1221	1218	920	2442	1093
V/C Ratio(X)	0.62	0.00	0.24	0.03	0.00	0.01	0.16	0.09	0.10	0.05	0.27	0.00
Avail Cap(c_a), veh/h	559	0	502	506	0	502	602	1221	1218	920	2442	1093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.6	0.0	47.8	49.4	0.0	46.5	5.8	3.4	3.4	3.8	4.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.7	0.1	0.0	0.0	0.6	0.2	0.2	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.3	0.0	2.3	0.3	0.0	0.1	2.0	1.8	1.8	0.8	5.9	0.0
LnGrp Delay(d),s/veh	54.4	0.0	48.5	49.5	0.0	46.5	6.3	3.5	3.6	3.9	4.3	0.0
LnGrp LOS	D		D	D		D	A	A	A	A	A	
Approach Vol, veh/h	182				7				328			
Approach Delay, s/veh	53.0				49.1				4.4			
Approach LOS	D				D				A			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	99.1			20.9		99.1		20.9				
Change Period (Y+Rc), s	6.5			6.5		6.5		6.5				
Max Green Setting (Gmax), s	64.5			42.5		64.5		42.5				
Max Q Clear Time (g_c+I1), s	9.4			5.6		14.3		13.8				
Green Ext Time (p_c), s	24.5			0.7		23.5		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay	11.7											
HCM 2010 LOS	B											

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	44	0	356	755	78
Future Vol, veh/h	0	44	0	356	755	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	44	0	356	755	78

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	411	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	-
Pot Cap-1 Maneuver	0	590	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	590	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	-	590
HCM Lane V/C Ratio	-	0.081
HCM Control Delay (s)	-	11.6
HCM Lane LOS	-	B
HCM 95th %tile Q(veh)	-	0.3

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Traffic Vol, veh/h	977	80	0	1099	0	43
Future Vol, veh/h	977	80	0	1099	0	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	977	80	0	1099	0	43

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	- 555
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	- 6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	- 3.32
Pot Cap-1 Maneuver	-	0	0 - 475
Stage 1	-	0	0 -
Stage 2	-	0	0 -
Platoon blocked, %	-		-
Mov Cap-1 Maneuver	-	-	- 475
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	475	-	-
HCM Lane V/C Ratio	0.103	-	-
HCM Control Delay (s)	13.4	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-

Timings
1: Bells Ferry Rd & N. Booth Rd

2022 Future Build PM - Improved
02/27/2019

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	267	198	361	909	320
Future Volume (vph)	267	198	361	909	320
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	8		1	6	2
Permitted Phases		8	6		
Detector Phase	8	8	1	6	2
Switch Phase			6		
Minimum Initial (s)	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.0	28.0	10.0	22.5	39.0
Total Split (s)	42.0	42.0	38.0	138.0	100.0
Total Split (%)	23.3%	23.3%	21.1%	76.7%	55.6%
Yellow Time (s)	4.0	4.0	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 18 (10%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Bells Ferry Rd & N. Booth Rd

 Ø1	 Ø2 (R)	
38 s	100 s	
 Ø6 (R)		 Ø8
138 s		42 s

HCM 2010 Signalized Intersection Summary
1: Bells Ferry Rd & N. Booth Rd

2022 Future Build PM - Improved
02/27/2019

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	267	198	361	909	320	250		
Future Volume (veh/h)	267	198	361	909	320	250		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700		
Adj Flow Rate, veh/h	267	198	361	909	320	250		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	287	256	538	1254	547	427		
Arrive On Green	0.18	0.18	0.10	0.75	0.63	0.63		
Sat Flow, veh/h	1587	1417	1587	1667	868	678		
Grp Volume(v), veh/h	267	198	361	909	0	570		
Grp Sat Flow(s),veh/h/ln	1587	1417	1587	1667	0	1547		
Q Serve(g_s), s	29.8	24.0	14.0	53.5	0.0	38.9		
Cycle Q Clear(g_c), s	29.8	24.0	14.0	53.5	0.0	38.9		
Prop In Lane	1.00	1.00	1.00			0.44		
Lane Grp Cap(c), veh/h	287	256	538	1254	0	974		
V/C Ratio(X)	0.93	0.77	0.67	0.72	0.00	0.59		
Avail Cap(c_a), veh/h	317	283	677	1254	0	974		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	72.6	70.2	16.3	12.1	0.0	19.6		
Incr Delay (d2), s/veh	45.8	12.2	1.8	3.8	0.0	2.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	23.5	15.5	11.9	33.8	0.0	24.2		
LnGrp Delay(d),s/veh	118.4	82.4	18.1	15.9	0.0	22.2		
LnGrp LOS	F	F	B	B		C		
Approach Vol, veh/h	465			1270	570			
Approach Delay, s/veh	103.1			16.5	22.2			
Approach LOS	F			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	22.1	119.3				141.4		38.6
Change Period (Y+Rc), s	5.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	33.0	94.0				132.0		36.0
Max Q Clear Time (g_c+I1), s	16.0	40.9				55.5		31.8
Green Ext Time (p_c), s	1.1	49.0				68.6		0.7
Intersection Summary								
HCM 2010 Ctrl Delay			35.4					
HCM 2010 LOS			D					

Timings 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build PM - Improved
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	516	1084	124	100	672	379	69	688	129	201
Future Volume (vph)	516	1084	124	100	672	379	69	688	129	201
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases			6	2		2	4		8	
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	15.0	30.5	30.5	15.0	30.5	30.5	15.0	33.5	15.0	33.5
Total Split (s)	33.0	64.0	64.0	15.0	46.0	46.0	15.0	43.0	18.0	46.0
Total Split (%)	23.6%	45.7%	45.7%	10.7%	32.9%	32.9%	10.7%	30.7%	12.9%	32.9%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	Max	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 72 (51%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
33 s	46 s	18 s	43 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
15 s	64 s	15 s	46 s

HCM 2010 Signalized Intersection Summary
2: Bells Ferry Rd & Chastain Rd/New Chastain Rd

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	516	1084	124	100	672	379	69	688	69	129	201	143
Future Volume (veh/h)	516	1084	124	100	672	379	69	688	69	129	201	143
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	516	1084	0	100	672	0	69	688	69	129	201	143
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	583	1366	611	211	946	423	202	735	74	183	257	183
Arrive On Green	0.19	0.43	0.00	0.06	0.30	0.00	0.04	0.25	0.25	0.07	0.28	0.28
Sat Flow, veh/h	3079	3167	1417	1587	3167	1417	1587	2907	291	1587	907	645
Grp Volume(v), veh/h	516	1084	0	100	672	0	69	374	383	129	0	344
Grp Sat Flow(s),veh/h/ln	1540	1583	1417	1587	1583	1417	1587	1583	1615	1587	0	1553
Q Serve(g_s), s	22.8	41.4	0.0	6.1	26.4	0.0	4.5	32.4	32.5	8.3	0.0	28.6
Cycle Q Clear(g_c), s	22.8	41.4	0.0	6.1	26.4	0.0	4.5	32.4	32.5	8.3	0.0	28.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		0.42
Lane Grp Cap(c), veh/h	583	1366	611	211	946	423	202	400	408	183	0	440
V/C Ratio(X)	0.89	0.79	0.00	0.47	0.71	0.00	0.34	0.94	0.94	0.71	0.00	0.78
Avail Cap(c_a), veh/h	583	1366	611	218	946	423	229	413	421	196	0	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.3	34.4	0.0	33.4	43.7	0.0	38.5	51.2	51.2	38.9	0.0	46.2
Incr Delay (d2), s/veh	17.0	3.9	0.0	1.6	4.6	0.0	1.0	41.3	41.4	10.7	0.0	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.9	25.1	0.0	5.0	17.9	0.0	3.6	25.8	26.3	7.5	0.0	19.4
LnGrp Delay(d),s/veh	72.3	38.3	0.0	35.0	48.3	0.0	39.5	92.5	92.6	49.5	0.0	55.7
LnGrp LOS	E	D		D	D		D	F	F	D		E
Approach Vol, veh/h	1600				772				826			
Approach Delay, s/veh	49.3				46.6				88.1			
Approach LOS	D				D				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.0	48.3	16.8	41.9	14.4	66.9	12.6	46.1				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	26.5	39.5	11.5	36.5	8.5	57.5	8.5	39.5				
Max Q Clear Time (g_c+I1), s	24.8	28.4	10.3	34.5	8.1	43.4	6.5	30.6				
Green Ext Time (p_c), s	0.4	10.5	0.0	0.9	0.0	13.3	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay	58.1											
HCM 2010 LOS	E											

Intersection

Int Delay, s/veh 7.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	201	163	607	285	101
Future Vol, veh/h	61	201	163	607	285	101
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	-	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	201	163	607	285	101

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1308	346	398
Stage 1	346	-	-
Stage 2	962	-	-
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	176	697	1161
Stage 1	716	-	-
Stage 2	371	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	150	697	1161
Mov Cap-2 Maneuver	150	-	-
Stage 1	612	-	-
Stage 2	371	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.6	1.8	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1161	-	377	-	-
HCM Lane V/C Ratio	0.145	-	0.716	-	-
HCM Control Delay (s)	8.6	-	37.6	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.5	-	6.7	-	-

Timings
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build PM - Improved

02/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	415	209	320	101	292	394	539	30	342
Future Volume (vph)	415	209	320	101	292	394	539	30	342
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	3	8	1	7	4	1	6	5	2
Permitted Phases	8		8	4		6		2	
Detector Phase	3	8	1	7	4	1	6	5	2
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	5.0	8.0	5.0	14.0	5.0	14.0
Minimum Split (s)	15.0	35.5	15.0	15.0	36.5	15.0	34.5	15.0	32.5
Total Split (s)	25.0	40.0	30.0	20.0	35.0	30.0	55.0	15.0	40.0
Total Split (%)	19.2%	30.8%	23.1%	15.4%	26.9%	23.1%	42.3%	11.5%	30.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 107.6

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Chastain Meadows Pkwy & Big Shanty Rd

 Ø1	 Ø2	 Ø3	 Ø4
30 s	40 s	25 s	35 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	55 s	20 s	40 s

HCM 2010 Signalized Intersection Summary
4: Chastain Meadows Pkwy & Big Shanty Rd

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	415	209	320	101	292	47	394	539	50	30	342	290
Future Volume (veh/h)	415	209	320	101	292	47	394	539	50	30	342	290
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	415	209	320	101	292	47	394	539	50	30	342	290
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	366	400	612	287	401	64	427	1279	118	329	445	371
Arrive On Green	0.16	0.24	0.24	0.07	0.15	0.15	0.19	0.44	0.44	0.03	0.27	0.27
Sat Flow, veh/h	1587	1667	1417	1587	2737	436	1587	2931	271	1587	1641	1368
Grp Volume(v), veh/h	415	209	320	101	167	172	394	291	298	30	330	302
Grp Sat Flow(s),veh/h/ln	1587	1667	1417	1587	1583	1590	1587	1583	1619	1587	1583	1425
Q Serve(g_s), s	18.5	12.4	18.9	6.1	11.5	11.8	19.6	14.5	14.5	1.5	21.9	22.4
Cycle Q Clear(g_c), s	18.5	12.4	18.9	6.1	11.5	11.8	19.6	14.5	14.5	1.5	21.9	22.4
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.17	1.00		0.96
Lane Grp Cap(c), veh/h	366	400	612	287	232	233	427	691	706	329	430	387
V/C Ratio(X)	1.13	0.52	0.52	0.35	0.72	0.74	0.92	0.42	0.42	0.09	0.77	0.78
Avail Cap(c_a), veh/h	366	490	688	365	396	397	450	691	706	405	465	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	37.7	23.8	37.5	46.4	46.5	24.6	22.2	22.2	28.6	38.2	38.4
Incr Delay (d2), s/veh	278.8	1.1	0.7	0.7	4.3	4.6	32.7	0.4	0.4	0.1	7.4	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	57.0	9.8	12.0	4.9	9.1	9.3	18.1	10.5	10.7	1.2	15.7	14.9
LnGrp Delay(d),s/veh	315.8	38.7	24.5	38.2	50.7	51.1	57.3	22.6	22.6	28.7	45.6	47.6
LnGrp LOS	F	D	C	D	D	D	E	C	C	C	D	D
Approach Vol, veh/h	944				440				983			
Approach Delay, s/veh	155.7				48.0				36.5			
Approach LOS	F				D				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.4	37.5	25.0	23.2	9.6	56.3	14.4	33.9				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	23.5	33.5	18.5	28.5	8.5	48.5	13.5	33.5				
Max Q Clear Time (g_c+l1), s	21.6	24.4	20.5	13.8	3.5	16.5	8.1	20.9				
Green Ext Time (p_c), s	0.3	6.6	0.0	3.0	0.0	22.3	0.1	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay	77.3											
HCM 2010 LOS	E											

Timings
5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build PM - Improved

02/27/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	308	672	228	117	572	298	224	513	190	263	434	185
Future Volume (vph)	308	672	228	117	572	298	224	513	190	263	434	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	14.0	14.0	5.0	14.0	14.0
Minimum Split (s)	15.0	39.0	39.0	15.0	41.0	41.0	15.0	41.0	41.0	15.0	36.0	36.0
Total Split (s)	25.0	51.0	51.0	15.0	41.0	41.0	21.0	42.0	42.0	22.0	43.0	43.0
Total Split (%)	19.2%	39.2%	39.2%	11.5%	31.5%	31.5%	16.2%	32.3%	32.3%	16.9%	33.1%	33.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.0	7.0	5.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 5: George Busbee Pkwy & Big Shanty Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
21 s	43 s	25 s	41 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
22 s	42 s	15 s	51 s

HCM 2010 Signalized Intersection Summary

5: George Busbee Pkwy & Big Shanty Rd

2022 Future Build PM - Improved

02/27/2019

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	308	672	228	117	572	298	224	513	190	263	434	185				
Future Volume (veh/h)	308	672	228	117	572	298	224	513	190	263	434	185				
Number	3	8	18	7	4	14	1	6	16	5	2	12				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667				
Adj Flow Rate, veh/h	308	672	228	117	572	298	224	513	190	263	434	185				
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91				
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2				
Cap, veh/h	361	1110	497	271	849	380	377	869	389	356	904	404				
Arrive On Green	0.15	0.35	0.35	0.07	0.27	0.27	0.12	0.27	0.27	0.13	0.29	0.29				
Sat Flow, veh/h	1587	3167	1417	1587	3167	1417	1587	3167	1417	1587	3167	1417				
Grp Volume(v), veh/h	308	672	228	117	572	298	224	513	190	263	434	185				
Grp Sat Flow(s),veh/h/ln	1587	1583	1417	1587	1583	1417	1587	1583	1417	1587	1583	1417				
Q Serve(g_s), s	17.7	22.7	16.2	6.9	21.0	25.3	13.0	18.2	14.6	15.5	14.8	14.0				
Cycle Q Clear(g_c), s	17.7	22.7	16.2	6.9	21.0	25.3	13.0	18.2	14.6	15.5	14.8	14.0				
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Lane Grp Cap(c), veh/h	361	1110	497	271	849	380	377	869	389	356	904	404				
V/C Ratio(X)	0.85	0.61	0.46	0.43	0.67	0.78	0.59	0.59	0.49	0.74	0.48	0.46				
Avail Cap(c_a), veh/h	361	1110	497	280	865	387	382	869	389	356	904	404				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Uniform Delay (d), s/veh	29.6	34.8	32.7	31.7	42.5	44.1	29.1	40.8	39.5	29.9	38.5	38.2				
Incr Delay (d2), s/veh	20.6	0.9	0.7	1.1	2.0	10.8	2.4	3.0	4.4	8.3	1.8	3.7				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(95%),veh/ln	14.9	15.2	10.6	5.6	14.4	16.5	9.9	13.1	10.3	12.0	10.9	9.8				
LnGrp Delay(d),s/veh	50.2	35.7	33.3	32.8	44.6	54.9	31.5	43.8	43.9	38.2	40.3	41.9				
LnGrp LOS	D	D	C	C	D	D	C	D	D	D	D	D				
Approach Vol, veh/h	1208				987				927							
Approach Delay, s/veh	39.0				46.3				40.9							
Approach LOS	D				D				D							
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	20.6	44.1	25.0	40.3	22.0	42.7	14.3	51.1								
Change Period (Y+Rc), s	5.5	7.0	5.5	5.5	5.5	7.0	5.5	5.5								
Max Green Setting (Gmax), s	15.5	36.0	19.5	35.5	16.5	35.0	9.5	45.5								
Max Q Clear Time (g_c+I1), s	15.0	16.8	19.7	27.3	17.5	20.2	8.9	24.7								
Green Ext Time (p_c), s	0.0	5.3	0.0	7.5	0.0	4.8	0.0	18.1								
Intersection Summary																
HCM 2010 Ctrl Delay	41.4															
HCM 2010 LOS	D															
Notes																
User approved pedestrian interval to be less than phase max green.																

Timings
6: George Busbee Pkwy & Chastain Rd

2022 Future Build PM - Improved

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  		 	  		 	 			 
Traffic Volume (vph)	163	1079	76	333	1358	265	94	426	351	365	333
Future Volume (vph)	163	1079	76	333	1358	265	94	426	351	365	333
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		7	4		3	8
Permitted Phases			6			2			4	8	
Detector Phase	1	6	6	5	2	2	7	4	4	3	8
Switch Phase											
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	41.5	41.5	15.0	47.5	47.5	15.0	57.0	57.0	15.0	99.0
Total Split (s)	39.0	65.0	65.0	39.0	65.0	65.0	36.0	30.0	30.0	36.0	30.0
Total Split (%)	22.9%	38.2%	38.2%	22.9%	38.2%	38.2%	21.2%	17.6%	17.6%	21.2%	17.6%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	7.0	6.5	6.5	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 147 (86%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 180

Control Type: Actuated-Coordinated

Splits and Phases: 6: George Busbee Pkwy & Chastain Rd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
39 s	65 s	36 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
39 s	65 s	36 s	30 s

HCM 2010 Signalized Intersection Summary

6: George Busbee Pkwy & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	1079	76	333	1358	265	94	426	351	365	333	90
Future Volume (veh/h)	163	1079	76	333	1358	265	94	426	351	365	333	90
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	163	1079	0	333	1358	0	94	426	0	365	333	90
Adj No. of Lanes	1	3	1	2	3	1	2	2	1	1	2	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	1867	581	376	1898	591	132	428	192	314	650	173
Arrive On Green	0.12	0.41	0.00	0.24	0.83	0.00	0.04	0.14	0.00	0.17	0.26	0.26
Sat Flow, veh/h	1587	4550	1417	3079	4550	1417	3079	3167	1417	1587	2474	659
Grp Volume(v), veh/h	163	1079	0	333	1358	0	94	426	0	365	211	212
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1540	1517	1417	1540	1583	1417	1587	1583	1550
Q Serve(g_s), s	17.2	31.2	0.0	17.7	20.8	0.0	5.1	22.8	0.0	29.0	19.3	19.8
Cycle Q Clear(g_c), s	17.2	31.2	0.0	17.7	20.8	0.0	5.1	22.8	0.0	29.0	19.3	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	183	1867	581	376	1898	591	132	428	192	314	416	408
V/C Ratio(X)	0.89	0.58	0.00	0.89	0.72	0.00	0.71	0.99	0.00	1.16	0.51	0.52
Avail Cap(c_a), veh/h	299	1867	581	580	1898	591	525	428	192	314	416	408
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.69	0.69	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.2	38.8	0.0	63.1	9.9	0.0	80.3	73.4	0.0	52.5	53.3	53.5
Incr Delay (d2), s/veh	21.1	1.3	0.0	8.2	1.6	0.0	7.1	81.4	0.0	329.0	1.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.4	19.3	0.0	11.7	12.6	0.0	4.2	21.2	0.0	78.2	13.4	13.5
LnGrp Delay(d),s/veh	95.2	40.1	0.0	71.3	11.6	0.0	87.4	154.8	0.0	381.5	54.3	54.7
LnGrp LOS	F	D		E	B		F	F		F	D	D
Approach Vol, veh/h	1242				1691				520			
Approach Delay, s/veh	47.3				23.3				142.6			
Approach LOS	D				C				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.6	77.4	36.0	30.0	27.8	76.2	14.3	51.7				
Change Period (Y+Rc), s	7.0	6.5	7.0	7.0	7.0	6.5	7.0	7.0				
Max Green Setting (Gmax), s	32.0	58.5	29.0	23.0	32.0	58.5	29.0	23.0				
Max Q Clear Time (g_c+l1), s	19.2	22.8	31.0	24.8	19.7	33.2	7.1	21.8				
Green Ext Time (p_c), s	0.4	34.6	0.0	0.0	1.0	24.8	0.3	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay	78.9											
HCM 2010 LOS	E											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
7: Townpark Dr & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	63	1521	60	15	1891	160	116	18	488	14
Future Volume (vph)	63	1521	60	15	1891	160	116	18	488	14
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	6		6	2		2	4			
Detector Phase	1	6	6	5	2	2	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	14.0	14.0	5.0	14.0	14.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	48.0	48.0	15.0	46.0	46.0	15.0	58.5	15.0	60.5
Total Split (s)	15.0	88.0	88.0	15.0	88.0	88.0	36.0	31.0	36.0	31.0
Total Split (%)	8.8%	51.8%	51.8%	8.8%	51.8%	51.8%	21.2%	18.2%	21.2%	18.2%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.5	2.5	3.0	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.0	7.0	7.5	7.0	7.0	8.5	8.5	8.5	8.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 153 (90%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Splits and Phases: 7: Townpark Dr & Chastain Rd

											
Ø1	Ø2 (R)		Ø3	Ø4		Ø5	Ø6 (R)	Ø7	Ø8		
15 s	88 s		36 s	31 s		15 s	88 s	36 s	31 s		

HCM 2010 Signalized Intersection Summary

7: Townpark Dr & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1521	60	15	1891	160	116	18	118	488	14	120
Future Volume (veh/h)	63	1521	60	15	1891	160	116	18	118	488	14	120
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	63	1521	0	15	1891	160	116	18	0	488	14	120
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	2742	854	267	2683	835	203	59	0	498	17	148
Arrive On Green	0.06	1.00	0.00	0.01	0.59	0.59	0.08	0.04	0.00	0.16	0.11	0.11
Sat Flow, veh/h	1587	4550	1417	1587	4550	1417	1587	1667	0	3079	150	1289
Grp Volume(v), veh/h	63	1521	0	15	1891	160	116	18	0	488	0	134
Grp Sat Flow(s),veh/h/ln	1587	1517	1417	1587	1517	1417	1587	1667	0	1540	0	1439
Q Serve(g_s), s	2.7	0.0	0.0	0.6	49.6	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.6	49.6	8.9	11.8	1.8	0.0	26.8	0.0	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.90
Lane Grp Cap(c), veh/h	147	2742	854	267	2683	835	203	59	0	498	0	165
V/C Ratio(X)	0.43	0.55	0.00	0.06	0.70	0.19	0.57	0.31	0.00	0.98	0.00	0.81
Avail Cap(c_a), veh/h	173	2742	854	314	2683	835	329	221	0	498	0	190
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.00	0.67	0.67	0.67	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	0.0	0.0	13.4	24.5	16.1	71.4	80.0	0.0	71.0	0.0	73.5
Incr Delay (d2), s/veh	1.3	0.5	0.0	0.1	1.1	0.3	2.6	2.9	0.0	62.3	0.0	23.8
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(95%),veh/ln	2.2	0.2	0.0	0.5	27.1	6.1	9.1	1.6	0.0	22.3	0.0	11.6
LnGrp Delay(d),s/veh	23.9	0.5	0.0	13.5	25.6	16.5	73.9	82.9	0.0	133.3	0.0	97.3
LnGrp LOS	C	A		B	C	B	E	F		F		F
Approach Vol, veh/h	1584			2066			134			622		
Approach Delay, s/veh	1.5			24.8			75.1			125.5		
Approach LOS	A			C			E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	107.3	36.0	14.5	10.0	109.5	22.5	28.0				
Change Period (Y+Rc), s	7.5	7.0	8.5	8.5	7.5	7.0	8.5	8.5				
Max Green Setting (Gmax), s	7.5	81.0	27.5	22.5	7.5	81.0	27.5	22.5				
Max Q Clear Time (g_c+I1), s	4.7	51.6	28.8	3.8	2.6	2.0	13.8	17.5				
Green Ext Time (p_c), s	0.0	29.3	0.0	0.5	0.0	78.6	0.3	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				32.1								
HCM 2010 LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
8: I-575 SB Ramps & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	1719	419	146	1187	115	942
Future Volume (vph)	1719	419	146	1187	115	942
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Detector Phase	6	6	5	2	8	8
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	14.0	6.0	6.0
Minimum Split (s)	23.5	23.5	15.0	25.5	15.0	15.0
Total Split (s)	110.0	110.0	15.0	125.0	45.0	45.0
Total Split (%)	64.7%	64.7%	8.8%	73.5%	26.5%	26.5%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.5	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 100 (59%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: I-575 SB Ramps & Chastain Rd



HCM Signalized Intersection Capacity Analysis

8: I-575 SB Ramps & Chastain Rd

2022 Future Build PM - Improved

02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑↑
Traffic Volume (vph)	0	1719	419	146	1187	0	0	0	0	115	0	942
Future Volume (vph)	0	1719	419	146	1187	0	0	0	0	115	0	942
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Lane Util. Factor		0.95	1.00	1.00	0.95					1.00		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1583	3167					1583		2493
Flt Permitted		1.00	1.00	0.08	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	128	3167					1583		2493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1719	419	146	1187	0	0	0	0	115	0	942
RTOR Reduction (vph)	0	0	88	0	0	0	0	0	0	0	0	641
Lane Group Flow (vph)	0	1719	331	146	1187	0	0	0	0	115	0	301
Turn Type		NA	Perm	pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					8		
Permitted Phases			6	2								8
Actuated Green, G (s)		116.1	116.1	131.1	131.1					25.4		25.4
Effective Green, g (s)		116.1	116.1	131.1	131.1					25.4		25.4
Actuated g/C Ratio		0.68	0.68	0.77	0.77					0.15		0.15
Clearance Time (s)		6.5	6.5	7.0	6.5					7.0		7.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2162	967	167	2442					236		372
v/s Ratio Prot		0.54		c0.04	0.37					0.07		
v/s Ratio Perm			0.23	c0.63								c0.12
v/c Ratio		0.80	0.34	0.87	0.49					0.49		0.81
Uniform Delay, d1		18.7	11.2	31.8	7.1					66.3		69.9
Progression Factor		0.89	0.38	3.23	0.01					1.00		1.00
Incremental Delay, d2		2.6	0.8	37.4	0.5					1.6		13.3
Delay (s)		19.3	5.1	140.0	0.6					67.9		83.3
Level of Service		B	A	F	A					E		F
Approach Delay (s)		16.5			15.8			0.0			81.6	
Approach LOS		B			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			31.5			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			20.5			
Intersection Capacity Utilization			86.4%			ICU Level of Service			E			
Analysis Period (min)			60									

c Critical Lane Group

Timings
9: I-575 NB Ramps & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

							
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	942	897	1125	173	225	0	185
Future Volume (vph)	942	897	1125	173	225	0	185
Turn Type	Prot	NA	NA	Perm	Split	NA	Perm
Protected Phases	1	6	2		4	4	
Permitted Phases				2			4
Detector Phase	1	6	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	5.0	14.0	14.0	14.0	6.0	6.0	6.0
Minimum Split (s)	15.0	22.5	25.5	25.5	15.0	15.0	15.0
Total Split (s)	72.0	141.0	69.0	69.0	29.0	29.0	29.0
Total Split (%)	42.4%	82.9%	40.6%	40.6%	17.1%	17.1%	17.1%
Yellow Time (s)	4.5	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	2.5	2.0	2.0	2.0	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?							
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None

Intersection Summary

Cycle Length: 170
 Actuated Cycle Length: 170
 Offset: 75 (44%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 9: I-575 NB Ramps & Chastain Rd

		
Ø1	Ø2 (R)	Ø4
72 s	69 s	29 s
		
Ø6 (R)		
141 s		

HCM 2010 Signalized Intersection Summary
9: I-575 NB Ramps & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	942	897	0	0	1125	173	225	0	185	0	0	0
Future Volume (veh/h)	942	897	0	0	1125	173	225	0	185	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1667	1667	0	0	1667	1667	1667	1667	1667			
Adj Flow Rate, veh/h	942	897	0	0	1125	0	225	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	988	2639	0	0	1493	668	267	0	119			
Arrive On Green	0.54	1.00	0.00	0.00	0.32	0.00	0.08	0.00	0.00			
Sat Flow, veh/h	3079	3250	0	0	3250	1417	3175	0	1417			
Grp Volume(v), veh/h	942	897	0	0	1125	0	225	0	0			
Grp Sat Flow(s),veh/h/ln	1540	1583	0	0	1583	1417	1587	0	1417			
Q Serve(g_s), s	49.4	0.0	0.0	0.0	54.2	0.0	11.9	0.0	0.0			
Cycle Q Clear(g_c), s	49.4	0.0	0.0	0.0	54.2	0.0	11.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	988	2639	0	0	1493	668	267	0	119			
V/C Ratio(X)	0.95	0.34	0.00	0.00	0.75	0.00	0.84	0.00	0.00			
Avail Cap(c_a), veh/h	1177	2639	0	0	1493	668	401	0	179			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	0.67	0.67	1.00	1.00	1.00			
Upstream Filter(I)	0.54	0.54	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	49.3	0.0	76.7	0.0	0.0			
Incr Delay (d2), s/veh	12.1	0.2	0.0	0.0	3.7	0.0	10.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	28.1	0.1	0.0	0.0	32.6	0.0	9.5	0.0	0.0			
LnGrp Delay(d),s/veh	50.3	0.2	0.0	0.0	52.9	0.0	87.5	0.0	0.0			
LnGrp LOS	D	A			D		F					
Approach Vol, veh/h	1839				1125			225				
Approach Delay, s/veh	25.9				52.9			87.5				
Approach LOS	C				D			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	61.5	86.6		21.8		148.2						
Change Period (Y+Rc), s	7.0	6.5		7.5		6.5						
Max Green Setting (Gmax), s	65.0	62.5		21.5		134.5						
Max Q Clear Time (g_c+I1), s	51.4	56.2		13.9		2.0						
Green Ext Time (p_c), s	3.2	6.2		0.4		106.8						
Intersection Summary												
HCM 2010 Ctrl Delay			39.8									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

Timings
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	26	923	171	228	725	28	251	0	12	0
Future Volume (vph)	26	923	171	228	725	28	251	0	12	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		6		5	2		7	4		8
Permitted Phases	6		6	2		2	4		8	
Detector Phase	6	6	6	5	2	2	7	4	8	8
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	15.0	21.5	21.5	21.5
Total Split (s)	77.0	77.0	77.0	33.0	110.0	110.0	37.0	60.0	23.0	23.0
Total Split (%)	45.3%	45.3%	45.3%	19.4%	64.7%	64.7%	21.8%	35.3%	13.5%	13.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lag	Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 170

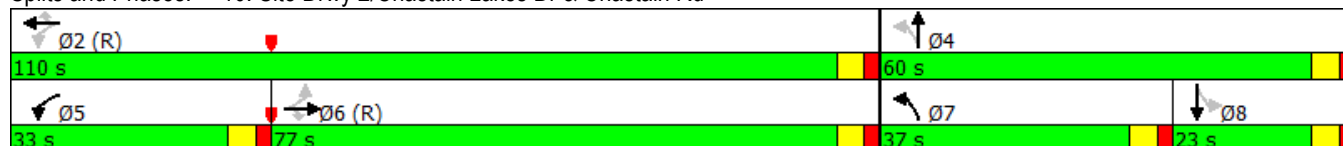
Actuated Cycle Length: 170

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd



HCM 2010 Signalized Intersection Summary
10: Site Drwy 2/Chastain Lakes Dr & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	923	171	228	725	28	251	0	91	12	0	23
Future Volume (veh/h)	26	923	171	228	725	28	251	0	91	12	0	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	26	923	0	228	725	28	251	0	91	12	0	23
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	444	1937	867	420	2249	1006	320	0	319	81	0	42
Arrive On Green	0.61	0.61	0.00	0.04	0.48	0.48	0.16	0.00	0.23	0.03	0.00	0.03
Sat Flow, veh/h	707	3167	1417	1587	3167	1417	1587	0	1417	1300	0	1417
Grp Volume(v), veh/h	26	923	0	228	725	28	251	0	91	12	0	23
Grp Sat Flow(s),veh/h/ln	707	1583	1417	1587	1583	1417	1587	0	1417	1300	0	1417
Q Serve(g_s), s	2.8	27.2	0.0	8.6	24.1	1.8	25.4	0.0	9.0	1.5	0.0	2.7
Cycle Q Clear(g_c), s	10.2	27.2	0.0	8.6	24.1	1.8	25.4	0.0	9.0	1.5	0.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	444	1937	867	420	2249	1006	320	0	319	81	0	42
V/C Ratio(X)	0.06	0.48	0.00	0.54	0.32	0.03	0.78	0.00	0.29	0.15	0.00	0.55
Avail Cap(c_a), veh/h	444	1937	867	572	2249	1006	355	0	454	176	0	146
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.4	18.1	0.0	13.9	19.2	13.4	64.0	0.0	54.5	80.8	0.0	81.4
Incr Delay (d2), s/veh	0.3	0.8	0.0	1.0	0.4	0.0	10.7	0.0	0.5	0.8	0.0	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	17.7	0.0	6.9	15.8	1.3	17.7	0.0	6.4	1.0	0.0	2.2
LnGrp Delay(d),s/veh	16.7	18.9	0.0	14.9	19.6	13.4	74.7	0.0	55.0	81.6	0.0	92.5
LnGrp LOS	B	B		B	B	B	E		E	F		F
Approach Vol, veh/h	949				981			342			35	
Approach Delay, s/veh	18.9				18.3			69.5			88.7	
Approach LOS	B				B			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4	5	6	7	8				
Phs Duration (G+Y+Rc), s	126.2			43.8	16.7	109.5	33.2	10.5				
Change Period (Y+Rc), s	5.5			5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	104.5			54.5	27.5	71.5	31.5	17.5				
Max Q Clear Time (g_c+l1), s	26.1			11.0	10.6	29.2	27.4	4.7				
Green Ext Time (p_c), s	58.8			0.5	0.6	35.8	0.3	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				27.2								
HCM 2010 LOS				C								

Timings

11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build PM - Improved

02/27/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations		 			 						
Traffic Volume (vph)	5	678	246	294	590	9	486	1	590	0	6
Future Volume (vph)	5	678	246	294	590	9	486	1	590	0	6
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Split	NA	pm+ov	NA	Perm
Protected Phases		6		5	2		4	4	5	8	
Permitted Phases	6		6	2		2			4		8
Detector Phase	6	6	6	5	2	2	4	4	5	8	8
Switch Phase											
Minimum Initial (s)	14.0	14.0	14.0	5.0	14.0	14.0	5.0	5.0	5.0	6.0	6.0
Minimum Split (s)	40.5	40.5	40.5	15.0	39.5	39.5	38.5	38.5	15.0	20.0	20.0
Total Split (s)	60.0	60.0	60.0	30.0	90.0	90.0	60.0	60.0	30.0	20.0	20.0
Total Split (%)	35.3%	35.3%	35.3%	17.6%	52.9%	52.9%	35.3%	35.3%	17.6%	11.8%	11.8%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead					Lead		
Lead-Lag Optimize?											
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 55 (32%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

 Ø2 (R)	 Ø4	 Ø8
90 s	60 s	20 s
 Ø5	 Ø6 (R)	
30 s	60 s	

HCM 2010 Signalized Intersection Summary
11: Chastain Meadows Pkwy/Private Drwy & Chastain Rd

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	678	246	294	590	9	486	1	590	3	0	6
Future Volume (veh/h)	5	678	246	294	590	9	486	1	590	3	0	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1700	1667	1667
Adj Flow Rate, veh/h	5	678	0	294	590	0	487	0	590	3	0	6
Adj No. of Lanes	1	2	1	1	2	1	2	0	1	0	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	369	1255	562	410	1759	787	999	0	617	19	0	17
Arrive On Green	0.40	0.40	0.00	0.12	0.56	0.00	0.31	0.00	0.31	0.01	0.00	0.01
Sat Flow, veh/h	823	3167	1417	1587	3167	1417	3175	0	1417	1587	0	1417
Grp Volume(v), veh/h	5	678	0	294	590	0	487	0	590	3	0	6
Grp Sat Flow(s),veh/h/ln	823	1583	1417	1587	1583	1417	1587	0	1417	1587	0	1417
Q Serve(g_s), s	0.6	28.0	0.0	18.2	17.3	0.0	21.1	0.0	53.5	0.3	0.0	0.7
Cycle Q Clear(g_c), s	0.6	28.0	0.0	18.2	17.3	0.0	21.1	0.0	53.5	0.3	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	1255	562	410	1759	787	999	0	617	19	0	17
V/C Ratio(X)	0.01	0.54	0.00	0.72	0.34	0.00	0.49	0.00	0.96	0.15	0.00	0.35
Avail Cap(c_a), veh/h	369	1255	562	438	1759	787	999	0	617	121	0	108
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.00	0.78	0.78	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.2	39.4	0.0	27.5	20.6	0.0	47.2	0.0	46.4	83.1	0.0	83.3
Incr Delay (d2), s/veh	0.1	1.5	0.0	4.2	0.4	0.0	0.4	0.0	39.6	3.7	0.0	11.8
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(95%),veh/ln	0.3	18.0	0.0	12.6	11.6	0.0	14.3	0.0	43.0	0.3	0.0	0.6
LnGrp Delay(d),s/veh	31.2	40.9	0.0	31.6	21.0	0.0	47.5	0.0	86.1	86.8	0.0	95.1
LnGrp LOS	C	D		C	C		D		F	F		F
Approach Vol, veh/h	683				884		1077				9	
Approach Delay, s/veh	40.9				24.6		68.6				92.3	
Approach LOS	D				C		E				F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5		6		8			
Phs Duration (G+Y+Rc), s	100.9		60.0		27.0		73.9		9.1			
Change Period (Y+Rc), s	6.5		6.5		6.5		6.5		7.0			
Max Green Setting (Gmax), s	83.5		53.5		23.5		53.5		13.0			
Max Q Clear Time (g_c+l1), s	19.3		55.5		20.2		30.0		2.7			
Green Ext Time (p_c), s	37.8		0.0		0.3		18.4		0.0			
Intersection Summary												
HCM 2010 Ctrl Delay			46.9									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

Timings
12: Chastain Meadows Pkwy & Site Drwy 4/Private Drwy

2022 Future Build PM - Improved
02/27/2019

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	267	0	49	0	208	775	2	385	118
Future Volume (vph)	267	0	49	0	208	775	2	385	118
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	14.0	14.0	14.0	14.0	14.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	59.0	59.0	59.0	59.0	71.0	71.0	71.0	71.0	71.0
Total Split (%)	45.4%	45.4%	45.4%	45.4%	54.6%	54.6%	54.6%	54.6%	54.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated

Splits and Phases: 12: Chastain Meadows Pkwy & Site Drwy 4/Private Drwy

 Ø2 (R)	 Ø4
71 s	59 s
 Ø6 (R)	 Ø8
71 s	59 s

HCM 2010 Signalized Intersection Summary
12: Chastain Meadows Pkwy & Site Drwy 4/Private Drwy

2022 Future Build PM - Improved
02/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	0	72	49	0	14	208	775	8	2	385	118
Future Volume (veh/h)	267	0	72	49	0	14	208	775	8	2	385	118
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	1667	1700	1667	1667	1667
Adj Flow Rate, veh/h	267	0	72	49	0	14	208	775	8	2	385	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	353	0	314	293	0	314	686	2179	22	452	2149	961
Arrive On Green	0.22	0.00	0.22	0.22	0.00	0.22	0.68	0.68	0.68	0.68	0.68	0.00
Sat Flow, veh/h	1394	0	1417	1323	0	1417	994	3211	33	688	3167	1417
Grp Volume(v), veh/h	267	0	72	49	0	14	208	382	401	2	385	0
Grp Sat Flow(s),veh/h/ln	1394	0	1417	1323	0	1417	994	1583	1661	688	1583	1417
Q Serve(g_s), s	24.2	0.0	5.4	4.1	0.0	1.0	12.6	13.3	13.3	0.2	5.8	0.0
Cycle Q Clear(g_c), s	25.2	0.0	5.4	9.5	0.0	1.0	18.4	13.3	13.3	13.5	5.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	353	0	314	293	0	314	686	1075	1127	452	2149	961
V/C Ratio(X)	0.76	0.00	0.23	0.17	0.00	0.04	0.30	0.36	0.36	0.00	0.18	0.00
Avail Cap(c_a), veh/h	608	0	572	534	0	572	686	1075	1127	452	2149	961
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.7	0.0	41.5	45.4	0.0	39.8	11.0	8.8	8.8	11.7	7.6	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.4	0.3	0.0	0.1	1.1	0.9	0.9	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.8	0.0	3.9	2.7	0.0	0.7	6.5	10.0	10.4	0.1	4.6	0.0
LnGrp Delay(d),s/veh	53.1	0.0	41.9	45.7	0.0	39.9	12.1	9.8	9.7	11.7	7.8	0.0
LnGrp LOS	D		D	D		D	B	A	A	B	A	
Approach Vol, veh/h	339				63		991				387	
Approach Delay, s/veh	50.7				44.4		10.3				7.8	
Approach LOS	D				D		B				A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	94.7		35.3		94.7		35.3					
Change Period (Y+Rc), s	6.5		6.5		6.5		6.5					
Max Green Setting (Gmax), s	64.5		52.5		64.5		52.5					
Max Q Clear Time (g_c+I1), s	15.5		11.5		20.4		27.2					
Green Ext Time (p_c), s	30.6		1.6		28.6		1.5					
Intersection Summary												
HCM 2010 Ctrl Delay			18.6									
HCM 2010 LOS			B									

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	↗
Traffic Vol, veh/h	0	60	0	1076	442	100
Future Vol, veh/h	0	60	0	1076	442	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	0	1076	442	100

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 230	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.94	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.32	- -	- -
Pot Cap-1 Maneuver	0 772	0 -	- 0
Stage 1	0 -	0 -	- 0
Stage 2	0 -	0 -	- 0
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 772	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 772	-
HCM Lane V/C Ratio	- 0.081	-
HCM Control Delay (s)	- 10.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection

Int Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Traffic Vol, veh/h	1020	138	0	1298	0	90
Future Vol, veh/h	1020	138	0	1298	0	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Yield
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1020	138	0	1298	0	90

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

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	496	-	-
HCM Lane V/C Ratio	0.187	-	-
HCM Control Delay (s)	13.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.7	-	-

Traffic Volume Worksheets

18-117 Chastain Mixed Use Development, Kennesaw Traffic Volumes

A&R Engineering
January 2019

1. Bells Ferry @ N. Booth Rd

A.M. Peak Hour

Condition	Bells Ferry Road Northbound				Bells Ferry Road Southbound				N. Booth Road Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	143	174	0	317	0	471	145	616	442	0	288	730	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	155	188	0	343	0	510	157	667	478	0	312	790	0	0	0	0
Total New Trips:	8	42	0	50	0	53	0	53	0	0	11	11	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	163	230	0	393	0	563	157	720	478	0	323	801	0	0	0	0

P.M. Peak Hour

Condition	Bells Ferry Road Northbound				Bells Ferry Road Southbound				N. Booth Road Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	322	784	0	1106	0	235	231	466	247	0	171	418	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	349	849	0	1198	0	254	250	504	267	0	185	452	0	0	0	0
Total New Trips:	12	60	0	72	0	66	0	66	0	0	13	13	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	361	909	0	1270	0	320	250	570	267	0	198	465	0	0	0	0

18-117 Chastain Mixed Use Development, Kennesaw Traffic Volumes

A&R Engineering
January 2019

2. Bells Ferry @ Chastain Rd

A.M. Peak Hour

Condition	Bells Ferry Road Northbound				Bells Ferry Road Southbound				Chastain Road Eastbound				New Chastain Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	67	158	53	278	218	382	140	740	44	358	39	441	123	800	197	1120
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	73	171	57	301	236	413	152	801	48	388	42	478	133	866	213	1212
Total New Trips:	27	0	0	27	0	0	64	64	51	34	21	106	0	43	0	43
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	100	171	57	328	236	413	216	865	99	422	63	584	133	909	213	1255

P.M. Peak Hour

Condition	Bells Ferry Road Northbound				Bells Ferry Road Southbound				Chastain Road Eastbound				New Chastain Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	33	636	64	733	119	186	59	364	410	957	87	1454	92	572	350	1014
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	36	688	69	793	129	201	64	394	444	1036	94	1574	100	619	379	1098
Total New Trips:	33	0	0	33	0	0	79	79	72	48	30	150	0	53	0	53
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	69	688	69	826	129	201	143	473	516	1084	124	1724	100	672	379	1151

18-117 Chastain Mixed Use Development, Kennesaw
Traffic Volumes

A&R Engineering
January 2019

3. Bells Ferry @ Big Shanty

A.M. Peak Hour

Condition	Bells Ferry Road Northbound				Bells Ferry Road Southbound				Big Shanty Road Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	147	182	0	329	0	420	161	581	13	0	66	79	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	159	197	0	356	0	455	174	629	14	0	71	85	0	0	0	0
Total New Trips:	16	27	0	43	0	21	0	21	0	0	13	13	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	175	224	0	399	0	476	174	650	14	0	84	98	0	0	0	0

P.M. Peak Hour

Condition	Bells Ferry Road Northbound				Bells Ferry Road Southbound				Big Shanty Road Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	132	530	0	662	0	236	93	329	56	0	169	225	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	143	574	0	717	0	255	101	356	61	0	183	244	0	0	0	0
Total New Trips:	20	33	0	53	0	30	0	30	0	0	18	18	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	163	607	0	770	0	285	101	386	61	0	201	262	0	0	0	0

18-117 Chastain Mixed Use Development, Kennesaw Traffic Volumes

A&R Engineering
January 2019

4. Big Shanty @ Chastain Meadow

A.M. Peak Hour

Condition	Chastain Meadows Parkway Northbound				Chastain Meadows Parkway Southbound				Big Shanty Road Eastbound				Big Shanty Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	103	142	74	319	5	183	157	345	139	158	208	505	62	226	10	298
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	111	154	80	345	5	198	170	373	150	171	225	546	67	245	11	323
Total New Trips:	0	37	0	37	13	30	64	107	80	0	0	80	0	0	16	16
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	111	191	80	382	18	228	234	480	230	171	225	626	67	245	27	339

P.M. Peak Hour

Condition	Chastain Meadows Parkway Northbound				Chastain Meadows Parkway Southbound				Big Shanty Road Eastbound				Big Shanty Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	364	455	46	865	11	277	185	473	292	193	296	781	93	270	25	388
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	394	493	50	937	12	300	200	512	316	209	320	845	101	292	27	420
Total New Trips:	0	46	0	46	18	42	90	150	99	0	0	99	0	0	20	20
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	394	539	50	983	30	342	290	662	415	209	320	944	101	292	47	440

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A.M. Peak Hour

P.M. Peak Hour

Condition	George Busbee Parkway Northbound				George Busbee Parkway Southbound				Big Shanty Road Eastbound				Big Shanty Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	207	474	145	826	243	401	171	815	285	560	211	1056	80	473	275	828
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	224	513	157	894	263	434	185	882	308	606	228	1142	87	512	298	897
Total New Trips:	0	0	33	33	0	0	0	0	0	66	0	66	30	60	0	90
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	224	513	190	927	263	434	185	882	308	672	228	1208	117	572	298	987

18-117 Chastain Mixed Use Development, Kennesaw
Traffic Volumes

A&R Engineering
January 2019

6. Chastain Rd @ Busbee Pkwy

A.M. Peak Hour

Condition	George Busbee Parkway Northbound			George Busbee Parkway Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	42	186	159	387	123	226	19	368	239	861	31	1131
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	45	201	172	418	133	245	21	399	259	932	34	1225
Total New Trips:	0	0	27	27	53	0	0	53	0	53	0	53
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	45	201	199	445	186	245	21	452	259	985	34	1278

P.M. Peak Hour

Condition	George Busbee Parkway Northbound			George Busbee Parkway Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	87	394	294	775	276	308	83	667	151	936	70	1157
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	94	426	318	838	299	333	90	722	163	1013	76	1252
Total New Trips:	0	0	33	33	66	0	0	66	0	66	0	66
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	94	426	351	871	365	333	90	788	163	1079	76	1318

18-117 Chastain Mixed Use Development, Kennesaw
Traffic Volumes

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7. Chastain Rd @ Townpark Dr

A.M. Peak Hour

Condition	Townpark Drive Northbound			Townpark Drive Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	17	7	14	38	30	5	15	50	106	988	87	1181
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	18	8	15	41	32	5	16	53	115	1069	94	1278
Total New Trips:	0	0	0	0	0	0	0	0	0	134	0	134
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	18	8	15	41	32	5	16	53	115	1203	94	1412

P.M. Peak Hour

Condition	Townpark Drive Northbound			Townpark Drive Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	107	17	109	233	451	13	111	575	58	1253	55	1366
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	116	18	118	252	488	14	120	622	63	1356	60	1479
Total New Trips:	0	0	0	0	0	0	0	0	0	165	0	165
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	116	18	118	252	488	14	120	622	63	1521	60	1644

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A.M. Peak Hour

P.M. Peak Hour

Condition	I-575 SB On-Ramp Northbound				I-575 SB Off-Ramp Southbound				Chastain Road Eastbound				Chastain Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	0	0	0	45	0	870	915	0	1436	387	1823	52	958	0	1010
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	0	0	0	49	0	942	991	0	1554	419	1973	56	1037	0	1093
Total New Trips:	0	0	0	0	66	0	0	66	0	165	0	165	90	150	0	240
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	0	0	0	0	115	0	942	1057	0	1719	419	2138	146	1187	0	1333

18-117 Chastain Mixed Use Development, Kennesaw Traffic Volumes

A&R Engineering
January 2019

9. Chastain Rd @ I-575 NB Ramps

A.M. Peak Hour

Condition	I-285 NB Off-Ramp Northbound				I-285 NB On-Ramp Southbound				Chastain Road Eastbound				Chastain Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	389	1	145	535	0	0	0	0	499	585	0	1084	0	758	61	819
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	421	1	157	579	0	0	0	0	540	633	0	1173	0	820	66	886
Total New Trips:	0	0	80	80	0	0	0	0	0	187	0	187	0	170	42	212
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	421	1	237	659	0	0	0	0	540	820	0	1360	0	990	108	1098

P.M. Peak Hour

Condition	I-285 NB Off-Ramp Northbound				I-285 NB On-Ramp Southbound				Chastain Road Eastbound				Chastain Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	208	0	79	287	0	0	0	0	870	615	0	1485	0	818	104	922
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	225	0	86	311	0	0	0	0	942	666	0	1608	0	885	113	998
Total New Trips:	0	0	99	99	0	0	0	0	0	231	0	231	0	240	60	300
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	225	0	185	410	0	0	0	0	942	897	0	1839	0	1125	173	1298

18-117 Chastain Mixed Use Development, Kennesaw
Traffic Volumes

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10. Chastain @ Chastain Lakes

A.M. Peak Hour

Condition	Site Driveway 2 Northbound			Chastain Lakes Drive Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	0	0	0	8	0	37	45	10	720	0	730
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	0	0	0	9	0	40	49	11	779	0	790
Total New Trips:	127	0	43	170	0	0	0	0	0	123	107	230
Pass-by Trips:	17	0	15	32	0	0	0	0	0	-15	15	0
Future 2022 Traffic Volumes:	144	0	58	202	9	0	40	49	11	887	122	1020

P.M. Peak Hour

Condition	Site Driveway 2 Northbound			Chastain Lakes Drive Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	0	0	0	11	0	21	32	24	741	0	765
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	0	0	0	12	0	23	35	26	802	0	828
Total New Trips:	180	0	61	241	0	0	0	0	0	160	132	292
Pass-by Trips:	71	0	30	101	0	0	0	0	0	-39	39	0
Future 2022 Traffic Volumes:	251	0	91	342	12	0	23	35	26	923	171	1120

18-117 Chastain Mixed Use Development, Kennesaw Traffic Volumes

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11. Chastain @ Chastain Meadows

A.M. Peak Hour

Condition	Chastain Meadows Parkway Northbound			Private Driveway Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	74	0	89	163	6	2	6	14	6	424	312	742
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	80	0	96	176	6	2	6	14	6	459	338	803
Total New Trips:	126	0	53	179	0	0	0	0	0	53	113	166
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	206	0	149	355	6	2	6	14	6	512	451	969

P.M. Peak Hour

Condition	Chastain Meadows Parkway Northbound			Private Driveway Southbound			Chastain Road Eastbound			Chastain Road Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	290	1	475	766	3	0	6	9	5	558	92	655
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	314	1	514	829	3	0	6	9	5	604	100	709
Total New Trips:	172	0	76	248	0	0	0	0	0	74	146	220
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0
Future 2022 Traffic Volumes:	486	1	590	1077	3	0	6	9	5	678	246	929

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Traffic Volumes

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12. Chastain Meadows @ Drwy 4

A.M. Peak Hour

Condition	Chastain Meadows Parkway Northbound			Chastain Meadows Parkway Southbound			Site Driveway 4 Eastbound			Private Driveway Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	145	34	179	44	559	0	603	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	157	37	194	48	605	0	653	0	0	0	0
Total New Trips:	92	42	0	134	0	65	81	146	138	0	41	179
Pass-by Trips:	3	-3	0	0	0	0	0	0	3	0	0	3
Future 2022 Traffic Volumes:	95	196	37	328	48	670	81	799	141	0	41	182

P.M. Peak Hour

Condition	Chastain Meadows Parkway Northbound			Chastain Meadows Parkway Southbound			Site Driveway 4 Eastbound			Private Driveway Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	755	7	762	2	287	0	289	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	817	8	825	2	311	0	313	0	0	0	0
Total New Trips:	114	52	0	166	0	92	100	192	196	0	58	254
Pass-by Trips:	94	-94	0	0	0	-18	18	0	71	0	14	85
Future 2022 Traffic Volumes:	208	775	8	991	2	385	118	505	267	0	72	339

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Traffic Volumes

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13. Chastain Meadows @ Drwy 3

A.M. Peak Hour

Condition	Chastain Meadows Parkway				Chastain Meadows Parkway				Site Driveway 3				-			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	163	0	163	0	603	0	603	0	0	0	0	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	176	0	176	0	653	0	653	0	0	0	0	0	0	0	0
Total New Trips:	0	180	0	180	0	114	66	180	0	0	32	32	0	0	0	0
Pass-by Trips:	0	0	0	0	0	-12	12	0	0	0	12	12	0	0	0	0
Future 2022 Traffic Volumes:	0	356	0	356	0	755	78	833	0	0	44	44	0	0	0	0

P.M. Peak Hour

Condition	Chastain Meadows Parkway				Chastain Meadows Parkway				Site Driveway 3				-			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	766	0	766	0	289	0	289	0	0	0	0	0	0	0	0
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	829	0	829	0	313	0	313	0	0	0	0	0	0	0	0
Total New Trips:	0	247	0	247	0	147	82	229	0	0	46	46	0	0	0	0
Pass-by Trips:	0	0	0	0	0	-18	18	0	0	0	14	14	0	0	0	0
Future 2022 Traffic Volumes:	0	1076	0	1076	0	442	100	542	0	0	60	60	0	0	0	0

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A.M. Peak Hour

P.M. Peak Hour

Condition	Site Driveway 1 Northbound				-Southbound				Chastain Road Eastbound				Chastain Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2018 Volumes:	0	0	0	0	0	0	0	0	0	765	0	765	0	922	0	922
Growth Factor (%):	2	2	2		2	2	2		2	2	2		2	2	2	
No-Build 2022 Volumes:	0	0	0	0	0	0	0	0	0	828	0	828	0	998	0	998
Total New Trips:	0	0	60	60	0	0	0	0	0	231	99	330	0	300	0	300
Pass-by Trips:	0	0	30	30	0	0	0	0	0	-39	39	0	0	0	0	0
Future 2022 Traffic Volumes:	0	0	90	90	0	0	0	0	0	1020	138	1158	0	1298	0	1298