

**DEVELOPMENT OF REGIONAL IMPACT
(DRI #4004)**

**TRAFFIC STUDY
FOR
MERRILL PARK CHATTAHOOCHEE HILLS DRI # 4004
CITY OF CHATTAHOOCHEE HILLS, GEORGIA**



Prepared for:

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EXECUTIVE SUMMARY

Traffic impacts were evaluated for the proposed Merrill Park Chattahoochee Hills DRI # 4004, located at the four corners of the intersection of Cochran Mill Road and SR 70 (South Fulton Parkway) in the City of Chattahoochee Hills, Georgia. The development will be built in two phases. Phase 1 of the development will be located in the northeast quadrant and will be built by 2028. Phase 2 of the development will be located in the remaining three quadrants and will be completed by 2038. The development will consist of the following:

Phase 1

- Single-Family Detached Housing: 21 units
- Townhomes: 65 units
- Multifamily Housing: 250 units
- Retail: 19,720 sf

Phase 1 of the development will be served by three full access driveways on Cochran Mill Road.

Phase 2 (Full Build-Out, includes Phase 1)

- Single-Family Detached Housing: 400 units
- Townhomes: 400 units
- Multifamily Housing: 1,200 units
- Retail: 475,000 sf
- Office: 1,600,000 sf
- Healthcare: 225,000 sf
- Educational Campus: 200,000 sf / 445 students

Phase 2 of the development proposes one right-in/right-out and eleven full access driveways (one for northwest quadrant, five for southeast quadrant and six for southwest quadrant) on Cochran Mill Road and one full access driveway (for southeast quadrant) on Wilkerson Mill Road. Ten of the site driveways on Cochran Mill Road will align across each other.

Existing and future operations during the AM peak hour (7:00 AM – 9:00 AM) and PM peak hour (4:00 PM – 6:00 PM) before and after completion of the project were analyzed at the following intersections:

1. Collinsworth Road @ I-85 Northbound Ramps
2. Collinsworth Road @ I-85 Southbound Ramps
3. Collinsworth Road @ Weldon Road
4. SR 14/US 29 (Main Street) @ Toombs Street
5. Water Works Road / Toombs Street @ Hutchesons Ferry Road
6. Hutchesons Ferry Road @ Cochran Mill Road
7. Cochran Mill Road @ Wilkerson Mill Road
8. SR 70 (South Fulton Parkway) @ Cochran Mill Road
9. SR 70 (South Fulton Parkway) @ Rivertown Road

10. SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)
11. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
12. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
13. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
14. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
15. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road
16. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alt./US 29 Alt. (S. Fulton Parkway) Eastbound Ramps
17. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alt./US 29 Alt. (S. Fulton Parkway) Westbound Ramps

Traffic Operations Summary

Table E1 below provides a summary of traffic operations for the “Build” conditions for the year 2038 with and without system/site improvements at intersections where LOS standards are not met. As per GRTA requirements, all approaches that do not meet the level-of-service (LOS) standard (considered failing) are highlighted in Table E1.

Intersection		<i>Build Condition: LOS (Delay)</i>							
		NO IMPROVEMENTS		SYSTEM / SITE IMPROVEMENTS		SITE VOLUMES AT FAILING APPROACH BUILD WITH IMPROVEMENTS		PRECENT SITE TRIPS OF TOTAL APPROACH TRIPS AT FAILING APPROACHES	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
4	<u>SR 14/US 29 (Main Street) @ Toombs Street</u>	<u>F (232.6)</u>	<u>F (*)</u>	<u>F (232.6)</u>	<u>F (*)</u>				
	-Eastbound Approach	F (250.8)	F (*)	F (250.8)	F (*)	92	207	14	29
	-Westbound Approach	C (30.6)	F (82.2)	C (30.6)	F (82.2)	152	113	29	16
	-Northbound Approach	E (61.1)	F (72.1)	E (61.1)	F (72.1)	24	17	4	3
	-Southbound Approach	F (*)	F (*)	F (*)	F (*)	0	0	0	0
5	<u>Water Works Road / Toombs Street @ Hutchesons Ferry Road</u>								
	-Eastbound Approach	B (14.7)	C (15.7)	D (28.8)	E (42.1)	175	130	25	15
	-Westbound Approach/ (Northbound Left)	F (92.6)	F (211.8)	A (9.8)	B (10.1)	0	0	0	0
	-Southbound Approach	F (276.9)	F (*)	F (*)	F (*)	92	207	11	23
8	<u>SR 70 (South Fulton Parkway) @ Cochran Mill Road</u>			<u>D (43.8)</u>	<u>D (39.0)</u>				
	-Eastbound Left/Approach	A (7.6)	B (10.2)	D (41.7)	C (33.9)	48	35	6	9
	-Westbound Left/Approach	F (166.9)	B (14.7)	D (41.8)	D (35.7)	888	600	67	34
	-Northbound Approach	F (*)	F (*)	E (59.8)	E (59.5)	423	1000	44	63
	-Southbound Approach	F (*)	F (*)	D (43.4)	D (38.8)	160	221	81	79
9	<u>SR 70 (South Fulton Parkway) @ Rivertown Road</u>			<u>A (4.8)</u>	<u>B (10.9)</u>				
	-Eastbound Left/(Approach)	A (0.0)	A (0.0)	A (3.9)	A (7.7)	467	1048	33	67
	-Westbound Left/(Approach)	B (12.9)	B (14.2)	A (0.8)	A (8.7)	875	652	69	37
	-Northbound Approach	F (*)	F (*)	E (56.3)	D (51.8)	11	9	14	4
	-Southbound Approach	F (*)	F (*)	D (51.5)	D (43.6)	0	0	0	0

10	<u>SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)</u>	<u>E (59.7)</u>	<u>F (101.0)</u>	<u>C (33.8)</u>	<u>D (48.6)</u>				
	-Eastbound Approach	E (62.3)	F (88.4)	C (29.3)	D (39.0)	461	1033	34	68
	-Westbound Approach	D (45.0)	F (95.1)	C (29.9)	D (49.3)	782	582	59	31
	-Northbound Approach	F (96.8)	F (159.0)	D (42.6)	D (52.2)	35	26	5	3
	-Southbound Approach	D (40.3)	E (76.1)	D (43.6)	E (64.4)	58	43	12	7
11	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road</u>	<u>F (131.0)</u>	<u>F (159.5)</u>	<u>E (68.2)</u>	<u>E (74.6)</u>	398			
	-Eastbound Approach	F (150.7)	F (172.6)	E (76.1)	E (74.3)	736	896	20	51
	-Westbound Approach	F (93.7)	F (166.1)	E (59.5)	E (75.6)	11	547	39	22
	-Northbound Approach	F (175.0)	F (162.3)	D (52.3)	E (67.8)	11	9	2	1
	-Southbound Approach	F (133.3)	E (64.3)	E (75.6)	E (76.1)		9	2	2
14	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road</u>	<u>F (186.9)</u>	<u>F (200.6)</u>	<u>D (45.3)</u>	<u>D (44.4)</u>				
	-Eastbound Approach	F (219.5)	F (199.0)	D (38.8)	D (37.9)	332	745	13	38
	-Westbound Approach	E (59.7)	F (206.7)	C (34.1)	D (36.3)	595	443	43	18
	-Northbound Approach	F (*)	F (*)	E (70.9)	E (79.8)	11	9	1	1
	-Southbound Approach	C (26.8)	C (33.8)	E (64.9)	E (68.7)	24	17	4	3
15	<u>SR 14 Alternate/US29 Alternate (S. Fulton Parkway) @ Hunter Road / Mason Rd</u>	<u>E (61.7)</u>	<u>E (77.0)</u>	<u>D (50.7)</u>	<u>E (60.6)</u>				
	-Eastbound Approach	E (79.1)	C (24.0)	E (61.5)	C (22.8)	313	703	14	52
	-Westbound Approach	D (37.4)	F (112.6)	C (33.1)	E (79.8)	572	426	40	17
	-Northbound Approach	D (48.9)	D (54.4)	D (47.0)	D (51.7)	11	9	6	3
	-Southbound Approach	D (54.2)	D (53.0)	E (58.6)	E (57.4)	11	9	3	2
23	<u>Cochran Mill Road @ Site Driveway 6a / Site Driveway 6b</u>								
	-Eastbound Approach	F (244.9)	F (*)	F (244.9)	<u>F (*)</u>	28	73	100	100
	-Westbound Approach	E (36.7)	F (*)	E (36.7)	F (172.9)	28	79	100	100
	-Northbound Left	B (12.3)	B (11.5)	B (12.3)	B (11.5)	398	904	42	61
	-Southbound Left	B (10.7)	B (14.9)	B (10.7)	B (14.9)	823	586	63	50
25	<u>Cochran Mill Road @ Site Driveway 8a / Site Driveway 8b</u>								
	-Eastbound Approach	F (69.8)	F (*)	F (69.8)	F (*)	28	67	100	100
	-Westbound Approach	C (21.8)	E (36.0)	C (21.8)	E (36.0)	28	75	100	100
	-Northbound Left	B (10.2)	B (10.4)	B (10.2)	B (10.4)	261	462	33	44
	-Southbound Left	A (10.0)	B (11.2)	A (10.0)	B (11.2)	474	394	50	41

27	Cochran Mill Road @ Site Driveway 10a / Site Driveway 10b								
	-Eastbound Approach	E (37.5)	F (74.0)	E (37.5)	F (74.0)	15	35	100	100
	-Westbound Approach	D (26.0)	E (37.5)	D (26.0)	E (37.5)	15	35	100	100
	-Northbound Left	A (8.9)	A (9.6)	A (8.9)	A (9.6)	188	147	26	20
	-Southbound Left	A (9.4)	A (9.4)	A (9.4)	A (9.4)	136	228	22	28

* Delay exceeds 300 seconds

The results of future traffic operations show that some of the intersections will have LOS “E” or “F” for one or more approaches for the following reasons.

- Cannot widen roadways in historic areas.
- Cannot improve level-of-service at stop-controlled side streets if traffic signals are not warranted. It is not uncommon for stop sign controlled approaches on major roads to experience LOS that does not meet standards.
- On high volume corridors, longer cycle lengths are required at signalized intersections and amount of green time given to side street as a matter of policy is limited and this results in LOS that does not meet LOS standards

Recommended 2028 System Improvements

The following are system improvements that were identified from the 2028 “No-Build” condition analysis.

Intersection 3: Collinsworth Road @ Weldon Road

- Addition of a westbound right turn lane on Collinsworth Road
- Addition of a southbound left turn lane on Collinsworth Road

Intersection 12: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92

- Addition of a channelized northbound right turn lane on SR 92

Intersection 16: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps

- Installation of a traffic signal
- Addition of a northbound left turn lane on Roosevelt Highway creating dual left turn lanes
- “Protected-permissive” phasing for northbound left turn movements

Intersection 17: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

- Installation of a traffic signal
- Addition of a short eastbound right turn lane on the ramp approach

Recommended 2028 Site Improvements

The following are site improvements that were identified from the 2028 “No-Build” condition analysis.

Intersection 8: Cochran Mill Road @ S. Fulton Parkway (SR 14)

- Addition of northbound right turn lane

Recommended 2038 System Improvements

The following are system improvements that were identified from the 2028 “No-Build” condition analysis.

Intersection 1: Collinsworth Road @ I-85 Northbound Ramps

- Addition of an eastbound left turn lane creating dual left turn lanes
- Providing of “protected only” phasing for eastbound left turns
- Addition of a westbound through lane
- Addition of a westbound right turn lane
- Addition of a northbound left turn lane creating dual left turn lanes
- Creation of receiving lanes on the on-ramp

Intersection 2: Collinsworth Road @ I-85 Southbound Ramps

- Addition of an eastbound through lane
- Addition of a westbound through lane
- Addition of a westbound left turn lane creating dual left turn lanes
- Providing of “protected only” phasing for westbound left turns
- Addition of a southbound right turn lane creating dual right turn lanes

Intersection 3: Collinsworth Road @ Weldon Road

- Realign the SBS warehouse driveway to tie into Weldon Road to the west of the study Intersection
- Realign Collinsworth Road legs to become the through movement and Weldon Road to be the side Street
- Installation of a traffic signal
- Addition of a second southbound through lane on Collinsworth Road
- Collinsworth Road northbound approach to have dual left turn lanes and a through lane
- Weldon Road to have a separate left turn lane and a channelized right turn lane
- Provide “protected only” phasing for northbound left turns
- Create a receiving lane on Weldon Road for the additional northbound left turn lane

Intersection 5: Water Works Road / Toombs Street @ Hutchesons Ferry Road

- Convert the 3-way stop-controlled intersection to a minor stop control intersection with free-flow movements on Hutchesons Ferry Road and Toombs Street with Water Works Road having stop control
- Provide right turn channelized islands on eastbound and southbound approaches

Intersection 6: Hutchesons Ferry Road @ Cochran Mill Road

- Installation of a traffic signal
- Addition of an eastbound left turn lane on Hutchesons Ferry Road
- Addition of a westbound right turn lane on Hutchesons Ferry Road
- Addition of a southbound right turn lane on Cochran Mill Road

Intersection 7: Cochran Mill Road @ Wilkerson Mill Road

- Installation of a traffic signal
- Addition of a northbound right and southbound left turn lanes on Cochran Mill Road
- Addition of a westbound left turn lane on Wilkerson Mill Road

Intersection 8: SR 70 (South Fulton Parkway) @ Cochran Mill Road

- Installation of a traffic signal
- Installation of second through lane in eastbound and westbound directions
- Addition of a second westbound left turn lane

Intersection 9: SR 70 (South Fulton Parkway) @ Rivertown Road

- Installation of a traffic signal when warranted
- Addition of a northbound left turn lane
- Convert the westbound right turn lane to a shared through/right turn lane

Intersection 11: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road

- Addition of a channelized northbound right turn lane

Intersection 12: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92

- Create a diamond interchange with signalized ramp intersections on SR 92
- Eastbound ramp intersection to have:
 - Dual left and dual channelized right turn lanes on the eastbound ramp approach
 - Two through and one channelized right turn lanes on northbound approach
 - Two through and dual left turn lanes on the southbound approach
 - Provide “protected only” phasing for southbound dual left turns
- Westbound ramp intersection to have:
 - One left and one channelized right turn lane on the westbound ramp approach
 - Two through and dual left turn lanes on the northbound approach
 - Provide “protected only” phasing for northbound dual left turns
 - Two through and one channelized right turn lanes on southbound approach

Intersection 13: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road

- Widen South Fulton Parkway between Derrick Road and Stonewall Tell Road from 4 lanes to 6 lanes
- Change westbound left turn phasing to “protected-permissive”

Intersection 14: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road

- Addition of an eastbound through lane
- Addition of a westbound through lane
- Addition of a northbound left turn lane to create dual left turns with “protected only” phasing
- Addition of a channelized southbound right turn lane
- Provide “protected-permissive” phasing for eastbound and westbound left turn movements

Intersection 16: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps

- Installation of a traffic signal
- Addition of a northbound left turn lane on Roosevelt Highway creating dual left turn lanes
- “Protected” phasing for the dual northbound left turn lanes

Intersection 17: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

- Installation of a traffic signal
- Addition of a short eastbound right turn lane on the ramp approach

Recommended 2038 Site Improvements (Full Build-out)

The following are site improvements that were identified from the 2038 “Build” (Full Build-out) condition analysis in addition to the recommended 2038 system improvements:

Intersection 8: SR 70 (South Fulton Parkway) @ Cochran Mill Road

- Addition of a northbound left turn lane
- Addition of a southbound left turn lane
- Addition of northbound dual right turn lanes
- Addition of a westbound left turn lane creating dual left turn lanes with “protected only” phasing
- Addition of an eastbound left turn lane

Intersection 10: SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)

- WBL to make dual lefts; NBR; SBR.
- Addition of a westbound left turn lane creating dual left turn lanes with “protected only” phasing
- Addition of a northbound right turn lane
- Addition of a southbound right turn lane

Intersection 15: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road

- Provide channelized islands for eastbound and southbound right turn lanes

Recommendation for Site Access Configuration

The following access configuration is recommended for the proposed site driveway intersections. Adequate sight distance is to be provided for each driveway per AASHTO standards.

- Site Driveway 1: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Addition of a northbound right turn lane on Cochran Mill Road
 - Driveway approach to be stop-sign controlled
- Site Driveway 2: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Driveway approach to be stop-sign controlled
- Site Driveway 3: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Addition of a northbound right turn lane on Cochran Mill Road
 - Driveway approach to be stop-sign controlled
- Site Driveway 4: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Addition of a northbound right turn lane on Cochran Mill Road

- Driveway approach to be stop-sign controlled
- Site Driveway 5: Right-in/right-out driveway on Cochran Mill Road, south of South Fulton Parkway
 - One entering and one right turn exiting lanes.
 - Driveway approach to be stop-sign controlled
- Site Driveways 6a & 6b: Full access driveways on Cochran Mill Road, south of Site Driveway 5, aligned across each other
 - One entering and two (shared through/left turn and separate right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Driveway approaches to be stop-sign controlled
- Site Driveways 7a & 7b: Full access driveways on Cochran Mill Road, south of Site Driveways 6a and 6b, aligned across each other
 - One entering and two (separate left turn and shared through/right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Addition of a southbound right turn lane on Cochran Mill Road
 - Installation of a traffic signal with “protected-permissive” phasing for southbound left turns
- Site Driveways 8a & 8b: Full access driveways on Cochran Mill Road, south of Site Driveways 7a and 7b, aligned across each other
 - One entering and two (shared through/left turn and separate right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Driveway approaches to be stop-sign controlled
- Site Driveways 9a & 9b: Full access driveways on Cochran Mill Road, south of Site Driveways 8a and 8b, aligned across each other
 - One entering and two (separate left turn and shared through/right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Addition of a southbound right turn lane on Cochran Mill Road
 - Installation of a traffic signal
- Site Driveways 10a & 10b: Full access driveways on Cochran Mill Road, south of Site Driveways 9a and 9b, aligned across each other
 - One entering and one exiting lanes.
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Driveway approaches to be stop-sign controlled
- Site Driveway 11: Full access driveway on Wilkerson Mill Road
 - One entering and one exiting lanes.
 - Driveway approach to be stop-sign controlled

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INTRODUCTION

The purpose of this study is to determine the traffic impact that will result from the proposed Merrill Park mixed-use development located at the four corners of the intersection of Cochran Mill Road and SR 70 (South Fulton Parkway) in the City of Chattahoochee Hills, Georgia. The development will be built in two phases. Phase 1 of the development will be located in the northeast quadrant and will be built by 2028. Phase 2 of the development will be located in the remaining three quadrants and will be completed by 2038. The traffic analysis evaluates the current operations and future “No-Build” and “Build” conditions for Phase 1 (Year 2028) and Phase 2 (Full build-out year 2038) with the traffic generated by the proposed development. The development will consist of the following:

Phase 1

- Single-Family Detached Housing: 21 units
- Townhomes: 65 units
- Multifamily Housing: 250 units
- Retail: 19,720 sf

Phase 1 of the development will be served by three full access driveways on Cochran Mill Road.

Phase 2 (Full Build-Out, includes Phase 1)

- Single-Family Detached Housing: 400 units
- Townhomes: 400 units
- Multifamily Housing: 1,200 units
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- Office: 1,600,000 sf
- Healthcare: 225,000 sf
- Educational Campus: 200,000 sf / 445 students

Phase 2 of the development proposes one right-in/right-out and eleven full access driveways (one for northwest quadrant, five for southeast quadrant and six for southwest quadrant) on Cochran Mill Road and one full access driveway (for southeast quadrant) on Wilkerson Mill Road. Ten of the site driveways on Cochran Mill Road will align across each other.



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. Collinsworth Road @ I-85 Northbound Ramps
2. Collinsworth Road @ I-85 Southbound Ramps
3. Collinsworth Road @ Weldon Road
4. SR 14/US 29 (Main Street) @ Toombs Street
5. Water Works Road / Toombs Street @ Hutchesons Ferry Road
6. Hutchesons Ferry Road @ Cochran Mill Road
7. Cochran Mill Road @ Wilkerson Mill Road
8. SR 70 (South Fulton Parkway) @ Cochran Mill Road
9. SR 70 (South Fulton Parkway) @ Rivertown Road
10. SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)
11. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
12. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
13. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
14. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
15. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road
16. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps

17. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway)
Westbound Ramps

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

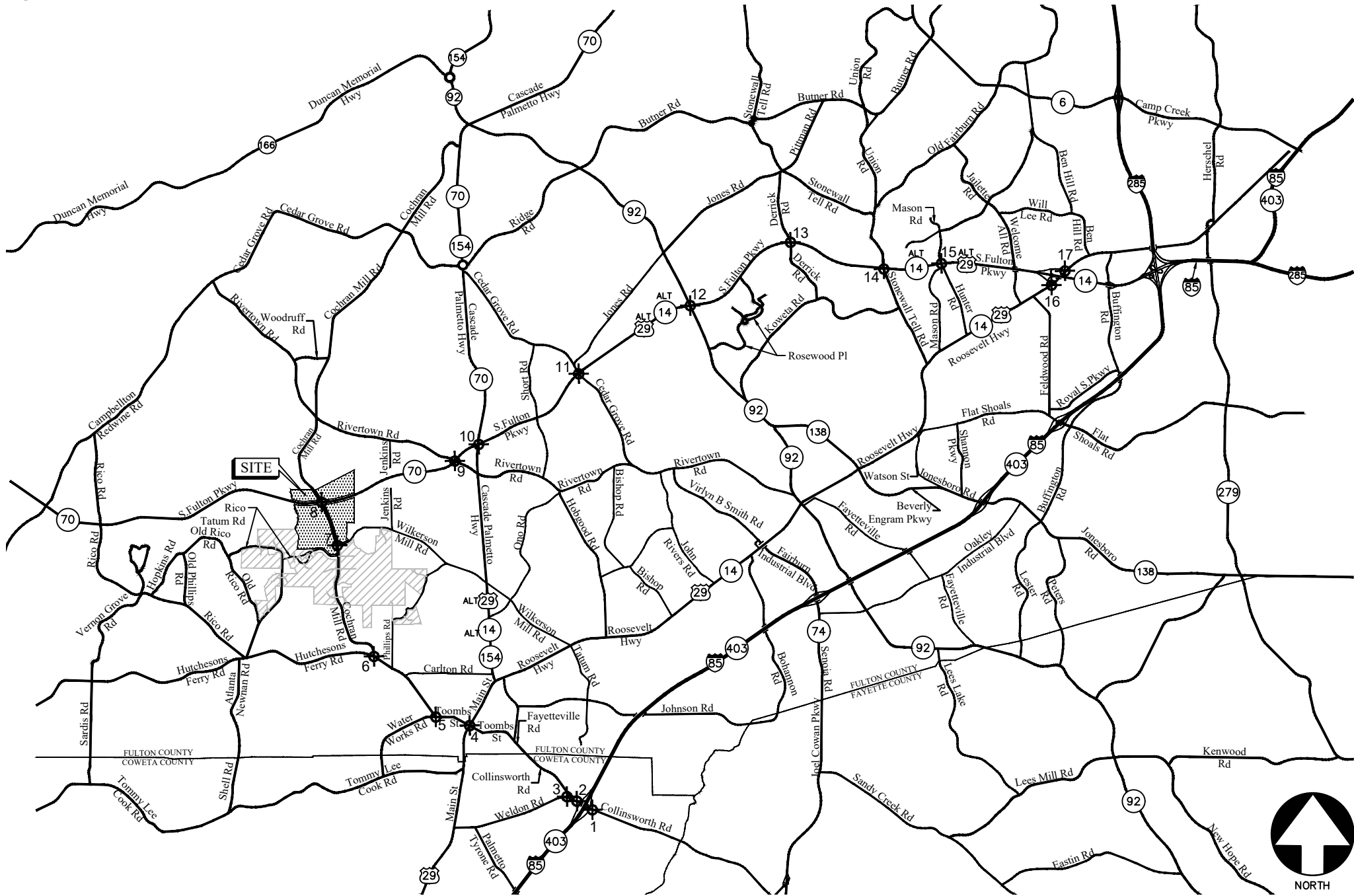
STUDY NETWORK DETERMINATION

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, City of Chattahoochee Hills, City of South Fulton, City of Palmetto and Fulton County:

1. Collinworth Road @ I-85 Northbound Ramps
2. Collinworth Road @ I-85 Southbound Ramps
3. Collinworth Road @ Weldon Road
4. SR 14/US 29 (Main Street) @ Toombs Street
5. Water Works Road / Toombs Street @ Hutchesons Ferry Road
6. Hutchesons Ferry Road @ Cochran Mill Road
7. Cochran Mill Road @ Wilkerson Mill Road
8. SR 70 (South Fulton Parkway) @ Cochran Mill Road
9. SR 70 (South Fulton Parkway) @ Rivertown Road
10. SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)
11. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
12. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
13. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
14. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
15. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road
16. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps
17. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

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.



LOCATION MAP AND STUDY INTERSECTIONS

FIGURE 1

EXISTING ROADWAY FACILITIES

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

Cochran Mill Road

Cochran Mill Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph. GDOT traffic counts (Station ID 121-6048) indicate that the daily traffic volume on Cochran Mill Road in 2022 was 400 vehicles per day between South Fulton Parkway and Rivertown Road. GDOT classifies Cochran Mill Road as a Rural Major Collector roadway.

South Fulton Parkway (SR 70/ SR 14 Alternate/US 29 Alternate)

South Fulton Parkway is an east-west, two-lane, undivided roadway with a posted speed limit of 55 mph in the vicinity of the site. To the east of Rivertown Road, South Fulton Parkway is a four-lane, median-divided roadway. GDOT traffic counts (Station ID's 121-0249 & 121-6056) indicate that the daily traffic volume on South Fulton Parkway in 2022 was 5,640 vehicles per day west of Cochran Mill Road and 5,630 vehicles per day east of SR 154 (Cascade Palmetto Highway). GDOT classifies South Fulton Parkway as an Urban Principal Arterial roadway.

Wilkerson Mill Road

Wilkerson Mill Road is a two-lane, undivided roadway with a posted speed limit of 45 mph. GDOT traffic counts (Station ID 121-7231) indicate that the daily traffic volume on Wilkerson Mill Road in 2022 was 1,210 vehicles per day east of Phillips Road. GDOT classifies Wilkerson Mill Road as an Urban Minor Collector roadway.

Hutchesons Ferry Road

Hutchesons Ferry Road is an east-west, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID's 121-0760 & 121-0761) indicate that the daily traffic volume on Hutchesons Ferry Road in 2022 was 3,230 vehicles per day west of Cochran Mill Road and 3,570 vehicles per day south of Carlton Road. GDOT classifies Hutchesons Ferry Road as an Urban Major Collector roadway.

Water Works Road

Water Works Road is an east-west, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site.

SR 14/US 29 (Main Street)

SR 14/US 29 (Main Street) is a north-south, two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site. GDOT traffic counts (Station ID 121-0172) indicate that the daily traffic volume on SR 14/US 29 (Main Street) in 2022 was 11,000 vehicles per day south of Church Street. GDOT classifies SR 14/US 29 (Main Street) as an Urban Minor Arterial roadway.

Toombs Street

Toombs Street is an east-west, two-lane, undivided roadway with a posted speed limit of 30 mph.

Collinsworth Road

Collinsworth Road is a two-lane, undivided roadway with a posted speed limit of 55 mph to the east of Weldon Road and 45 mph to the north of Weldon Road. GDOT traffic counts (Station ID's 077-0292, 077-0295 & 077-0297) indicate that the daily traffic volume on Collinsworth Road in 2022 was 7,830 vehicles per day north of Weldon Road, 14,500 vehicles per day west of I-85 and 9,680 vehicles per day east of I-85. GDOT classifies Collinsworth Road as an Urban Minor Arterial roadway.

Weldon Road

Weldon Road is a two-lane, undivided roadway with a posted speed limit of 55 mph. GDOT traffic counts (Station ID's 077-0448 & 077-0310) indicate that the daily traffic volume on Weldon Road in 2022 was 4,670 vehicles per day east of Palmetto Tyrone Road and 9,020 vehicles per day west of Palmetto Tyrone Road. GDOT classifies Weldon Road as an Urban Minor Arterial roadway.

Interstate 85 (I-85)

Interstate 85 (I-85) is a north-south, eight-lane, median-divided freeway in the vicinity of the site. GDOT traffic counts (Station ID's 077-0165 & 077-0163) indicate that the daily traffic volume on I-85 in 2022 was 88,000 vehicles per day north of Collinsworth Road and 87,000 vehicles per day south of Collinsworth Road.

Rivertown Road

Rivertown Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID's 121-0765 & 121-0766) indicate that the daily traffic volume on Rivertown Road in 2022 was 1,280 vehicles per day northwest of South Fulton Parkway and 2,040 vehicles per day southeast of SR 154 (Cascade Palmetto Highway). GDOT classifies Rivertown Road as an Urban Major Collector roadway northwest of South Fulton Parkway and as an Urban Minor Arterial roadway southeast of SR 154 (Cascade Palmetto Highway).

SR 154 (Cascade Palmetto Highway)

SR 154 (Cascade Palmetto Highway) is a north-south, two-lane, undivided roadway with a posted speed limit of 55 mph in the vicinity of the site. GDOT traffic counts (Station ID 121-0366) indicate that the daily traffic volume on SR 154 (Cascade Palmetto Highway) in 2022 was 7,770 vehicles per day south of Rivertown Road. GDOT classifies SR 154 (Cascade Palmetto Highway) as an Urban Minor Arterial roadway.

Cedar Grove Road

Cedar Grove Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph. GDOT traffic counts (Station ID's 121-0773 & 121-0772) indicate that the daily traffic volume on Cedar Grove Road in 2022 was 2,890 vehicles per day north of South Fulton Parkway and 5,770 vehicles per

day south of South Fulton Parkway. GDOT classifies Cedar Grove Road as an Urban Major Collector roadway.

SR 92

SR 92 is a north-south, four-lane, undivided roadway with a posted speed limit of 55 mph in the vicinity of the site. GDOT traffic counts (Station IDs 121-0292) indicate that the daily traffic volume on SR 92 in 2022 was 20,000 vehicles south of South Fulton Parkway. GDOT classifies SR 92 as an Urban Principal Arterial roadway.

Derrick Road

Derrick Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site.

Stonewall Tell Road

Stonewall Tell Road is a north-south, two-lane, undivided roadway with a posted speed limit of 40 mph in the vicinity of the site. GDOT traffic counts (Station ID's 121-0977 & 121-0776) indicate that the daily traffic volume on Stonewall Tell Road in 2022 was 12100 vehicles north of South Fulton Parkway and 7190 vehicles south of Koweta Road. GDOT classifies Stonewall Tell Road as an Urban Minor Arterial roadway.

Hunter Road

Hunter Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site.

Mason Road

Mason Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site.

SR 14/US 29 (Roosevelt Highway)

SR 14/US 29 (Roosevelt Highway) is a north-south, four-lane, undivided roadway with a posted speed limit of 45 mph near South Fulton Parkway. GDOT traffic counts (Station ID's 121-5194 & 121-5192) indicate that the daily traffic volume on SR 14/US 29 (Roosevelt Highway) in 2022 was 15,100 vehicles per day north of South Fulton Parkway and 30,400 vehicles per day south of South Fulton Parkway. GDOT classifies SR 14/US 29 (Roosevelt Highway) as an Urban Minor Arterial roadway north of South Fulton Parkway and as an Urban Principal Arterial roadway south of South Fulton Parkway.

Existing Bicycle and Pedestrian Facilities

- No sidewalks, bike lanes/paths, or bus stops were identified in the vicinity of the proposed development.
- Crosswalks are not available at nearby intersections.
- Existing pedestrian tunnel under South Fulton Parkway to the east of its intersection with Cochran Mill Road.

Alternative Modes of Access

- Existing transit routes were not identified in the study network.
- No high-capacity transit stations were identified in the vicinity of the proposed development.

Existing Alternative Transportation Map



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, 6th edition (HCM 6). 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.

Unsignalized Intersections

For unsignalized intersections controlled by a stop sign on minor streets, the level-of-service (LOS) for motor vehicles with controlled movements is determined by the computed control delay according to the thresholds stated in Table 1 below. LOS is determined for each minor street movement (or shared movement), as well as major street left turns. LOS is not defined for the intersection as a whole or for major street approaches. The LOS of any controlled movement which experiences a volume to capacity ratio greater than 1 is designed as "F" regardless of the control delay.

Control delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. Several factors affect the control 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 the main road without experiencing long delays.

TABLE 1 — LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle)	LOS by Volume-to-Capacity Ratio*	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 and ≤ 15	B	F
> 15 and ≤ 25	C	F
> 25 and ≤ 35	D	F
> 35 and ≤ 50	E	F
> 50	F	F

*The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection.

Source: Highway Capacity Manual, 6th edition, Exhibit 20-2 *LOS Criteria: Motorized Vehicle Mode*

Signalized Intersections

According to HCM procedures, LOS can be calculated for the entire intersection, each intersection approach, and each lane group. HCM uses control delay alone to characterize LOS for the entire intersection or an approach. Control delay per vehicle is composed of initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. Both control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. A volume-to-capacity ratio greater than 1.0 for a lane group indicates failure from capacity perspective. Therefore, such a lane group is assigned LOS F regardless of the amount of control delay.

Table 2 below summarizes the LOS criteria from HCM for motorized vehicles at signalized intersections.

TABLE 2 — LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle)*	LOS for Lane Group by Volume-to-Capacity Ratio*	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 and ≤ 20	B	F
> 20 and ≤ 35	C	F
> 35 and ≤ 55	D	F
> 55 and ≤ 80	E	F
> 80	F	F

*For approach-based and intersection wide assessments, LOS is defined solely by control delay

Source: Highway Capacity Manual, 6th edition, Exhibit 19-8 *LOS Criteria: Motorized Vehicle Mode*

LOS A is typically assigned when the volume-to-capacity (v/c) ratio is low and either progression is exceptionally favorable, or the cycle length is very short. LOS B is typically assigned when the v/c ratio is low and either progression is highly favorable, or the cycle length is short. However, more vehicles are stopped than with LOS A. LOS C is typically assigned when progression is favorable, or the cycle length is moderate. Individual cycle failures (one or more queued vehicles are not able to depart because of insufficient capacity during the cycle) may begin to appear at this level. Many vehicles still pass through the intersection without stopping, but the number of vehicles stopping is significant. LOS D is typically assigned when the v/c ratio is high and either progression is ineffective, or the cycle length is long. There are many vehicle-stops and individual cycle failures are noticeable. LOS E is typically assigned when the v/c ratio is high, progression is very poor, the cycle length is long, and individual cycle failures are frequent. LOS F is typically assigned when the v/c ratio is very high, progression is very poor, the cycle length is long, and most cycles fail to clear the queue.

EXISTING 2023 TRAFFIC ANALYSIS

Existing Traffic Volumes

Existing traffic counts were obtained at the following study intersections:

1. Collinsworth Road @ I-85 Northbound Ramps
2. Collinsworth Road @ I-85 Southbound Ramps
3. Collinsworth Road @ Weldon Road
4. SR 14/US 29 (Main Street) @ Toombs Street
5. Water Works Road / Toombs Street @ Hutchesons Ferry Road
6. Hutchesons Ferry Road @ Cochran Mill Road
7. Cochran Mill Road @ Wilkerson Mill Road
8. SR 70 (South Fulton Parkway) @ Cochran Mill Road
9. SR 70 (South Fulton Parkway) @ Rivertown Road
10. SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)
11. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
12. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
13. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
14. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
15. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road
16. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alt./US 29 Alt. (S. Fulton Parkway) Eastbound Ramps
17. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alt./US 29 Alt. (S. Fulton Parkway) Westbound Ramps

Turning movement counts were collected on Tuesday, May 23, 2023, at the intersections of:

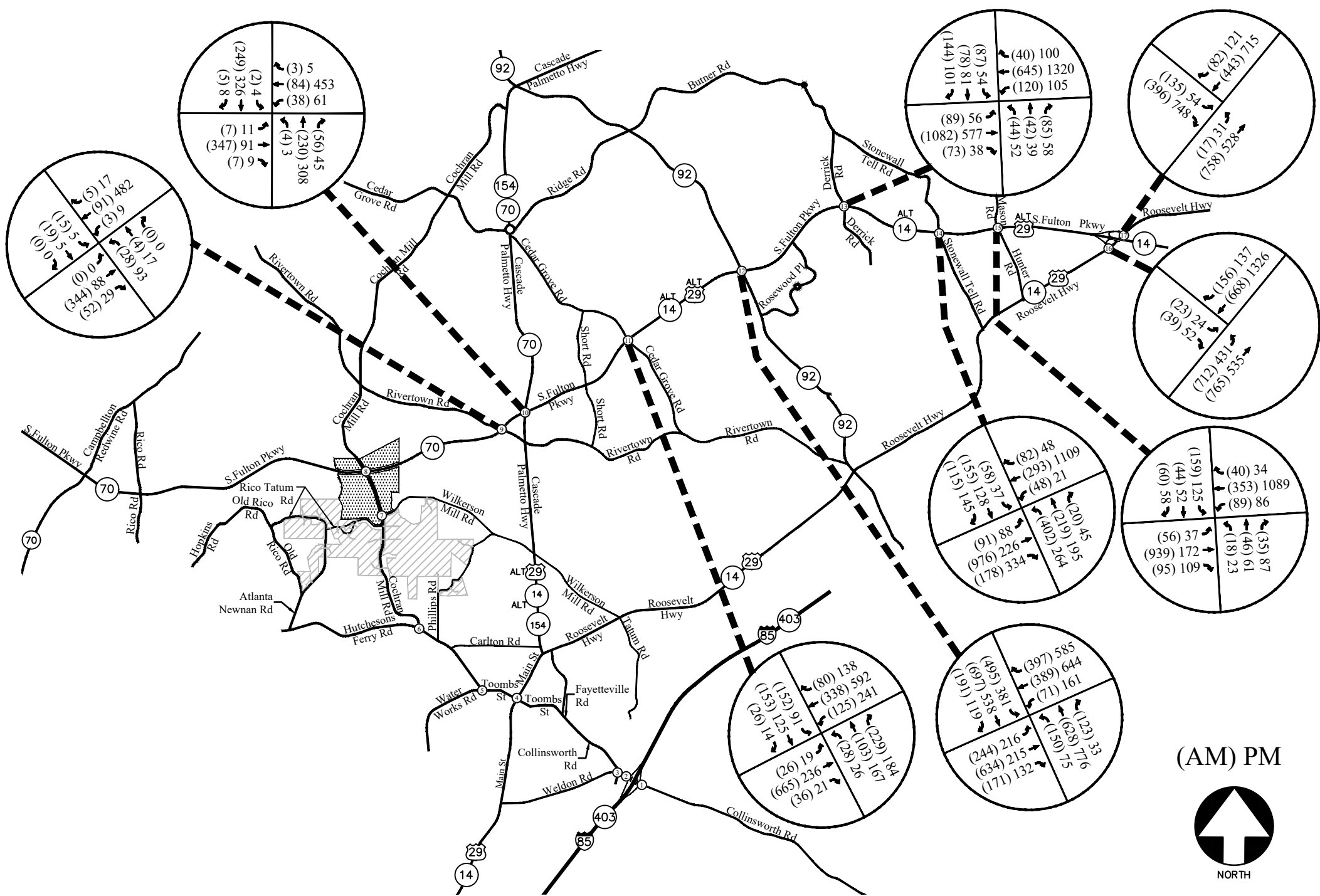
6. Hutchesons Ferry Road @ Cochran Mill Road
7. Cochran Mill Road @ Wilkerson Mill Road
8. SR 70 (South Fulton Parkway) @ Cochran Mill Road
9. SR 70 (South Fulton Parkway) @ Rivertown Road
10. SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)

Turning movement counts were collected on Wednesday, August 15, 2023, at the intersections of:

1. Collinsworth Road @ I-85 Northbound Ramps
2. Collinsworth Road @ I-85 Southbound Ramps
3. Collinsworth Road @ Weldon Road
4. SR 14/US 29 (Main Street) @ Toombs Street
5. Water Works Road / Toombs Street @ Hutchesons Ferry Road
11. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
12. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
13. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
14. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
15. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road
16. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alt./US 29 Alt. (S. Fulton Parkway) Eastbound Ramps
17. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alt./US 29 Alt. (S. Fulton Parkway) Westbound Ramps

All turning movement counts were recorded during the AM and PM peak hours between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively. The four consecutive 15-minute interval volumes that produced 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 Figures 2A and 2B. The existing traffic control and lane geometry for the intersections are shown in Figures 3A and 3B.

FIGURE 2A



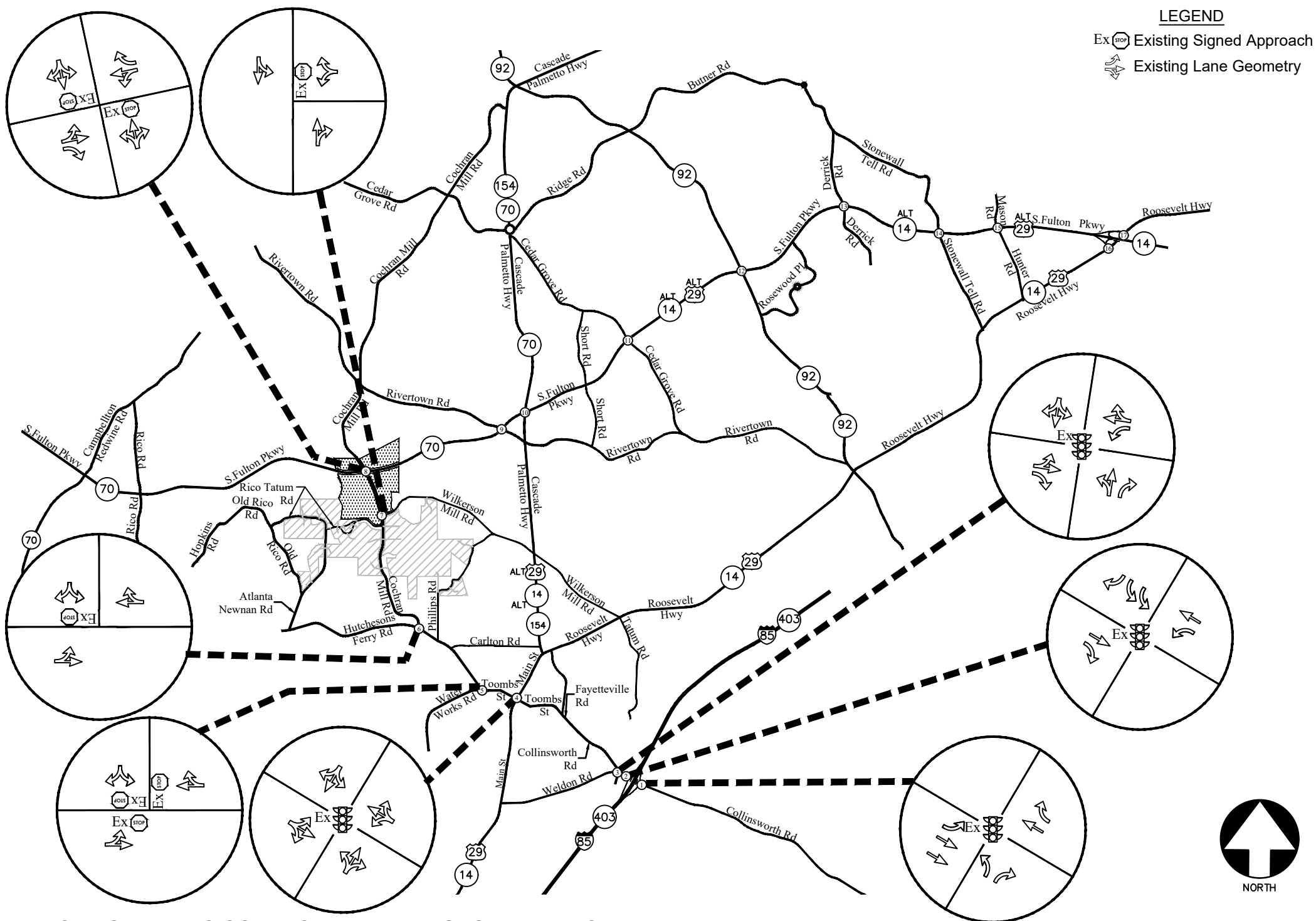
EXISTING WEEKDAY PEAK-HOUR VOLUMES 2 OF 2

FIGURE 2B
A&R Engineering Inc.

LEGEND

Ex  Existing Signed Approach

 Existing Lane Geometry



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY 1 OF 2

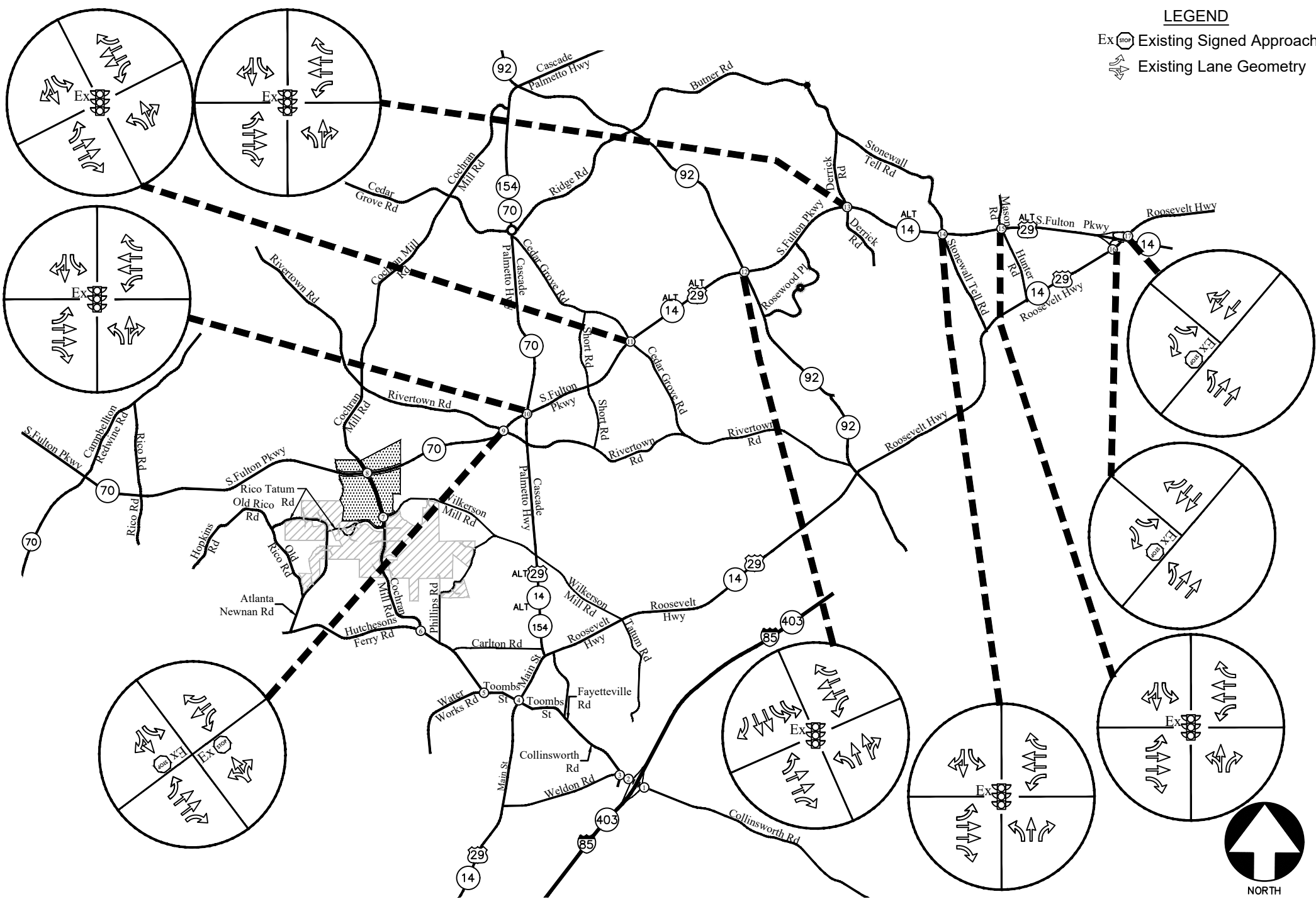
FIGURE 3A

A&R Engineering Inc.

LEGEND

Ex  Existing Signed Approach

 Existing Lane Geometry



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY 2 OF 2

FIGURE 3B

A&R Engineering Inc.

Existing Traffic Operations

Existing 2023 traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analyses are shown in Table 3.

TABLE 3 — EXISTING INTERSECTION OPERATIONS					
Intersection		Traffic Control	AM Peak	PM Peak	LOS Standard
1	<u>Collinsworth Road @ I-85 Northbound Ramps</u>	Signalized	<u>C (25.2)</u>	<u>C (22.6)</u>	<u>D/D</u>
	-Eastbound Approach		B (15.4)	B (18.3)	D/D
	-Westbound Approach		B (16.7)	B (12.6)	D/D
	-Northbound Approach		E (65.1)	E (64.3)	D/D
2	<u>Collinsworth Road @ I-85 Southbound Ramps</u>	Signalized	<u>A (6.4)</u>	<u>C (25.1)</u>	<u>D/D</u>
	-Eastbound Approach		A (1.2)	B (18.3)	D/D
	-Westbound Approach		A (1.0)	A (6.5)	D/D
	-Southbound Approach		E (59.7)	D (49.0)	D/D
3	<u>Collinsworth Road @ Weldon Road</u>	Signalized	<u>C (21.1)</u>	<u>C (27.7)</u>	<u>D/D</u>
	-Eastbound Approach		B (18.3)	C (23.6)	D/D
	-Westbound Approach		A (2.4)	B (15.5)	D/D
	-Northbound Approach		C (28.0)	C (21.2)	D/D
	-Southbound Approach		D (45.1)	D (46.6)	D/D
4	<u>SR 14/US 29 (Main Street) @ Toombs Street</u>	Signalized	<u>B (13.4)</u>	<u>B (14.6)</u>	<u>D/D</u>
	-Eastbound Approach		E (57.3)	D (50.9)	D/D
	-Westbound Approach		D (54.5)	E (55.9)	D/D
	-Northbound Approach		A (2.7)	A (3.6)	D/D
	-Southbound Approach		A (2.7)	A (4.6)	D/D
5	<u>Water Works Road / Toombs Street @ Hutchesons Ferry Road</u>	All-Way Stop Controlled	A (8.4)	A (8.4)	D/D
	-Eastbound Approach		A (8.1)	A (8.7)	D/D
	-Westbound Approach		A (9.6)	A (9.6)	D/D
	-Southbound Approach				
6	<u>Hutchesons Ferry Road @ Cochran Mill Road</u>	Stop Controlled on SB Approach	A (7.5)	A (7.7)	D/D
	-Eastbound Left -Southbound Approach		B (10.4)	B (10.7)	D/D
7	<u>Cochran Mill Road @ Wilkerson Mill Road</u>	Stop Controlled on WB Approach	A (8.9)	A (8.9)	D/D
	-Westbound Approach -Southbound Left		A (7.4)	A (7.4)	D/D
8	<u>SR 70 (South Fulton Parkway) @ Cochran Mill Road</u>	Stop Controlled on NB and SB Approaches	A (0.0)	A (8.8)	D/D
	-Eastbound Left		A (8.3)	A (7.5)	D/D
	-Westbound Left		B (12.4)	C (21.1)	D/D
	-Northbound Approach		B (13.5)	C (16.2)	D/D
	-Southbound Approach				
9	<u>SR 70 (South Fulton Parkway) @ Rivertown Road</u>	Stop Controlled on NB and SB Approaches	A (0.0)	A (0.0)	D/D
	-Eastbound Left		A (8.1)	A (7.4)	D/D
	-Westbound Left		B (12.4)	C (16.2)	D/D
	-Northbound Approach		F (*)	F (*)	D/D
	-Southbound Approach				E/E

10	<u>SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>C (34.4)</u> B (10.2) C (28.1) D (53.7) D (48.8)	<u>C (34.2)</u> B (17.1) B (17.4) D (50.6) D (47.7)	<u>D/D</u> D/D D/D D/D D/D
11	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>C (31.6)</u> C (24.3) B (18.8) E (56.4) D (37.6)	<u>C (29.3)</u> C (20.6) B (18.4) E (55.8) D (35.1)	<u>D/D</u> D/D D/D D/D D/D
12	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>D (49.7)</u> C (31.1) D (42.1) E (65.6) E (59.6)	<u>D (50.1)</u> C (34.0) D (45.0) E (62.7) E (55.5)	<u>D/D</u> D/D D/D D/D D/D
13	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>B (16.5)</u> A (7.4) B (11.3) D (46.9) D (49.3)	<u>B (15.6)</u> A (5.3) B (11.6) D (49.2) D (49.5)	<u>D/D</u> D/D D/D D/D D/D
14	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>C (32.4)</u> C (23.6) C (20.5) E (63.0) C (23.3)	<u>C (25.8)</u> C (21.4) C (21.4) D (42.8) C (26.8)	<u>D/D</u> D/D D/D D/D D/D
15	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	<u>B (16.5)</u> B (10.3) A (8.2) D (43.3) D (49.2)	<u>B (16.0)</u> A (7.0) A (9.4) D (46.7) D (50.3)	<u>D/D</u> D/D D/D D/D D/D
16	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps</u> -Eastbound Approach -Northbound Left	Stop Controlled on EB Approach	F (*) E (41.7)	F (*) F (59.9)	E/E D/D
17	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps</u> -Eastbound Approach -Northbound Left	Stop Controlled on EB Approach	B (14.8) A (8.8)	F (*) A (9.9)	D/E D/D

* Delay exceeds 300 seconds

The results of existing traffic operations analysis indicate that all the intersections are operating at level-of-service “E” or better except the intersections of SR 14/US 29 (Roosevelt Highway) at South Fulton Parkway eastbound and westbound Ramps. These areas are addressed in the Future Traffic Operations section.

PROJECT DESCRIPTION

The proposed Merrill Park mixed-use development will be located at the four corners of the intersection of Cochran Mill Road and SR 70 (South Fulton Parkway) in the City of Chattahoochee Hills, Georgia. The development will be built in two phases. Phase 1 of the development will be located in the northeast quadrant and will be built by 2028. Phase 2 of the development will be located in the remaining three quadrants and will be completed by 2038. The development will consist of the following:

Phase 1

- Single-Family Detached Housing: 21 units
- Townhomes: 65 units
- Multifamily Housing: 250 units
- Retail: 19,720 sf

Phase 1 of the development proposes access at the following locations:

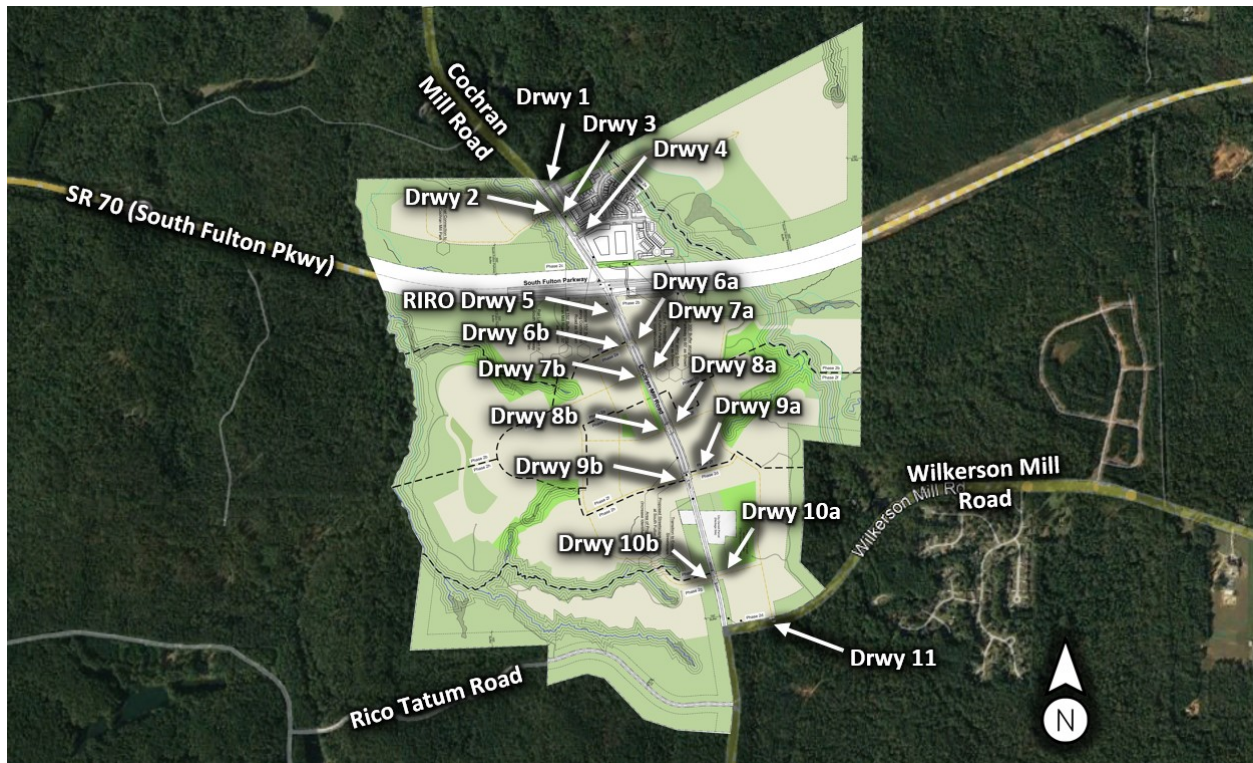
- Site Driveway 1: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
- Site Driveway 3: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
- Site Driveway 4: Full access driveway on Cochran Mill Road, north of South Fulton Parkway

Phase 2 (Full Build-Out, includes Phase 1)

- Single-Family Detached Housing: 400 units
- Townhomes: 400 units
- Multifamily Housing: 1,200 units
- Retail: 475,000 sf
- Office: 1,600,000 sf
- Healthcare: 225,000 sf
- Educational Campus: 200,000 sf / 445 students

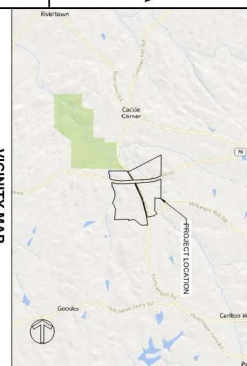
Phase 2 of the development proposes access at the following locations:

- Site Driveway 2: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
- Site Driveway 5: Right-in/right-out driveway on Cochran Mill Road, south of South Fulton Parkway
- Site Driveways 6a & 6b: Full access driveways on Cochran Mill Road, south of Site Driveway 5, aligned across each other
- Site Driveways 7a & 7b: Full access driveways on Cochran Mill Road, south of Site Driveways 6a and 6b, aligned across each other
- Site Driveways 8a & 8b: Full access driveways on Cochran Mill Road, south of Site Driveways 7a and 7b, aligned across each other
- Site Driveways 9a & 9b: Full access driveways on Cochran Mill Road, south of Site Driveways 8a and 8b, aligned across each other
- Site Driveways 10a & 10b: Full access driveways on Cochran Mill Road, south of Site Driveways 9a and 9b, aligned across each other
- Site Driveway 11: Full access driveway on Wilkerson Mill Road



Site Plan

A site plan is shown in Figure 4. A digital copy of the site plan is also provided with this report.

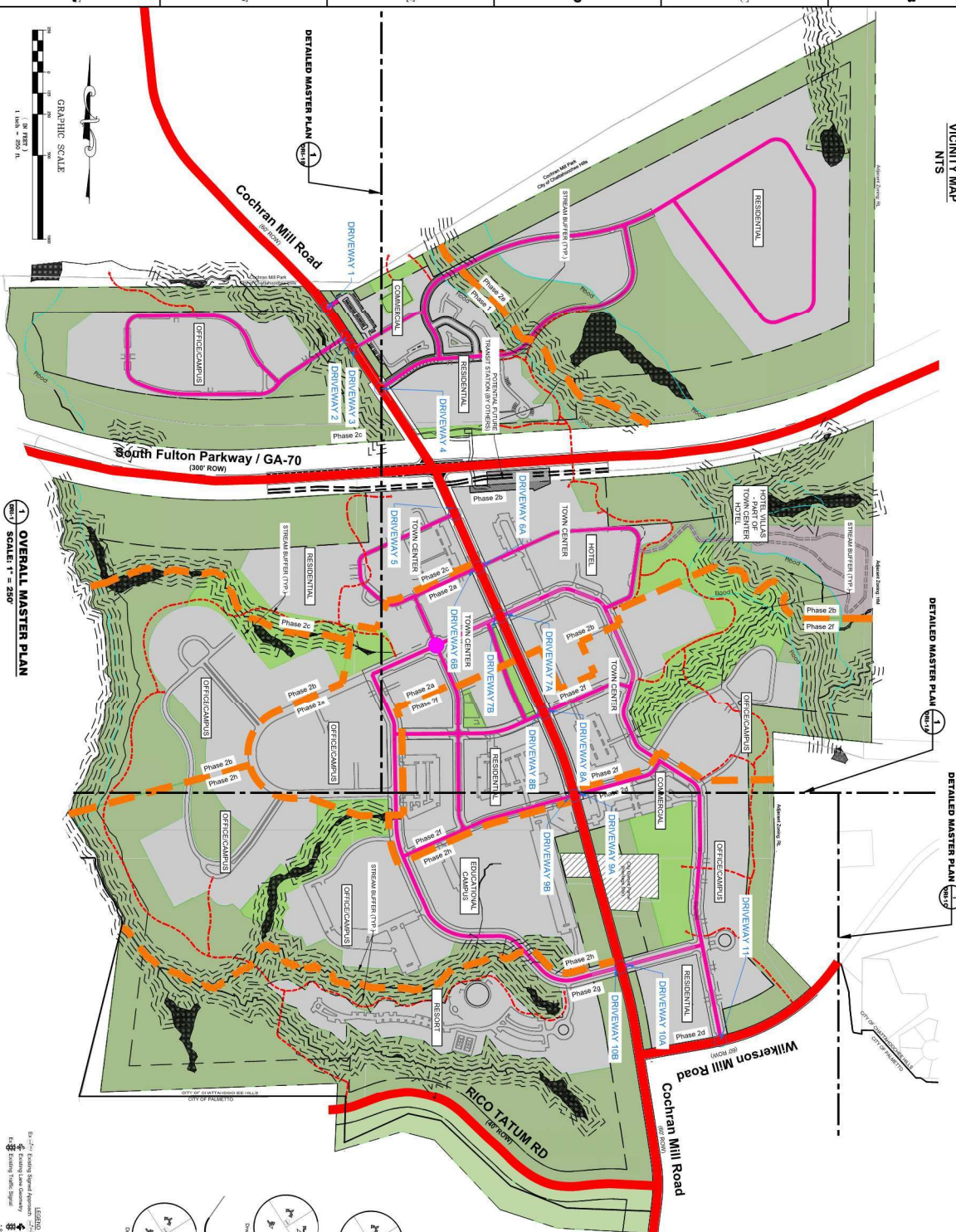


DRI # 4004 - PROJECT INFORMATION

- PROPOSED DEVELOPMENT
- MULTI-FAMILY = 12600 UNITS
- TOWNHOUSE = 400 UNITS
- SINGLE FAMILY = 400 UNITS
- COMMERCIAL/RETAIL = 275,000 SF
- OFFICE = 1,600,000 SF
- RETAIL/STORE = 225,000 SF
- EDUCATIONAL CAMPUS = 200,000 SF

CONTACT INFORMATION

OWNER: WHA CAPITAL/HOOCHIE HILLS INVESTMENTS, LLC HARRISON MERRILL SR. 770-483-1390 HMERRILL@MERRILLTRUST.COM	SITE PLANNING TSW RYAN B. S. 407-751-2122 RSNODG@TSW.COM
TRAFFIC CONSULTANT: TAR ENGINEERING, INC. NAILA NAHER 770-693-9225 NNAHER@ARENG.COM	SITE PLANNING PRIME ENGINEERING ROBERT J. 404-425-7717

[illegible][illegible]

LEGEND

6 WIDE MULTI-USE TRAIL

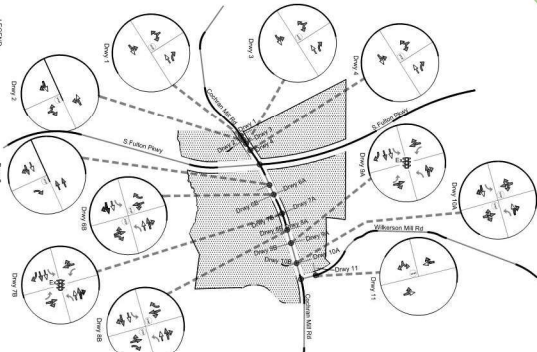
OPEN SPACE

CIVIC SPACE

Potential Future Transit Station*

*By others. As proposed in the South Parkway Corridor Plan.

DEVELOPMENT AREA

[illegible]

PROJECT:
MERRILL PARK AT CHATTAHOOCHEE HILLS
MASTER PLAN
DRI # 4004
COCHRAN MILL RD & S FULTON PARKWAY
CITY OF CHATTAHOOCHEE HILLS, GEORGIA

PREPARED FOR:
WHM CHATTAHOOCHEE HILLS
INVESTMENTS, LLC

**PRIME
ENGINEERING
INCORPORATED**

3715 NORTHSIDE PARKWAY NW
BUILDING 300, SUITE 200
ATLANTA, GEORGIA 30327
404.462.6700

DRAWING TITLE

OVERALL MASTER PLAN

DRAWING DATE 8/31/23	DRAWN BY
DRAWING SCALE 1" = 250'	DESIGNED BY
PROJECT NUMBER 1477-0004	CHECKED BY
DRAWING NUMBER DRI-1	
NOT ISSUED FOR CONSTRUCTION	

Planned Bicycle and Pedestrian Facilities

- Trail to be provided in NE quadrant of development that will be accessible from proposed transit station
- 5' sidewalks will be provided within the development
- 10' minimum sidewalks to be provided in town center areas of the development
- Existing pedestrian tunnel under South Fulton Parkway will provide access to the proposed Transit Station on South Fulton Parkway
 - NOTE: The proposed transit station on South Fulton Parkway is an improvement of the South Fulton County Corridor Plan Study that is not planned by or provided by the development.

Potential Pedestrian and Bicycle Destinations

Potential pedestrian and bicycle destinations in the vicinity of the proposed development include:

- Little Bear Creek
- Cochran Mill Park
- Cochran Mill Nature Center
- Rico Park

Planned Transit Facilities

The South Fulton Parkway Corridor Study proposes a potential transit station to be located to the east of the intersection of South Fulton Parkway and Cochran Mill Road. The proposed transit station is an improvement that is not planned by or provided by the development. The development has shown the transit station to be provided as proposed by the Corridor Plan. The proposed transit station location is noted on the site plan.

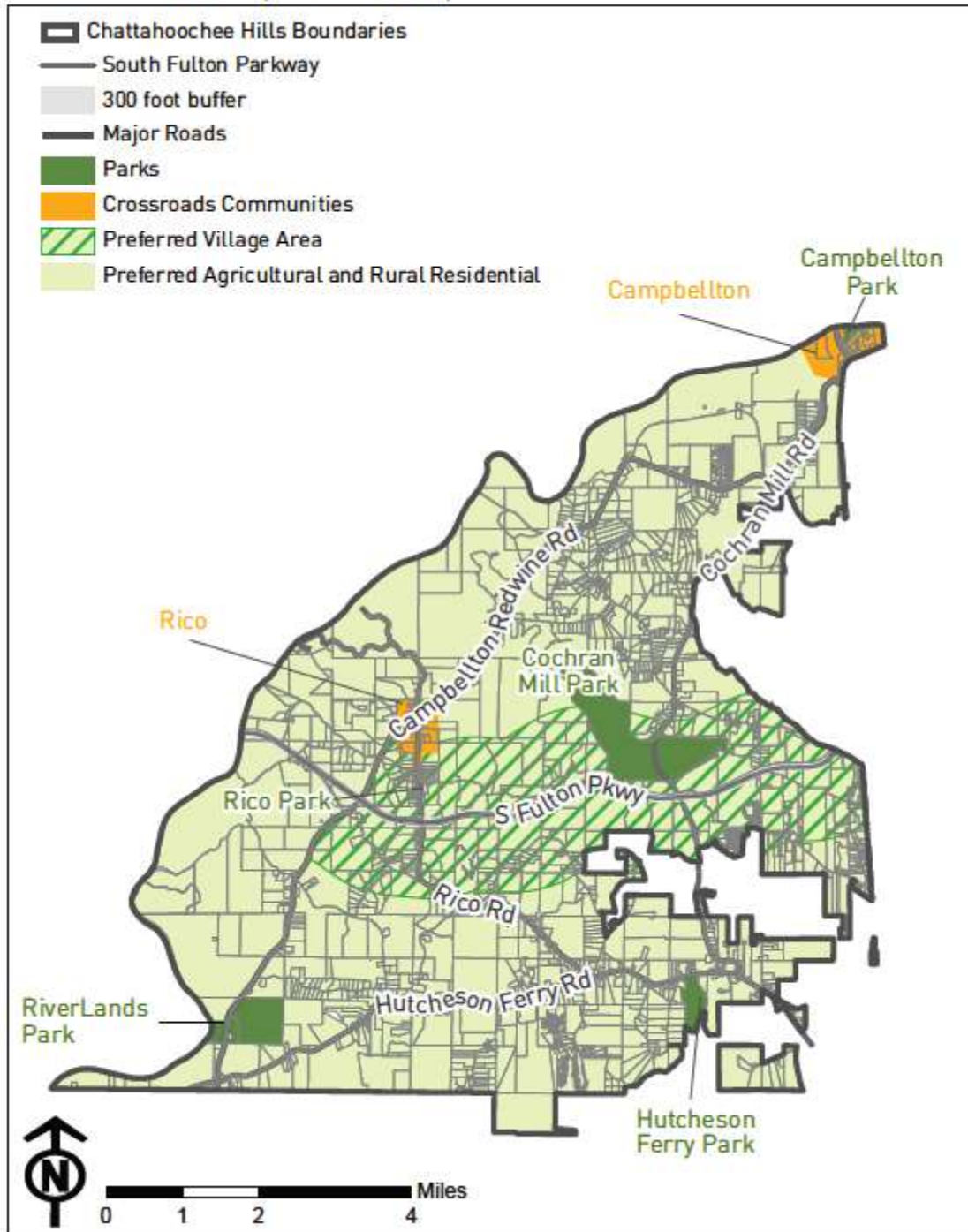
Consistency with Adopted Comprehensive Plan

The proposed development will include residential, office, healthcare, education and retail space. The residential component of the development will include single family detached homes, townhomes and apartments. The site is currently zoned as Rural (RL) and is requesting a rezoning to Village (VL).

Land Use and Zoning

Existing Zoning	Rural (RL)
Future Land Use Map Zoning	Preferred Village Area, Parks
Land Use Vision and Goals for City of South Fulton	The vision for the 2021 City of Chattahoochee Hills in the Preferred Village area is to create a core commercial area while maintaining open space requirements.
Relation to Existing Land Use Plans	The proposed development is consistent with the land use vision and goals included by the City of Chattahoochee Hills since it will provide a variety of land uses.
Chattahoochee River/Metropolitan River Protection Act	N/A

Future Development Map



Project Phasing

This project has been evaluated in two phases, Phase 1 in 2028 and the full build-out of the development in 2038.

Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 11th 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 was based on the following ITE *Land Uses*: 210 – *Single-Family Detached Housing*, 215 – *Single-Family Attached Housing*, 221 – *Multifamily Housing (Mid-Rise) - Not Close to Rail Transit*, 550 – *University/College*, 610 – *Hospital*, 710 – *General Office Building*, 820 – *Shopping Center (>150k)* and 822 – *Strip Retail Plaza (<40k)*. Due to the nature of the development, pass-by reductions have been applied per ITE standards. A 30% mixed use reduction for Phase 1 and 45% mixed-use reduction for full build-out, and a 10% alternate mode of reduction for both phases have been used. The calculated trip generation for the proposed development is shown in Table 4A for Phase 1 and Table 4B for full build-out of the project.

TABLE 4A – TRIP GENERATION (PHASE 1)

Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-way
ITE 210 – Single-Family Detached Housing	21 units	5	13	18	14	9	23	240
ITE 215 – Single-Family Attached Housing	65 units	7	21	28	21	14	35	445
ITE 221 – Multifamily Housing (Mid-Rise) - Not Close to Rail Transit	250 units	23	75	98	60	38	98	1,146
ITE 822 – Strip Retail Plaza (<40k)	19,720 sf	27	18	45	63	63	126	1,062
Total Trips (without Reductions)		62	127	189	158	124	282	2,893
Mixed-Use Reduction (30%)		-19	-38	-57	-47	-37	-84	-868
Alternate Mode Reduction (10%)		-4	-9	-13	-11	-9	-20	-203
New External Trips (with Reductions)		39	80	119	100	78	178	1,822

TABLE 4B — TRIP GENERATION (FULL BUILD-OUT, INCLUDES PHASE 1)								
Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hr
		Enter	Exit	Total	Enter	Exit	Total	2-way
ITE 210 – Single-Family Detached Housing	400 units	66	197	263	230	136	366	3,612
ITE 215 – Single-Family Attached Housing	400 units	51	151	202	139	97	236	2,998
ITE 221 – Multifamily Housing (Mid-Rise) - Not Close to Rail Transit	1,200 units	119	397	516	286	182	468	5,678
ITE 550 – University/College	445 students	52	15	67	21	46	67	694
ITE 610 – Hospital	225,000 sf	215	105	320	108	202	310	4,659
ITE 710 – General Office Building	1,600,000 sf	1,599	218	1,817	282	1,376	1,658	12,947
ITE 820 – Shopping Center (>150k)	475,000 sf	257	157	414	832	901	1,733	18,266
Total Trips (without Reductions)		2,359	1,240	3,599	1,898	2,940	4,838	48,854
Mixed-Use Reduction (45%)		-1,062	-558	-1,620	-854	-1,323	-2,177	-21,984
Alternate Mode Reduction (10%)		-130	-68	-198	-104	-162	-266	-2,687
Pass-by Trips (0%) 19%		0	0	0	-71	-77	-148	-1,480
New External Trips (with Reductions)		1,167	614	1,781	869	1,378	2,247	22,703

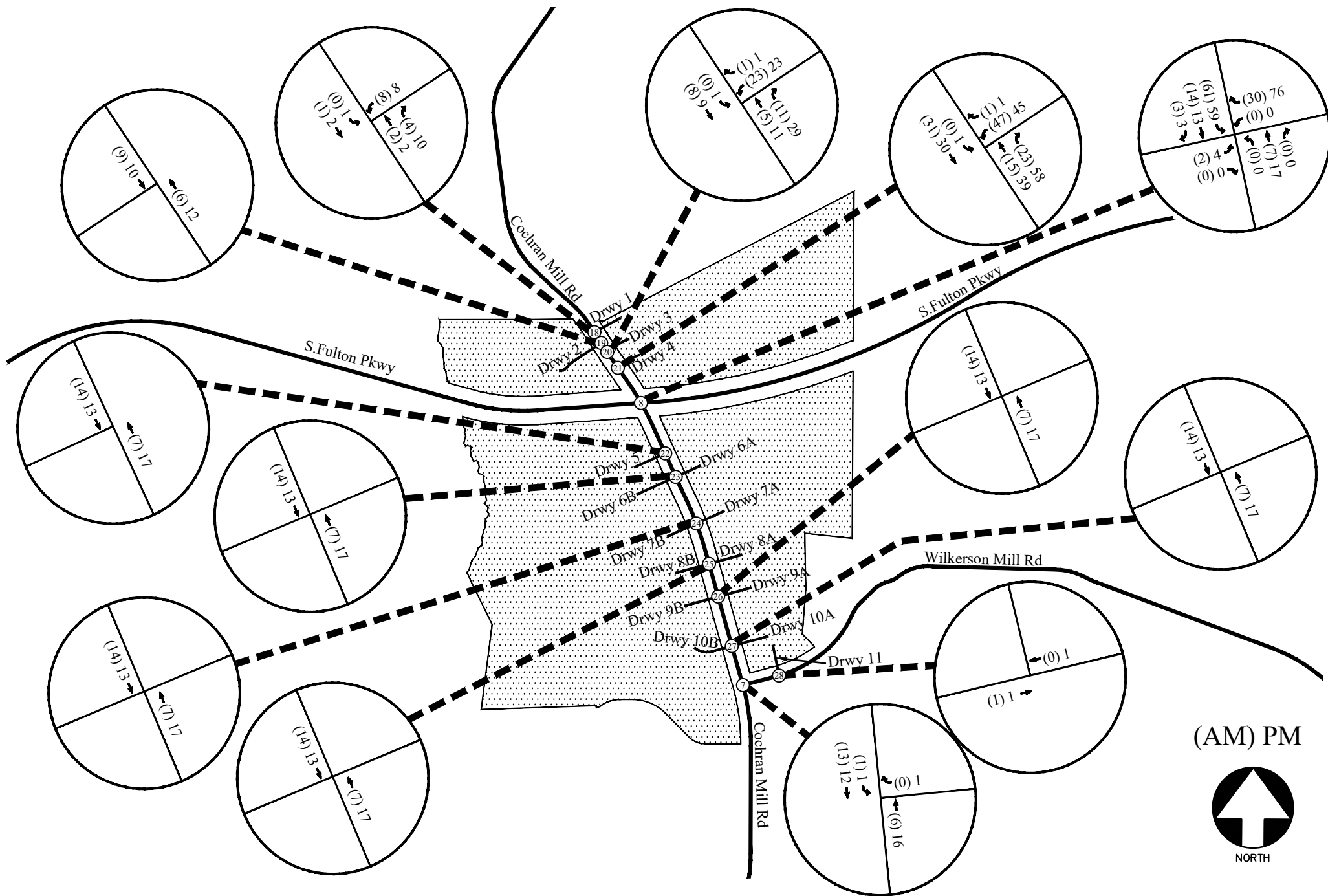
*Pass-by trips (AM) PM; Daily pass-by volume reduction estimated to be the lesser of the PM peak hour pass-by rate determined volume or ten times the PM pass-by volume

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 GDOT ADT volumes and the locations of major roadways and highways that will serve the development. The site-generated peak hour traffic volumes, shown in Tables 4A and 4B, 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 Figures 5A, 5B and 5C for Phase 1. For the full build-out of the project, the outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figures 6A, 6B and 6C. Pass-by volumes for Phase 2 of the project have been distributed based on existing travel patterns and are shown in Figure 7.

FIGURE 5A

FIGURE 5B



PHASE 1 TRIP DISTRIBUTION AND NEW SITE-GENERATED WEEKDAY PEAK HOUR VOLUMES 3 OF 3

FIGURE 5C

A&R Engineering Inc.



FIGURE 6B

FUTURE TRAFFIC ANALYSIS

The future traffic operations are analyzed for Phase 1 in 2028 and the full build-out of the development in 2038 for both the “Build” and “No-Build” conditions. 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” address deficiencies that are found within the existing road network prior to any impacts from the proposed development’s added traffic. Improvements that are identified as “Site Mitigation Improvements” address further impacts that are a result of the proposed development’s added traffic. Note that survey and construction drawings would be needed to verify the feasibility and extent of additional right-of-way required for any recommended improvements.

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 (Figures 2A and 2B) plus increases for annual growth of traffic and traffic from other nearby planned developments.

Annual Traffic Growth

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 three years (2017-2019) revealed a growth of approximately 4% in the area. This growth factor was applied to the existing traffic volumes between collector and arterial roadways to estimate the future year traffic volumes prior to the addition of site-generated traffic. The future “No-Build” peak hour volumes for the Year 2028 are shown in Figures 8A and 8B.

FIGURE 8A

FIGURE 8B
A&R Engineering Inc.

Planned and Programmed Improvements in Study Area

The following improvements have been identified in the Regional Transportation Plan (Plan 2040), GDOT GeoPi, and/or the local comprehensive transportation plan. These improvements are within the vicinity of the proposed development.

TABLE 5 — PLANNED AND PROGRAMMED IMPROVEMENTS

Item #	Project Name	From / To Points	Sponsor	GDOT PI #	ARC ID #	Design FY	ROW / UTL FY	CST FY
1	South Fulton Scenic Byway Multi-use Trail	From Cochran Mill Park to Phillips Road	Chattahoochee Hills	0009643	FS-209	-	2017	2020
2	South Fulton Parkway Corridor Plan	From Campbellton Fairburn Road to SR 154 (Campbellton Road)	GDOT	N/A	FS-011	-	-	2050

South Fulton Parkway Corridor Plan:

Since the network year for the South Fulton Parkway Corridor Plan is 2050 and the proposed development is planned to be completed by 2038, the planned project will not be considered in the future analysis. The Corridor Plan includes providing a transit station to the east of the intersection of Cochran Mill Road and South Fulton Parkway.

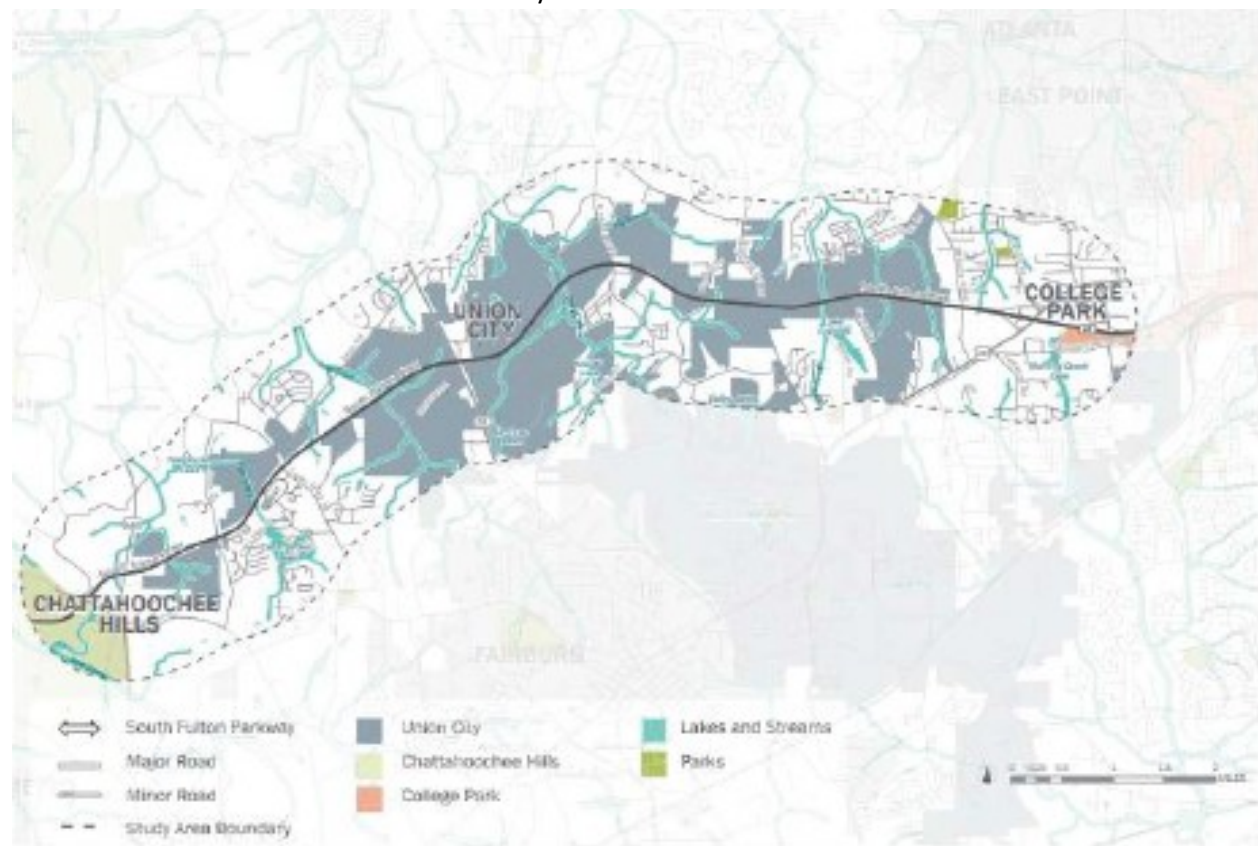
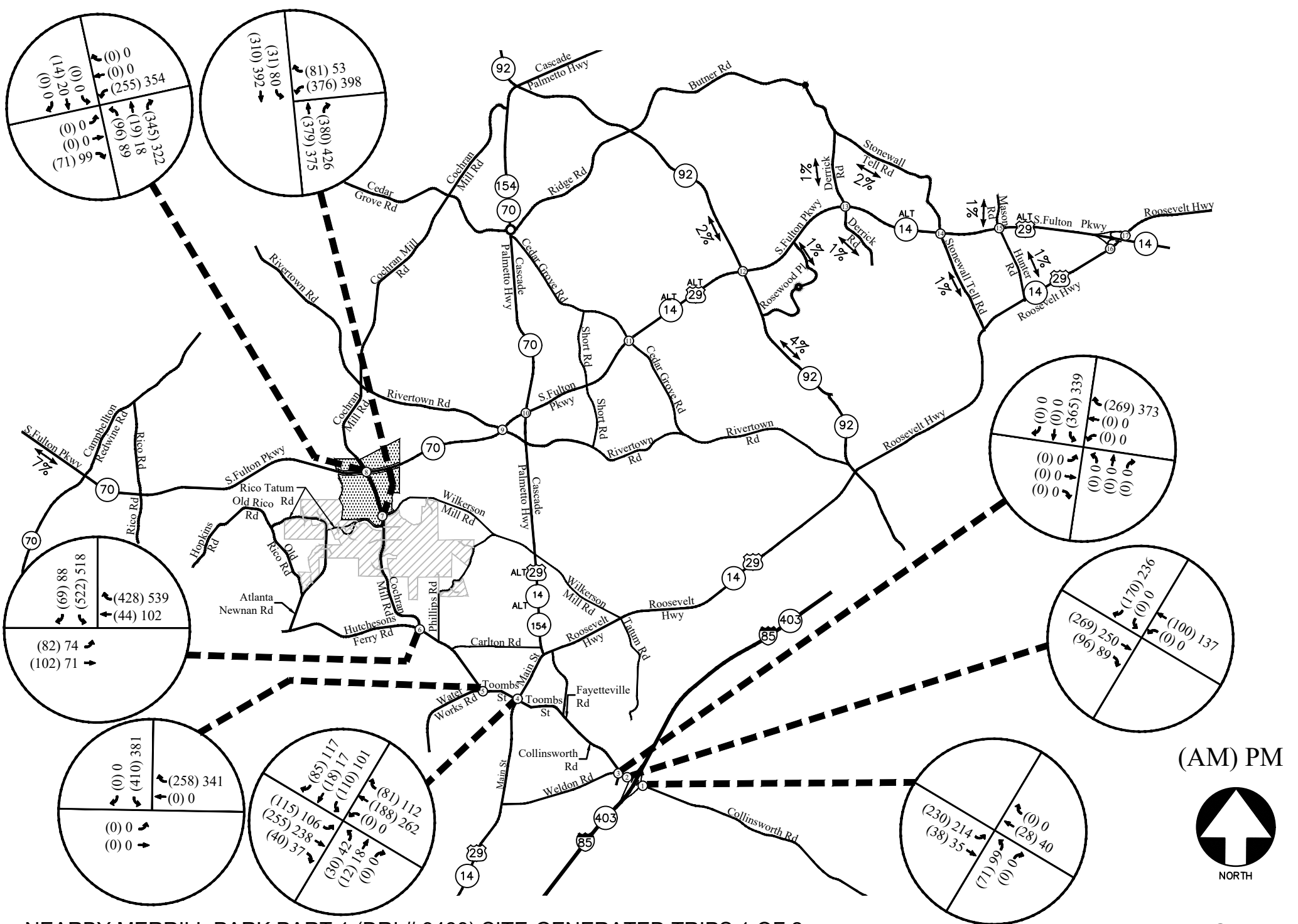


Figure 1. Study Area Jurisdictions

Nearby Planned Development – Merrill Park Part 1 (DRI # 3488)

There is a nearby planned Merrill Park Part 1 (DRI # 3488) mixed-use development that will be located to the southeast of Cochran Mill Road at Wilkerson Mill Road and to the northwest and southwest of Rico Tatum Road at Cochran Mill Road. The development will consist of residential, office, church, elementary school and retail uses and is planned to be built by 2032. The development proposes site driveways on Cochran Mill Road, Wilkerson Mill Road, Rico Tatum Road, Phillips Road and Atlanta Newnan Road. The trips from this development were obtained from the study submitted in March, 2022. The Merrill Park Part 1-generated trips at the study intersections are shown in Figures 9A and 9B.

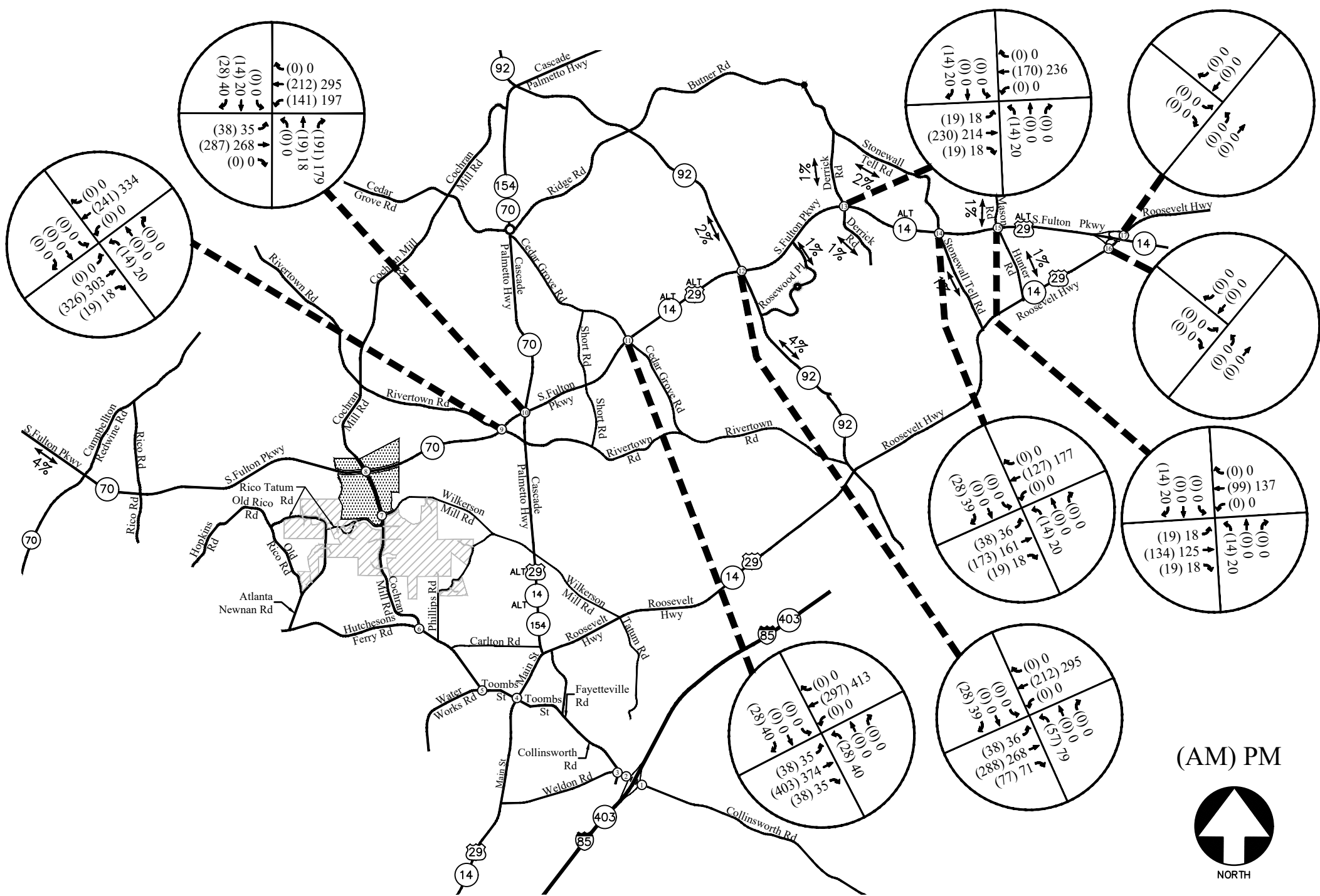
The future 2028 “No-Build” volumes in Figures 8A and 8B were increased for 10 years at a 3% growth rate (calculated over a 10-year period) and were added to the Merrill Park Part 1 project trips in Figures 9A and 9B to obtain the future year 2038 “No-Build” volumes. The resulting Future 2038 “No-Build” volumes are shown in Figures 10A and 10B.



NEARBY MERRILL PARK PART 1 (DRI # 3488) SITE-GENERATED TRIPS 1 OF 2

FIGURE 9A

A&R Engineering Inc.



NEARBY MERRILL PARK PART 1 (DRI # 3488) SITE-GENERATED TRIPS 2 OF 2

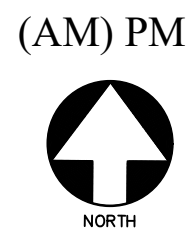
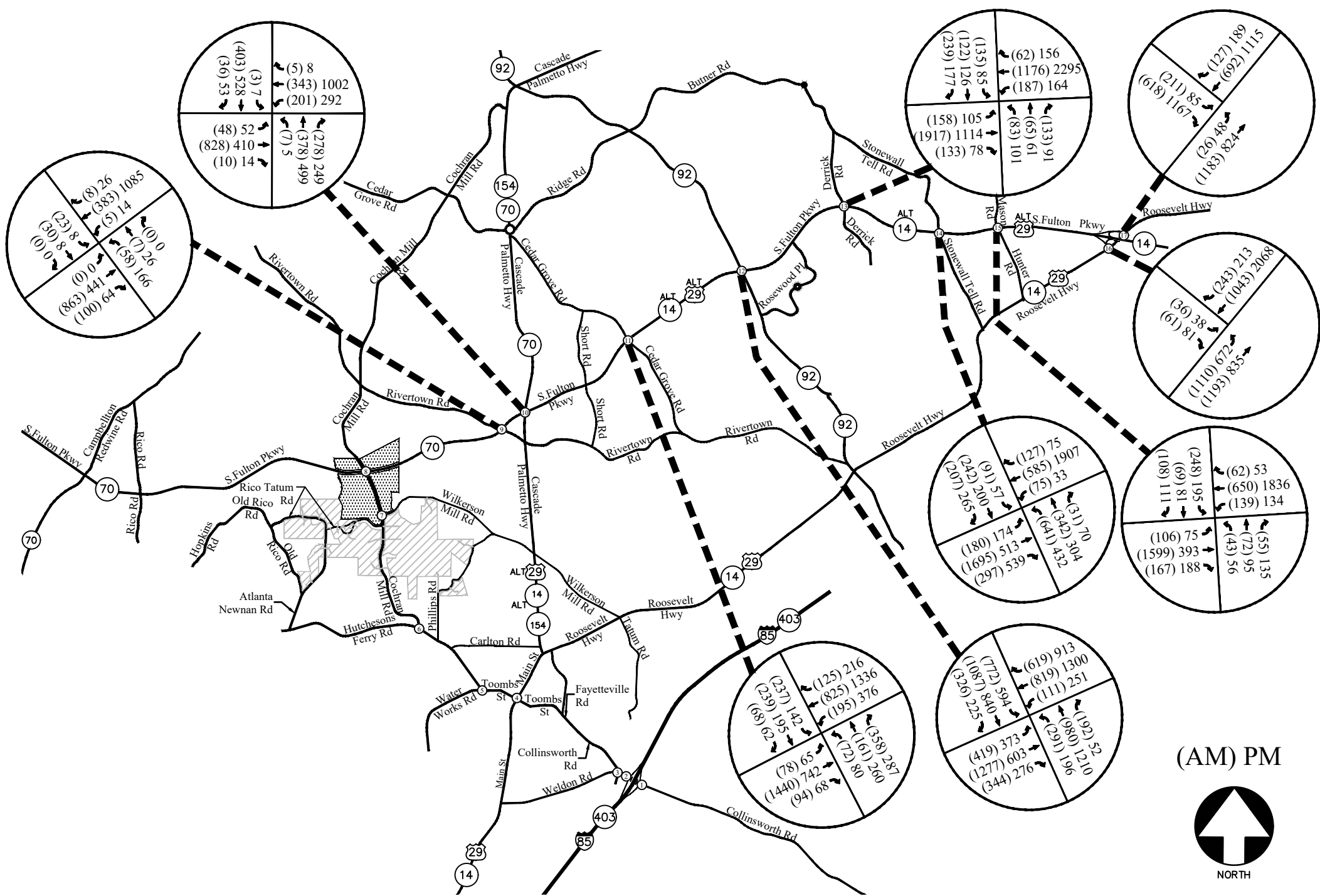
FIGURE 9B

A&R Engineering Inc.

FIGURE 10A

A&R Engineering Inc.

(AM) PM



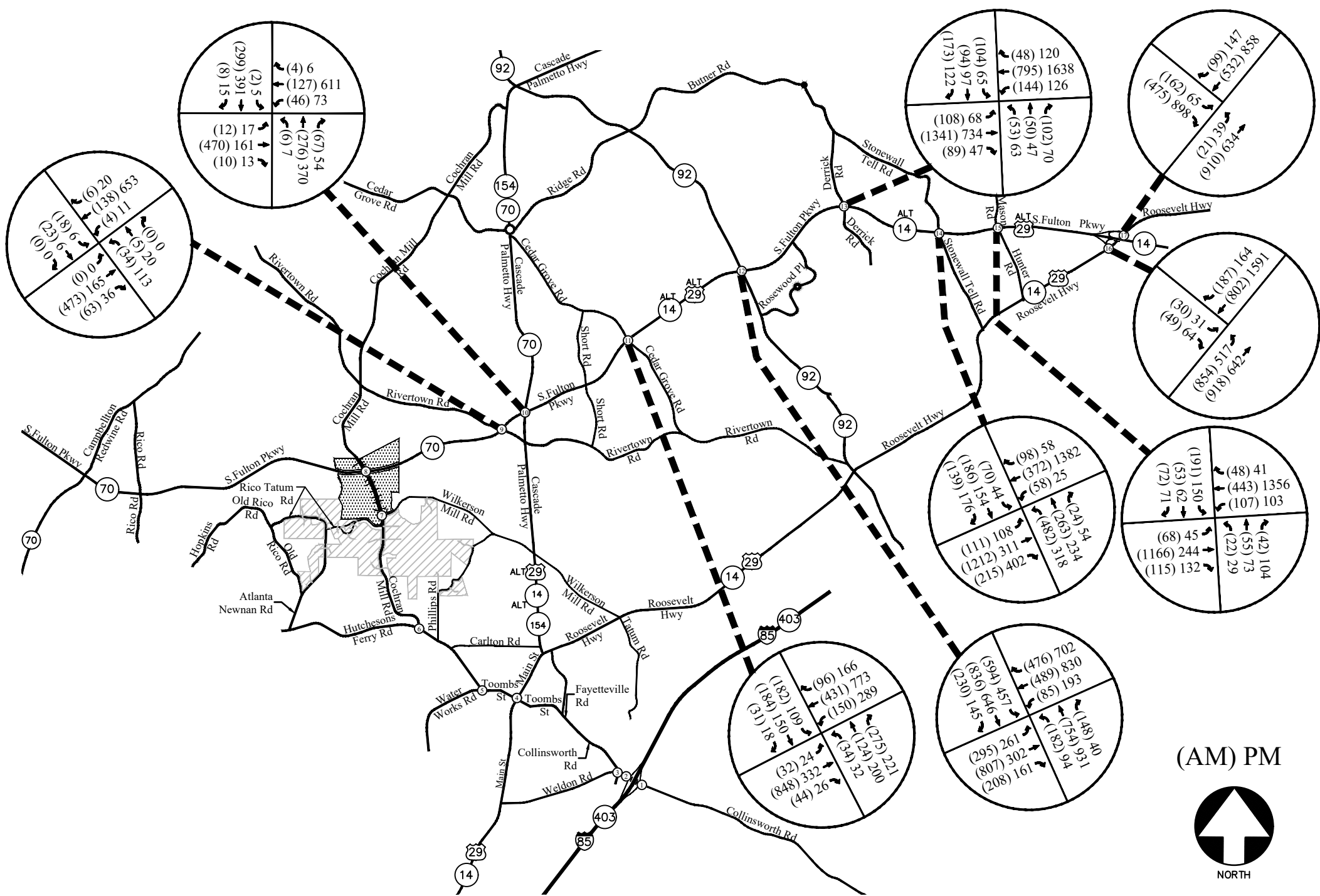
FUTURE 2038 (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES 2 OF 2

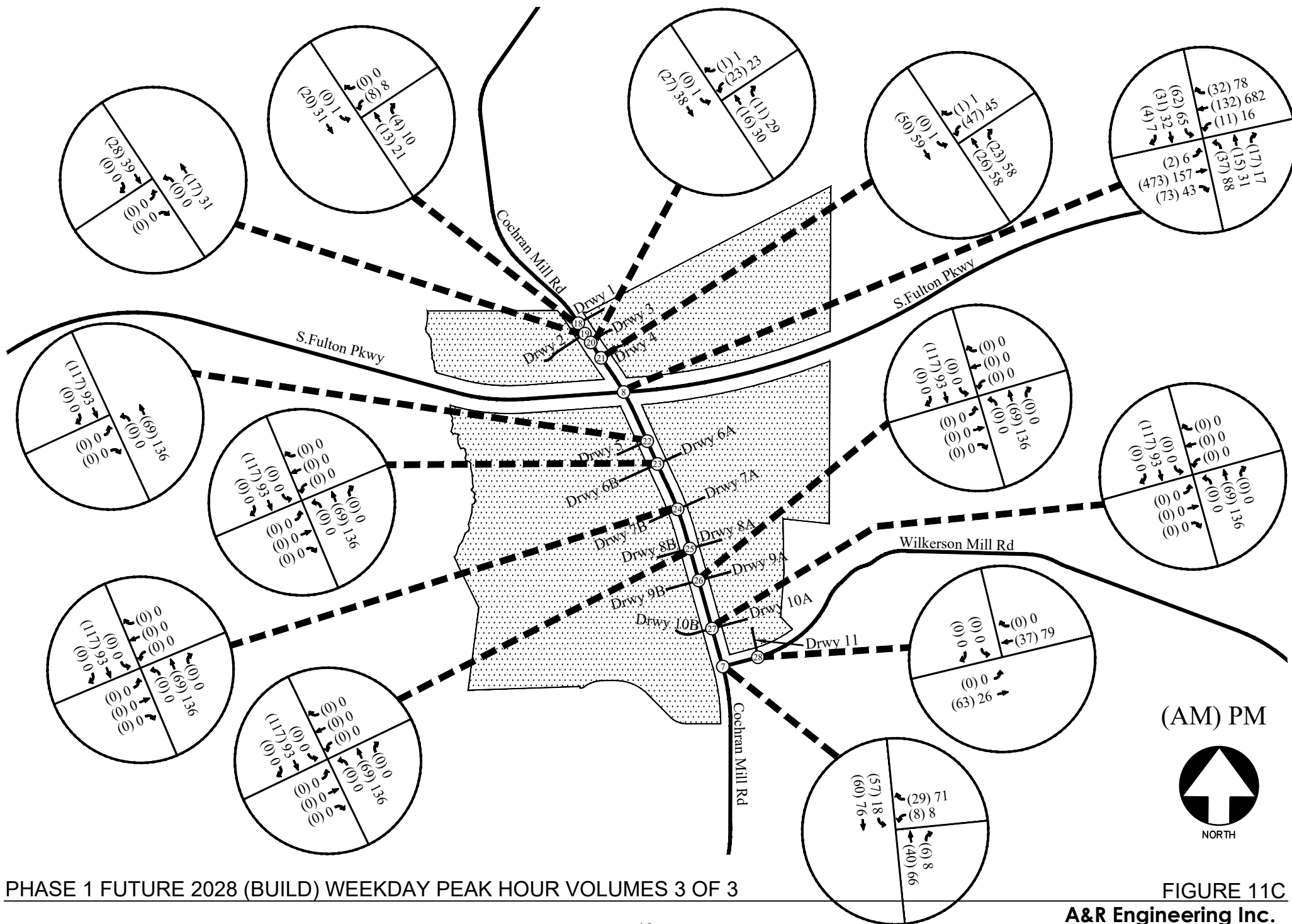
FIGURE 10B
A&R Engineering Inc.

Future “Build” Conditions

The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the traffic from the proposed development. In order to evaluate future traffic operations in this area, the additional traffic volumes from the site were added to base traffic volumes for the corresponding years to calculate the future traffic volumes after the construction of the development. The 2028 “Build” traffic volumes were obtained by adding the Phase 1 site-generated trips to the 2028 “No-Build” volumes. The 2038 “Build” traffic volumes were obtained by adding the Full Build-out site-generated trips and the Phase 2 pass-by trips to the 2038 “No-Build” volumes. The total “Build” volumes are shown in Figures 10A, 10B and 10C for Phase 1 and in Figures 11A, 11B and 11C for the Full Build-out of the project.





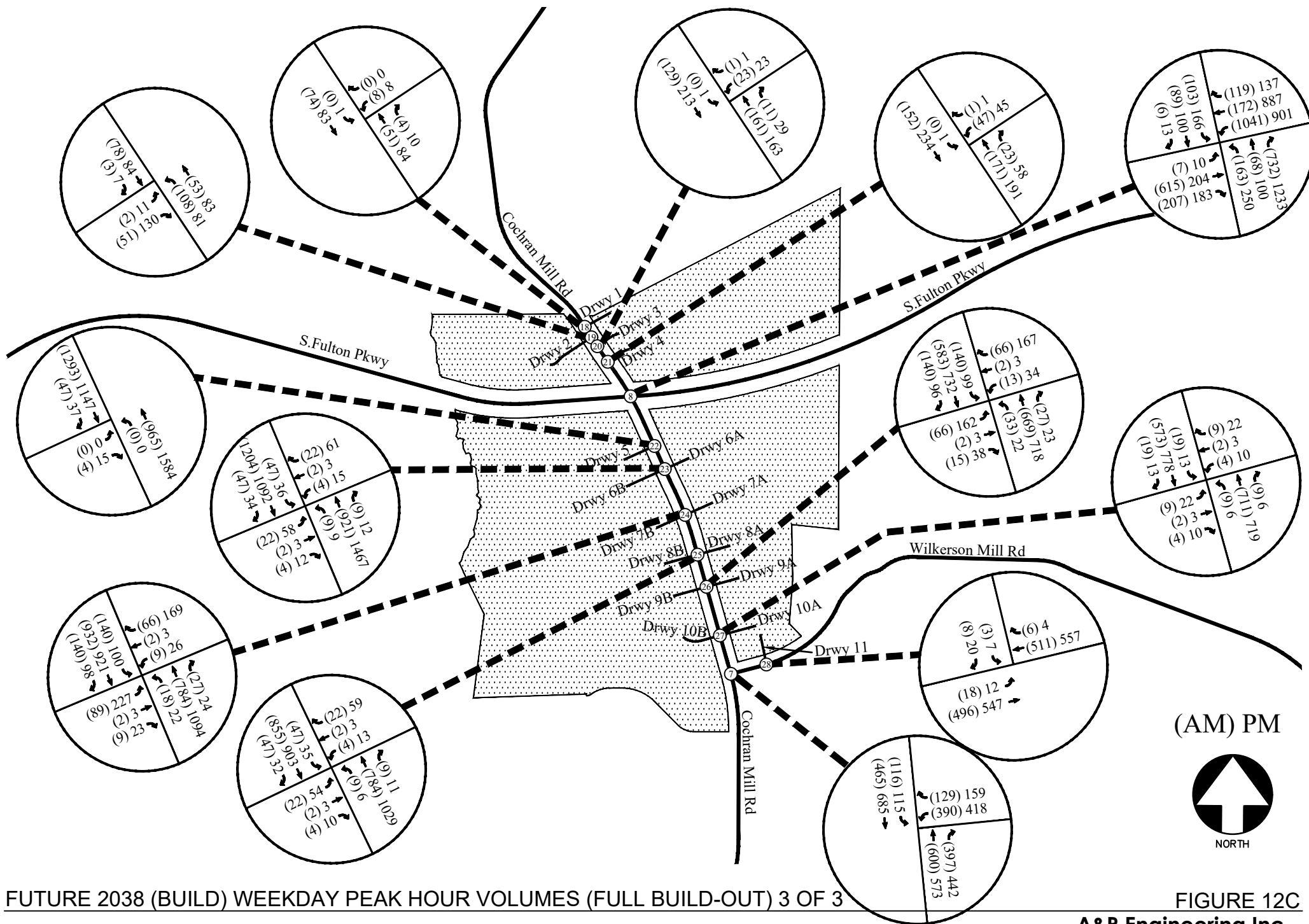


PHASE 1 FUTURE 2028 (BUILD) WEEKDAY PEAK HOUR VOLUMES 3 OF 3

FIGURE 11C
A&R Engineering Inc.

FIGURE 12A

FIGURE 12B



Future 2028 “No-Build” Traffic Operations

The future 2028 “No-Build” traffic operations were analyzed using the volumes in Figures 8A and 8B and the results are shown in Table 6.

TABLE 6 — FUTURE 2028 “NO-BUILD” INTERSECTION OPERATIONS					
Intersection		LOS (Delay)			
		NO IMPROVEMENTS		SYSTEM IMPROVEMENTS	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>Collinsworth Road @ I-85 Northbound Ramps</u>	<u>C (32.5)</u>	<u>C (27.1)</u>	<u>C (26.1)</u>	<u>C (22.9)</u>
	-Eastbound Approach	C (23.5)	C (22.4)	A (8.9)	B (14.7)
	-Westbound Approach	C (24.7)	B (18.1)	C (29.1)	B (18.2)
	-Northbound Approach	E (68.9)	E (68.2)	E (68.9)	E (68.2)
2	<u>Collinsworth Road @ I-85 Southbound Ramps</u>	<u>A (6.6)</u>	<u>C (30.4)</u>	<u>A (6.8)</u>	<u>C (30.8)</u>
	-Eastbound Approach	A (1.8)	C (25.3)	A (2.2)	B (11.8)
	-Westbound Approach	A (1.1)	B (15.6)	A (1.1)	C (21.2)
	-Southbound Approach	E (59.1)	D (49.3)	E (59.1)	D (49.3)
3	<u>Collinsworth Road @ Weldon Road</u>	<u>C (24.5)</u>	<u>D (53.8)</u>	<u>C (24.5)</u>	<u>D (53.8)</u>
	-Eastbound Approach	C (24.9)	D (37.5)	C (24.9)	D (37.5)
	-Westbound Approach	A (6.8)	D (43.1)	A (6.8)	D (43.1)
	-Northbound Approach	C (23.5)	C (20.5)	C (23.5)	C (20.5)
	-Southbound Approach	D (44.7)	E (79.1)	D (44.7)	E (79.1)
4	<u>SR 14/US 29 (Main Street) @ Toombs Street</u>	<u>B (13.8)</u>	<u>D (15.5)</u>	<u>B (13.8)</u>	<u>B (15.5)</u>
	-Eastbound Approach	E (56.6)	D (49.4)	E (56.6)	D (49.4)
	-Westbound Approach	D (53.5)	D (54.9)	D (53.5)	D (54.9)
	-Northbound Approach	A (3.3)	A (4.5)	A (3.3)	A (4.5)
	-Southbound Approach	A (3.4)	A (6.3)	A (3.4)	A (6.3)
5	<u>Water Works Road / Toombs Street @ Hutchesons Ferry Road</u>				
	-Eastbound Approach	A (8.8)	A (8.8)	A (8.8)	A (8.8)
	-Westbound Approach	A (8.7)	A (9.6)	A (8.7)	A (9.6)
	-Southbound Approach	B (10.6)	B (10.4)	B (10.6)	B (10.4)
6	<u>Hutchesons Ferry Road @ Cochran Mill Road</u>				
	-Eastbound Left	A (7.6)	A (7.9)	A (7.6)	A (7.9)
	-Southbound Approach	B (11.0)	B (11.4)	B (11.0)	B (11.4)
7	<u>Cochran Mill Road @ Wilkerson Mill Road</u>				
	-Westbound Approach	A (9.1)	A (9.1)	A (9.1)	A (9.1)
	-Southbound Left	A (7.4)	A (7.4)	A (0.0)	A (7.4)
8	<u>SR 70 (South Fulton Pkwy) @ Cochran Mill Rd</u>				
	-Eastbound Left	A (0.0)	A (9.2)	A (0.0)	A (9.2)
	-Westbound Left	A (8.5)	A (7.6)	A (8.5)	A (7.6)
	-Northbound Approach	B (14.4)	D (34.0)	B (14.4)	D (34.0)
	-Southbound Approach	C (15.3)	C (16.6)	C (15.3)	C (19.6)
9	<u>SR 70 (South Fulton Parkway) @ Rivertown Road</u>				
	-Eastbound Left	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	-Westbound Left	A (8.3)	A (7.5)	A (8.3)	A (7.5)
	-Northbound Approach	B (13.5)	C (20.1)	C (15.4)	D (27.4)
	-Southbound Approach	F (*)	F (*)	F (*)	F (*)

10	<u>SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>C (34.0)</u> B (12.5) C (29.6) D (51.3) D (46.2)	<u>C (34.0)</u> B (19.8) B (19.7) D (48.8) D (44.7)	<u>C (34.0)</u> B (12.5) C (29.6) D (51.3) D (46.2)	<u>C (34.0)</u> B (19.8) B (19.7) D (48.8) D (44.7)
11	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>D (36.9)</u> C (31.6) C (23.2) E (58.69) D (42.9)	<u>C (32.9)</u> C (24.7) C (24.2) E (58.0) C (32.4)	<u>D (36.9)</u> C (31.6) C (23.2) E (58.9) D (42.9)	<u>C (32.9)</u> C (24.7) C (24.2) E (58.0) C (32.4)
12	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>E (65.3)</u> D (51.1) E (75.4) E (66.4) E (69.1)	<u>F (83.7)</u> F (90.1) F (109.3) E (64.8) E (61.4)	<u>E (65.3)</u> D (51.1) E (75.4) E (66.4) E (69.1)	<u>F (83.7)</u> F (90.1) F (109.3) E (64.8) E (61.4)
13	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>B (19.0)</u> B (10.2) B (16.5) D (44.6) D (46.8)	<u>B (18.4)</u> A (7.1) B (16.2) D (47.3) D (47.2)	<u>B (19.0)</u> B (10.2) B (16.5) D (44.6) D (46.8)	<u>B (18.4)</u> A (7.1) B (16.2) D (47.3) D (47.2)
14	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>D (44.4)</u> D (43.3) D (36.4) E (66.5) B (17.0)	<u>D (36.1)</u> D (37.5) C (29.0) E (60.1) C (24.8)	<u>D (44.4)</u> D (43.3) D (36.4) E (66.5) B (17.0)	<u>D (36.1)</u> D (37.5) C (29.0) E (60.1) C (24.8)
15	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>B (17.7)</u> B (12.2) A (10.0) D (40.9) D (47.5)	<u>B (18.4)</u> A (9.0) B (13.2) D (43.7) D (47.8)	<u>B (17.7)</u> B (12.2) A (10.0) D (40.9) D (47.5)	<u>B (18.4)</u> A (9.0) B (13.2) D (43.7) D (47.8)
16	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps</u> -Eastbound Approach -Northbound Left/Approach -Southbound Approach	F (*) F (160.8) -	F (*) F (253.6) -	<u>B (19.2)</u> D (54.7) B (19.2) B (18.1)	<u>B (19.1)</u> D (53.2) C (26.7) B (13.0)
17	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps</u> -Eastbound Approach -Northbound Left/Approach -Southbound Approach	E (45.4) A (9.2) -	F (*) B (10.8) -	<u>A (7.8)</u> D (45.4) A (4.1) A (3.8)	<u>A (4.3)</u> D (54.2) A (1.9) A (2.6)

* Delay exceeds 300 seconds

The results of future 2028 “No-Build” traffic operations show that the following intersections have LOS “F” for one or more approaches. The results of future 2028 “No-Build” traffic operations show that one or more approaches at these intersections do not meet the LOS standard:

- Intersection 9: SR 70 (South Fulton Parkway) @ Rivertown Road
- Intersection 12: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
- Intersection 16: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps
- Intersection 17: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

Recommended 2028 System Improvements

The following are system improvements that were identified from the 2028 “No-Build” condition analysis.

Intersection 12: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92

- Addition of a channelized northbound right turn lane on SR 92

Intersection 16: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps

- Installation of a traffic signal
- Addition of a northbound left turn lane on Roosevelt Highway creating dual left turn lanes
- “Protected-permissive” phasing for northbound left turn movements

Intersection 17: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

- Installation of a traffic signal
- Addition of a short eastbound right turn lane on the ramp approach

Future 2028 “Build” Traffic Operations (Phase 1)

The Phase 1 (Year 2028) “Build” traffic operations were analyzed using the 2028 “Build” volumes in Figures 11A, 11B and 11C, and the results are shown in Table 7 below.

TABLE 7 — FUTURE 2028 “BUILD” INTERSECTION OPERATIONS (PHASE 1)					
Intersection		LOS (Delay)			
		NO IMPROVEMENTS		WITH IMPROVEMENTS	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>Collinsworth Road @ I-85 Northbound Ramps</u>	<u>C (32.9)</u>	<u>B (16.8)</u>	<u>C (26.5)</u>	<u>B (16.8)</u>
	-Eastbound Approach	C (23.6)	A (2.8)	A (8.9)	A (2.8)
	-Westbound Approach	C (25.1)	B (19.3)	C (29.8)	B (19.3)
	-Northbound Approach	E (70.6)	E (68.5)	E (70.6)	E (68.5)
2	<u>Collinsworth Road @ I-85 Southbound Ramps</u>	<u>A (6.6)</u>	<u>C (34.2)</u>	<u>A (6.6)</u>	<u>C (34.1)</u>
	-Eastbound Approach	A (1.8)	B (11.4)	A (1.8)	B (11.0)
	-Westbound Approach	A (1.1)	C (28.3)	A (1.1)	C (28.3)
	-Southbound Approach	E (59.2)	D (50.0)	E (59.2)	D (50.0)
3	<u>Collinsworth Road @ Weldon Road</u>	<u>C (25.0)</u>	<u>E (58.2)</u>	<u>C (23.8)</u>	<u>C (28.2)</u>
	-Eastbound Approach	C (25.7)	D (37.5)	C (24.5)	C (33.6)
	-Westbound Approach	A (7.6)	D (48.6)	A (4.8)	B (16.5)
	-Northbound Approach	C (22.9)	C (20.5)	C (23.8)	B (15.8)
	-Southbound Approach	D (44.3)	F (84.5)	D (45.0)	D (41.5)
4	<u>SR 14/US 29 (Main Street) @ Toombs Street</u>	<u>B (14.6)</u>	<u>B (16.4)</u>	<u>B (14.6)</u>	<u>B (16.4)</u>
	-Eastbound Approach	E (56.2)	D (49.0)	E (56.2)	D (49.0)
	-Westbound Approach	D (52.7)	D (54.5)	D (52.7)	D (54.5)
	-Northbound Approach	A (3.6)	A (4.8)	A (3.6)	A (4.8)
	-Southbound Approach	A (3.6)	A (6.7)	A (3.6)	A (6.7)
5	<u>Water Works Road / Toombs Street @ Hutchesons Ferry Road</u>				
	-Eastbound Approach	A (8.8)	A (8.9)	A (8.8)	A (8.9)
	-Westbound Approach	A (8.8)	A (9.9)	A (8.8)	A (9.9)
	-Southbound Approach	B (10.8)	B (10.8)	B (10.8)	B (10.8)
6	<u>Hutchesons Ferry Road @ Cochran Mill Road</u>				
	-Eastbound Left	A (7.6)	A (7.9)	A (7.6)	A (7.9)
	-Southbound Approach	B (11.2)	B (11.8)	B (11.2)	B (11.8)
7	<u>Cochran Mill Road @ Wilkerson Mill Road</u>				
	-Westbound Approach	A (9.2)	A (9.2)	A (9.2)	A (9.2)
	-Southbound Left	A (7.4)	A (7.4)	A (7.4)	A (7.4)
8	<u>SR 70 (South Fulton Parkway) @ Cochran Mill Road</u>				
	-Eastbound Left	A (7.5)	A (9.2)	A (7.5)	A (9.2)
	-Westbound Left	A (8.5)	A (7.6)	A (8.5)	A (7.6)
	-Northbound Approach	C (17.3)	E (45.5)	C (17.3)	E (45.5)
	-Southbound Approach	C (21.2)	E (39.6)	C (21.2)	E (39.6)
9	<u>SR 70 (South Fulton Parkway) @ Rivertown Road</u>				

	-Eastbound Left -Westbound Left -Northbound Approach -Southbound Approach	A (0.0) A (8.5) B (14.5) F (*)	A (0.0) A (7.6) C (23.9) F (*)	A (0.0) A (8.5) C (17.6) F (*)	A (0.0) A (7.6) E (41.1) F (*)
10	<u>SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>C (32.9)</u> B (13.0) C (26.7) D (51.3) D (46.4)	<u>C (33.6)</u> B (19.2) B (19.6) D (49.9) D (46.0)	<u>C (32.9)</u> B (13.0) C (26.7) D (51.3) D (46.4)	<u>C (33.6)</u> B (19.2) B (19.6) D (49.9) D (46.0)
11	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>D (37.4)</u> C (32.5) C (23.6) E (60.0) D (43.4)	<u>C (33.3)</u> C (29.5) C (24.3) E (58.0) C (32.4)	<u>D (37.4)</u> C (32.5) C (23.6) E (60.0) D (43.4)	<u>C (33.3)</u> C (29.5) C (24.3) E (58.0) C (32.4)
12	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>E (63.9)</u> D (53.3) E (68.1) E (66.8) E (67.9)	<u>F (83.4)</u> D (52.6) F (109.7) E (63.9) F (81.0)	<u>E (63.9)</u> D (53.3) E (68.1) E (66.8) E (67.9)	<u>F (83.4)</u> D (52.6) F (109.7) E (63.9) F (81.0)
13	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>B (19.4)</u> B (10.6) B (17.5) D (44.5) D (46.8)	<u>B (18.8)</u> A (7.4) B (16.9) D (47.3) D (47.1)	<u>B (19.4)</u> B (10.6) B (17.5) D (44.5) D (46.8)	<u>B (18.8)</u> A (7.4) B (16.9) D (47.3) D (47.1)
14	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>D (41.9)</u> D (39.8) C (33.0) E (65.2) B (17.8)	<u>D (35.6)</u> D (37.9) C (29.3) E (56.1) C (24.7)	<u>D (41.9)</u> D (39.8) C (33.0) E (65.2) B (17.8)	<u>D (35.6)</u> D (37.9) C (29.4) E (56.1) C (24.7)
15	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>B (18.6)</u> B (13.9) B (11.1) D (39.8) D (46.7)	<u>B (18.8)</u> A (9.4) B (14.2) D (43.5) D (47.5)	<u>B (18.6)</u> B (13.9) B (11.1) D (39.8) D (46.7)	<u>B (18.8)</u> A (9.4) B (14.2) D (43.5) D (47.5)
16	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps</u> -Eastbound Approach -Northbound Left/Approach -Southbound Approach	- F (160.8) -	- F (253.6) -	<u>B (19.3)</u> D (54.8) B (19.2) B (18.2)	<u>B (19.2)</u> D (53.3) C (26.7) B (13.1)
17	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps</u> -Eastbound Approach -Northbound Left/Approach	E (45.4) A (9.2)	F (*) B (10.8)	<u>A (7.8)</u> D (45.4) A (4.1)	<u>A (4.3)</u> D (54.2) A (1.9)

	<i>-Southbound Approach</i>	-	-	A (3.8)	A (2.6)
18	<u>Cochran Mill Road @ Site Driveway 1</u> -Westbound Approach -Southbound Left	A (8.7) A (0.0)	A (8.8) A (7.3)	A (8.7) A (0.0)	A (8.8) A (7.3)
20	<u>Cochran Mill Road @ Site Driveway 3</u> -Westbound Approach -Southbound Left	A (8.8) A (0.0)	A (9.0) A (7.3)	A (8.8) A (0.0)	A (9.0) A (7.3)
21	<u>Cochran Mill Road @ Site Driveway 4</u> -Westbound Approach -Southbound Left	A (9.1) A (0.0)	A (9.4) A (7.5)	A (9.1) A (0.0)	A (9.4) A (7.5)

* Delay exceeds 300 seconds

The results of future 2028 “Build” (Phase 1) traffic operations show that the following intersections have LOS “F” in the future 2028 build conditions:

- Intersection 3: Collinsworth Road @ Weldon Road
- Intersection 9: SR 70 (South Fulton Parkway) @ Rivertown Road
- Intersection 12: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
- Intersection 16: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps
- Intersection 17: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

Recommended 2028 System Improvements (Phase 1)

The following are system improvements that were identified from the 2028 “Build” (Phase 1) condition analysis:

Intersection 3: Collinsworth Road @ Weldon Road

- Addition of a westbound right turn lane on Collinsworth Road
- Addition of a southbound left turn lane on Collinsworth Road

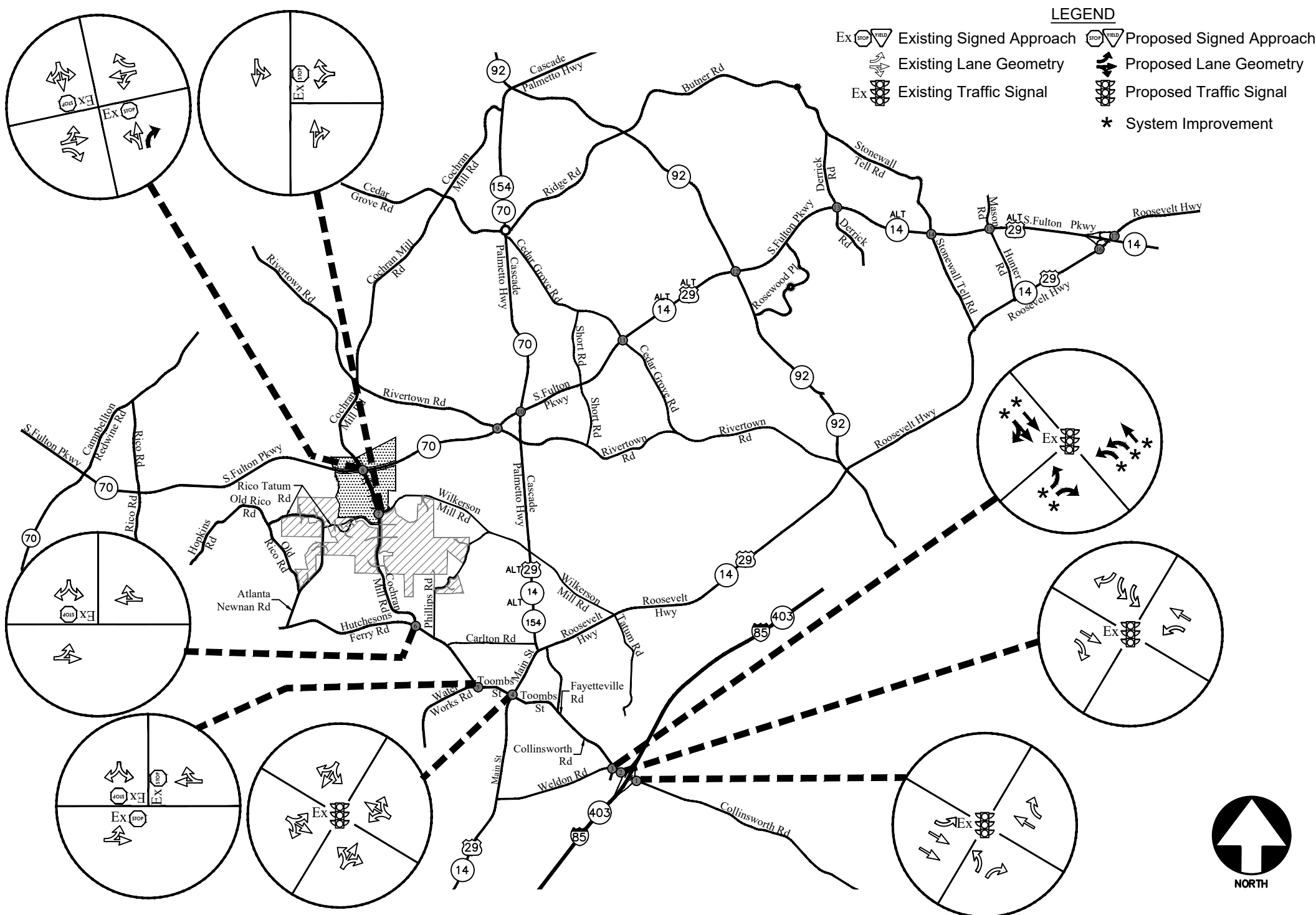
Recommended 2028 Site Improvements (Phase 1)

The following are site improvements that were identified from the 2028 “Build” (Phase 1) condition analysis:

Intersection 8: Cochran Mill Road @ S. Fulton Parkway (SR 14)

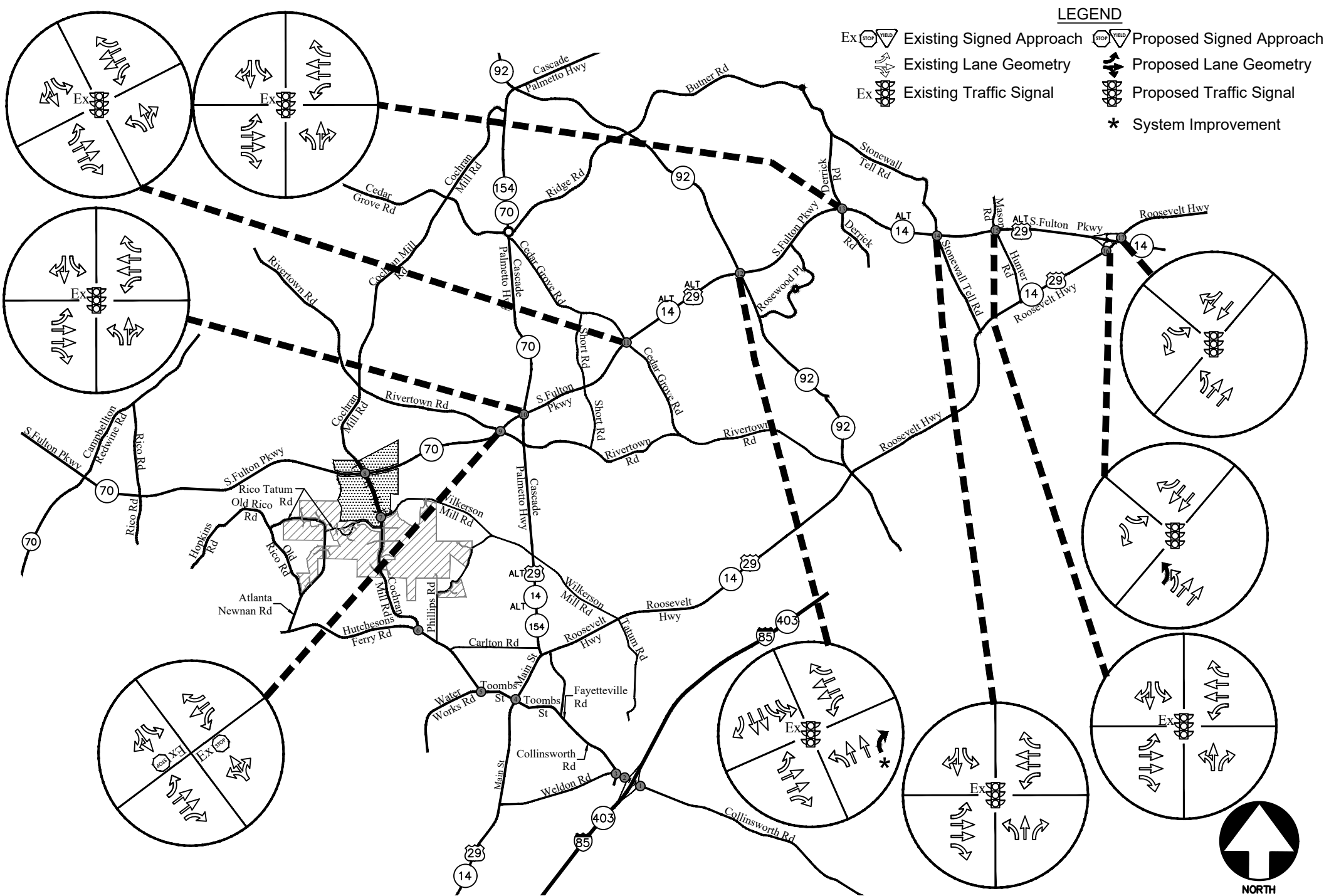
- Addition of northbound right turn lane

Phase 1 (Year 2028) traffic control and lane geometry for the intersections are shown in Figures 13A, 13B and 13C.



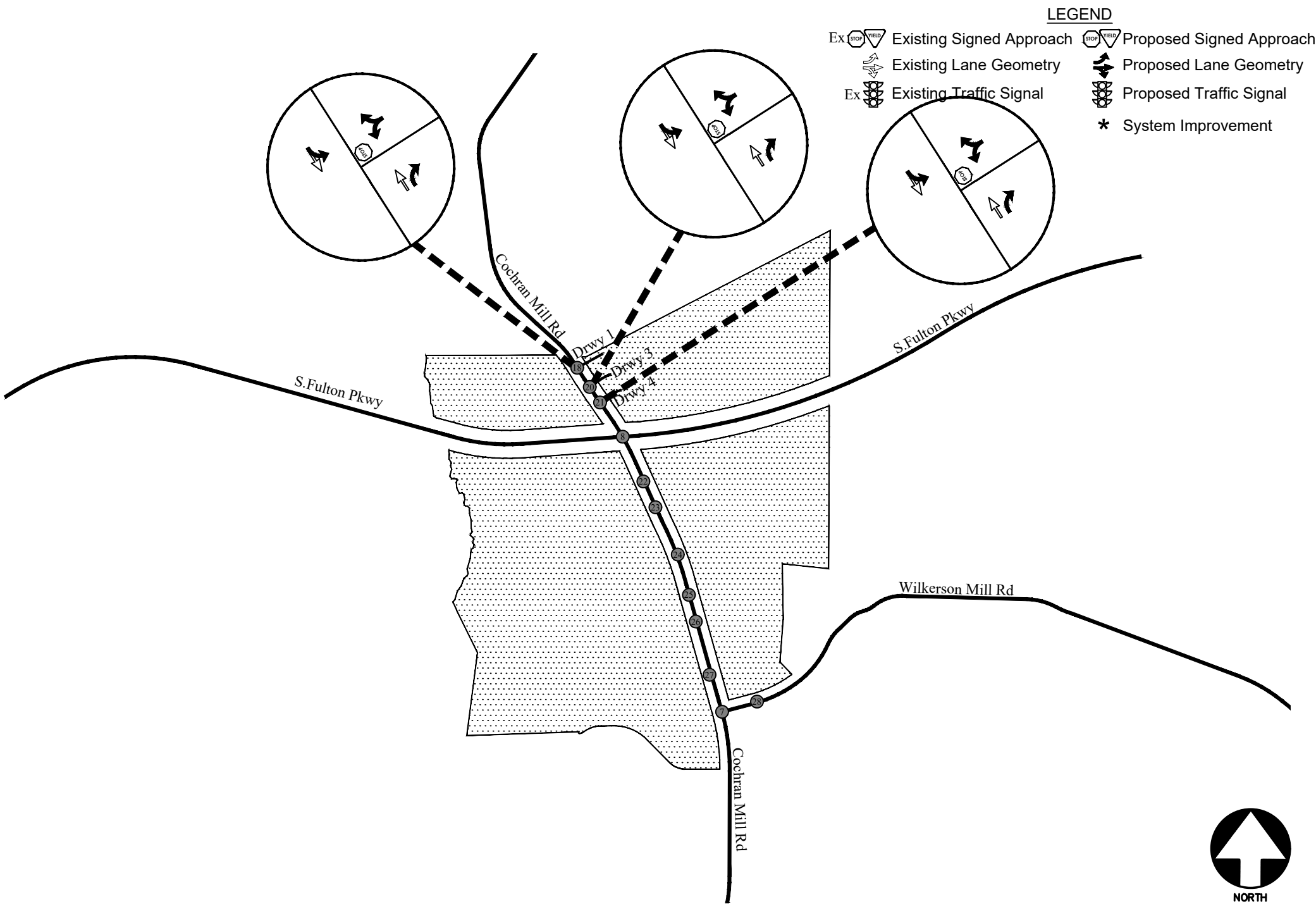
PHASE 1 FUTURE 2028 TRAFFIC CONTROL AND LANE GEOMETRY 1 OF 3

FIGURE 13A
A&R Engineering Inc.



PHASE 1 FUTURE 2028 TRAFFIC CONTROL AND LANE GEOMETRY 2 OF 3

FIGURE 13B
A&R Engineering Inc.



Future 2038 “No-Build” Traffic Operations

The future 2038 “No-Build” traffic operations were analyzed using the volumes in Figures 10A and 10B and the results are shown in Table 8.

TABLE 8 — FUTURE 2038 “NO-BUILD” INTERSECTION OPERATIONS					
Intersection		LOS (Delay)			
		NO IMPROVEMENTS		SYSTEM IMPROVEMENTS	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>Collinsworth Road @ I-85 Northbound Ramps</u>	<u>F (190.4)</u>	<u>F (149.1)</u>	<u>C (25.3)</u>	<u>B (17.5)</u>
	-Eastbound Approach	F (251.4)	F (192.6)	C (20.3)	B (10.1)
	-Westbound Approach	F (83.4)	E (62.1)	C (25.9)	B (19.6)
	-Northbound Approach	F (159.7)	F (155.2)	D (38.6)	D (41.3)
2	<u>Collinsworth Road @ I-85 Southbound Ramps</u>	<u>D (53.9)</u>	<u>F (92.2)</u>	<u>B (13.6)</u>	<u>C (27.2)</u>
	-Eastbound Approach	E (76.9)	F (154.8)	B (12.3)	C (30.6)
	-Westbound Approach	C (29.4)	F (85.2)	A (9.9)	B (14.7)
	-Southbound Approach	E (58.2)	E (62.8)	D (42.9)	D (40.9)
3A	<u>Collinsworth Road @ Weldon Road (Without Realignment)</u>	<u>F (264.0)</u>	<u>F (*)</u>	<i>Reported in row 3B due to lane realignment configuration</i>	
	-Eastbound Approach	F (*)	E (74.7)		
	-Westbound Approach	F (108.3)	F (*)		
	-Northbound Approach	C (23.3)	B (18.8)		
	-Southbound Approach	F (*)	F (*)		
3B	<u>Collinsworth Road @ Weldon Road (With Realignment)</u>	<i>Reported in row 3A</i>		<u>B (11.2)</u>	<u>B (13.9)</u>
	-Eastbound Approach			D (52.7)	D (54.4)
	-Northbound Approach (Collinsworth Road)			B (13.7)	B (15.1)
	-Southbound Approach			A (7.3)	B (11.7)
4	<u>SR 14/US 29 (Main Street) @ Toombs Street</u>	<u>F (192.7)</u>	<u>F (253.1)</u>	<u>F (192.7)</u>	<u>F (253.1)</u>
	-Eastbound Approach	F (*)	F (*)	F (*)	F (*)
	-Westbound Approach	D (52.7)	F (*)	D (52.7)	F (*)
	-Northbound Approach	B (14.8)	B (12.6)	B (14.8)	B (12.6)
	-Southbound Approach	D (43.7)	F (110.6)	D (43.7)	F (110.6)
5	<u>Water Works Road / Toombs Street @ Hutchesons Ferry Road</u>				
	-Eastbound Approach	B (13.3)	B (13.9)	C (17.7)	C (19.0)
	-Westbound Approach/(Northbound Left)	D (31.5)	F (120.6)	A (9.4)	A (9.2)
	-Southbound Approach	F (175.6)	F (149.2)	-	-
6	<u>Hutchesons Ferry Road @ Cochran Mill Road</u>			<u>C (31.0)</u>	<u>C (32.4)</u>
	-Eastbound Left/Approach	F (9.6)	B (11.9)	B (17.2)	B (19.7)
	-Westbound Approach	-	-	B (14.8)	B (19.1)
	-Southbound Approach	F (*)	F (*)	D (46.0)	D (46.0)
7	<u>Cochran Mill Road @ Wilkerson Mill Road</u>			<u>C (24.9)</u>	<u>C (24.1)</u>
	-Westbound Approach	F (*)	F (*)	D (48.6)	D (48.1)
	-Northbound Approach	-	-	B (15.0)	B (14.4)
	-Southbound Left/Approach	B (11.7)	B (11.5)	B (16.7)	B (15.8)
8	<u>SR 70 (South Fulton Parkway) @ Cochran Mill Road</u>			<u>B (14.0)</u>	<u>B (14.8)</u>
	-Eastbound Left/Approach	A (0.0)	B (10.1)	A (4.7)	A (5.6)

	-Westbound Left/ <i>Approach</i> -Northbound Approach -Southbound Approach	B (11.1) F (*) F (*)	A (8.9) F (*) F (*)	A (9.4) D (52.1) D (44.2)	A (8.6) D (49.2) D (39.8)
9	<u>SR 70 (South Fulton Parkway) @ Rivertown Road</u> -Eastbound Left/ <i>Approach</i> -Westbound Left/ <i>Approach</i> -Northbound Approach -Southbound Approach	A (0.0) B (10.0) D (30.9) F (*)	A (0.0) B (8.4) F (216.1) F (*)	<u>A (6.5)</u> A (2.7) A (0.4) E (56.7) D (52.6)	<u>A (9.1)</u> A (4.2) A (2.9) D (52.5) D (44.4)
10	<u>SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>D (46.1)</u> D (45.3) D (45.0) E (59.3) C (29.0)	<u>D (46.0)</u> D (47.3) D (46.4) E (56.9) C (30.1)	<u>D (46.0)</u> D (45.0) D (45.0) E (59.3) C (29.0)	<u>D (46.0)</u> D (47.2) D (46.4) E (56.9) C (30.1)
11	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>F (89.9)</u> E (65.0) E (61.0) F (177.5) F (118.3)	<u>E (64.5)</u> D (53.9) E (55.2) F (106.2) E (59.7)	<u>D (41.8)</u> C (34.6) C (29.8) D (53.8) E (79.2)	<u>C (34.5)</u> C (25.4) C (22.9) E (69.1) E (73.1)
12	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>F (169.3)</u> F (164.9) F (159.0) F (151.1) F (191.2)	<u>F (180.3)</u> F (163.4) F (208.5) F (139.9) F (185.3)	<i>Reported in rows 29 and 30 due to conversion to a diamond interchange</i>	
13	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>E (63.1)</u> C (28.1) F (123.0) D (51.0) D (53.5)	<u>E (68.1)</u> B (18.3) F (96.6) D (54.3) D (51.5)	<u>D (39.8)</u> D (37.8) D (37.4) D (51.4) E (57.6)	<u>C (32.2)</u> B (17.2) C (34.4) E (61.4) E (61.5)
14	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>F (160.0)</u> F (190.5) E (76.7) F (236.4) C (20.1)	<u>F (158.5)</u> F (223.8) F (103.3) F (289.8) C (33.4)	<u>D (44.5)</u> C (34.1) C (29.4) E (72.8) E (64.5)	<u>D (38.7)</u> C (29.8) C (28.8) E (70.1) E (68.4)
15	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>C (30.4)</u> C (26.0) C (24.9) D (47.3) E (55.1)	<u>D (35.0)</u> B (19.2) D (35.4) D (52.4) D (53.5)	<u>C (31.3)</u> C (27.7) C (24.9) D (47.3) D (54.7)	<u>D (35.0)</u> B (19.2) D (35.4) D (52.4) D (53.5)
16	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps</u> -Eastbound Approach -Northbound Left/ <i>Approach</i> -Southbound Approach	F (*) F (*) -	F (*) F (*) -	<u>C (29.5)</u> E (55.6) C (30.9) C (25.4)	<u>D (43.6)</u> D (53.8) E (66.0) C (27.2)

17	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps</u> -Eastbound Approach -Northbound Left/Approach -Southbound Approach	F (*) B (10.1) -	F (*) B (13.0) -	<u>A (9.3)</u> D (43.6) A (6.0) A (5.3)	<u>A (5.4)</u> E (65.9) A (2.4) A (3.4)
29	<u>SR 92 @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps</u> -Eastbound Approach -Northbound Approach -Southbound Approach	<i>Intersection not present in existing conditions</i>		<u>D (38.7)</u> D (43.8) C (27.9) D (44.6)	<u>C (26.6)</u> D (44.5) C (25.4) C (23.6)
30	<u>SR 92 @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps</u> -Westbound Approach -Northbound Approach -Southbound Approach	<i>Intersection not present in existing conditions</i>		<u>B (15.3)</u> D (53.3) A (9.1) B (18.7)	<u>B (13.6)</u> D (47.2) A (4.8) B (18.5)

* Delay exceeds 300 seconds

The results of future 2038 “No-Build” traffic operations show that the following intersections have LOS “F” for one or more approaches.

- Intersection 1: Collinsworth Road @ I-85 Northbound Ramps
- Intersection 2: Collinsworth Road @ I-85 Southbound Ramps
- Intersection 3: Collinsworth Road @ Weldon Road
- Intersection 4: SR 14/US 29 (Main Street) @ Toombs Street
- Intersection 5: Water Works Road / Toombs Street @ Hutchesons Ferry Road
- Intersection 6: Hutchesons Ferry Road @ Cochran Mill Road
- Intersection 7: Cochran Mill Road @ Wilkerson Mill Road
- Intersection 8: SR 70 (South Fulton Parkway) @ Cochran Mill Road
- Intersection 9: SR 70 (South Fulton Parkway) @ Rivertown Road
- Intersection 11: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
- Intersection 12: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
- Intersection 13: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
- Intersection 14: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
- Intersection 16: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps
- Intersection 17: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

Recommended 2038 System Improvements

The following are system improvements that were identified from the 2028 “No-Build” condition analysis.

Intersection 1: Collinsworth Road @ I-85 Northbound Ramps

- Addition of an eastbound left turn lane creating dual left turn lanes

- Providing of “protected only” phasing for eastbound left turns
- Addition of a westbound through lane
- Addition of a westbound right turn lane
- Addition of a northbound left turn lane creating dual left turn lanes
- Creation of receiving lanes on the on-ramp

Intersection 2: Collinsworth Road @ I-85 Southbound Ramps

- Addition of an eastbound through lane
- Addition of a westbound through lane
- Addition of a westbound left turn lane creating dual left turn lanes
- Providing of “protected only” phasing for westbound left turns
- Addition of a southbound right turn lane creating dual right turn lanes

Intersection 3: Collinsworth Road @ Weldon Road

- Realign the SBS warehouse driveway to tie into Weldon Road to the west of the study Intersection
- Realign Collinsworth Road legs to become the through movement and Weldon Road to be the side street
- Installation of a traffic signal
- Addition of a second southbound through lane on Collinsworth Road
- Collinsworth Road northbound approach to have dual left turn lanes and a through lane
- Weldon Road to have a separate left turn lane and a channelized right turn lane
- Provide “protected only” phasing for northbound left turns
- Create a receiving lane on Weldon Road for the additional northbound left turn lane

Intersection 5: Water Works Road / Toombs Street @ Hutchesons Ferry Road

- Convert the 3-way stop-controlled intersection to a minor stop control intersection with free-flow movements on Hutchesons Ferry Road and Toombs Street with Water Works Road having stop control
- Provide right turn channelized islands on eastbound and southbound approaches

Intersection 6: Hutchesons Ferry Road @ Cochran Mill Road

- Installation of a traffic signal
- Addition of an eastbound left turn lane on Hutchesons Ferry Road
- Addition of a westbound right turn lane on Hutchesons Ferry Road
- Addition of a southbound right turn lane on Cochran Mill Road

Intersection 7: Cochran Mill Road @ Wilkerson Mill Road

- Installation of a traffic signal
- Addition of a northbound right and southbound left turn lanes on Cochran Mill Road
- Addition of a westbound left turn lane on Wilkerson Mill Road

Intersection 8: SR 70 (South Fulton Parkway) @ Cochran Mill Road

- Installation of a traffic signal when warranted
- Installation of second through lane in eastbound and westbound directions
- Addition of a westbound left turn lane

Intersection 9: SR 70 (South Fulton Parkway) @ Rivertown Road

- Installation of a traffic signal when warranted
- Addition of a northbound left turn lane
- Convert the westbound right turn lane to a shared through/right turn lane

Intersection 11: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road

- Addition of a channelized northbound right turn lane

Intersection 12: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92

- Create a diamond interchange with signalized ramp intersections on SR 92
- Eastbound ramp intersection to have:
 - Dual left and dual channelized right turn lanes on the eastbound ramp approach
 - Two through and one channelized right turn lanes on northbound approach
 - Two through and dual left turn lanes on the southbound approach
 - Provide “protected only” phasing for southbound dual left turns
- Westbound ramp intersection to have:
 - One left and one channelized right turn lane on the westbound ramp approach
 - Two through and dual left turn lanes on the northbound approach
 - Provide “protected only” phasing for northbound dual left turns
 - Two through and one channelized right turn lanes on southbound approach

Intersection 13: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road

- Widen South Fulton Parkway between Derrick Road and Stonewall Tell Road from 4 lanes to 6 lanes
- Change westbound left turn phasing to “protected-permissive”

Intersection 14: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road

- Addition of an eastbound through lane
- Addition of a westbound through lane
- Addition of a northbound left turn lane to create dual left turns with “protected only” phasing
- Addition of a channelized southbound right turn lane
- Provide “protected-permissive” phasing for eastbound and westbound left turn movements

Intersection 16: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps

- Installation of a traffic signal
- Addition of a northbound left turn lane on Roosevelt Highway creating dual left turn lanes

- “Protected” phasing for the dual northbound left turn lanes

Intersection 17: SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

- Installation of a traffic signal
- Addition of a short eastbound right turn lane on the ramp approach

Future 2038 “Build” Traffic Operations (Full Build-out)

The Full Build-out (Year 2038) “Build” traffic operations were analyzed using the 2038 “Build” volumes in Figures 12A, 12B and 12C, and the results are shown in Table 9 below.

TABLE 9 — FUTURE 2038 “BUILD” INTERSECTION OPERATIONS (FULL BUILD-OUT)					
Intersection		LOS (Delay)			
		NO IMPROVEMENTS		SYSTEM IMPROVEMENTS	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>Collinsworth Road @ I-85 Northbound Ramps</u>	<u>F (175.5)</u>	<u>F (135.6)</u>	<u>C (26.7)</u>	<u>B (13.0)</u>
	-Eastbound Approach	F (133.3)	F (88.7)	C (21.1)	A (3.6)
	-Westbound Approach	F (194.4)	F (178.6)	C (28.9)	B (16.9)
	-Northbound Approach	F (267.9)	F (234.1)	D (39.1)	D (41.0)
2	<u>Collinsworth Road @ I-85 Southbound Ramps</u>	<u>F (84.3)</u>	<u>F (110.7)</u>	<u>B (13.6)</u>	<u>C (22.2)</u>
	-Eastbound Approach	F (125.0)	F (140.8)	B (12.7)	C (27.0)
	-Westbound Approach	D (46.8)	F (93.7)	A (9.7)	A (6.8)
	-Southbound Approach	E (57.6)	F (111.4)	D (42.8)	D (38.7)
3A	<u>Collinsworth Road @ Weldon Road (Without Realignment)</u>	<u>F (*)</u>	<u>F (*)</u>	<i>Reported in row 3B due to lane realignment configuration</i>	
	-Eastbound Approach	F (*)	F (86.7)		
	-Westbound Approach	F (159.5)	F (*)		
	-Northbound Approach	C (25.2)	B (17.7)		
	-Southbound Approach	F (*)	F (*)		
3B	<u>Collinsworth Road @ Weldon Road (With Realignment)</u>	<i>Reported in row 3A</i>		<u>B (10.5)</u>	<u>B (15.0)</u>
	-Eastbound Approach			D (52.7)	D (54.4)
	-Northbound Approach (Collinsworth Road)			B (12.0)	B (16.3)
	-Southbound Approach			A (7.7)	B (13.0)
4	<u>SR 14/US 29 (Main Street) @ Toombs Street</u>	<u>F (232.6)</u>	<u>F (*)</u>	<u>F (232.6)</u>	<u>F (*)</u>
	-Eastbound Approach	F (250.8)	F (*)	F (250.8)	F (*)
	-Westbound Approach	C (30.6)	F (82.2)	C (30.6)	F (82.2)
	-Northbound Approach	E (61.1)	F (72.1)	E (61.1)	F (72.1)
	-Southbound Approach	F (*)	F (*)	F (*)	F (*)
5	<u>Water Works Road / Toombs Street @ Hutchesons Ferry Road</u>				
	-Eastbound Approach	B (14.7)	C (15.7)	D (28.8)	E (42.1)
	-Westbound Approach/(Northbound Left)	F (92.6)	F (211.8)	A (9.8)	B (10.1)
	-Southbound Approach	F (276.9)	F (*)	F (*)	F (*)
6	<u>Hutchesons Ferry Road @ Cochran Mill Road</u>			<u>C (33.7)</u>	<u>D (38.3)</u>
	-Eastbound Left/Approach	B (10.6)	B (13.3)	C (21.6)	C (33.3)
	-Westbound Approach	-	-	B (18.5)	C (32.0)
	-Southbound Approach	F (*)	F (*)	D (45.4)	D (42.7)
7	<u>Cochran Mill Road @ Wilkerson Mill Road</u>			<u>C (28.6)</u>	<u>C (26.9)</u>
	-Westbound Approach	F (*)	F (*)	D (54.8)	D (51.7)
	-Northbound Approach	-	-	B (17.6)	B (16.2)
	-Southbound Left/Approach	B (14.1)	B (13.0)	C (24.3)	C (22.6)
8	<u>SR 70 (South Fulton Parkway) @ Cochran Mill Road</u>			<u>D (43.8)</u>	<u>D (39.0)</u>
	-Eastbound Left/Approach	A (7.6)	B (10.2)	D (41.7)	C (33.9)

	-Westbound Left/ <i>Approach</i> -Northbound Approach -Southbound Approach	F (166.9) F (*) F (*)	B (14.7) F (*) F (*)	D (41.8) E (59.8) D (43.4)	D (35.7) E (59.5) D (38.8)
9	<u>SR 70 (South Fulton Parkway) @ Rivertown Road</u> -Eastbound Left/ <i>Approach</i> -Westbound Left/ <i>Approach</i> -Northbound Approach -Southbound Approach	A (0.0) B (12.9) F (*) F (*)	A (0.0) B (14.2) F (*) F (*)	<u>A (4.8)</u> A (3.9) A (0.8) E (56.3) D (51.5)	<u>B (10.9)</u> A (7.7) A (8.7) D (51.8) D (43.6)
10	<u>SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>E (59.7)</u> E (62.3) D (45.0) F (96.8) D (40.3)	<u>F (101.0)</u> F (88.4) F (95.1) F (159.0) E (76.1)	<u>C (33.8)</u> C (29.3) C (29.9) D (42.6) D (43.6)	<u>D (48.6)</u> D (39.0) D (49.3) D (52.2) E (64.4)
11	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>F (131.0)</u> F (150.7) F (93.7) F (175.0) F (133.3)	<u>F (159.5)</u> F (172.6) F (166.1) F (162.3) E (64.3)	<u>E (68.2)</u> E (76.1) E (59.5) D (52.3) E (75.6)	<u>E (74.6)</u> E (74.3) E (75.6) E (67.8) E (76.1)
12	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>F (233.3)</u> F (254.5) F (229.3) F (187.8) F (241.2)	<u>F (216.7)</u> F (169.6) F (296.3) F (142.7) F (199.2)	<i>Reported in rows 29 and 30 due to conversion to a diamond interchange</i>	
13	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>F (121.4)</u> E (77.9) F (202.7) D (51.2) D (51.6)	<u>F (138.6)</u> C (27.2) F (232.0) D (54.2) D (50.2)	<u>D (42.0)</u> D (43.3) D (36.7) D (51.2) D (51.6)	<u>D (41.2)</u> C (28.0) D (47.9) D (54.2) D (50.2)
14	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>F (186.9)</u> F (219.5) E (59.7) F (*) C (26.8)	<u>F (200.6)</u> F (199.0) F (206.7) F (*) C (33.8)	<u>D (45.3)</u> D (38.8) C (34.1) E (70.9) E (64.9)	<u>D (44.4)</u> D (37.9) D (36.3) E (79.8) E (68.7)
15	<u>SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>E (61.7)</u> E (79.1) D (37.4) D (48.9) D (54.2)	<u>E (77.0)</u> C (24.0) F (112.6) D (54.4) D (53.0)	<u>D (50.7)</u> E (61.5) C (33.1) D (47.0) E (58.6)	<u>E (60.6)</u> C (22.8) E (79.8) D (51.7) E (57.4)
16	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps</u> -Eastbound Approach -Northbound Left/ <i>Approach</i> -Southbound Approach	F (*) F (*) -	F (*) F (*) -	<u>C (29.9)</u> E (59.7) C (31.0) C (26.1)	<u>D (50.0)</u> E (55.8) E (66.1) D (38.0)

17	<u>SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps</u> -Eastbound Approach -Northbound Left/Approach -Southbound Approach	F (*) B (10.1) -	F (*) B (13.5) -	<u>A (9.2)</u> D (43.6) A (6.0) A (5.4)	<u>A (5.1)</u> D (50.9) A (2.7) A (3.8)
18	<u>Cochran Mill Road @ Site Driveway 1</u> -Westbound Approach -Southbound Left	A (9.2) A (0.0)	A (9.5) A (7.4)	A (9.2) A (0.0)	A (9.5) A (7.4)
19	<u>Cochran Mill Road @ Site Driveway 2</u> -Eastbound Approach -Northbound Left	B (10.5) A (0.0)	B (11.2) A (7.6)	B (10.5) A (0.0)	B (11.2) A (7.6)
20	<u>Cochran Mill Road @ Site Driveway 3</u> -Westbound Approach -Southbound Left	B (10.5) A (0.0)	B (11.2) A (7.6)	B (10.5) A (0.0)	B (11.2) A (7.6)
21	<u>Cochran Mill Road @ Site Driveway 4</u> -Westbound Approach -Southbound Left	B (11.0) A (0.0)	B (12.1) A (7.8)	B (11.0) A (0.0)	B (12.1) A (7.8)
22	<u>Cochran Mill Road @ Site Driveway 5 (RIRO)</u> -Eastbound Approach	B (14.6)	B (13.7)	B (14.6)	B (13.7)
23	<u>Cochran Mill Road @ Site Driveway 6a / Site Driveway 6b</u> -Eastbound Approach -Westbound Approach -Northbound Left -Southbound Left	F (244.9) E (36.7) B (12.3) B (10.7)	F (*) F (*) B (11.5) B (14.9)	F (244.9) E (36.7) B (12.3) B (10.7)	<u>F (*)</u> F (172.9) B (11.5) B (14.9)
24	<u>Cochran Mill Road @ Site Driveway 7a / Site Driveway 7b</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>A (6.9)</u> D (54.9) D (48.1) A (0.8) A (4.5)	<u>B (14.5)</u> D (51.7) C (32.2) A (3.7) B (14.0)	<u>A (6.9)</u> D (54.9) D (48.1) A (0.8) A (4.5)	<u>A (9.4)</u> D (51.7) C (32.2) A (3.7) A (1.7)
25	<u>Cochran Mill Road @ Site Driveway 8a / Site Driveway 8b</u> -Eastbound Approach -Westbound Approach -Northbound Left -Southbound Left	F (69.8) C (21.8) B (10.2) A (10.0)	F (*) E (36.0) B (10.4) B (11.2)	F (69.8) C (21.8) B (10.2) A (10.0)	F (*) E (36.0) B (10.4) B (11.2)
26	<u>Cochran Mill Road @ Site Driveway 9a / Site Driveway 9b</u> -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	<u>A (7.5)</u> E (5.1) D (50.5) A (5.5) A (0.7)	<u>B (15.0)</u> D (50.9) D (37.5) B (15.8) A (1.6)	<u>A (7.5)</u> E (55.1) D (50.5) A (5.5) A (0.7)	<u>B (15.0)</u> D (50.9) D (37.5) B (15.8) A (1.6)
27	<u>Cochran Mill Road @ Site Driveway 10a / Site Driveway 10b</u> -Eastbound Approach -Westbound Approach -Northbound Left -Southbound Left	E (37.5) D (26.0) A (8.9) A (9.4)	F (74.0) E (37.5) A (9.6) A (9.4)	E (37.5) D (26.0) A (8.9) A (9.4)	F (74.0) E (37.5) A (9.6) A (9.4)
28	<u>Wilkerson Mill Road @ Site Driveway 11</u>				

	-Eastbound Left -Southbound Approach	A (8.6) B (14.8)	A (8.8) C (16.1)	A (8.6) B (14.8)	A (8.8) C (16.1)
29	<u>SR 92 @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps</u> -Eastbound Approach -Northbound Approach -Southbound Approach	<i>Intersection not present in existing conditions</i>		<u>D (39.5)</u> D (44.0) C (30.4) D (44.6)	<u>C (31.9)</u> D (44.0) C (26.4) C (33.8)
30	<u>SR 92 @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps</u> -Westbound Approach -Northbound Approach -Southbound Approach	<i>Intersection not present in existing conditions</i>		<u>B (14.9)</u> D (53.3) A (8.3) B (18.7)	<u>B (14.1)</u> D (47.2) A (5.3) B (19.5)

* Delay exceeds 300 seconds

The results of future 2038 “Build” (Full Build-out) traffic operations show that one or more approaches at all the study intersections do not meet the LOS standard.

Recommended 2038 Site Improvements (Full Build-out)

The following are site improvements that were identified from the 2038 “Build” (Full Build-out) condition analysis in addition to the recommended 2038 system improvements:

Intersection 8: SR 70 (South Fulton Parkway) @ Cochran Mill Road

- Addition of a northbound left turn lane
- Addition of a southbound left turn lane
- Addition of northbound dual right turn lanes
- Addition of a westbound left turn lane creating dual left turn lanes with “protected only” phasing
- Addition of an eastbound left turn lane

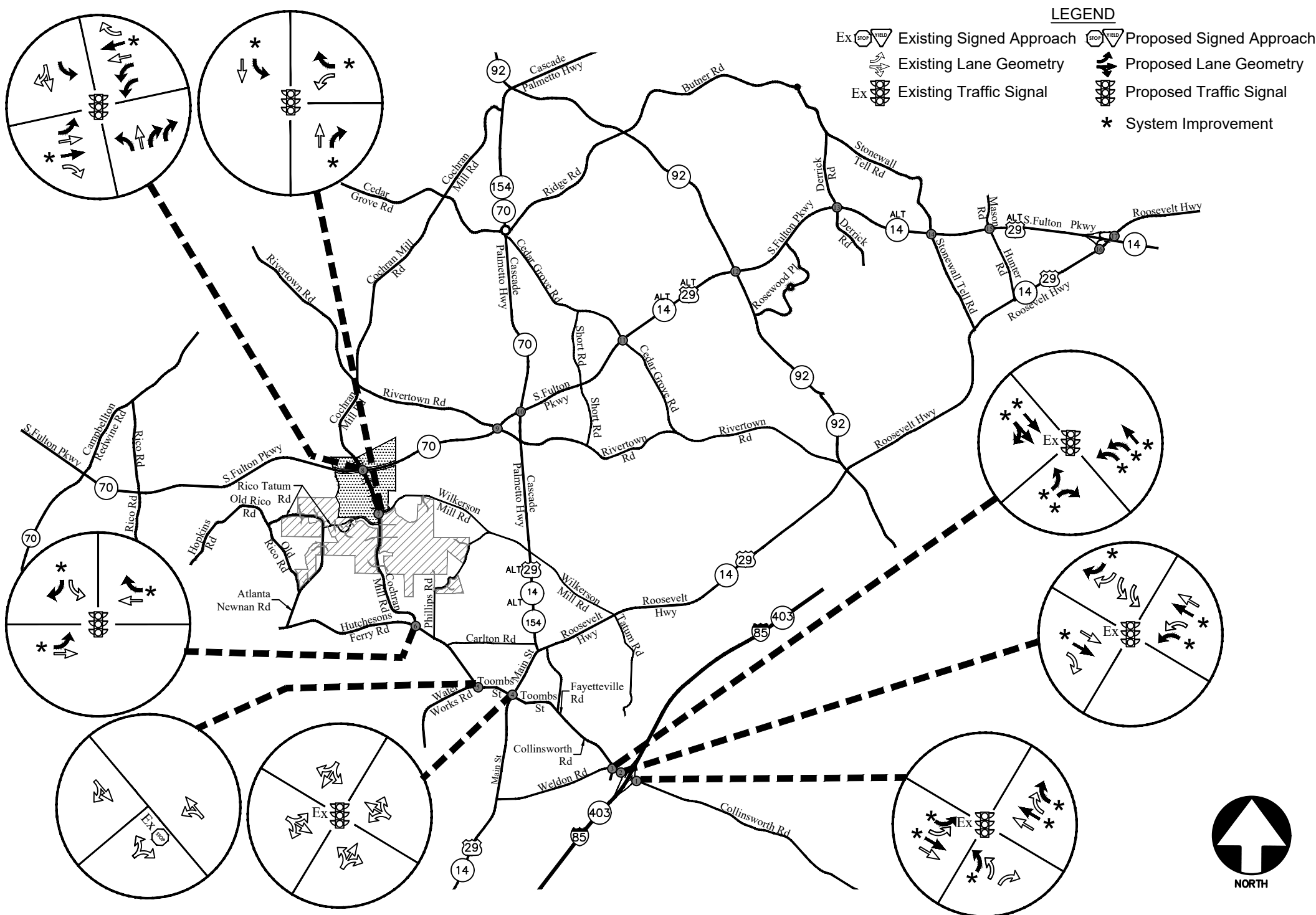
Intersection 10: SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)

- WBL to make dual lefts; NBR; SBR.
- Addition of a westbound left turn lane creating dual left turn lanes with “protected only” phasing
- Addition of a northbound right turn lane
- Addition of a southbound right turn lane

Intersection 15: SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road

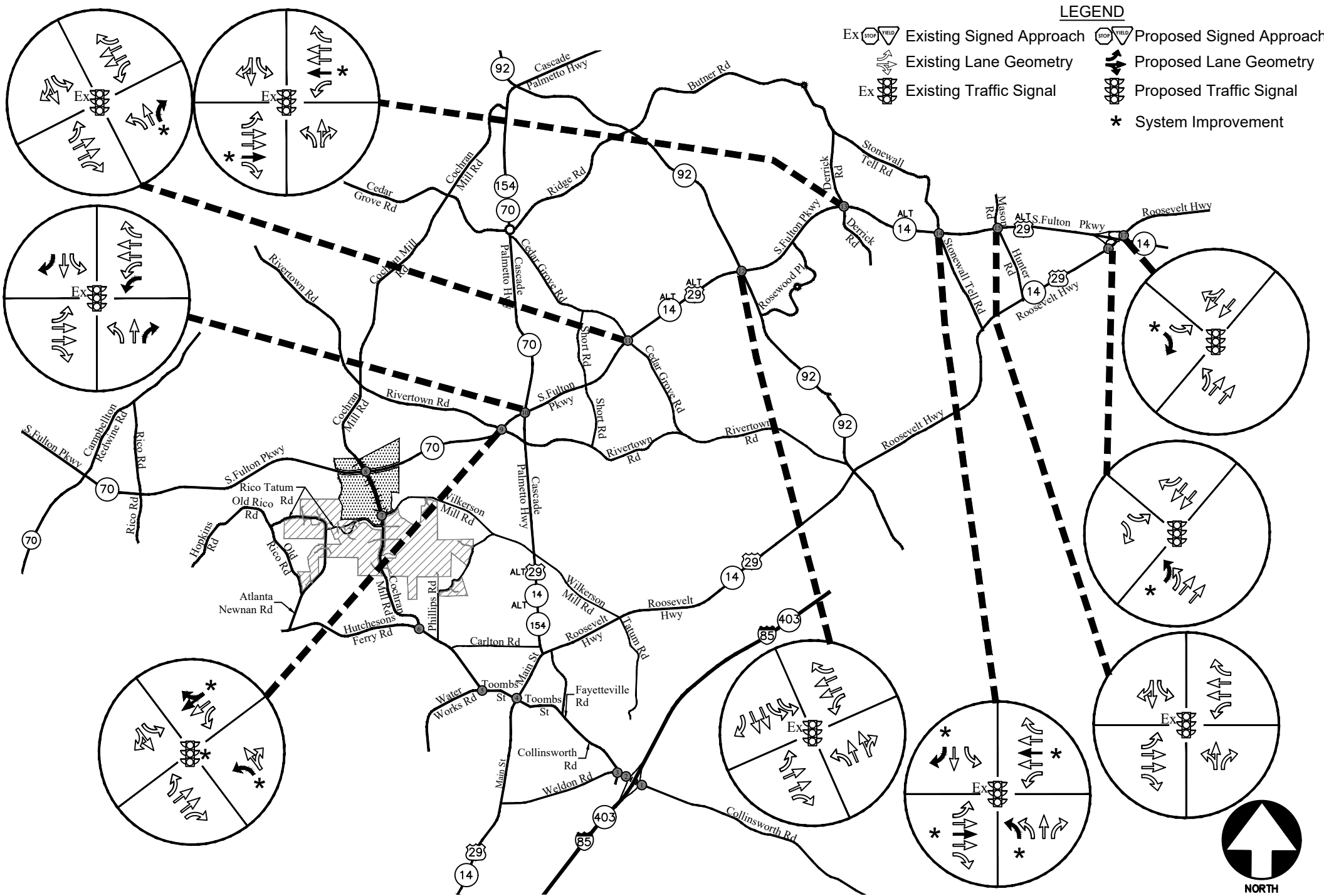
- Provide channelized islands for eastbound and southbound right turn lanes

Recommendations for future traffic control and lane geometry for the Full Build-out of the development are shown in Figures 14A, 14B and 14C.



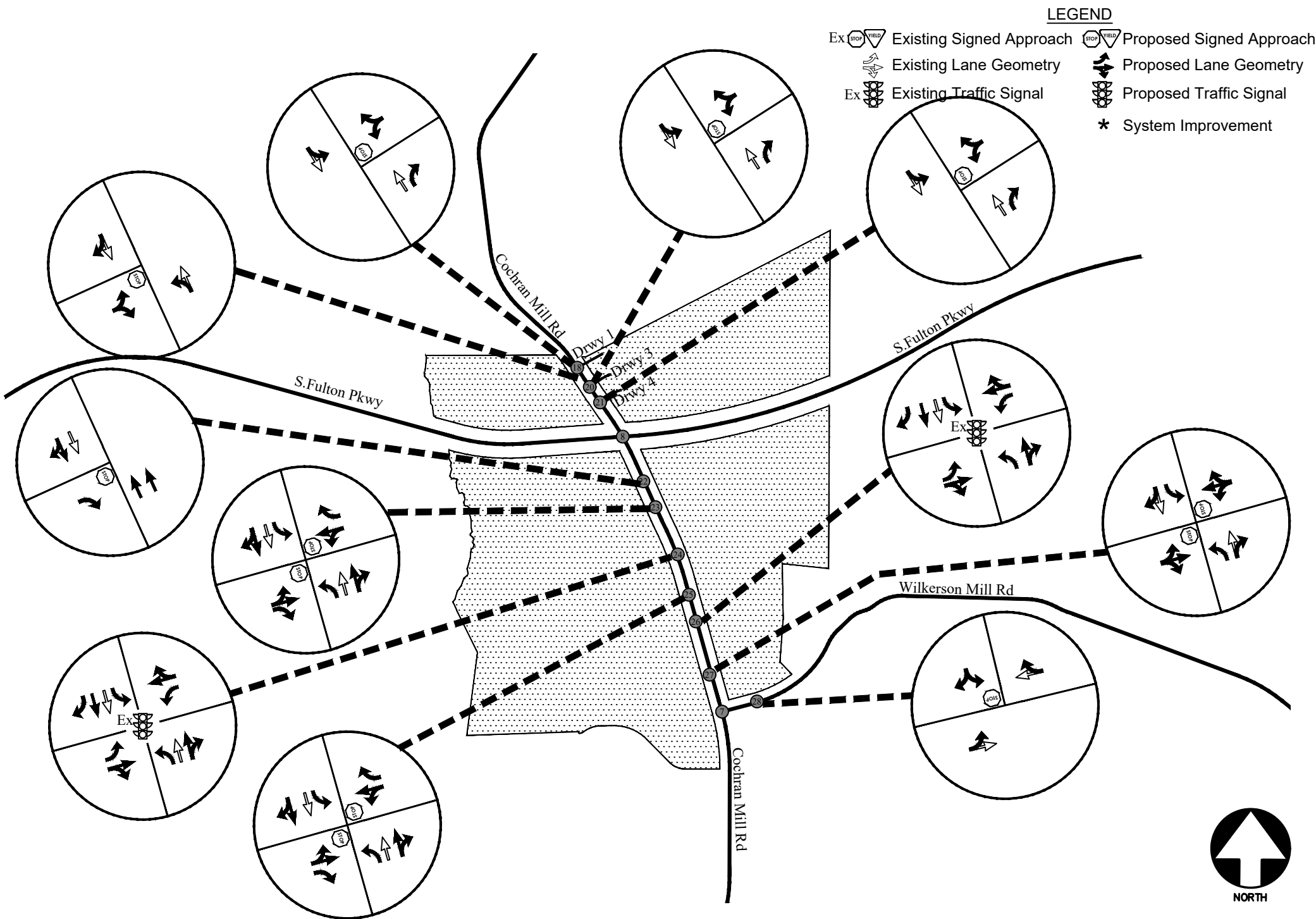
FUTURE 2038 TRAFFIC CONTROL AND LANE GEOMETRY (FULL BUILD-OUT) 1 OF 3

FIGURE 14A
A&R Engineering Inc.



FUTURE 2038 TRAFFIC CONTROL AND LANE GEOMETRY (FULL BUILD-OUT) 2 OF 3

FIGURE 14B
A&R Engineering Inc.



FUTURE 2038 TRAFFIC CONTROL AND LANE GEOMETRY (FULL BUILD-OUT) 3 OF 3

FIGURE 14C
A&R Engineering Inc.

CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the proposed Merrill Park mixed-use development located at the four corners of the intersection of Cochran Mill Road and SR 70 (South Fulton Parkway) in the City of Chattahoochee Hills, Georgia. The development will be built in two phases. Phase 1 of the development will be located in the northeast quadrant and will be built by 2028. Phase 2 of the development will be located in the remaining three quadrants and will be completed by 2038.

Phase 1 of the development will be served by three full access driveways on Cochran Mill Road. Phase 2 of the development proposes one right-in/right-out and eleven full access driveways (one for northwest quadrant, five for southeast quadrant and six for southwest quadrant) on Cochran Mill Road and one full access driveway (for southeast quadrant) on Wilkerson Mill Road. Ten of the site driveways on Cochran Mill Road will align across each other.

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

1. Collinsworth Road @ I-85 Northbound Ramps
2. Collinsworth Road @ I-85 Southbound Ramps
3. Collinsworth Road @ Weldon Road
4. SR 14/US 29 (Main Street) @ Toombs Street
5. Water Works Road / Toombs Street @ Hutchesons Ferry Road
6. Hutchesons Ferry Road @ Cochran Mill Road
7. Cochran Mill Road @ Wilkerson Mill Road
8. SR 70 (South Fulton Parkway) @ Cochran Mill Road
9. SR 70 (South Fulton Parkway) @ Rivertown Road
10. SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)
11. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
12. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
13. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
14. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
15. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Hunter Road / Mason Road
16. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Eastbound Ramps
17. SR 14/US 29 (Roosevelt Highway) @ SR 14 Alternate/US 29 Alternate (South Fulton Parkway) Westbound Ramps

The analysis included the evaluation of future operations for “No-Build” and “Build” conditions for Phase 1 (Year 2028) and Full Build-out (Year 2038) the differences between “No-Build” and “Build” accounts for increase in traffic due to proposed development.

Recommendation for Site Access Configuration

The following access configuration is recommended for the proposed site driveway intersections. Adequate sight distance is to be provided for each driveway per AASHTO standards.

- Site Driveway 1: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Addition of a northbound right turn lane on Cochran Mill Road
 - Driveway approach to be stop-sign controlled
- Site Driveway 2: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Driveway approach to be stop-sign controlled
- Site Driveway 3: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Addition of a northbound right turn lane on Cochran Mill Road
 - Driveway approach to be stop-sign controlled
- Site Driveway 4: Full access driveway on Cochran Mill Road, north of South Fulton Parkway
 - One entering and one exiting lanes.
 - Addition of a northbound right turn lane on Cochran Mill Road
 - Driveway approach to be stop-sign controlled
- Site Driveway 5: Right-in/right-out driveway on Cochran Mill Road, south of South Fulton Parkway
 - One entering and one right turn exiting lanes.
 - Driveway approach to be stop-sign controlled
- Site Driveways 6a & 6b: Full access driveways on Cochran Mill Road, south of Site Driveway 5, aligned across each other
 - One entering and two (shared through/left turn and separate right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Driveway approaches to be stop-sign controlled
- Site Driveways 7a & 7b: Full access driveways on Cochran Mill Road, south of Site Driveways 6a and 6b, aligned across each other
 - One entering and two (separate left turn and shared through/right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Addition of a southbound right turn lane on Cochran Mill Road
 - Installation of a traffic signal with “protected-permissive” phasing for southbound left turns

- Site Driveways 8a & 8b: Full access driveways on Cochran Mill Road, south of Site Driveways 7a and 7b, aligned across each other
 - One entering and two (shared through/left turn and separate right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Driveway approaches to be stop-sign controlled
- Site Driveways 9a & 9b: Full access driveways on Cochran Mill Road, south of Site Driveways 8a and 8b, aligned across each other
 - One entering and two (separate left turn and shared through/right turn) exiting lanes
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Addition of a southbound right turn lane on Cochran Mill Road
 - Installation of a traffic signal
- Site Driveways 10a & 10b: Full access driveways on Cochran Mill Road, south of Site Driveways 9a and 9b, aligned across each other
 - One entering and one exiting lanes.
 - Addition of northbound and southbound left-turn lanes on Cochran Mill Road
 - Driveway approaches to be stop-sign controlled
- Site Driveway 11: Full access driveway on Wilkerson Mill Road
 - One entering and one exiting lanes.
 - Driveway approach to be stop-sign controlled

Appendix

Existing Intersection Traffic Counts	
GRTA Letter of Understanding.....	
Linear Regression of Daily Traffic.....	
Fact Sheets for Planned and Programmed Improvements.....	
Existing Intersection Analysis.....	
Future 2028 “No-Build” Intersection Analysis	
Future 2028 “No-Build” Intersection Analysis with Improvements	
Future 2028 Phase 1 “Build” Intersections Analysis	
Future 2028 Phase 1 “Build” Intersections Analysis with Improvements	
Future 2038 “No-Build” Intersection Analysis	
Future 2038 “No-Build” Intersection Analysis with Improvements	
Future 2038 “Build” Intersections Analysis (Full Build-Out)	
Future 2038 “Build” Intersections Analysis (Full Build-Out) with Improvements	
Traffic Volume Worksheets	

Existing Intersection Traffic Counts

A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
Collinsworth Road @ I-85 SB Ramps
7-9 am | 4-6 pm

File Name : 20230264
Site Code : 20230264
Start Date : 15-08-2023
Page No : 1

Groups Printed- Cars & Buses - Truck

Start Time	I-85 SB Ramps Northbound				I-85 SB Ramps Southbound				Collinsworth Rd Eastbound				Collinsworth Rd Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	29	1	34	64	0	152	44	196	33	91	0	124	384
07:15 AM	0	0	0	0	28	0	27	55	0	145	52	197	38	135	0	173	425
07:30 AM	0	0	0	0	25	0	50	75	0	175	47	222	64	132	0	196	493
07:45 AM	0	0	0	0	44	0	37	81	0	165	62	227	46	160	0	206	514
Total	0	0	0	0	126	1	148	275	0	637	205	842	181	518	0	699	1816
08:00 AM	0	0	0	0	45	0	47	92	0	192	45	237	47	137	0	184	513
08:15 AM	0	0	0	0	27	0	38	65	0	135	46	181	42	101	0	143	389
08:30 AM	0	0	0	0	26	1	40	67	0	125	55	180	37	88	0	125	372
08:45 AM	0	0	0	0	41	0	48	89	0	69	40	109	39	62	0	101	299
Total	0	0	0	0	139	1	173	313	0	521	186	707	165	388	0	553	1573
*** BREAK ***																	
04:00 PM	0	0	0	0	112	0	63	175	0	102	58	160	58	165	0	223	558
04:15 PM	0	0	0	0	131	0	67	198	0	116	77	193	79	116	0	195	586
04:30 PM	0	0	0	0	171	0	70	241	0	58	96	154	67	131	0	198	593
04:45 PM	0	0	0	0	119	0	60	179	0	65	79	144	65	159	0	224	547
Total	0	0	0	0	533	0	260	793	0	341	310	651	269	571	0	840	2284
05:00 PM	0	0	0	0	147	0	50	197	0	86	122	208	81	116	0	197	602
05:15 PM	0	0	0	0	207	0	55	262	0	53	76	129	64	145	0	209	600
05:30 PM	0	0	0	0	185	1	48	234	0	103	108	211	79	123	0	202	647
05:45 PM	0	0	0	0	186	0	77	263	0	40	57	97	80	144	0	224	584
Total	0	0	0	0	725	1	230	956	0	282	363	645	304	528	0	832	2433
Grand Total	0	0	0	0	1523	3	811	2337	0	1781	1064	2845	919	2005	0	2924	8106
Apprch %	0	0	0		65.2	0.1	34.7		0	62.6	37.4		31.4	68.6	0		
Total %	0	0	0	0	18.8	0	10	28.8	0	22	13.1	35.1	11.3	24.7	0	36.1	
Cars & Buses	0	0	0	0	1507	2	760	2269	0	1713	1004	2717	894	1896	0	2790	7776
% Cars & Buses	0	0	0	0	98.9	66.7	93.7	97.1	0	96.2	94.4	95.5	97.3	94.6	0	95.4	95.9
Truck	0	0	0	0	16	1	51	68	0	68	60	128	25	109	0	134	330
% Truck	0	0	0	0	1.1	33.3	6.3	2.9	0	3.8	5.6	4.5	2.7	5.4	0	4.6	4.1

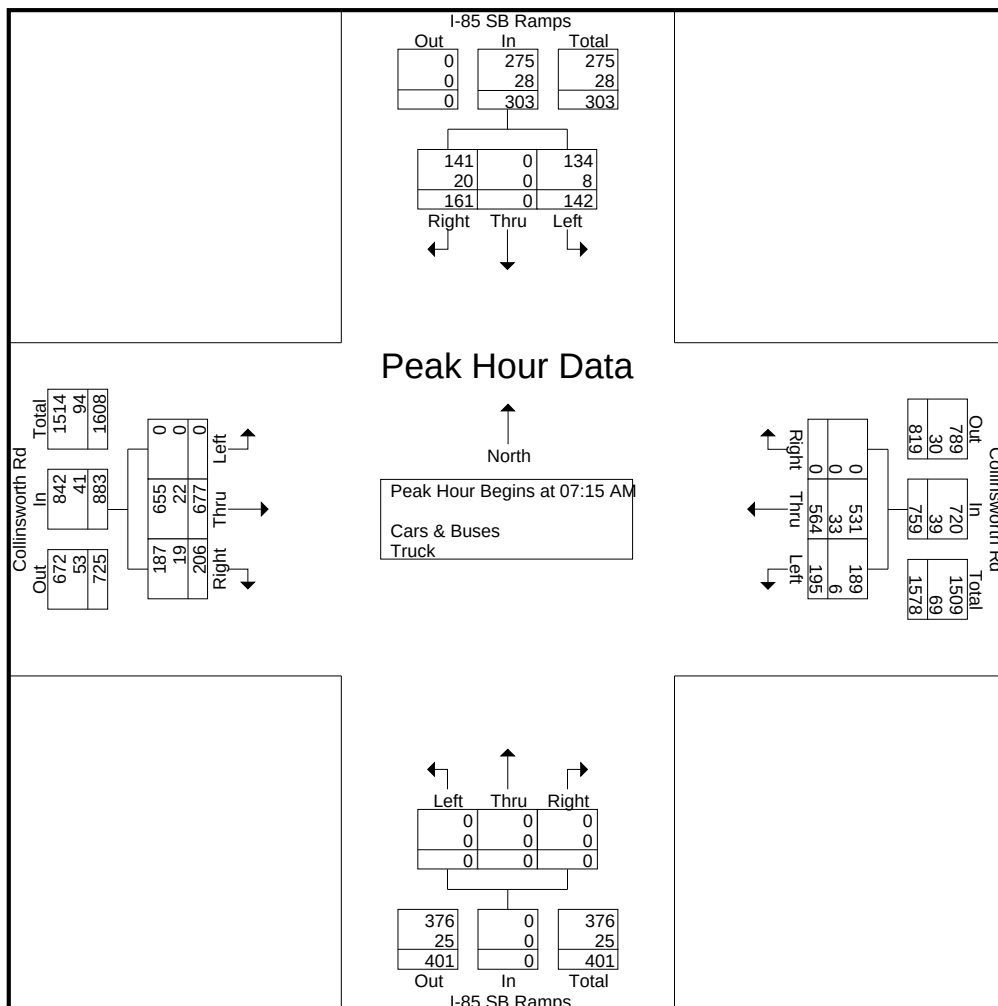
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
Collinsworth Road @ I-85 SB Ramps
7-9 am | 4-6 pm

File Name : 20230264
Site Code : 20230264
Start Date : 15-08-2023
Page No : 2

	I-85 SB Ramps Northbound				I-85 SB Ramps Southbound				Collinsworth Rd Eastbound				Collinsworth 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	28	0	27	55	0	145	52	197	38	135	0	173	425
07:30 AM	0	0	0	0	25	0	50	75	0	175	47	222	64	132	0	196	493
07:45 AM	0	0	0	0	44	0	37	81	0	165	62	227	46	160	0	206	514
08:00 AM	0	0	0	0	45	0	47	92	0	192	45	237	47	137	0	184	513
Total Volume	0	0	0	0	142	0	161	303	0	677	206	883	195	564	0	759	1945
% App. Total	0	0	0	0	46.9	0	53.1		0	76.7	23.3		25.7	74.3	0		
PHF	.000	.000	.000	.000	.789	.000	.805	.823	.000	.882	.831	.931	.762	.881	.000	.921	.946
Cars & Buses	0	0	0	0	134	0	141	275	0	655	187	842	189	531	0	720	1837
% Cars & Buses	0	0	0	0	94.4	0	87.6	90.8	0	96.8	90.8	95.4	96.9	94.1	0	94.9	94.4
Truck	0	0	0	0	8	0	20	28	0	22	19	41	6	33	0	39	108
% Truck	0	0	0	0	5.6	0	12.4	9.2	0	3.2	9.2	4.6	3.1	5.9	0	5.1	5.6



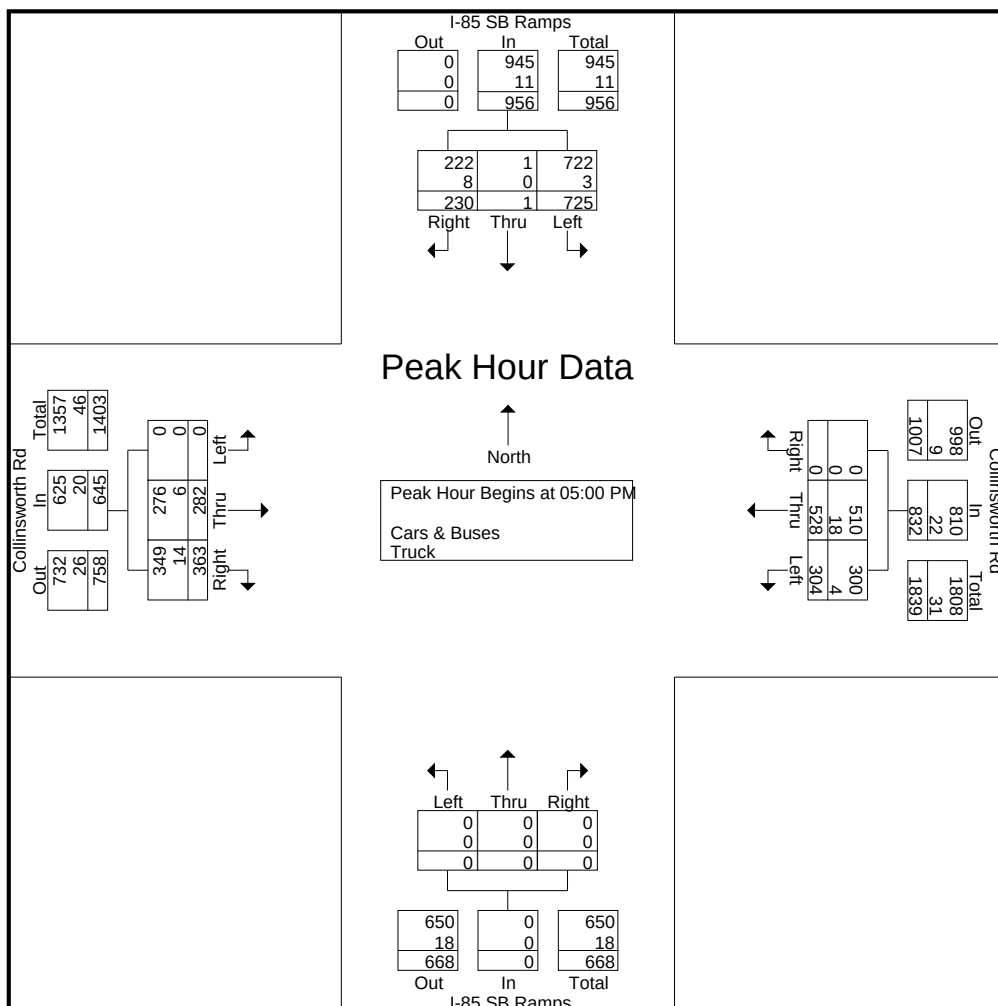
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
Collinsworth Road @ I-85 SB Ramps
7-9 am | 4-6 pm

File Name : 20230264
Site Code : 20230264
Start Date : 15-08-2023
Page No : 3

	I-85 SB Ramps Northbound				I-85 SB Ramps Southbound				Collinsworth Rd Eastbound				Collinsworth 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	147	0	50	197	0	86	122	208	81	116	0	197	602
05:15 PM	0	0	0	0	207	0	55	262	0	53	76	129	64	145	0	209	600
05:30 PM	0	0	0	0	185	1	48	234	0	103	108	211	79	123	0	202	647
05:45 PM	0	0	0	0	186	0	77	263	0	40	57	97	80	144	0	224	584
Total Volume	0	0	0	0	725	1	230	956	0	282	363	645	304	528	0	832	2433
% App. Total	0	0	0	0	75.8	0.1	24.1		0	43.7	56.3		36.5	63.5	0		
PHF	.000	.000	.000	.000	.876	.250	.747	.909	.000	.684	.744	.764	.938	.910	.000	.929	.940
Cars & Buses	0	0	0	0	722	1	222	945	0	276	349	625	300	510	0	810	2380
% Cars & Buses	0	0	0	0	99.6	100	96.5	98.8	0	97.9	96.1	96.9	98.7	96.6	0	97.4	97.8
Truck	0	0	0	0	3	0	8	11	0	6	14	20	4	18	0	22	53
% Truck	0	0	0	0	0.4	0	3.5	1.2	0	2.1	3.9	3.1	1.3	3.4	0	2.6	2.2



A&R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Collinsworth Road @ Weldon Road
7-9 am | 4-6 pm

File Name : 20230262
Site Code : 20230262
Start Date : 08-15-2023
Page No : 1

Groups Printed- Cars & Buses

Start Time	SBS Drwy Northbound				Collinsworth Rd Southbound				Weldon Rd Eastbound				Collinsworth Rd Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	2	2	4	77	0	0	77	4	71	3	78	4	30	46	80	239
07:15 AM	0	0	0	0	106	3	2	111	2	74	1	77	3	37	61	101	289
07:30 AM	0	0	1	1	89	0	2	91	2	84	1	87	10	37	87	134	313
07:45 AM	0	1	4	5	95	0	2	97	14	73	1	88	16	33	75	124	314
Total	0	3	7	10	367	3	6	376	22	302	6	330	33	137	269	439	1155
08:00 AM	0	0	1	1	99	0	1	100	2	91	0	93	1	41	60	102	296
08:15 AM	0	0	1	1	73	1	0	74	1	63	0	64	2	43	77	122	261
08:30 AM	0	0	5	5	87	0	0	87	2	59	1	62	9	25	40	74	228
08:45 AM	0	1	0	1	47	1	1	49	0	36	0	36	4	25	42	71	157
Total	0	1	7	8	306	2	2	310	5	249	1	255	16	134	219	369	942
*** BREAK ***																	
04:00 PM	2	5	11	18	109	1	2	112	2	37	0	39	0	51	94	145	314
04:15 PM	1	1	5	7	113	0	3	116	0	32	0	32	2	61	74	137	292
04:30 PM	1	1	24	26	95	0	1	96	3	41	1	45	3	63	98	164	331
04:45 PM	2	1	5	8	89	0	2	91	1	51	0	52	0	76	83	159	310
Total	6	8	45	59	406	1	8	415	6	161	1	168	5	251	349	605	1247
05:00 PM	3	2	7	12	131	0	3	134	2	91	0	93	2	62	95	159	398
05:15 PM	0	0	4	4	121	0	1	122	4	78	0	82	3	82	63	148	356
05:30 PM	0	0	6	6	133	0	2	135	0	44	0	44	4	85	84	173	358
05:45 PM	1	1	2	4	88	1	0	89	0	44	0	44	1	77	92	170	307
Total	4	3	19	26	473	1	6	480	6	257	0	263	10	306	334	650	1419
Grand Total	10	15	78	103	1552	7	22	1581	39	969	8	1016	64	828	1171	2063	4763
Apprch %	9.7	14.6	75.7		98.2	0.4	1.4		3.8	95.4	0.8		3.1	40.1	56.8		
Total %	0.2	0.3	1.6	2.2	32.6	0.1	0.5	33.2	0.8	20.3	0.2	21.3	1.3	17.4	24.6	43.3	

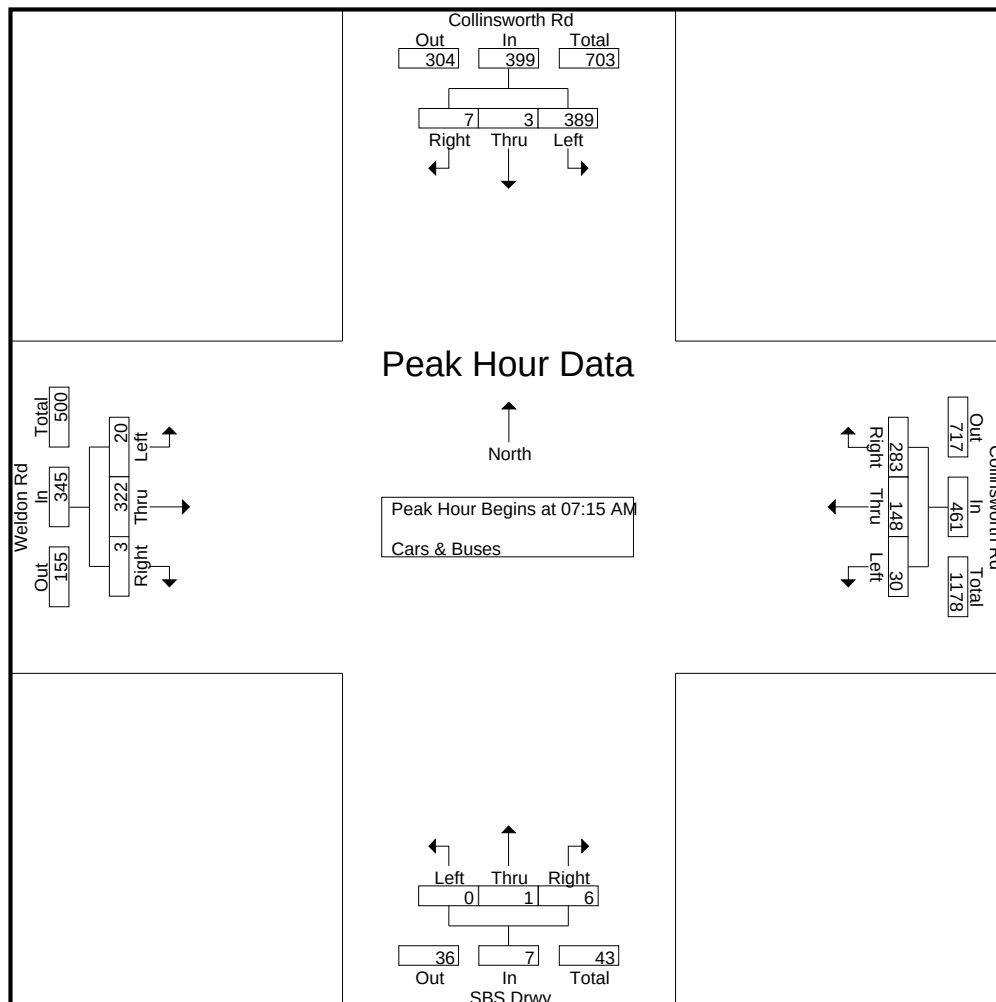
A&R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Collinsworth Road @ Weldon Road
7-9 am | 4-6 pm

File Name : 20230262
Site Code : 20230262
Start Date : 08-15-2023
Page No : 2

	SBS Drwy Northbound				Collinsworth Rd Southbound				Weldon Rd Eastbound				Collinsworth 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	106	3	2	111	2	74	1	77	3	37	61	101	289
07:30 AM	0	0	1	1	89	0	2	91	2	84	1	87	10	37	87	134	313
07:45 AM	0	1	4	5	95	0	2	97	14	73	1	88	16	33	75	124	314
08:00 AM	0	0	1	1	99	0	1	100	2	91	0	93	1	41	60	102	296
Total Volume	0	1	6	7	389	3	7	399	20	322	3	345	30	148	283	461	1212
% App. Total	0	14.3	85.7		97.5	0.8	1.8		5.8	93.3	0.9		6.5	32.1	61.4		
PHF	.000	.250	.375	.350	.917	.250	.875	.899	.357	.885	.750	.927	.469	.902	.813	.860	.965



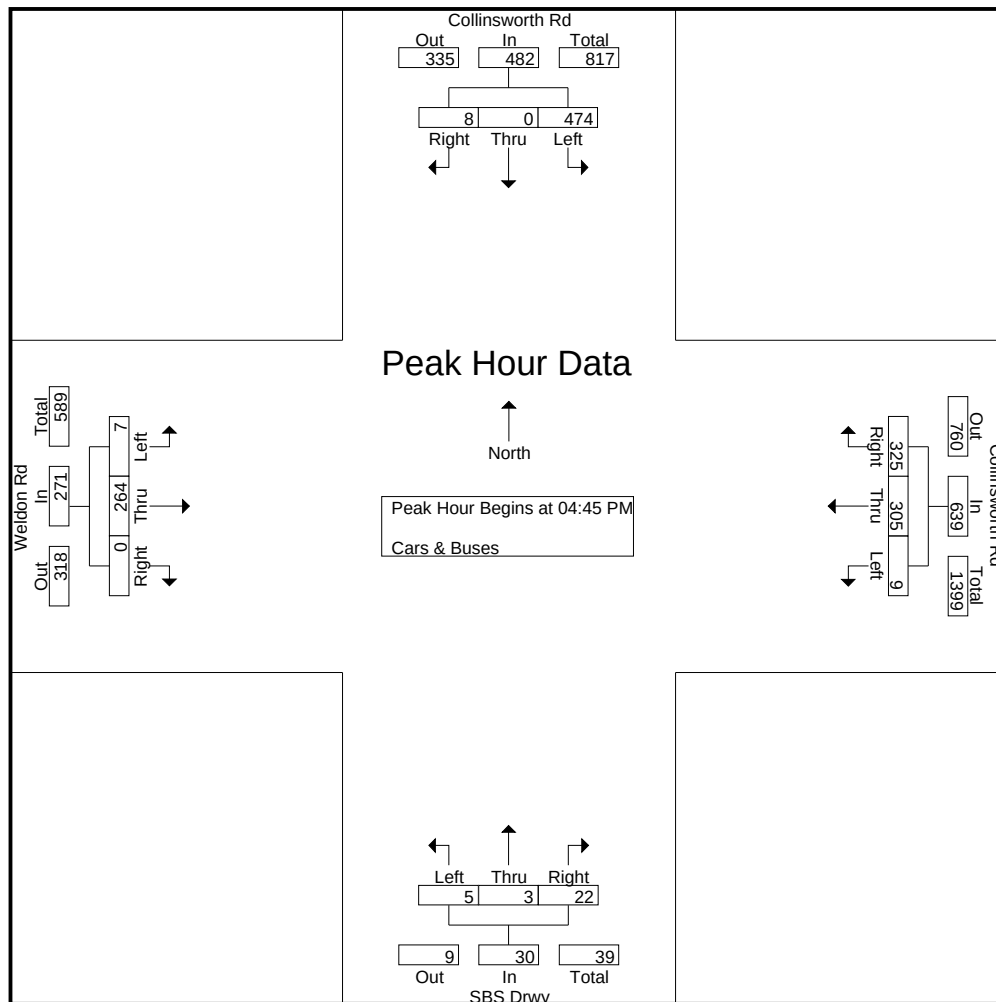
A&R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Collinsworth Road @ Weldon Road
7-9 am | 4-6 pm

File Name : 20230262
Site Code : 20230262
Start Date : 08-15-2023
Page No : 3

	SBS Drwy Northbound				Collinsworth Rd Southbound				Weldon Rd Eastbound				Collinsworth 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	1	5	8	89	0	2	91	1	51	0	52	0	76	83	159	310
05:00 PM	3	2	7	12	131	0	3	134	2	91	0	93	2	62	95	159	398
05:15 PM	0	0	4	4	121	0	1	122	4	78	0	82	3	82	63	148	356
05:30 PM	0	0	6	6	133	0	2	135	0	44	0	44	4	85	84	173	358
Total Volume	5	3	22	30	474	0	8	482	7	264	0	271	9	305	325	639	1422
% App. Total	16.7	10	73.3		98.3	0	1.7		2.6	97.4	0		1.4	47.7	50.9		
PHF	.417	.375	.786	.625	.891	.000	.667	.893	.438	.725	.000	.728	.563	.897	.855	.923	.893



A&R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
SR 14-US 29 (Main St) @ Toombs St
7-9am - 4-6pm

File Name : 20230255
Site Code : 20230255
Start Date : 08-15-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 14-US 29 (Main St) Northbound				SR 14-US 29 (Main St) Southbound				Toombs St Eastbound				Toombs St Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	78	2	80	5	78	1	84	1	9	1	11	3	9	9	21	196
07:15 AM	0	93	1	94	9	82	1	92	7	14	4	25	0	10	7	17	228
07:30 AM	1	86	0	87	9	62	1	72	4	14	0	18	3	6	4	13	190
07:45 AM	2	74	4	80	4	68	1	73	5	23	2	30	3	13	6	22	205
Total	3	331	7	341	27	290	4	321	17	60	7	84	9	38	26	73	819
08:00 AM	2	76	3	81	2	74	3	79	9	15	2	26	1	9	5	15	201
08:15 AM	2	61	2	65	6	61	0	67	3	12	1	16	1	14	9	24	172
08:30 AM	3	75	2	80	10	52	2	64	3	17	2	22	5	22	7	34	200
08:45 AM	3	73	2	78	8	66	5	79	3	10	2	15	3	11	4	18	190
Total	10	285	9	304	26	253	10	289	18	54	7	79	10	56	25	91	763
*** BREAK ***																	
04:00 PM	3	71	2	76	13	111	2	126	6	9	4	19	3	16	11	30	251
04:15 PM	1	80	7	88	8	111	2	121	5	18	2	25	3	16	11	30	264
04:30 PM	1	80	2	83	10	147	1	158	2	18	3	23	5	24	10	39	303
04:45 PM	4	79	1	84	12	112	2	126	1	12	2	15	7	23	6	36	261
Total	9	310	12	331	43	481	7	531	14	57	11	82	18	79	38	135	1079
05:00 PM	0	80	4	84	15	105	3	123	6	11	3	20	6	23	12	41	268
05:15 PM	2	65	2	69	10	103	5	118	5	11	3	19	2	16	10	28	234
05:30 PM	2	55	1	58	11	115	2	128	3	11	2	16	5	27	8	40	242
05:45 PM	0	58	4	62	7	113	1	121	5	6	1	12	1	26	5	32	227
Total	4	258	11	273	43	436	11	490	19	39	9	67	14	92	35	141	971
Grand Total	26	1184	39	1249	139	1460	32	1631	68	210	34	312	51	265	124	440	3632
Apprch %	2.1	94.8	3.1		8.5	89.5	2		21.8	67.3	10.9		11.6	60.2	28.2		
Total %	0.7	32.6	1.1	34.4	3.8	40.2	0.9	44.9	1.9	5.8	0.9	8.6	1.4	7.3	3.4	12.1	
Cars & Buses	26	1078	39	1143	138	1306	31	1475	67	210	31	308	51	265	124	440	3366
% Cars & Buses	100	91	100	91.5	99.3	89.5	96.9	90.4	98.5	100	91.2	98.7	100	100	100	100	92.7
Trucks	0	106	0	106	1	154	1	156	1	0	3	4	0	0	0	0	266
% Trucks	0	9	0	8.5	0.7	10.5	3.1	9.6	1.5	0	8.8	1.3	0	0	0	0	7.3

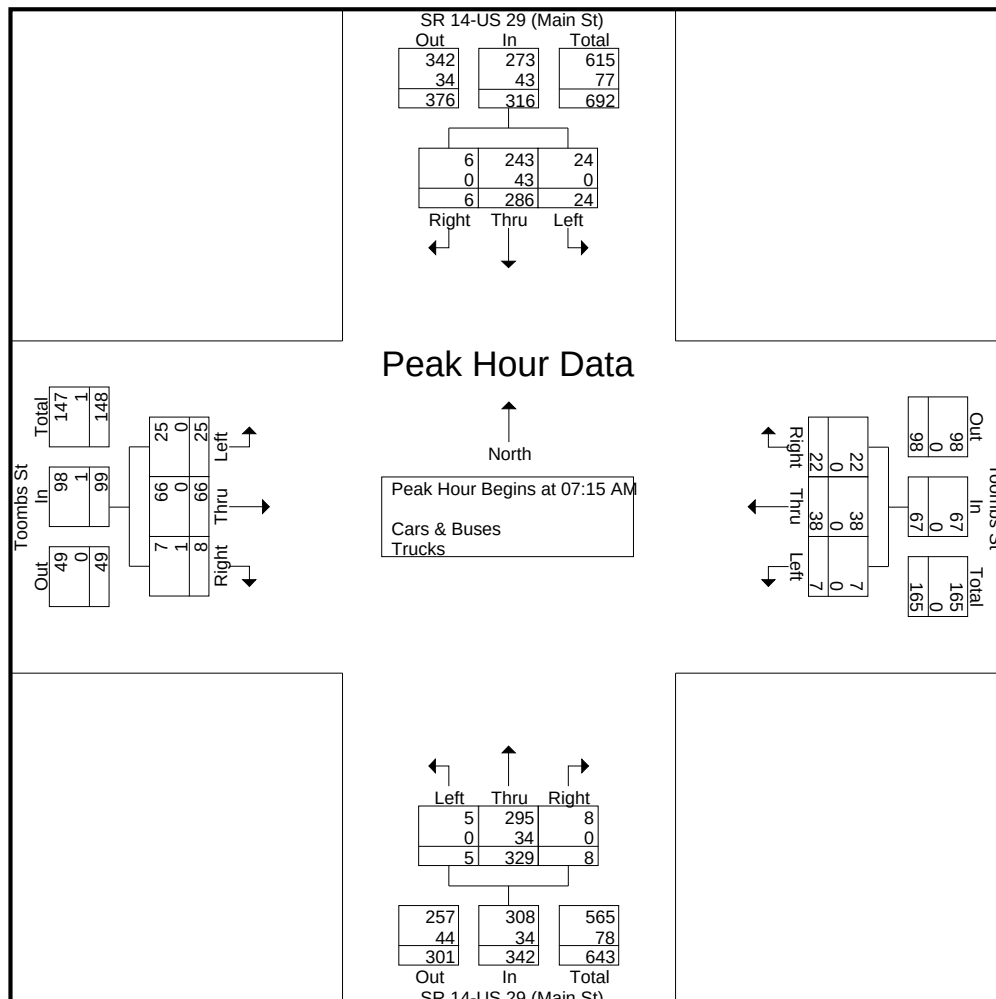
A&R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
SR 14-US 29 (Main St) @ Toombs St
7-9am - 4-6pm

File Name : 20230255
Site Code : 20230255
Start Date : 08-15-2023
Page No : 2

	SR 14-US 29 (Main St) Northbound				SR 14-US 29 (Main St) Southbound				Toombs St Eastbound				Toombs St 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	93	1	94	9	82	1	92	7	14	4	25	0	10	7	17	228
07:30 AM	1	86	0	87	9	62	1	72	4	14	0	18	3	6	4	13	190
07:45 AM	2	74	4	80	4	68	1	73	5	23	2	30	3	13	6	22	205
08:00 AM	2	76	3	81	2	74	3	79	9	15	2	26	1	9	5	15	201
Total Volume	5	329	8	342	24	286	6	316	25	66	8	99	7	38	22	67	824
% App. Total	1.5	96.2	2.3		7.6	90.5	1.9		25.3	66.7	8.1		10.4	56.7	32.8		
PHF	.625	.884	.500	.910	.667	.872	.500	.859	.694	.717	.500	.825	.583	.731	.786	.761	.904
Cars & Buses	5	295	8	308	24	243	6	273	25	66	7	98	7	38	22	67	746
% Cars & Buses	100	89.7	100	90.1	100	85.0	100	86.4	100	100	87.5	99.0	100	100	100	100	90.5
Trucks	0	34	0	34	0	43	0	43	0	0	1	1	0	0	0	0	78
% Trucks	0	10.3	0	9.9	0	15.0	0	13.6	0	0	12.5	1.0	0	0	0	0	9.5



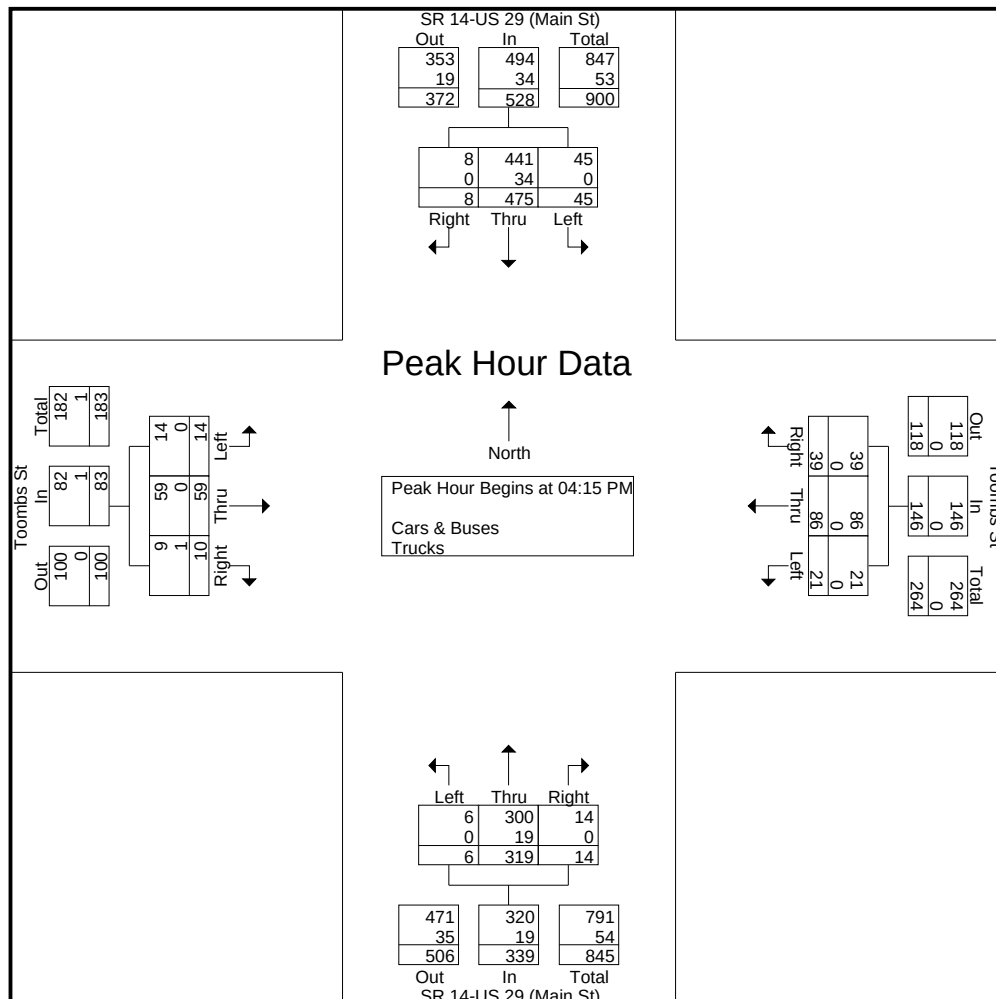
A&R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
SR 14-US 29 (Main St) @ Toombs St
7-9am - 4-6pm

File Name : 20230255
Site Code : 20230255
Start Date : 08-15-2023
Page No : 3

	SR 14-US 29 (Main St) Northbound				SR 14-US 29 (Main St) Southbound				Toombs St Eastbound				Toombs St 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	1	80	7	88	8	111	2	121	5	18	2	25	3	16	11	30	264
04:30 PM	1	80	2	83	10	147	1	158	2	18	3	23	5	24	10	39	303
04:45 PM	4	79	1	84	12	112	2	126	1	12	2	15	7	23	6	36	261
05:00 PM	0	80	4	84	15	105	3	123	6	11	3	20	6	23	12	41	268
Total Volume	6	319	14	339	45	475	8	528	14	59	10	83	21	86	39	146	1096
% App. Total	1.8	94.1	4.1		8.5	90	1.5		16.9	71.1	12		14.4	58.9	26.7		
PHF	.375	.997	.500	.963	.750	.808	.667	.835	.583	.819	.833	.830	.750	.896	.813	.890	.904
Cars & Buses	6	300	14	320	45	441	8	494	14	59	9	82	21	86	39	146	1042
% Cars & Buses	100	94.0	100	94.4	100	92.8	100	93.6	100	100	90.0	98.8	100	100	100	100	95.1
Trucks	0	19	0	19	0	34	0	34	0	0	1	1	0	0	0	0	54
% Trucks	0	6.0	0	5.6	0	7.2	0	6.4	0	0	10.0	1.2	0	0	0	0	4.9



A & R Engineering, Inc.

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Marietta, GA 30067

TMC Data
Water Works Road Toombs St @
Hutchenson Ferry Rd
7-9am - 4-6pm

File Name : 20230273
Site Code : 20230273
Start Date : 15-08-2023
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Northbound				Hutchenson Ferry Rd Southbound				Water Works Road Eastbound				Toombs St Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	51	0	8	59	5	10	0	15	0	8	21	29	103
07:15 AM	0	0	0	0	52	0	9	61	8	12	0	20	0	5	28	33	114
07:30 AM	0	0	0	0	55	0	4	59	9	13	0	22	0	5	35	40	121
07:45 AM	0	0	0	0	53	0	5	58	7	12	0	19	0	6	33	39	116
Total	0	0	0	0	211	0	26	237	29	47	0	76	0	24	117	141	454
08:00 AM	0	0	0	0	47	0	3	50	8	11	0	19	0	7	38	45	114
08:15 AM	0	0	0	0	55	0	5	60	6	14	0	20	0	8	34	42	122
08:30 AM	0	0	0	0	51	0	4	55	8	12	0	20	0	9	36	45	120
08:45 AM	0	0	0	0	41	0	6	47	7	13	0	20	0	7	31	38	105
Total	0	0	0	0	194	0	18	212	29	50	0	79	0	31	139	170	461
*** BREAK ***																	
04:00 PM	0	0	0	0	33	0	6	39	6	10	0	16	0	7	55	62	117
04:15 PM	0	0	0	0	38	0	5	43	8	15	0	23	0	5	53	58	124
04:30 PM	0	0	0	0	23	0	7	30	9	12	0	21	0	6	58	64	115
04:45 PM	0	0	0	0	43	0	5	48	5	14	0	19	0	8	55	63	130
Total	0	0	0	0	137	0	23	160	28	51	0	79	0	26	221	247	486
05:00 PM	0	0	0	0	42	0	8	50	4	13	0	17	0	7	63	70	137
05:15 PM	0	0	0	0	45	0	6	51	7	15	0	22	0	8	51	59	132
05:30 PM	0	0	0	0	37	0	4	41	8	14	0	22	0	9	44	53	116
05:45 PM	0	0	0	0	30	0	5	35	6	13	0	19	0	8	50	58	112
Total	0	0	0	0	154	0	23	177	25	55	0	80	0	32	208	240	497
Grand Total	0	0	0	0	696	0	90	786	111	203	0	314	0	113	685	798	1898
Apprch %	0	0	0		88.5	0	11.5		35.4	64.6	0		0	14.2	85.8		
Total %	0	0	0	0	36.7	0	4.7	41.4	5.8	10.7	0	16.5	0	6	36.1	42	

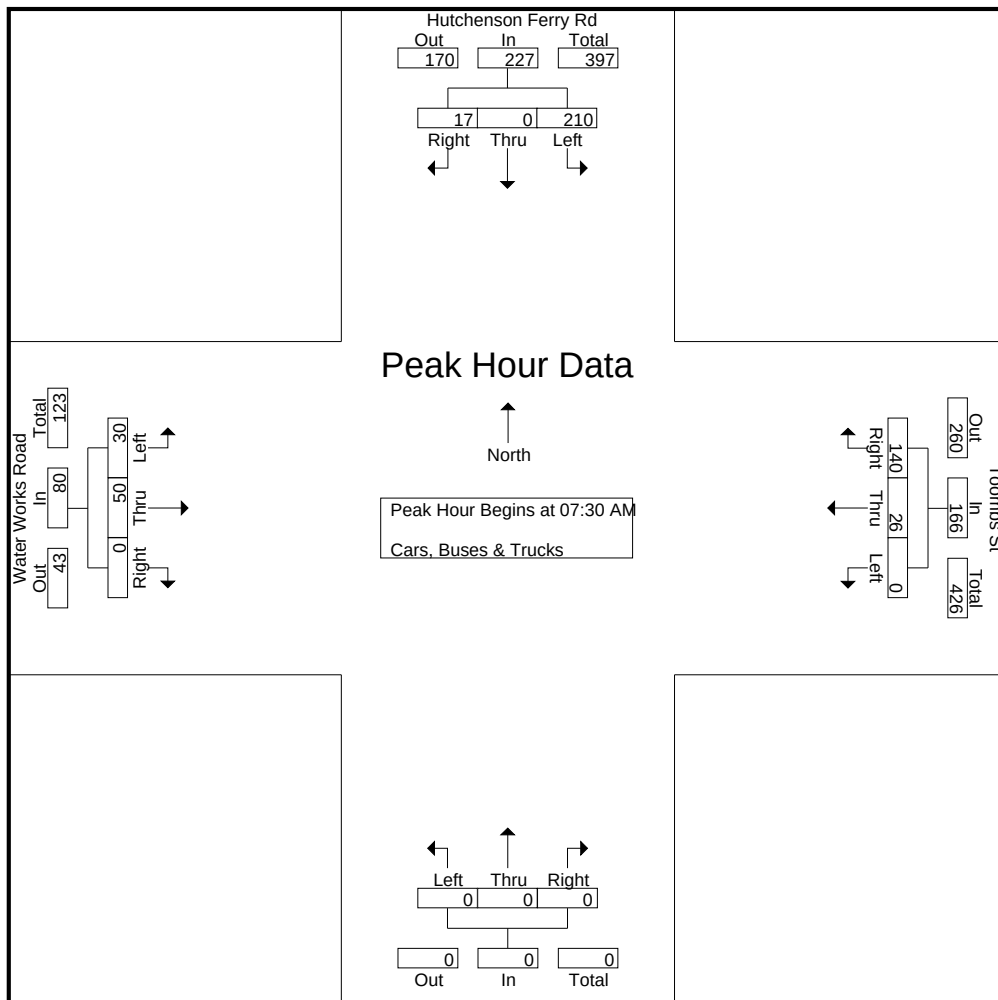
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
Water Works Road Toombs St @
Hutchenson Ferry Rd
7-9am - 4-6pm

File Name : 20230273
Site Code : 20230273
Start Date : 15-08-2023
Page No : 2

	Northbound				Hutchenson Ferry Rd Southbound				Water Works Road Eastbound				Toombs St 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	55	0	4	59	9	13	0	22	0	5	35	40	121
07:45 AM	0	0	0	0	53	0	5	58	7	12	0	19	0	6	33	39	116
08:00 AM	0	0	0	0	47	0	3	50	8	11	0	19	0	7	38	45	114
08:15 AM	0	0	0	0	55	0	5	60	6	14	0	20	0	8	34	42	122
Total Volume	0	0	0	0	210	0	17	227	30	50	0	80	0	26	140	166	473
% App. Total	0	0	0		92.5	0	7.5		37.5	62.5	0		0	15.7	84.3		
PHF	.000	.000	.000	.000	.955	.000	.850	.946	.833	.893	.000	.909	.000	.813	.921	.922	.969



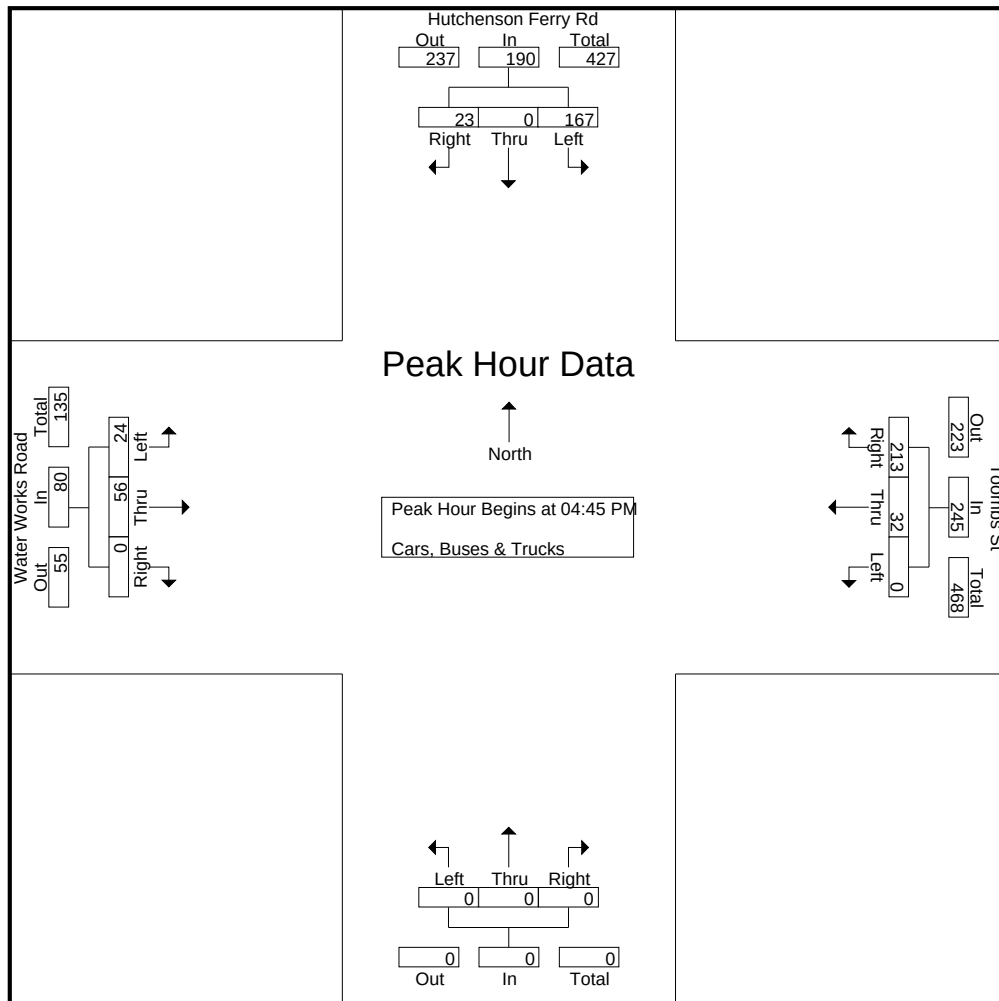
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
Water Works Road Toombs St @
Hutchenson Ferry Rd
7-9am - 4-6pm

File Name : 20230273
Site Code : 20230273
Start Date : 15-08-2023
Page No : 3

	Northbound				Hutchenson Ferry Rd Southbound				Water Works Road Eastbound				Toombs St 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	43	0	5	48	5	14	0	19	0	8	55	63	130
05:00 PM	0	0	0	0	42	0	8	50	4	13	0	17	0	7	63	70	137
05:15 PM	0	0	0	0	45	0	6	51	7	15	0	22	0	8	51	59	132
05:30 PM	0	0	0	0	37	0	4	41	8	14	0	22	0	9	44	53	116
Total Volume	0	0	0	0	167	0	23	190	24	56	0	80	0	32	213	245	515
% App. Total	0	0	0	0	87.9	0	12.1		30	70	0		0	13.1	86.9		
PHF	.000	.000	.000	.000	.928	.000	.719	.931	.750	.933	.000	.909	.000	.889	.845	.875	.940



A & R Engineering, Inc.

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Marietta, GA 30067

TMC Data
Cochran Mill road @ Hutchinson
Ferry Road
7-9 am | 4-6 pm

File Name : 20230215
Site Code : 20230215
Start Date : 05-23-2023
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Northbound				Cochran Mill road Southbound				Hutchinson Ferry Road Eastbound				Hutchinson Ferry 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
07:00 AM	0	0	0	0	11	0	1	12	2	39	0	41	0	14	2	16	69
07:15 AM	0	0	0	0	10	0	2	12	2	44	0	46	0	19	7	26	84
07:30 AM	0	0	0	0	6	0	3	9	1	49	0	50	0	26	9	35	94
07:45 AM	0	0	0	0	7	0	4	11	0	46	0	46	0	29	3	32	89
Total	0	0	0	0	34	0	10	44	5	178	0	183	0	88	21	109	336
08:00 AM	0	0	0	0	15	0	2	17	4	30	0	34	0	32	6	38	89
08:15 AM	0	0	0	0	9	0	1	10	0	46	0	46	0	24	6	30	86
08:30 AM	0	0	0	0	11	0	0	11	1	32	0	33	0	31	5	36	80
08:45 AM	0	0	0	0	7	0	4	11	4	28	0	32	0	30	1	31	74
Total	0	0	0	0	42	0	7	49	9	136	0	145	0	117	18	135	329
*** BREAK ***																	
04:00 PM	0	0	0	0	8	0	2	10	1	25	0	26	0	45	15	60	96
04:15 PM	0	0	0	0	6	0	4	10	5	32	0	37	0	38	15	53	100
04:30 PM	0	0	0	0	4	0	3	7	1	19	0	20	0	43	12	55	82
04:45 PM	0	0	0	0	6	0	2	8	2	37	0	39	0	33	6	39	86
Total	0	0	0	0	24	0	11	35	9	113	0	122	0	159	48	207	364
05:00 PM	0	0	0	0	11	0	4	15	0	31	0	31	0	48	15	63	109
05:15 PM	0	0	0	0	14	0	5	19	1	31	0	32	0	37	9	46	97
05:30 PM	0	0	0	0	8	0	2	10	2	29	0	31	0	34	10	44	85
05:45 PM	0	0	0	0	11	0	1	12	2	19	0	21	0	41	9	50	83
Total	0	0	0	0	44	0	12	56	5	110	0	115	0	160	43	203	374
Grand Total	0	0	0	0	144	0	40	184	28	537	0	565	0	524	130	654	1403
Apprch %	0	0	0		78.3	0	21.7		5	95	0		0	80.1	19.9		
Total %	0	0	0	0	10.3	0	2.9	13.1	2	38.3	0	40.3	0	37.3	9.3	46.6	

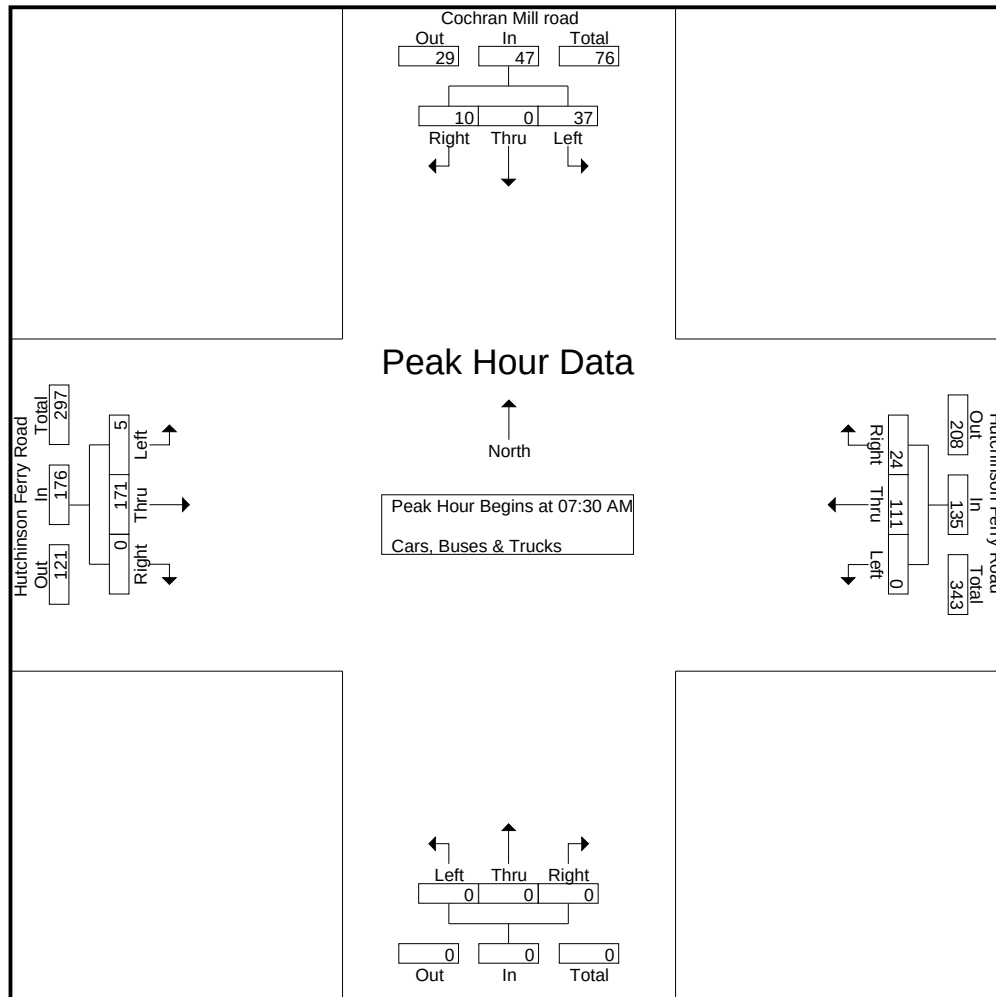
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Cochran Mill road @ Hutchinson
Ferry Road
7-9 am | 4-6 pm

File Name : 20230215
Site Code : 20230215
Start Date : 05-23-2023
Page No : 2

	Northbound				Cochran Mill road Southbound				Hutchinson Ferry Road Eastbound				Hutchinson Ferry 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	6	0	3	9	1	49	0	50	0	26	9	35	94
07:45 AM	0	0	0	0	7	0	4	11	0	46	0	46	0	29	3	32	89
08:00 AM	0	0	0	0	15	0	2	17	4	30	0	34	0	32	6	38	89
08:15 AM	0	0	0	0	9	0	1	10	0	46	0	46	0	24	6	30	86
Total Volume	0	0	0	0	37	0	10	47	5	171	0	176	0	111	24	135	358
% App. Total	0	0	0	0	78.7	0	21.3		2.8	97.2	0		0	82.2	17.8		
PHF	.000	.000	.000	.000	.617	.000	.625	.691	.313	.872	.000	.880	.000	.867	.667	.888	.952



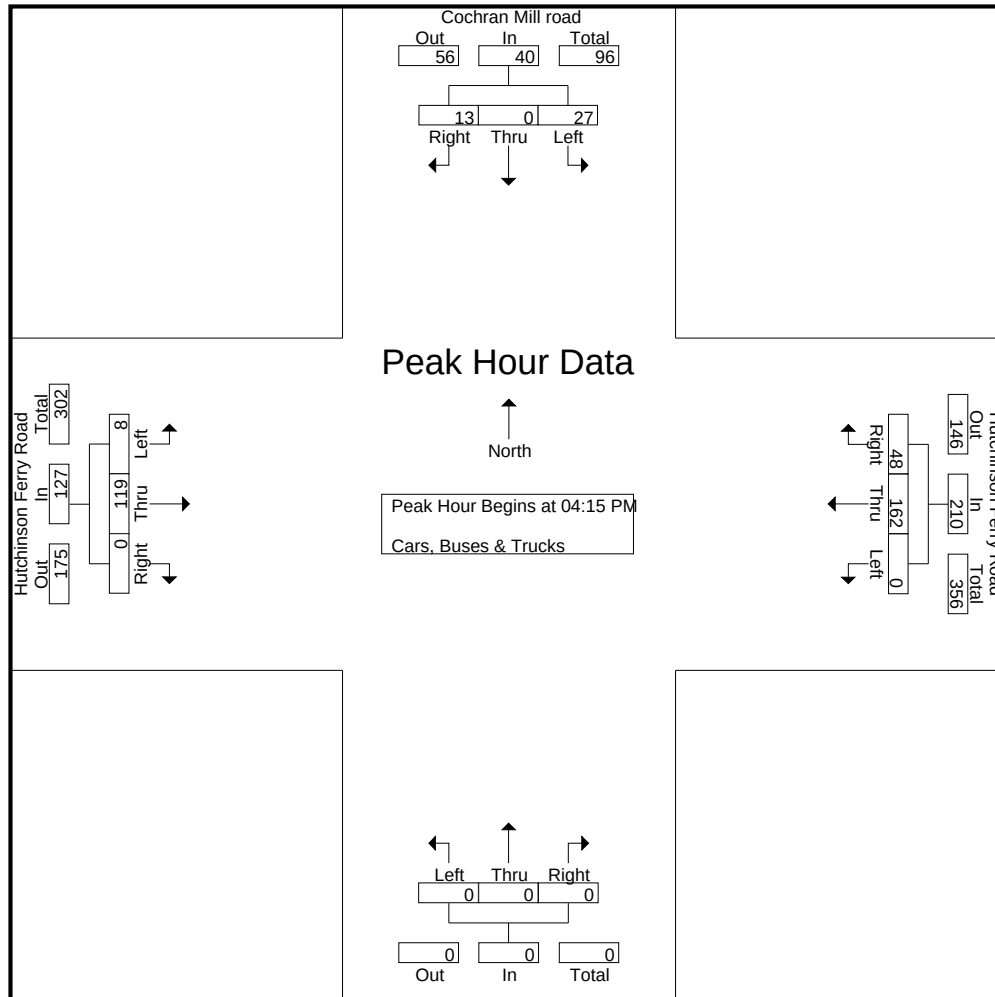
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Cochran Mill road @ Hutchinson
Ferry Road
7-9 am | 4-6 pm

File Name : 20230215
Site Code : 20230215
Start Date : 05-23-2023
Page No : 3

	Northbound				Cochran Mill road Southbound				Hutchinson Ferry Road Eastbound				Hutchinson Ferry 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	6	0	4	10	5	32	0	37	0	38	15	53	100
04:30 PM	0	0	0	0	4	0	3	7	1	19	0	20	0	43	12	55	82
04:45 PM	0	0	0	0	6	0	2	8	2	37	0	39	0	33	6	39	86
05:00 PM	0	0	0	0	11	0	4	15	0	31	0	31	0	48	15	63	109
Total Volume	0	0	0	0	27	0	13	40	8	119	0	127	0	162	48	210	377
% App. Total	0	0	0	0	67.5	0	32.5		6.3	93.7	0		0	77.1	22.9		
PHF	.000	.000	.000	.000	.614	.000	.813	.667	.400	.804	.000	.814	.000	.844	.800	.833	.865



A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Cochran Mill Rd @ Wilkerson Mill Rd
7-9am - 4-6pm

File Name : 20230209
Site Code : 20230209
Start Date : 05-23-2023
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Cochran Rd Northbound				Cochran Rd Southbound				Eastbound				Wilkerson Mill 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
07:00 AM	0	4	1	5	9	8	0	17	0	0	0	0	2	0	4	6	28
07:15 AM	0	9	0	9	12	8	0	20	0	0	0	0	0	0	6	6	35
07:30 AM	0	6	2	8	14	9	0	23	0	0	0	0	0	0	5	5	36
07:45 AM	0	4	1	5	11	8	0	19	0	0	0	0	3	0	4	7	31
Total	0	23	4	27	46	33	0	79	0	0	0	0	5	0	19	24	130
08:00 AM	0	9	2	11	10	14	0	24	0	0	0	0	4	0	9	13	48
08:15 AM	0	4	1	5	5	11	0	16	0	0	0	0	0	0	4	4	25
08:30 AM	0	6	2	8	4	9	0	13	0	0	0	0	1	0	1	2	23
08:45 AM	0	4	1	5	9	8	0	17	0	0	0	0	1	0	4	5	27
Total	0	23	6	29	28	42	0	70	0	0	0	0	6	0	18	24	123
*** BREAK ***																	
04:00 PM	0	12	0	12	5	9	0	14	0	0	0	0	0	0	10	10	36
04:15 PM	0	14	2	16	2	10	0	12	0	0	0	0	0	0	12	12	40
04:30 PM	0	13	3	16	0	3	0	3	0	0	0	0	1	0	12	13	32
04:45 PM	0	5	2	7	3	8	0	11	0	0	0	0	0	0	14	14	32
Total	0	44	7	51	10	30	0	40	0	0	0	0	1	0	48	49	140
05:00 PM	0	9	1	10	6	15	0	21	0	0	0	0	2	0	14	16	47
05:15 PM	0	12	1	13	3	20	0	23	0	0	0	0	1	0	7	8	44
05:30 PM	0	9	3	12	3	9	0	12	0	0	0	0	3	0	26	29	53
05:45 PM	0	12	2	14	2	9	0	11	0	0	0	0	1	0	11	12	37
Total	0	42	7	49	14	53	0	67	0	0	0	0	7	0	58	65	181
Grand Total	0	132	24	156	98	158	0	256	0	0	0	0	19	0	143	162	574
Apprch %	0	84.6	15.4		38.3	61.7	0		0	0	0		11.7	0	88.3		
Total %	0	23	4.2	27.2	17.1	27.5	0	44.6	0	0	0	0	3.3	0	24.9	28.2	

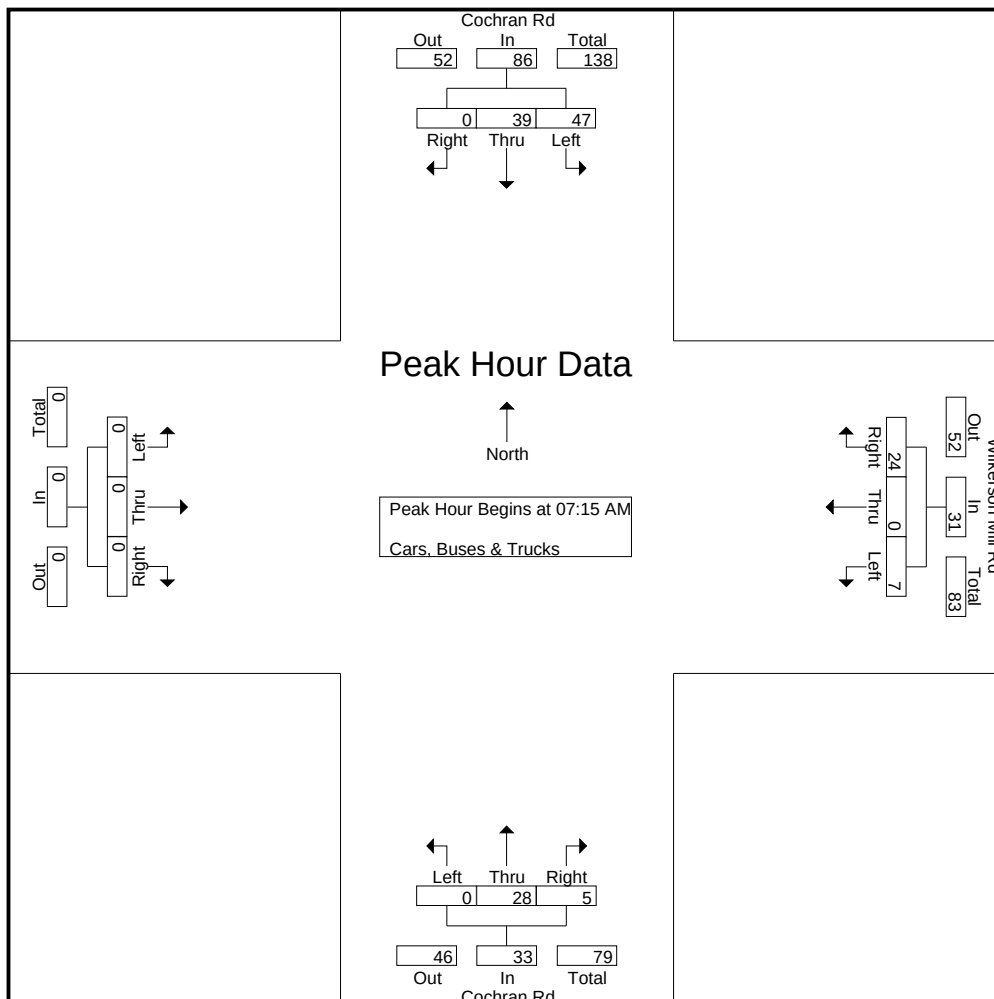
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Cochran Mill Rd @ Wilkerson Mill Rd
7-9am - 4-6pm

File Name : 20230209
Site Code : 20230209
Start Date : 05-23-2023
Page No : 2

	Cochran Rd Northbound				Cochran Rd Southbound				Eastbound				Wilkerson Mill 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	9	0	9	12	8	0	20	0	0	0	0	0	0	6	6	35
07:30 AM	0	6	2	8	14	9	0	23	0	0	0	0	0	0	5	5	36
07:45 AM	0	4	1	5	11	8	0	19	0	0	0	0	3	0	4	7	31
08:00 AM	0	9	2	11	10	14	0	24	0	0	0	0	4	0	9	13	48
Total Volume	0	28	5	33	47	39	0	86	0	0	0	0	7	0	24	31	150
% App. Total	0	84.8	15.2		54.7	45.3	0		0	0	0		22.6	0	77.4		
PHF	.000	.778	.625	.750	.839	.696	.000	.896	.000	.000	.000	.000	.438	.000	.667	.596	.781



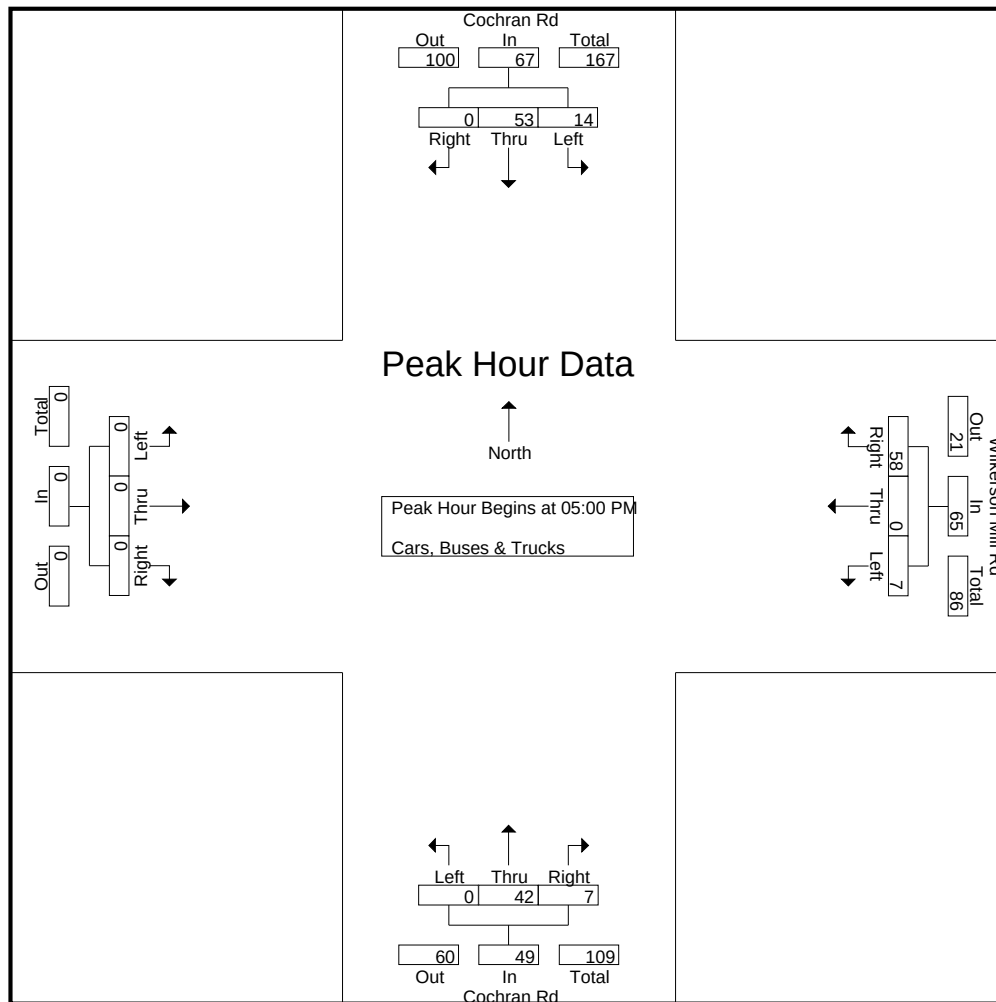
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
Cochran Mill Rd @ Wilkerson Mill Rd
7-9am - 4-6pm

File Name : 20230209
Site Code : 20230209
Start Date : 05-23-2023
Page No : 3

	Cochran Rd Northbound				Cochran Rd Southbound				Eastbound				Wilkerson Mill 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	9	1	10	6	15	0	21	0	0	0	0	2	0	14	16	47
05:15 PM	0	12	1	13	3	20	0	23	0	0	0	0	1	0	7	8	44
05:30 PM	0	9	3	12	3	9	0	12	0	0	0	0	3	0	26	29	53
05:45 PM	0	12	2	14	2	9	0	11	0	0	0	0	1	0	11	12	37
Total Volume	0	42	7	49	14	53	0	67	0	0	0	0	7	0	58	65	181
% App. Total	0	85.7	14.3		20.9	79.1	0		0	0	0		10.8	0	89.2		
PHF	.000	.875	.583	.875	.583	.663	.000	.728	.000	.000	.000	.000	.583	.000	.558	.560	.854



A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
SR 70 (S Fulton Pkwy) @ Cochran Mill Rd
7-9 am | 4-6 pm

File Name : 20230207
Site Code : 20230207
Start Date : 05-23-2023
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Cochran Mill Rd Northbound				Cochran Mill Rd Southbound				SR 70 (S.Fulton Pkwy) Eastbound				SR 70 (S.Fulton Pkwy) 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
07:00 AM	2	1	4	7	0	2	0	2	0	86	15	101	4	12	0	16	126
07:15 AM	6	3	6	15	0	3	0	3	0	118	17	135	1	30	0	31	184
07:30 AM	7	1	3	11	0	3	1	4	0	87	15	102	4	26	1	31	148
07:45 AM	6	2	0	8	0	3	0	3	0	107	17	124	1	30	0	31	166
Total	21	7	13	41	0	11	1	12	0	398	64	462	10	98	1	109	624
08:00 AM	12	1	5	18	1	5	0	6	0	82	12	94	3	24	1	28	146
08:15 AM	6	1	1	8	0	1	1	2	1	66	14	81	2	18	0	20	111
08:30 AM	3	1	3	7	0	3	0	3	0	65	8	73	0	28	0	28	111
08:45 AM	4	1	3	8	0	2	0	2	0	52	12	64	4	20	1	25	99
Total	25	4	12	41	1	11	1	13	1	265	46	312	9	90	2	101	467
*** BREAK ***																	
04:00 PM	16	4	4	24	0	3	0	3	1	25	10	36	3	103	0	106	169
04:15 PM	16	7	3	26	0	0	0	0	1	34	6	41	4	127	0	131	198
04:30 PM	16	5	4	25	0	1	0	1	0	21	1	22	3	103	1	107	155
04:45 PM	16	1	1	18	1	2	0	3	2	31	7	40	2	137	0	139	200
Total	64	17	12	93	1	6	0	7	4	111	24	139	12	470	1	483	722
05:00 PM	14	5	5	24	3	6	0	9	0	32	10	42	6	144	0	150	225
05:15 PM	13	3	5	21	1	6	2	9	0	31	13	44	2	134	0	136	210
05:30 PM	30	3	3	36	0	2	1	3	0	37	6	43	3	153	2	158	240
05:45 PM	16	3	2	21	0	7	1	8	1	29	5	35	4	107	0	111	175
Total	73	14	15	102	4	21	4	29	1	129	34	164	15	538	2	555	850
Grand Total	183	42	52	277	6	49	6	61	6	903	168	1077	46	1196	6	1248	2663
Apprch %	66.1	15.2	18.8		9.8	80.3	9.8		0.6	83.8	15.6		3.7	95.8	0.5		
Total %	6.9	1.6	2	10.4	0.2	1.8	0.2	2.3	0.2	33.9	6.3	40.4	1.7	44.9	0.2	46.9	

A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data

SR 70 (S Fulton Pkwy) @ Cochran Mill Rd

7-9 am | 4-6 pm

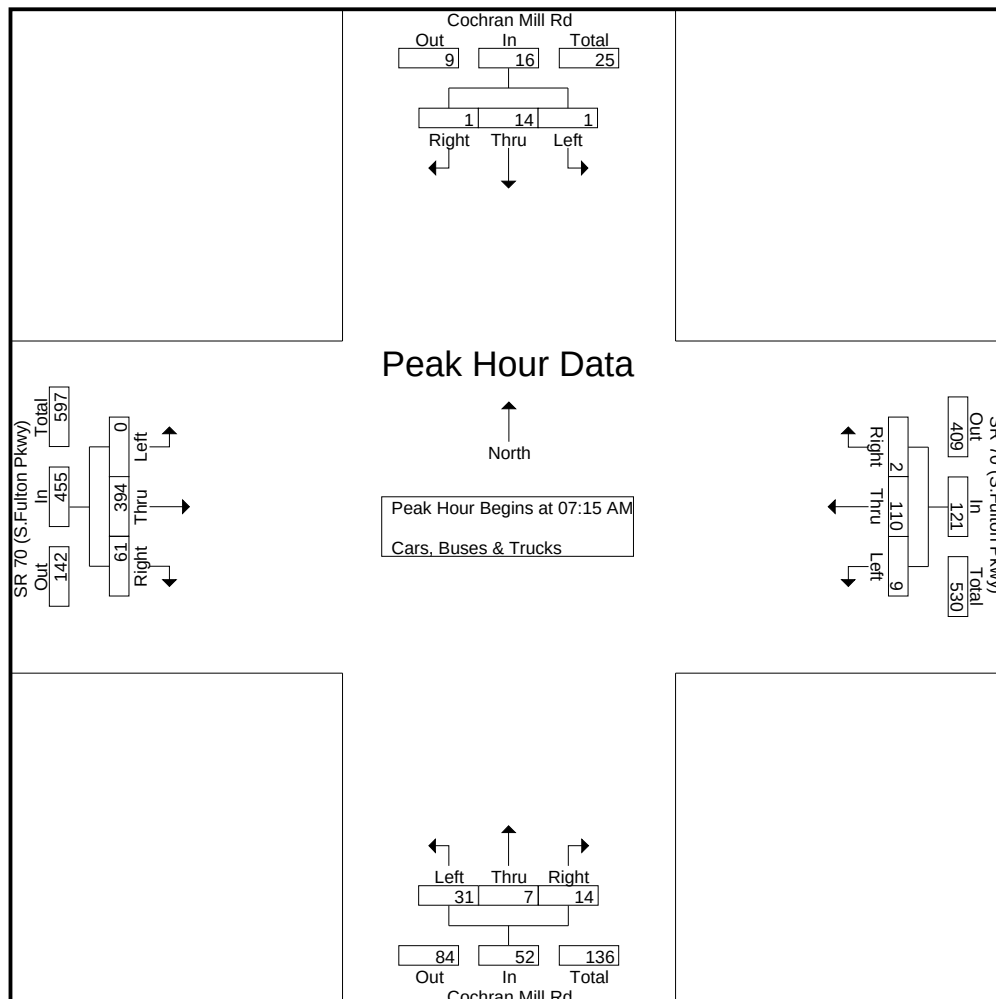
File Name : 20230207

Site Code : 20230207

Start Date : 05-23-2023

Page No : 2

	Cochran Mill Rd Northbound				Cochran Mill Rd Southbound				SR 70 (S.Fulton Pkwy) Eastbound				SR 70 (S.Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	6	3	6	15	0	3	0	3	0	118	17	135	1	30	0	31	184
07:30 AM	7	1	3	11	0	3	1	4	0	87	15	102	4	26	1	31	148
07:45 AM	6	2	0	8	0	3	0	3	0	107	17	124	1	30	0	31	166
08:00 AM	12	1	5	18	1	5	0	6	0	82	12	94	3	24	1	28	146
Total Volume	31	7	14	52	1	14	1	16	0	394	61	455	9	110	2	121	644
% App. Total	59.6	13.5	26.9		6.2	87.5	6.2		0	86.6	13.4		7.4	90.9	1.7		
PHF	.646	.583	.583	.722	.250	.700	.250	.667	.000	.835	.897	.843	.563	.917	.500	.976	.875



A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data

SR 70 (S Fulton Pkwy) @ Cochran Mill Rd

7-9 am | 4-6 pm

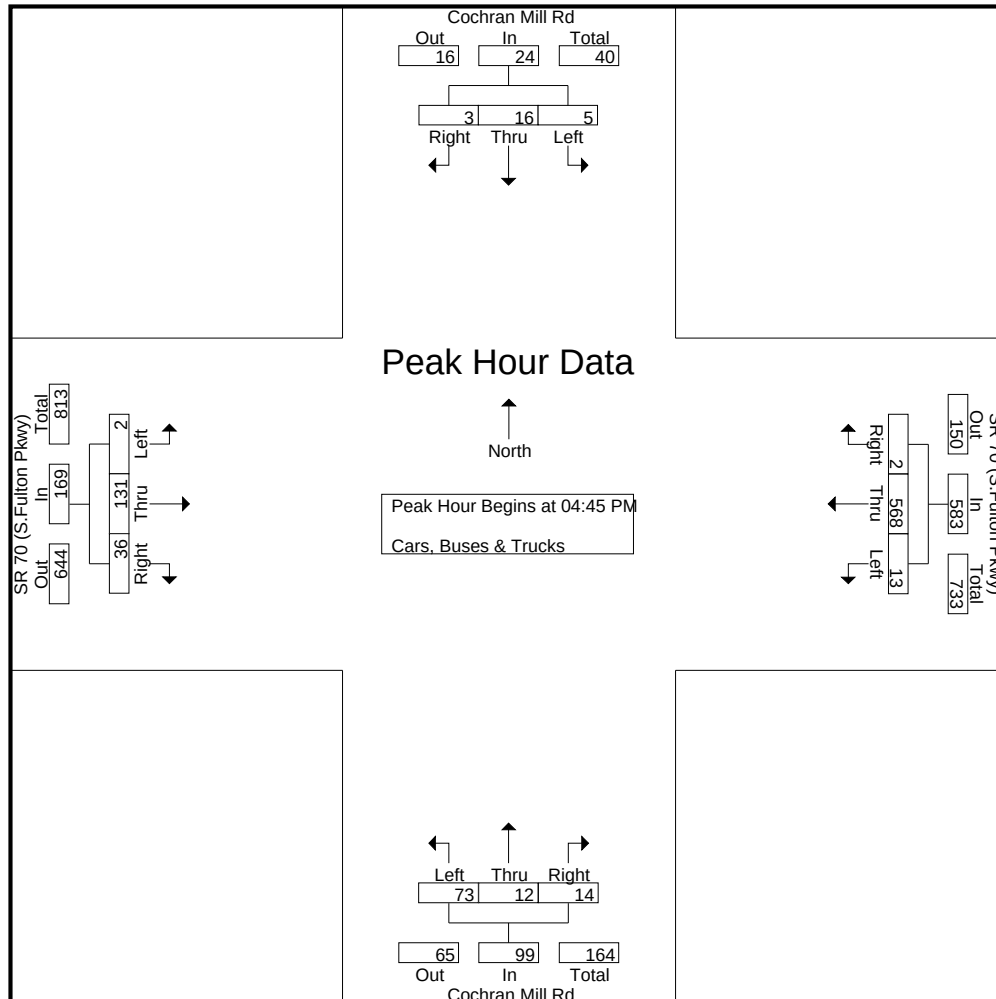
File Name : 20230207

Site Code : 20230207

Start Date : 05-23-2023

Page No : 3

	Cochran Mill Rd Northbound				Cochran Mill Rd Southbound				SR 70 (S.Fulton Pkwy) Eastbound				SR 70 (S.Fulton Pkwy) 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	16	1	1	18	1	2	0	3	2	31	7	40	2	137	0	139	200
05:00 PM	14	5	5	24	3	6	0	9	0	32	10	42	6	144	0	150	225
05:15 PM	13	3	5	21	1	6	2	9	0	31	13	44	2	134	0	136	210
05:30 PM	30	3	3	36	0	2	1	3	0	37	6	43	3	153	2	158	240
Total Volume	73	12	14	99	5	16	3	24	2	131	36	169	13	568	2	583	875
% App. Total	73.7	12.1	14.1		20.8	66.7	12.5		1.2	77.5	21.3		2.2	97.4	0.3		
PHF	.608	.600	.700	.688	.417	.667	.375	.667	.250	.885	.692	.960	.542	.928	.250	.922	.911



A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
S Fulton Pkwy @ Rivertown Rd
7-9am - 4-6pm

File Name : 20230211
Site Code : 20230211
Start Date : 05-23-2023
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Rivertown Rd Northbound				Rivertown Rd Southbound				S Fulton Pkwy Eastbound				S Fulton Pkwy Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	4	1	0	5	4	3	0	7	0	75	7	82	1	13	1	15	109
07:15 AM	11	0	0	11	3	4	0	7	0	99	16	115	0	20	2	22	155
07:30 AM	7	1	0	8	3	3	0	6	0	86	13	99	1	25	1	27	140
07:45 AM	6	0	0	6	2	9	0	11	0	80	15	95	2	26	1	29	141
Total	28	2	0	30	12	19	0	31	0	340	51	391	4	84	5	93	545
08:00 AM	4	3	0	7	7	3	0	10	0	79	8	87	0	20	1	21	125
08:15 AM	2	1	0	3	2	4	0	6	0	62	10	72	1	18	1	20	101
08:30 AM	5	3	0	8	4	4	0	8	0	64	6	70	2	21	1	24	110
08:45 AM	6	2	0	8	2	2	0	4	0	49	8	57	0	20	3	23	92
Total	17	9	0	26	15	13	0	28	0	254	32	286	3	79	6	88	428
*** BREAK ***																	
04:00 PM	12	2	3	17	2	2	0	4	0	18	4	22	2	106	1	109	152
04:15 PM	18	6	1	25	2	3	0	5	0	25	6	31	4	97	1	102	163
04:30 PM	21	4	0	25	2	2	0	4	0	20	5	25	1	99	3	103	157
04:45 PM	21	4	0	25	1	1	0	2	0	24	4	28	1	123	3	127	182
Total	72	16	4	92	7	8	0	15	0	87	19	106	8	425	8	441	654
05:00 PM	27	7	0	34	3	1	0	4	0	9	6	15	4	121	7	132	185
05:15 PM	25	2	0	27	1	2	0	3	0	30	10	40	2	127	3	132	202
05:30 PM	20	4	0	24	0	1	0	1	0	25	9	34	2	111	4	117	176
05:45 PM	20	5	2	27	6	1	0	7	0	12	9	21	2	92	5	99	154
Total	92	18	2	112	10	5	0	15	0	76	34	110	10	451	19	480	717
Grand Total	209	45	6	260	44	45	0	89	0	757	136	893	25	1039	38	1102	2344
Apprch %	80.4	17.3	2.3		49.4	50.6	0		0	84.8	15.2		2.3	94.3	3.4		
Total %	8.9	1.9	0.3	11.1	1.9	1.9	0	3.8	0	32.3	5.8	38.1	1.1	44.3	1.6	47	

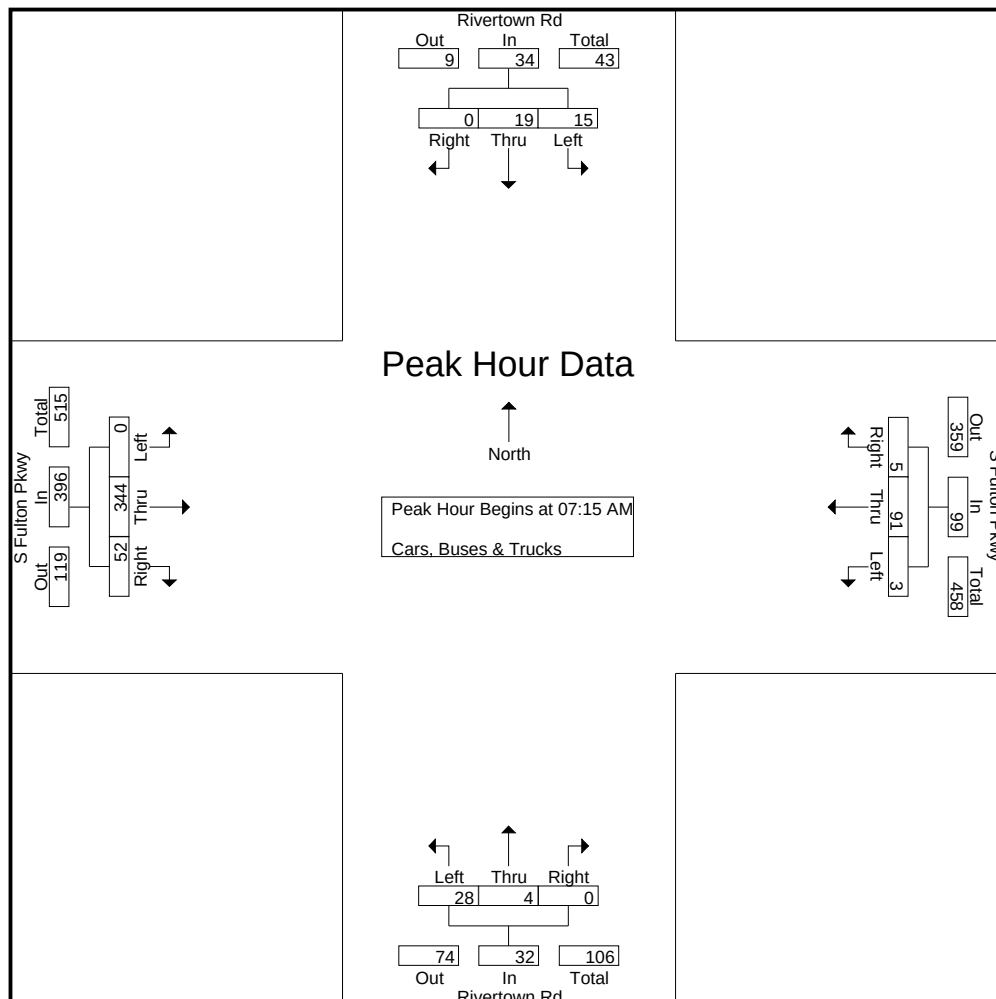
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
S Fulton Pkwy @ Rivertown Rd
7-9am - 4-6pm

File Name : 20230211
Site Code : 20230211
Start Date : 05-23-2023
Page No : 2

	Rivertown Rd Northbound				Rivertown Rd Southbound				S Fulton Pkwy Eastbound				S Fulton Pkwy 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	11	0	0	11	3	4	0	7	0	99	16	115	0	20	2	22	155
07:30 AM	7	1	0	8	3	3	0	6	0	86	13	99	1	25	1	27	140
07:45 AM	6	0	0	6	2	9	0	11	0	80	15	95	2	26	1	29	141
08:00 AM	4	3	0	7	7	3	0	10	0	79	8	87	0	20	1	21	125
Total Volume	28	4	0	32	15	19	0	34	0	344	52	396	3	91	5	99	561
% App. Total	87.5	12.5	0		44.1	55.9	0		0	86.9	13.1		3	91.9	5.1		
PHF	.636	.333	.000	.727	.536	.528	.000	.773	.000	.869	.813	.861	.375	.875	.625	.853	.905



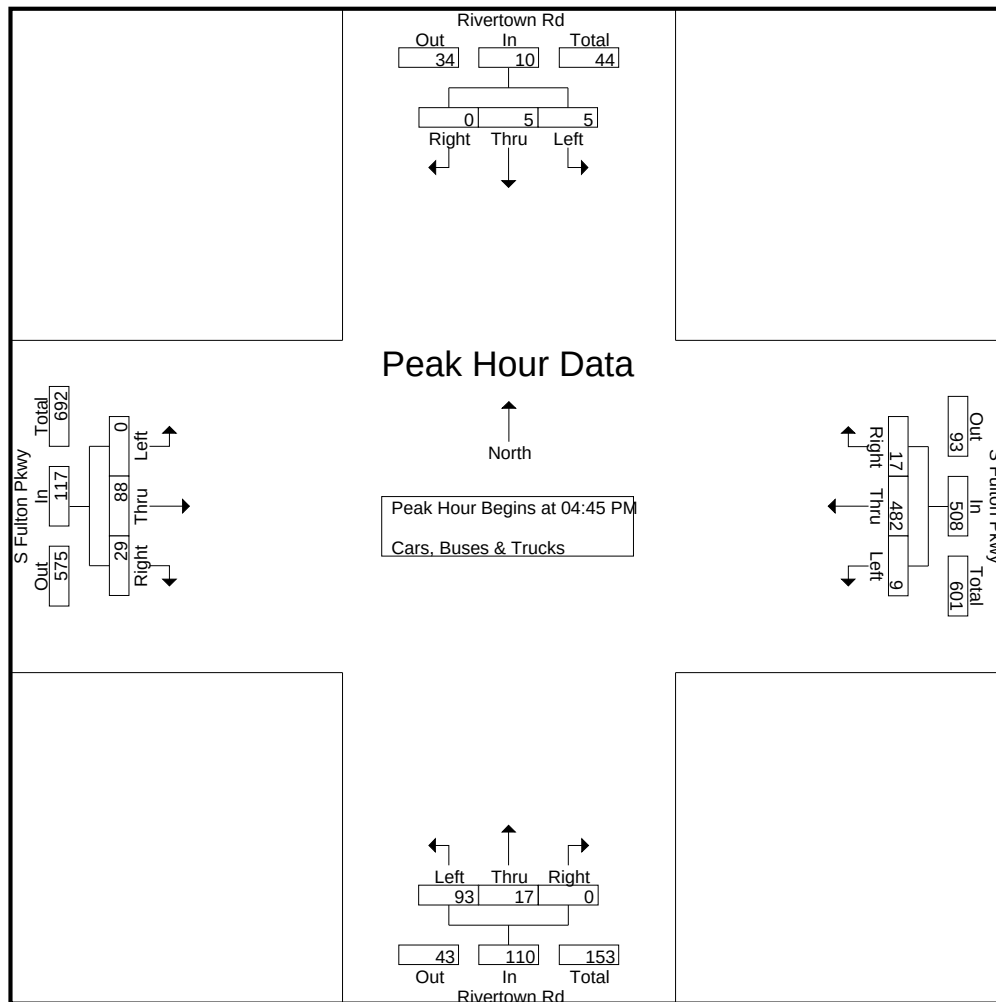
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
S Fulton Pkwy @ Rivertown Rd
7-9am - 4-6pm

File Name : 20230211
Site Code : 20230211
Start Date : 05-23-2023
Page No : 3

	Rivertown Rd Northbound				Rivertown Rd Southbound				S Fulton Pkwy Eastbound				S Fulton Pkwy 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	21	4	0	25	1	1	0	2	0	24	4	28	1	123	3	127	182
05:00 PM	27	7	0	34	3	1	0	4	0	9	6	15	4	121	7	132	185
05:15 PM	25	2	0	27	1	2	0	3	0	30	10	40	2	127	3	132	202
05:30 PM	20	4	0	24	0	1	0	1	0	25	9	34	2	111	4	117	176
Total Volume	93	17	0	110	5	5	0	10	0	88	29	117	9	482	17	508	745
% App. Total	84.5	15.5	0		50	50	0		0	75.2	24.8		1.8	94.9	3.3		
PHF	.861	.607	.000	.809	.417	.625	.000	.625	.000	.733	.725	.731	.563	.949	.607	.962	.922



A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
S Fulton Parkway @ SR 154
7-9am - 4-6pm

File Name : 20230212
Site Code : 20230212
Start Date : 05-23-2023
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	SR 154 Northbound				SR 154 Southbound				S Fulton Parkway Eastbound				S Fulton Parkway Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	2	56	17	75	1	66	0	67	0	80	1	81	12	13	0	25	248
07:15 AM	0	69	15	84	0	54	1	55	4	99	1	104	9	21	1	31	274
07:30 AM	1	55	11	67	0	72	2	74	1	87	3	91	9	24	2	35	267
07:45 AM	1	50	13	64	1	57	2	60	2	81	2	85	8	26	0	34	243
Total	4	230	56	290	2	249	5	256	7	347	7	361	38	84	3	125	1032
08:00 AM	1	52	13	66	1	54	1	56	0	86	1	87	13	19	2	34	243
08:15 AM	0	48	15	63	3	50	0	53	1	65	0	66	7	20	1	28	210
08:30 AM	1	48	10	59	1	58	3	62	2	67	2	71	12	20	2	34	226
08:45 AM	1	48	8	57	1	69	1	71	6	48	0	54	10	21	2	33	215
Total	3	196	46	245	6	231	5	242	9	266	3	278	42	80	7	129	894
*** BREAK ***																	
04:00 PM	1	57	11	69	2	61	3	66	4	21	1	26	13	105	1	119	280
04:15 PM	2	86	20	108	1	74	1	76	5	27	1	33	12	99	1	112	329
04:30 PM	1	86	5	92	1	87	1	89	4	18	4	26	10	101	1	112	319
04:45 PM	0	66	10	76	2	69	3	74	2	27	0	29	25	124	3	152	331
Total	4	295	46	345	6	291	8	305	15	93	6	114	60	429	6	495	1259
05:00 PM	0	70	10	80	0	96	3	99	0	19	4	23	14	129	0	143	345
05:15 PM	2	51	12	65	2	47	1	50	6	30	0	36	25	129	3	157	308
05:30 PM	4	72	9	85	1	85	1	87	3	27	1	31	19	112	4	135	338
05:45 PM	2	64	14	80	2	76	2	80	5	21	1	27	24	95	1	120	307
Total	8	257	45	310	5	304	7	316	14	97	6	117	82	465	8	555	1298
Grand Total	19	978	193	1190	19	1075	25	1119	45	803	22	870	222	1058	24	1304	4483
Apprch %	1.6	82.2	16.2		1.7	96.1	2.2		5.2	92.3	2.5		17	81.1	1.8		
Total %	0.4	21.8	4.3	26.5	0.4	24	0.6	25	1	17.9	0.5	19.4	5	23.6	0.5	29.1	

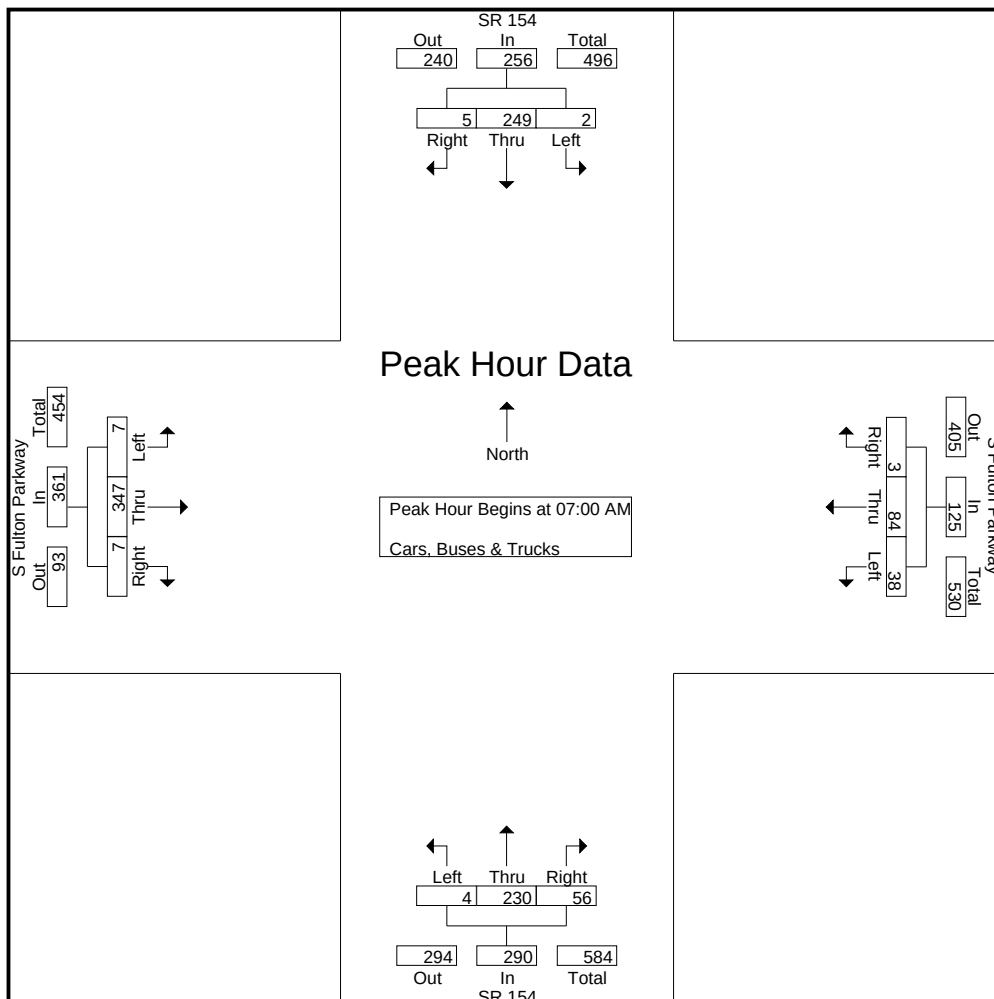
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
S Fulton Parkway @ SR 154
7-9am - 4-6pm

File Name : 20230212
Site Code : 20230212
Start Date : 05-23-2023
Page No : 2

	SR 154 Northbound				SR 154 Southbound				S Fulton Parkway Eastbound				S Fulton Parkway 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	2	56	17	75	1	66	0	67	0	80	1	81	12	13	0	25	248
07:15 AM	0	69	15	84	0	54	1	55	4	99	1	104	9	21	1	31	274
07:30 AM	1	55	11	67	0	72	2	74	1	87	3	91	9	24	2	35	267
07:45 AM	1	50	13	64	1	57	2	60	2	81	2	85	8	26	0	34	243
Total Volume	4	230	56	290	2	249	5	256	7	347	7	361	38	84	3	125	1032
% App. Total	1.4	79.3	19.3		0.8	97.3	2		1.9	96.1	1.9		30.4	67.2	2.4		
PHF	.500	.833	.824	.863	.500	.865	.625	.865	.438	.876	.583	.868	.792	.808	.375	.893	.942



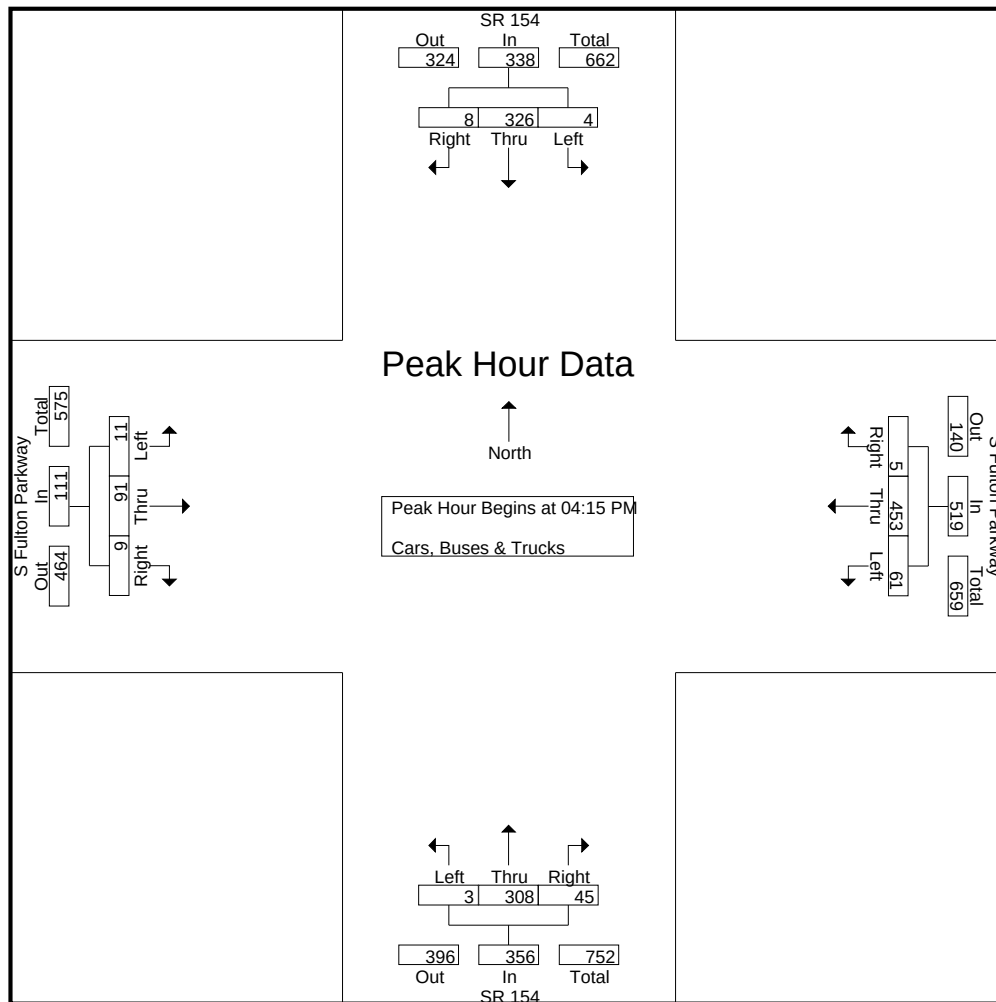
A & R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
S Fulton Parkway @ SR 154
7-9am - 4-6pm

File Name : 20230212
Site Code : 20230212
Start Date : 05-23-2023
Page No : 3

	SR 154 Northbound				SR 154 Southbound				S Fulton Parkway Eastbound				S Fulton Parkway 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	2	86	20	108	1	74	1	76	5	27	1	33	12	99	1	112	329
04:30 PM	1	86	5	92	1	87	1	89	4	18	4	26	10	101	1	112	319
04:45 PM	0	66	10	76	2	69	3	74	2	27	0	29	25	124	3	152	331
05:00 PM	0	70	10	80	0	96	3	99	0	19	4	23	14	129	0	143	345
Total Volume	3	308	45	356	4	326	8	338	11	91	9	111	61	453	5	519	1324
% App. Total	0.8	86.5	12.6		1.2	96.4	2.4		9.9	82	8.1		11.8	87.3	1		
PHF	.375	.895	.563	.824	.500	.849	.667	.854	.550	.843	.563	.841	.610	.878	.417	.854	.959



A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt US 29 Alt (S Fulton Pkwy) @
Cedar Grove Road
7-9am - 4-6pm

File Name : 20230261
Site Code : 20230261
Start Date : 15-08-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

	Cedar Grove Road Northbound				Cedar Grove Road Southbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) 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
07:00 AM	1	22	67	90	31	39	5	75	0	126	9	135	9	26	5	40	340
07:15 AM	6	24	67	97	49	35	2	86	7	135	5	147	21	53	11	85	415
07:30 AM	6	30	66	102	39	49	5	93	5	162	7	174	29	73	19	121	490
07:45 AM	11	18	39	68	47	43	7	97	7	155	13	175	39	107	21	167	507
Total	24	94	239	357	166	166	19	351	19	578	34	631	98	259	56	413	1752
08:00 AM	7	31	76	114	31	34	7	72	9	180	8	197	32	100	19	151	534
08:15 AM	4	24	48	76	35	27	7	69	5	168	8	181	25	58	21	104	430
08:30 AM	2	29	56	87	42	26	3	71	4	107	5	116	29	68	18	115	389
08:45 AM	0	10	62	72	29	16	6	51	1	101	5	107	27	43	15	85	315
Total	13	94	242	349	137	103	23	263	19	556	26	601	113	269	73	455	1668
*** BREAK ***																	
04:00 PM	6	43	48	97	10	37	5	52	8	110	11	129	55	135	31	221	499
04:15 PM	6	43	49	98	23	38	6	67	6	80	16	102	52	113	24	189	456
04:30 PM	10	48	48	106	23	39	4	66	3	65	17	85	59	117	28	204	461
04:45 PM	3	49	38	90	12	30	4	46	2	54	12	68	61	129	34	224	428
Total	25	183	183	391	68	144	19	231	19	309	56	384	227	494	117	838	1844
05:00 PM	12	45	48	105	30	32	4	66	7	41	4	52	61	143	33	237	460
05:15 PM	5	39	34	78	25	30	4	59	2	64	5	71	60	139	31	230	438
05:30 PM	3	32	46	81	23	23	5	51	6	65	8	79	52	152	37	241	452
05:45 PM	6	51	56	113	13	40	1	54	4	66	4	74	68	158	37	263	504
Total	26	167	184	377	91	125	14	230	19	236	21	276	241	592	138	971	1854
Grand Total	88	538	848	1474	462	538	75	1075	76	1679	137	1892	679	1614	384	2677	7118
Apprch %	6	36.5	57.5		43	50	7		4	88.7	7.2		25.4	60.3	14.3		
Total %	1.2	7.6	11.9	20.7	6.5	7.6	1.1	15.1	1.1	23.6	1.9	26.6	9.5	22.7	5.4	37.6	
Cars & Buses	80	527	846	1453	460	528	71	1059	73	1631	124	1828	676	1555	383	2614	6954
% Cars & Buses	90.9	98	99.8	98.6	99.6	98.1	94.7	98.5	96.1	97.1	90.5	96.6	99.6	96.3	99.7	97.6	97.7
Trucks	8	11	2	21	2	10	4	16	3	48	13	64	3	59	1	63	164
% Trucks	9.1	2	0.2	1.4	0.4	1.9	5.3	1.5	3.9	2.9	9.5	3.4	0.4	3.7	0.3	2.4	2.3

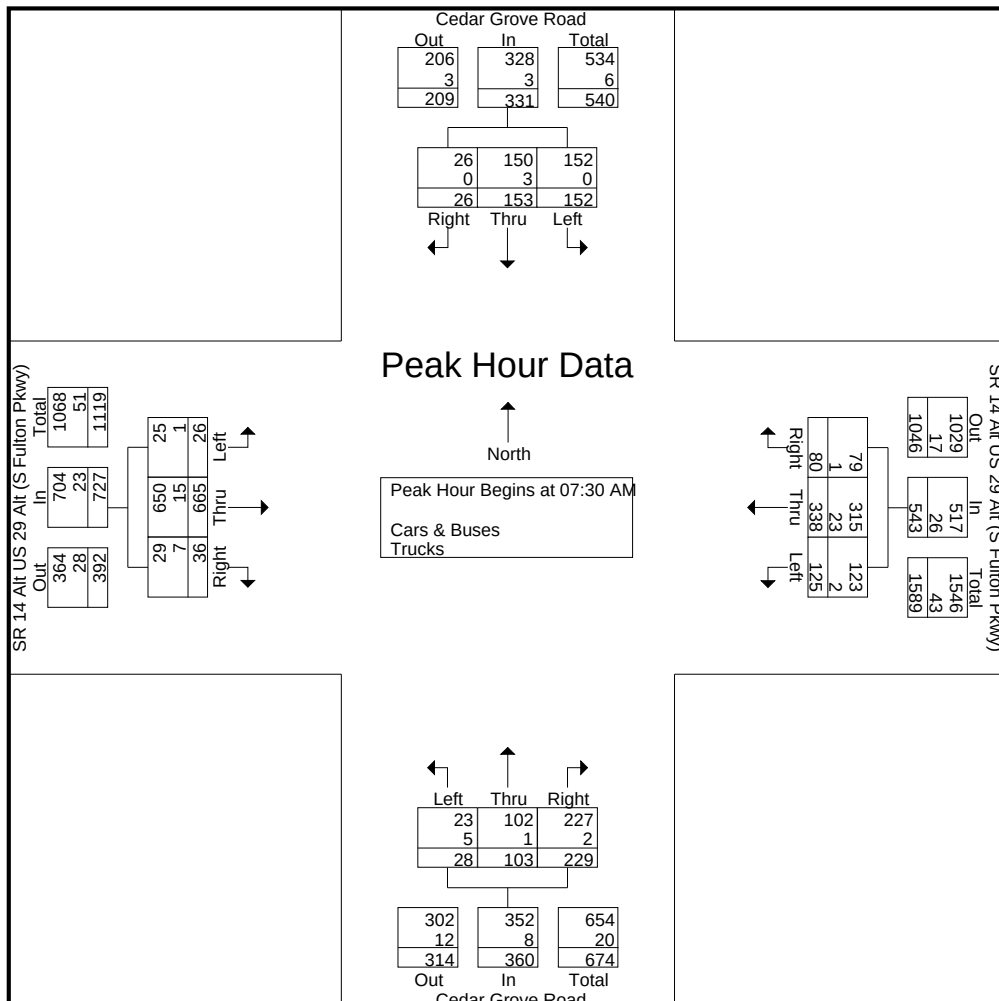
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt US 29 Alt (S Fulton Pkwy) @
Cedar Grove Road
7-9am - 4-6pm

File Name : 20230261
Site Code : 20230261
Start Date : 15-08-2023
Page No : 2

	Cedar Grove Road Northbound				Cedar Grove Road Southbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	6	30	66	102	39	49	5	93	5	162	7	174	29	73	19	121	490
07:45 AM	11	18	39	68	47	43	7	97	7	155	13	175	39	107	21	167	507
08:00 AM	7	31	76	114	31	34	7	72	9	180	8	197	32	100	19	151	534
08:15 AM	4	24	48	76	35	27	7	69	5	168	8	181	25	58	21	104	430
Total Volume	28	103	229	360	152	153	26	331	26	665	36	727	125	338	80	543	1961
% App. Total	7.8	28.6	63.6		45.9	46.2	7.9		3.6	91.5	5		23	62.2	14.7		
PHF	.636	.831	.753	.789	.809	.781	.929	.853	.722	.924	.692	.923	.801	.790	.952	.813	.918
Cars & Buses	23	102	227	352	152	150	26	328	25	650	29	704	123	315	79	517	1901
% Cars & Buses	82.1	99.0	99.1	97.8	100	98.0	100	99.1	96.2	97.7	80.6	96.8	98.4	93.2	98.8	95.2	96.9
Trucks	5	1	2	8	0	3	0	3	1	15	7	23	2	23	1	26	60
% Trucks	17.9	1.0	0.9	2.2	0	2.0	0	0.9	3.8	2.3	19.4	3.2	1.6	6.8	1.3	4.8	3.1



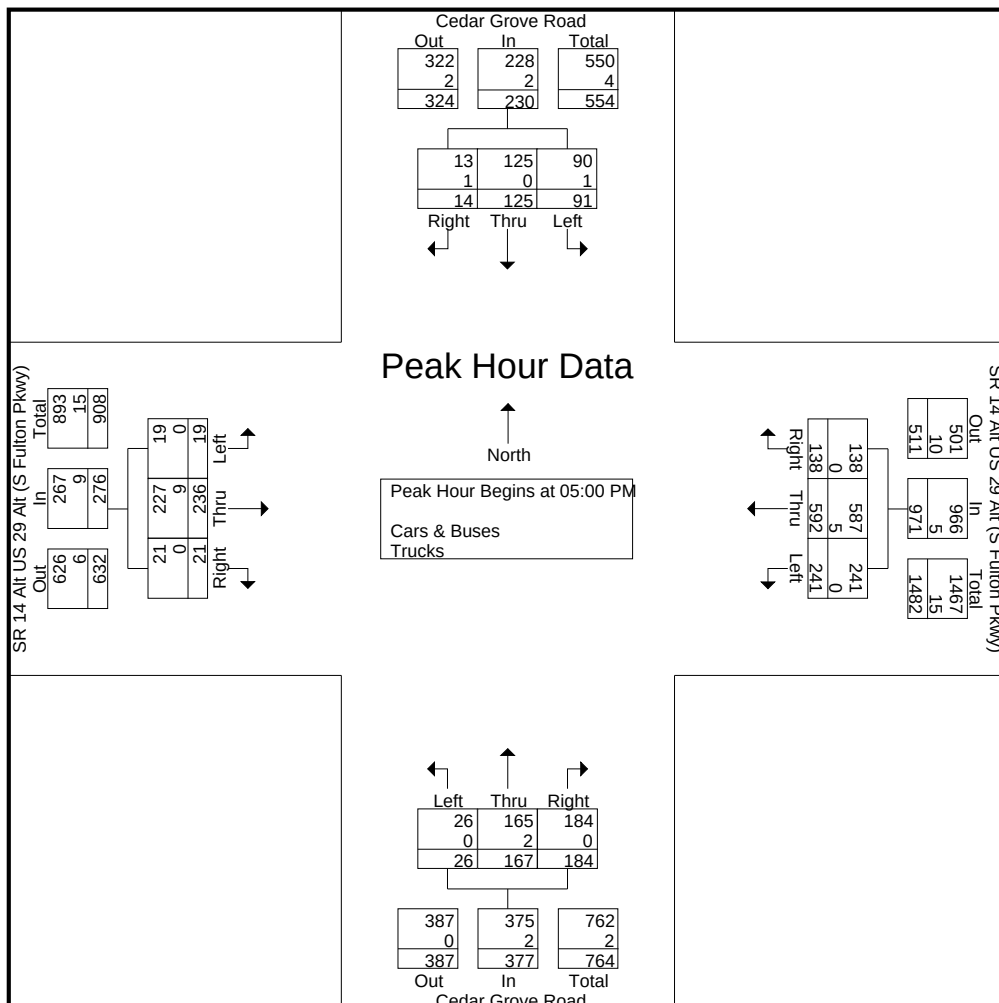
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt US 29 Alt (S Fulton Pkwy) @
Cedar Grove Road
7-9am - 4-6pm

File Name : 20230261
Site Code : 20230261
Start Date : 15-08-2023
Page No : 3

	Cedar Grove Road Northbound				Cedar Grove Road Southbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	12	45	48	105	30	32	4	66	7	41	4	52	61	143	33	237	460
05:15 PM	5	39	34	78	25	30	4	59	2	64	5	71	60	139	31	230	438
05:30 PM	3	32	46	81	23	23	5	51	6	65	8	79	52	152	37	241	452
05:45 PM	6	51	56	113	13	40	1	54	4	66	4	74	68	158	37	263	504
Total Volume	26	167	184	377	91	125	14	230	19	236	21	276	241	592	138	971	1854
% App. Total	6.9	44.3	48.8		39.6	54.3	6.1		6.9	85.5	7.6		24.8	61	14.2		
PHF	.542	.819	.821	.834	.758	.781	.700	.871	.679	.894	.656	.873	.886	.937	.932	.923	.920
Cars & Buses	26	165	184	375	90	125	13	228	19	227	21	267	241	587	138	966	1836
% Cars & Buses	100	98.8	100	99.5	98.9	100	92.9	99.1	100	96.2	100	96.7	100	99.2	100	99.5	99.0
Trucks	0	2	0	2	1	0	1	2	0	9	0	9	0	5	0	5	18
% Trucks	0	1.2	0	0.5	1.1	0	7.1	0.9	0	3.8	0	3.3	0	0.8	0	0.5	1.0



A & R Engineering, Inc.

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Marietta, GA 30067

TMC Data
SR 14 Alt-US 29 Alt (S Fulton Pkwy) @
SR 92
7-9am - 4-6pm

File Name : 20230267
Site Code : 20230267
Start Date : 15-08-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

	SR 92 Northbound				SR 92 Southbound				SR 14 Alt-US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt-US 29 Alt (S Fulton Pkwy) 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
07:00 AM	9	138	24	171	121	95	12	228	50	139	35	224	16	114	59	189	812
07:15 AM	26	127	25	178	96	154	39	289	56	164	32	252	10	83	84	177	896
07:30 AM	31	141	29	201	109	164	43	316	63	165	39	267	12	99	93	204	988
07:45 AM	37	152	31	220	119	168	49	336	66	134	42	242	16	88	101	205	1003
Total	103	558	109	770	445	581	143	1169	235	602	148	985	54	384	337	775	3699
08:00 AM	40	166	35	241	129	188	57	374	73	164	51	288	20	99	103	222	1125
08:15 AM	42	169	28	239	138	177	42	357	42	171	39	252	23	103	100	226	1074
08:30 AM	32	153	21	206	122	160	32	314	58	101	46	205	18	56	85	159	884
08:45 AM	31	126	17	174	101	146	28	275	41	115	37	193	15	48	73	136	778
Total	145	614	101	860	490	671	159	1320	214	551	173	938	76	306	361	743	3861
*** BREAK ***																	
04:00 PM	16	180	8	204	90	131	32	253	58	79	31	168	38	173	138	349	974
04:15 PM	18	185	7	210	102	129	34	265	64	58	33	155	49	137	163	349	979
04:30 PM	22	207	13	242	96	138	32	266	51	50	35	136	44	150	144	338	982
04:45 PM	19	204	5	228	93	140	21	254	43	28	33	104	30	184	140	354	940
Total	75	776	33	884	381	538	119	1038	216	215	132	563	161	644	585	1390	3875
05:00 PM	13	200	4	217	95	124	17	236	41	42	35	118	49	207	135	391	962
05:15 PM	25	194	10	229	109	132	21	262	39	53	31	123	27	184	153	364	978
05:30 PM	23	156	7	186	107	119	29	255	34	71	30	135	43	189	124	356	932
05:45 PM	16	161	8	185	102	130	30	262	36	74	25	135	28	217	136	381	963
Total	77	711	29	817	413	505	97	1015	150	240	121	511	147	797	548	1492	3835
Grand Total	400	2659	272	3331	1729	2295	518	4542	815	1608	574	2997	438	2131	1831	4400	15270
Apprch %	12	79.8	8.2		38.1	50.5	11.4		27.2	53.7	19.2		10	48.4	41.6		
Total %	2.6	17.4	1.8	21.8	11.3	15	3.4	29.7	5.3	10.5	3.8	19.6	2.9	14	12	28.8	
Cars & Buses	382	2566	267	3215	1645	2183	510	4338	807	1570	560	2937	424	2094	1769	4287	14777
% Cars & Buses	95.5	96.5	98.2	96.5	95.1	95.1	98.5	95.5	99	97.6	97.6	98	96.8	98.3	96.6	97.4	96.8
Trucks	18	93	5	116	84	112	8	204	8	38	14	60	14	37	62	113	493
% Trucks	4.5	3.5	1.8	3.5	4.9	4.9	1.5	4.5	1	2.4	2.4	2	3.2	1.7	3.4	2.6	3.2

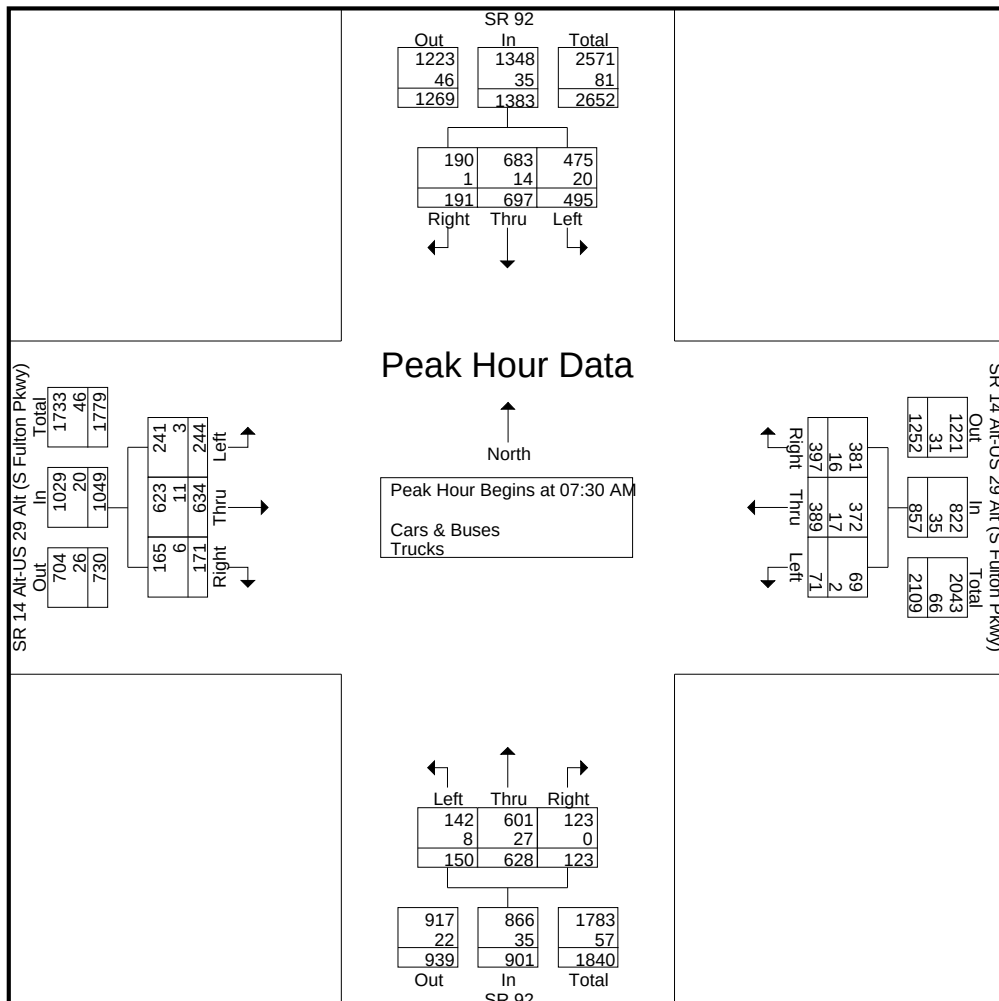
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt-US 29 Alt (S Fulton Pkwy) @
SR 92
7-9am - 4-6pm

File Name : 20230267
Site Code : 20230267
Start Date : 15-08-2023
Page No : 2

	SR 92 Northbound				SR 92 Southbound				SR 14 Alt-US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt-US 29 Alt (S Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	31	141	29	201	109	164	43	316	63	165	39	267	12	99	93	204	988
07:45 AM	37	152	31	220	119	168	49	336	66	134	42	242	16	88	101	205	1003
08:00 AM	40	166	35	241	129	188	57	374	73	164	51	288	20	99	103	222	1125
08:15 AM	42	169	28	239	138	177	42	357	42	171	39	252	23	103	100	226	1074
Total Volume	150	628	123	901	495	697	191	1383	244	634	171	1049	71	389	397	857	4190
% App. Total	16.6	69.7	13.7		35.8	50.4	13.8		23.3	60.4	16.3		8.3	45.4	46.3		
PHF	.893	.929	.879	.935	.897	.927	.838	.924	.836	.927	.838	.911	.772	.944	.964	.948	.931
Cars & Buses	142	601	123	866	475	683	190	1348	241	623	165	1029	69	372	381	822	4065
% Cars & Buses	94.7	95.7	100	96.1	96.0	98.0	99.5	97.5	98.8	98.3	96.5	98.1	97.2	95.6	96.0	95.9	97.0
Trucks	8	27	0	35	20	14	1	35	3	11	6	20	2	17	16	35	125
% Trucks	5.3	4.3	0	3.9	4.0	2.0	0.5	2.5	1.2	1.7	3.5	1.9	2.8	4.4	4.0	4.1	3.0



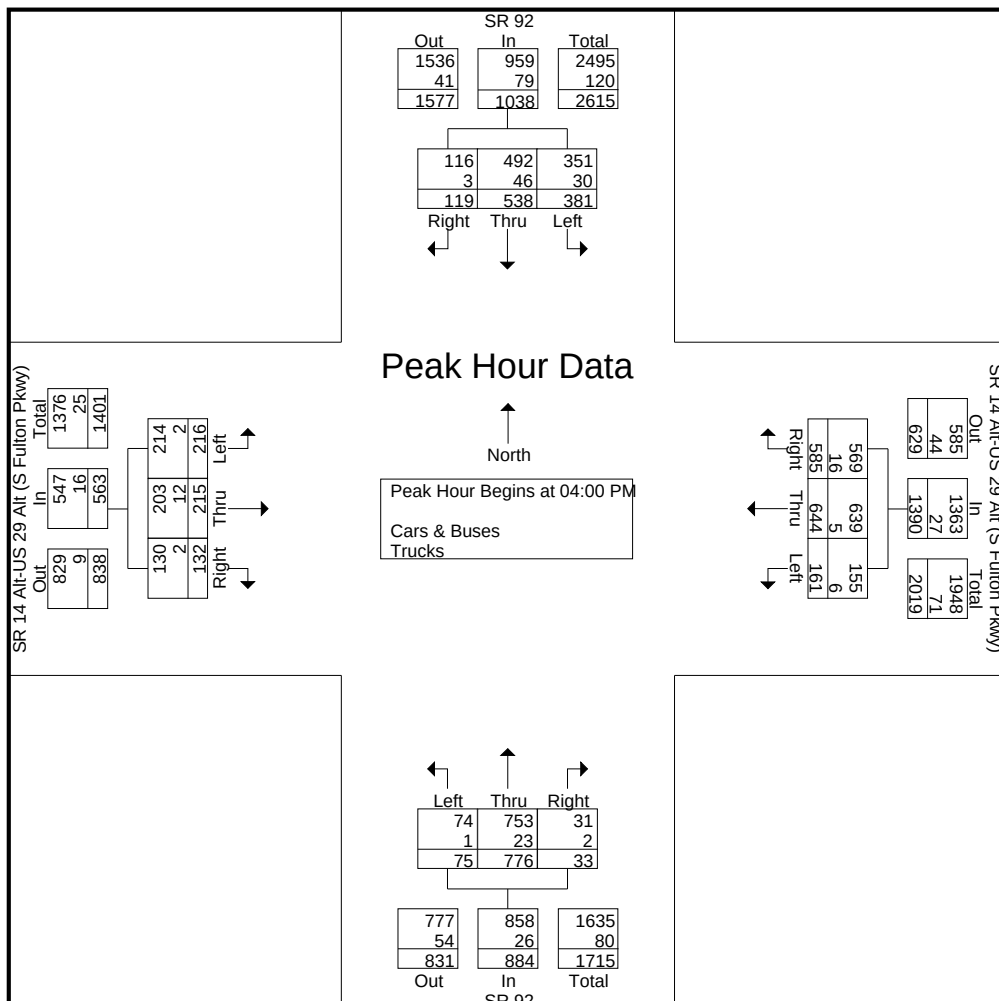
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt-US 29 Alt (S Fulton Pkwy) @
SR 92
7-9am - 4-6pm

File Name : 20230267
Site Code : 20230267
Start Date : 15-08-2023
Page No : 3

	SR 92 Northbound				SR 92 Southbound				SR 14 Alt-US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt-US 29 Alt (S Fulton Pkwy) 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	16	180	8	204	90	131	32	253	58	79	31	168	38	173	138	349	974
04:15 PM	18	185	7	210	102	129	34	265	64	58	33	155	49	137	163	349	979
04:30 PM	22	207	13	242	96	138	32	266	51	50	35	136	44	150	144	338	982
04:45 PM	19	204	5	228	93	140	21	254	43	28	33	104	30	184	140	354	940
Total Volume	75	776	33	884	381	538	119	1038	216	215	132	563	161	644	585	1390	3875
% App. Total	8.5	87.8	3.7		36.7	51.8	11.5		38.4	38.2	23.4		11.6	46.3	42.1		
PHF	.852	.937	.635	.913	.934	.961	.875	.976	.844	.680	.943	.838	.821	.875	.897	.982	.987
Cars & Buses	74	753	31	858	351	492	116	959	214	203	130	547	155	639	569	1363	3727
% Cars & Buses	98.7	97.0	93.9	97.1	92.1	91.4	97.5	92.4	99.1	94.4	98.5	97.2	96.3	99.2	97.3	98.1	96.2
Trucks	1	23	2	26	30	46	3	79	2	12	2	16	6	5	16	27	148
% Trucks	1.3	3.0	6.1	2.9	7.9	8.6	2.5	7.6	0.9	5.6	1.5	2.8	3.7	0.8	2.7	1.9	3.8



A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt. US Alt (S. Fulton Pkwy) @
Derrick Rd
7-9am - 4-6pm

File Name : 20230256
Site Code : 20230256
Start Date : 15-08-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

	Derrick Rd Northbound				Derrick Rd Southbound				SR 14 Alt. US Alt (S. Fulton Pkwy) Eastbound				SR 14 Alt. US Alt (S. Fulton Pkwy) 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
07:00 AM	8	12	15	35	16	6	21	43	40	246	4	290	7	164	21	192	560
07:15 AM	3	30	18	51	19	13	27	59	42	242	8	292	16	141	38	195	597
07:30 AM	9	15	21	45	31	29	65	125	20	266	15	301	18	132	22	172	643
07:45 AM	7	7	24	38	23	15	30	68	26	252	18	296	28	156	4	188	590
Total	27	64	78	169	89	63	143	295	128	1006	45	1179	69	593	85	747	2390
08:00 AM	20	14	23	57	16	16	27	59	16	287	17	320	37	177	8	222	658
08:15 AM	8	6	17	31	17	18	22	57	27	277	23	327	37	180	6	223	638
08:30 AM	11	8	14	33	12	13	23	48	25	253	15	293	21	147	10	178	552
08:45 AM	6	7	14	27	6	16	16	38	16	216	4	236	11	118	6	135	436
Total	45	35	68	148	51	63	88	202	84	1033	59	1176	106	622	30	758	2284
*** BREAK ***																	
04:00 PM	9	6	0	15	14	10	49	73	16	153	11	180	12	292	7	311	579
04:15 PM	18	11	16	45	13	15	38	66	23	146	16	185	14	306	17	337	633
04:30 PM	25	7	14	46	20	11	25	56	24	133	4	161	21	287	11	319	582
04:45 PM	23	11	14	48	18	16	28	62	17	100	10	127	19	298	18	335	572
Total	75	35	44	154	65	52	140	257	80	532	41	653	66	1183	53	1302	2366
05:00 PM	17	4	15	36	16	13	23	52	15	125	7	147	20	347	25	392	627
05:15 PM	7	2	14	23	9	22	21	52	15	147	10	172	33	352	27	412	659
05:30 PM	12	18	17	47	18	25	35	78	10	147	11	168	21	300	26	347	640
05:45 PM	16	15	12	43	11	21	22	54	16	158	10	184	31	321	22	374	655
Total	52	39	58	149	54	81	101	236	56	577	38	671	105	1320	100	1525	2581
Grand Total	199	173	248	620	259	259	472	990	348	3148	183	3679	346	3718	268	4332	9621
Apprch %	32.1	27.9	40		26.2	26.2	47.7		9.5	85.6	5		8	85.8	6.2		
Total %	2.1	1.8	2.6	6.4	2.7	2.7	4.9	10.3	3.6	32.7	1.9	38.2	3.6	38.6	2.8	45	
Cars & Buses	195	169	238	602	251	258	472	981	305	3033	176	3514	343	3611	258	4212	9309
% Cars & Buses	98	97.7	96	97.1	96.9	99.6	100	99.1	87.6	96.3	96.2	95.5	99.1	97.1	96.3	97.2	96.8
Trucks	4	4	10	18	8	1	0	9	43	115	7	165	3	107	10	120	312
% Trucks	2	2.3	4	2.9	3.1	0.4	0	0.9	12.4	3.7	3.8	4.5	0.9	2.9	3.7	2.8	3.2

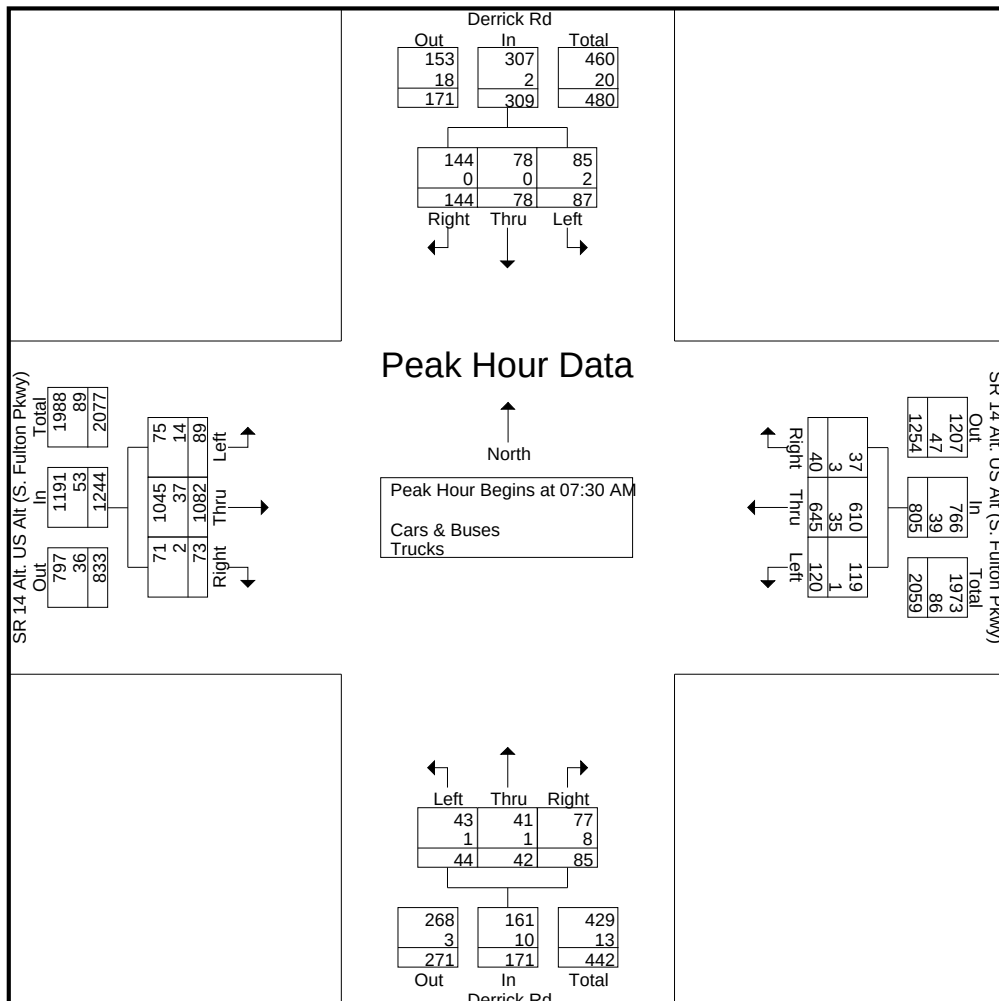
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt. US Alt (S. Fulton Pkwy) @
Derrick Rd
7-9am - 4-6pm

File Name : 20230256
Site Code : 20230256
Start Date : 15-08-2023
Page No : 2

	Derrick Rd Northbound				Derrick Rd Southbound				SR 14 Alt. US Alt (S. Fulton Pkwy) Eastbound				SR 14 Alt. US Alt (S. Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	9	15	21	45	31	29	65	125	20	266	15	301	18	132	22	172	643
07:45 AM	7	7	24	38	23	15	30	68	26	252	18	296	28	156	4	188	590
08:00 AM	20	14	23	57	16	16	27	59	16	287	17	320	37	177	8	222	658
08:15 AM	8	6	17	31	17	18	22	57	27	277	23	327	37	180	6	223	638
Total Volume	44	42	85	171	87	78	144	309	89	1082	73	1244	120	645	40	805	2529
% App. Total	25.7	24.6	49.7		28.2	25.2	46.6		7.2	87	5.9		14.9	80.1	5		
PHF	.550	.700	.885	.750	.702	.672	.554	.618	.824	.943	.793	.951	.811	.896	.455	.902	.961
Cars & Buses	43	41	77	161	85	78	144	307	75	1045	71	1191	119	610	37	766	2425
% Cars & Buses	97.7	97.6	90.6	94.2	97.7	100	100	99.4	84.3	96.6	97.3	95.7	99.2	94.6	92.5	95.2	95.9
Trucks	1	1	8	10	2	0	0	2	14	37	2	53	1	35	3	39	104
% Trucks	2.3	2.4	9.4	5.8	2.3	0	0	0.6	15.7	3.4	2.7	4.3	0.8	5.4	7.5	4.8	4.1



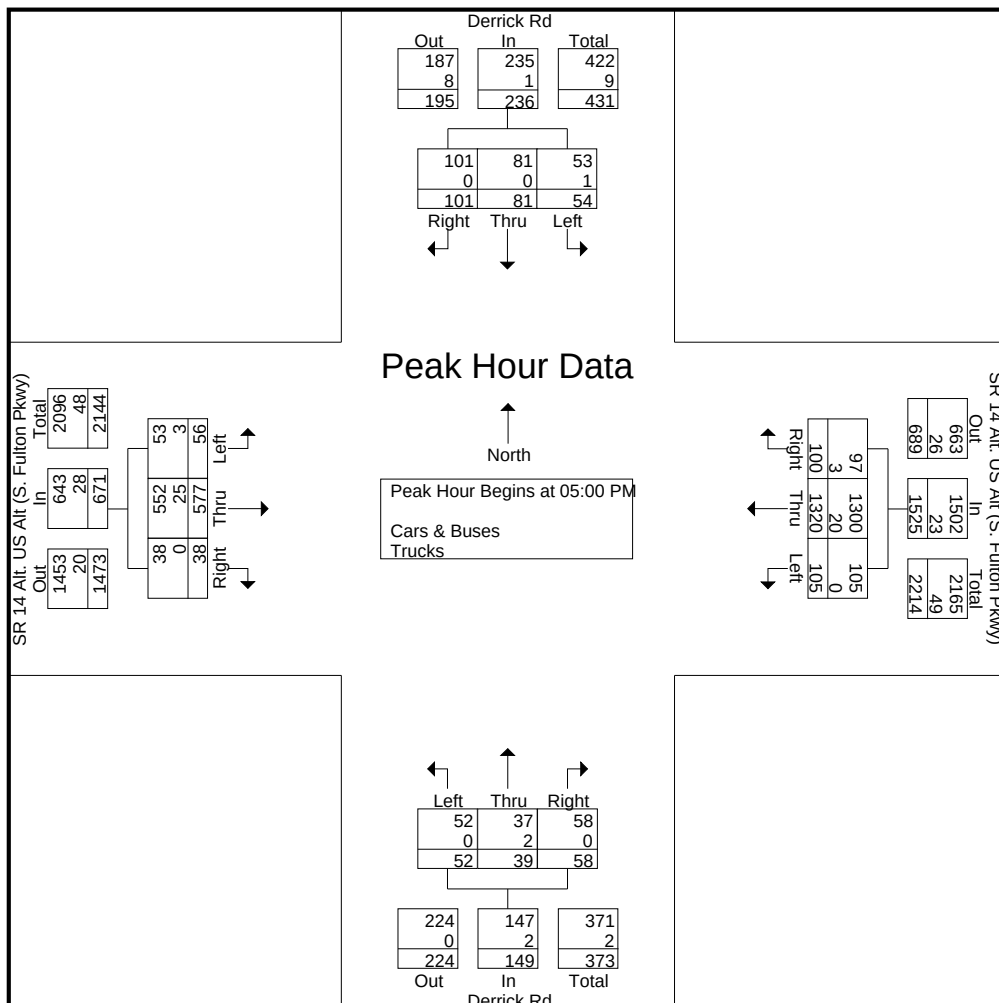
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt. US Alt (S. Fulton Pkwy) @
Derrick Rd
7-9am - 4-6pm

File Name : 20230256
Site Code : 20230256
Start Date : 15-08-2023
Page No : 3

	Derrick Rd Northbound				Derrick Rd Southbound				SR 14 Alt. US Alt (S. Fulton Pkwy) Eastbound				SR 14 Alt. US Alt (S. Fulton Pkwy) 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	17	4	15	36	16	13	23	52	15	125	7	147	20	347	25	392	627
05:15 PM	7	2	14	23	9	22	21	52	15	147	10	172	33	352	27	412	659
05:30 PM	12	18	17	47	18	25	35	78	10	147	11	168	21	300	26	347	640
05:45 PM	16	15	12	43	11	21	22	54	16	158	10	184	31	321	22	374	655
Total Volume	52	39	58	149	54	81	101	236	56	577	38	671	105	1320	100	1525	2581
% App. Total	34.9	26.2	38.9		22.9	34.3	42.8		8.3	86	5.7		6.9	86.6	6.6		
PHF	.765	.542	.853	.793	.750	.810	.721	.756	.875	.913	.864	.912	.795	.938	.926	.925	.979
Cars & Buses	52	37	58	147	53	81	101	235	53	552	38	643	105	1300	97	1502	2527
% Cars & Buses	100	94.9	100	98.7	98.1	100	100	99.6	94.6	95.7	100	95.8	100	98.5	97.0	98.5	97.9
Trucks	0	2	0	2	1	0	0	1	3	25	0	28	0	20	3	23	54
% Trucks	0	5.1	0	1.3	1.9	0	0	0.4	5.4	4.3	0	4.2	0	1.5	3.0	1.5	2.1



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TMC Data
SR 14 Alt US 29 Alt (S Fulton Pkwy) @
Stonewall Tell Road
7-9am - 4-6pm

File Name : 20230265
Site Code : 20230265
Start Date : 15-08-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

	Stonewall Tell Road Northbound				Stonewall Tell Road Southbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) 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
07:00 AM	89	46	7	142	25	26	45	96	53	176	48	277	3	54	20	77	592
07:15 AM	109	53	14	176	13	32	30	75	16	201	47	264	6	58	16	80	595
07:30 AM	96	56	4	156	12	34	35	81	21	256	40	317	10	53	20	83	637
07:45 AM	111	71	8	190	13	49	27	89	19	220	56	295	11	45	20	76	650
Total	405	226	33	664	63	141	137	341	109	853	191	1153	30	210	76	316	2474
08:00 AM	95	44	6	145	14	37	22	73	24	254	44	322	12	94	22	128	668
08:15 AM	100	48	2	150	19	35	31	85	27	246	38	311	15	101	20	136	682
08:30 AM	80	44	5	129	17	32	21	70	22	222	35	279	13	84	18	115	593
08:45 AM	68	38	3	109	13	27	16	56	19	189	29	237	11	51	16	78	480
Total	343	174	16	533	63	131	90	284	92	911	146	1149	51	330	76	457	2423
*** BREAK ***																	
04:00 PM	58	45	9	112	12	52	36	100	32	46	90	168	7	218	9	234	614
04:15 PM	85	41	8	134	10	45	35	90	39	56	82	177	8	215	13	236	637
04:30 PM	63	41	9	113	12	38	26	76	38	57	75	170	10	231	14	255	614
04:45 PM	62	41	14	117	16	58	23	97	26	59	53	138	6	250	9	265	617
Total	268	168	40	476	50	193	120	363	135	218	300	653	31	914	45	990	2482
05:00 PM	66	45	15	126	11	42	35	88	20	53	84	157	6	291	13	310	681
05:15 PM	73	52	6	131	9	31	38	78	15	65	71	151	4	300	11	315	675
05:30 PM	66	51	14	131	11	30	38	79	28	51	93	172	6	243	14	263	645
05:45 PM	59	47	10	116	6	25	34	65	25	57	86	168	5	275	10	290	639
Total	264	195	45	504	37	128	145	310	88	226	334	648	21	1109	48	1178	2640
Grand Total	1280	763	134	2177	213	593	492	1298	424	2208	971	3603	133	2563	245	2941	10019
Apprch %	58.8	35	6.2		16.4	45.7	37.9		11.8	61.3	26.9		4.5	87.1	8.3		
Total %	12.8	7.6	1.3	21.7	2.1	5.9	4.9	13	4.2	22	9.7	36	1.3	25.6	2.4	29.4	
Cars & Buses	1254	752	130	2136	209	583	472	1264	407	2129	940	3476	133	2496	233	2862	9738
% Cars & Buses	98	98.6	97	98.1	98.1	98.3	95.9	97.4	96	96.4	96.8	96.5	100	97.4	95.1	97.3	97.2
Trucks	26	11	4	41	4	10	20	34	17	79	31	127	0	67	12	79	281
% Trucks	2	1.4	3	1.9	1.9	1.7	4.1	2.6	4	3.6	3.2	3.5	0	2.6	4.9	2.7	2.8

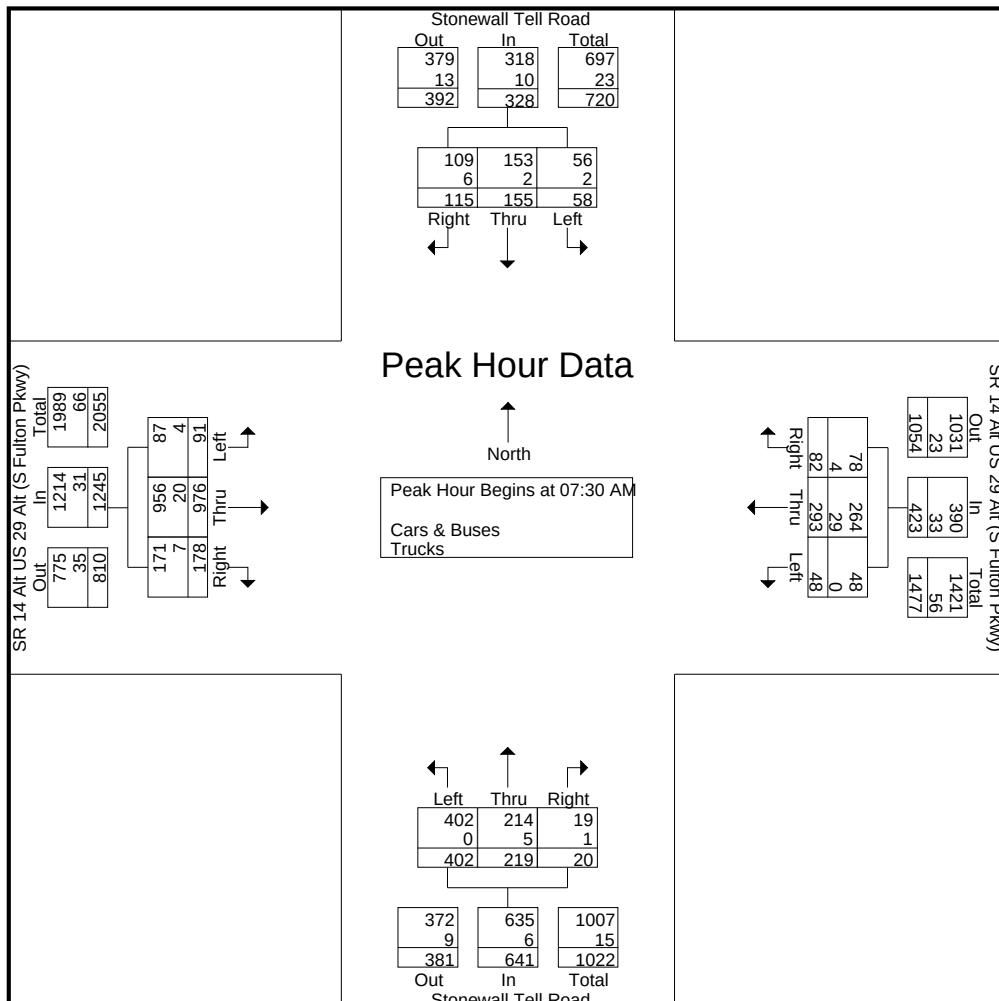
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt US 29 Alt (S Fulton Pkwy) @
Stonewall Tell Road
7-9am - 4-6pm

File Name : 20230265
Site Code : 20230265
Start Date : 15-08-2023
Page No : 2

	Stonewall Tell Road Northbound				Stonewall Tell Road Southbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	96	56	4	156	12	34	35	81	21	256	40	317	10	53	20	83	637
07:45 AM	111	71	8	190	13	49	27	89	19	220	56	295	11	45	20	76	650
08:00 AM	95	44	6	145	14	37	22	73	24	254	44	322	12	94	22	128	668
08:15 AM	100	48	2	150	19	35	31	85	27	246	38	311	15	101	20	136	682
Total Volume	402	219	20	641	58	155	115	328	91	976	178	1245	48	293	82	423	2637
% App. Total	62.7	34.2	3.1		17.7	47.3	35.1		7.3	78.4	14.3		11.3	69.3	19.4		
PHF	.905	.771	.625	.843	.763	.791	.821	.921	.843	.953	.795	.967	.800	.725	.932	.778	.967
Cars & Buses	402	214	19	635	56	153	109	318	87	956	171	1214	48	264	78	390	2557
% Cars & Buses	100	97.7	95.0	99.1	96.6	98.7	94.8	97.0	95.6	98.0	96.1	97.5	100	90.1	95.1	92.2	97.0
Trucks	0	5	1	6	2	2	6	10	4	20	7	31	0	29	4	33	80
% Trucks	0	2.3	5.0	0.9	3.4	1.3	5.2	3.0	4.4	2.0	3.9	2.5	0	9.9	4.9	7.8	3.0



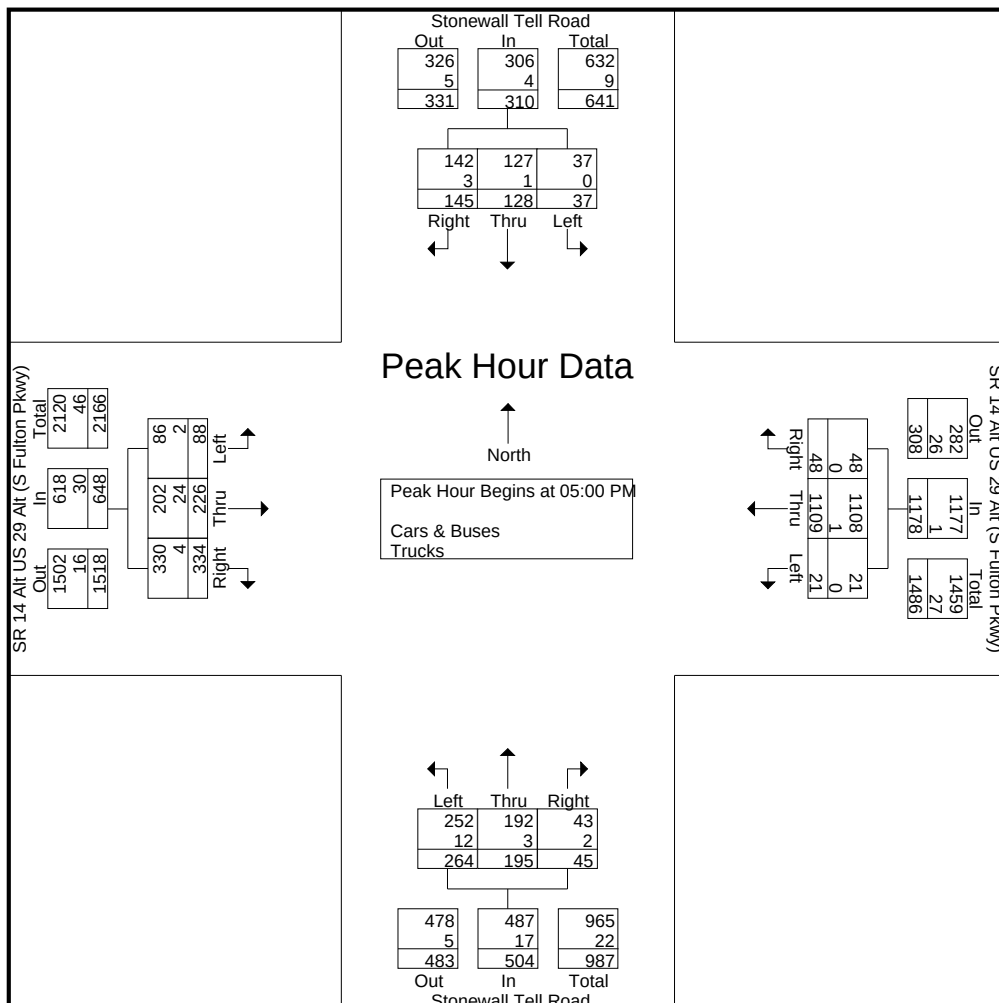
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt US 29 Alt (S Fulton Pkwy) @
Stonewall Tell Road
7-9am - 4-6pm

File Name : 20230265
Site Code : 20230265
Start Date : 15-08-2023
Page No : 3

	Stonewall Tell Road Northbound				Stonewall Tell Road Southbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) Eastbound				SR 14 Alt US 29 Alt (S Fulton Pkwy) 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	66	45	15	126	11	42	35	88	20	53	84	157	6	291	13	310	681
05:15 PM	73	52	6	131	9	31	38	78	15	65	71	151	4	300	11	315	675
05:30 PM	66	51	14	131	11	30	38	79	28	51	93	172	6	243	14	263	645
05:45 PM	59	47	10	116	6	25	34	65	25	57	86	168	5	275	10	290	639
Total Volume	264	195	45	504	37	128	145	310	88	226	334	648	21	1109	48	1178	2640
% App. Total	52.4	38.7	8.9		11.9	41.3	46.8		13.6	34.9	51.5		1.8	94.1	4.1		
PHF	.904	.938	.750	.962	.841	.762	.954	.881	.786	.869	.898	.942	.875	.924	.857	.935	.969
Cars & Buses	252	192	43	487	37	127	142	306	86	202	330	618	21	1108	48	1177	2588
% Cars & Buses	95.5	98.5	95.6	96.6	100	99.2	97.9	98.7	97.7	89.4	98.8	95.4	100	99.9	100	99.9	98.0
Trucks	12	3	2	17	0	1	3	4	2	24	4	30	0	1	0	1	52
% Trucks	4.5	1.5	4.4	3.4	0	0.8	2.1	1.3	2.3	10.6	1.2	4.6	0	0.1	0	0.1	2.0



A & R Engineering, Inc.

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Marietta, GA 30067

TMC Data
SR 14 Alt. US 29 Alt (S. Fulton Pkwy) @
Mason Rd -Hunter Rd
7-9am - 4-6pm

File Name : 20230259
Site Code : 20230259
Start Date : 15-08-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

	Mason Rd Northbound				Mason Rd Southbound				SR 14 Alt. US 29 Alt (S. Fulton Pkwy) Eastbound				SR 14 Alt. US 29 Alt (S. Fulton Pkwy) 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
07:00 AM	4	10	14	28	34	9	21	64	8	187	16	211	11	57	7	75	378
07:15 AM	6	9	4	19	54	14	15	83	9	209	17	235	19	61	10	90	427
07:30 AM	5	9	6	20	45	11	29	85	18	239	22	279	24	48	10	82	466
07:45 AM	7	14	8	29	48	15	17	80	17	198	34	249	21	60	10	91	449
Total	22	42	32	96	181	49	82	312	52	833	89	974	75	226	37	338	1720
08:00 AM	5	11	11	27	32	10	5	47	11	261	18	290	22	129	10	161	525
08:15 AM	1	12	10	23	34	8	9	51	10	241	21	272	22	116	10	148	494
08:30 AM	7	12	10	29	26	8	11	45	16	204	29	249	19	90	13	122	445
08:45 AM	3	4	7	14	38	11	14	63	8	190	10	208	11	63	10	84	369
Total	16	39	38	93	130	37	39	206	45	896	78	1019	74	398	43	515	1833
*** BREAK ***																	
04:00 PM	10	11	18	39	33	21	28	82	5	36	32	73	25	196	7	228	422
04:15 PM	8	15	16	39	28	17	26	71	9	44	26	79	25	210	2	237	426
04:30 PM	8	11	13	32	29	9	31	69	5	51	24	80	13	216	8	237	418
04:45 PM	7	16	17	40	35	13	15	63	8	51	24	83	24	247	14	285	471
Total	33	53	64	150	125	60	100	285	27	182	106	315	87	869	31	987	1737
05:00 PM	6	15	22	43	30	10	15	55	9	40	32	81	19	293	6	318	497
05:15 PM	5	14	26	45	30	13	17	60	12	38	28	78	23	301	9	333	516
05:30 PM	5	16	22	43	30	16	11	57	8	43	25	76	20	248	5	273	449
05:45 PM	5	14	18	37	25	12	13	50	6	46	21	73	14	280	6	300	460
Total	21	59	88	168	115	51	56	222	35	167	106	308	76	1122	26	1224	1922
Grand Total	92	193	222	507	551	197	277	1025	159	2078	379	2616	312	2615	137	3064	7212
Apprch %	18.1	38.1	43.8		53.8	19.2	27		6.1	79.4	14.5		10.2	85.3	4.5		
Total %	1.3	2.7	3.1	7	7.6	2.7	3.8	14.2	2.2	28.8	5.3	36.3	4.3	36.3	1.9	42.5	
Cars & Buses	80	181	183	444	500	193	268	961	154	1956	373	2483	266	2516	95	2877	6765
% Cars & Buses	87	93.8	82.4	87.6	90.7	98	96.8	93.8	96.9	94.1	98.4	94.9	85.3	96.2	69.3	93.9	93.8
Trucks	12	12	39	63	51	4	9	64	5	122	6	133	46	99	42	187	447
% Trucks	13	6.2	17.6	12.4	9.3	2	3.2	6.2	3.1	5.9	1.6	5.1	14.7	3.8	30.7	6.1	6.2

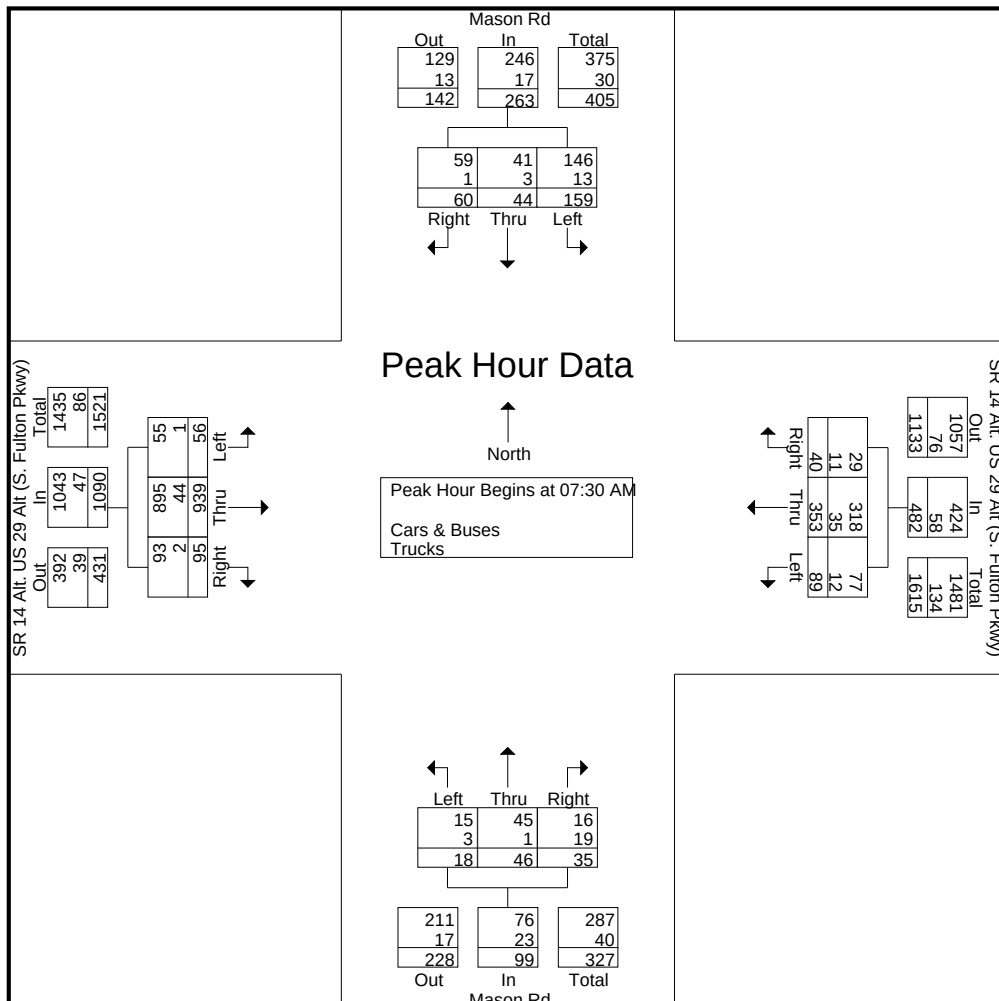
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt. US 29 Alt (S. Fulton Pkwy) @
Mason Rd -Hunter Rd
7-9am - 4-6pm

File Name : 20230259
Site Code : 20230259
Start Date : 15-08-2023
Page No : 2

	Mason Rd Northbound				Mason Rd Southbound				SR 14 Alt. US 29 Alt (S. Fulton Pkwy) Eastbound				SR 14 Alt. US 29 Alt (S. Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	9	6	20	45	11	29	85	18	239	22	279	24	48	10	82	466
07:45 AM	7	14	8	29	48	15	17	80	17	198	34	249	21	60	10	91	449
08:00 AM	5	11	11	27	32	10	5	47	11	261	18	290	22	129	10	161	525
08:15 AM	1	12	10	23	34	8	9	51	10	241	21	272	22	116	10	148	494
Total Volume	18	46	35	99	159	44	60	263	56	939	95	1090	89	353	40	482	1934
% App. Total	18.2	46.5	35.4		60.5	16.7	22.8		5.1	86.1	8.7		18.5	73.2	8.3		
PHF	.643	.821	.795	.853	.828	.733	.517	.774	.778	.899	.699	.940	.927	.684	1.00	.748	.921
Cars & Buses	15	45	16	76	146	41	59	246	55	895	93	1043	77	318	29	424	1789
% Cars & Buses	83.3	97.8	45.7	76.8	91.8	93.2	98.3	93.5	98.2	95.3	97.9	95.7	86.5	90.1	72.5	88.0	92.5
Trucks	3	1	19	23	13	3	1	17	1	44	2	47	12	35	11	58	145
% Trucks	16.7	2.2	54.3	23.2	8.2	6.8	1.7	6.5	1.8	4.7	2.1	4.3	13.5	9.9	27.5	12.0	7.5



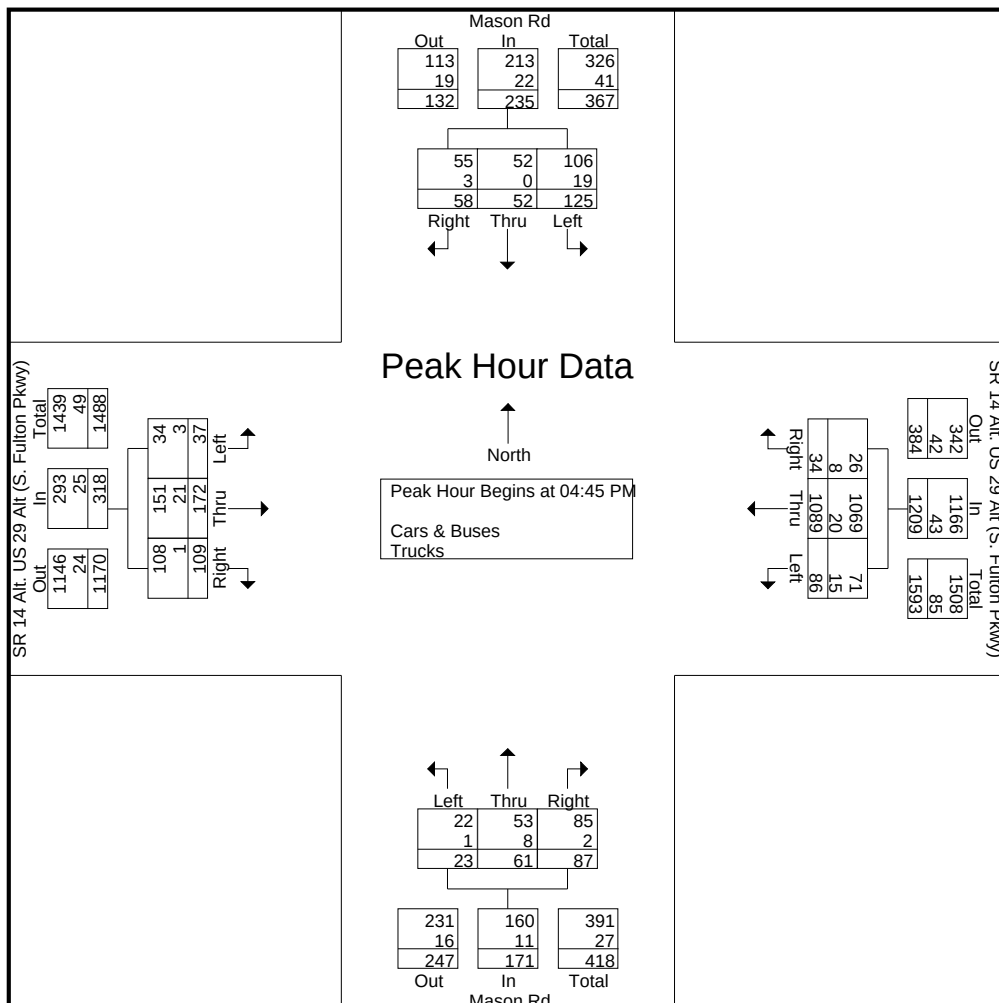
A & R Engineering, Inc.

2160 Kingston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 14 Alt. US 29 Alt (S. Fulton Pkwy) @
Mason Rd -Hunter Rd
7-9am - 4-6pm

File Name : 20230259
Site Code : 20230259
Start Date : 15-08-2023
Page No : 3

	Mason Rd Northbound				Mason Rd Southbound				SR 14 Alt. US 29 Alt (S. Fulton Pkwy) Eastbound				SR 14 Alt. US 29 Alt (S. Fulton Pkwy) 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 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	7	16	17	40	35	13	15	63	8	51	24	83	24	247	14	285	471
05:00 PM	6	15	22	43	30	10	15	55	9	40	32	81	19	293	6	318	497
05:15 PM	5	14	26	45	30	13	17	60	12	38	28	78	23	301	9	333	516
05:30 PM	5	16	22	43	30	16	11	57	8	43	25	76	20	248	5	273	449
Total Volume	23	61	87	171	125	52	58	235	37	172	109	318	86	1089	34	1209	1933
% App. Total	13.5	35.7	50.9		53.2	22.1	24.7		11.6	54.1	34.3		7.1	90.1	2.8		
PHF	.821	.953	.837	.950	.893	.813	.853	.933	.771	.843	.852	.958	.896	.904	.607	.908	.937
Cars & Buses	22	53	85	160	106	52	55	213	34	151	108	293	71	1069	26	1166	1832
% Cars & Buses	95.7	86.9	97.7	93.6	84.8	100	94.8	90.6	91.9	87.8	99.1	92.1	82.6	98.2	76.5	96.4	94.8
Trucks	1	8	2	11	19	0	3	22	3	21	1	25	15	20	8	43	101
% Trucks	4.3	13.1	2.3	6.4	15.2	0	5.2	9.4	8.1	12.2	0.9	7.9	17.4	1.8	23.5	3.6	5.2



A&R Engineering, Inc.

2160 Kingston Court Suite 'O'
Marietta, GA 30067

TMC Data
SR 14 Alternate US 29 (s. Fulton Pkwy) @
SR 14-US 29 Roosevelt Hwy EB Ramps
7-9 am | 4-6 pm

File Name : 20230257
Site Code : 20230257
Start Date : 08-15-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

	SR 14-US 29 Roosevelt Hwy EB Ramps Northbound				SR 14-US 29 Roosevelt Hwy EB Ramps Southbound				SR 14 Alternate US 29 (s. Fulton Pkwy) 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
07:00 AM	161	127	0	288	0	123	11	134	7	0	8	15	0	0	0	0	437
07:15 AM	172	181	0	353	0	156	33	189	4	0	11	15	0	0	0	0	557
07:30 AM	187	220	0	407	0	190	45	235	3	0	8	11	0	0	0	0	653
07:45 AM	182	207	0	389	0	156	44	200	5	0	10	15	0	0	0	0	604
Total	702	735	0	1437	0	625	133	758	19	0	37	56	0	0	0	0	2251
08:00 AM	171	157	0	328	0	166	34	200	11	0	10	21	0	0	0	0	549
08:15 AM	160	159	0	319	0	173	31	204	13	0	6	19	0	0	0	0	542
08:30 AM	148	145	0	293	0	174	19	193	15	0	9	24	0	0	0	0	510
08:45 AM	143	121	0	264	0	160	27	187	12	0	4	16	0	0	0	0	467
Total	622	582	0	1204	0	673	111	784	51	0	29	80	0	0	0	0	2068
*** BREAK ***																	
04:00 PM	107	138	0	245	0	267	26	293	8	0	8	16	0	0	0	0	554
04:15 PM	115	166	0	281	0	311	31	342	1	0	11	12	0	0	0	0	635
04:30 PM	116	130	0	246	0	270	27	297	3	0	9	12	0	0	0	0	555
04:45 PM	119	144	0	263	0	321	34	355	8	0	18	26	0	0	0	0	644
Total	457	578	0	1035	0	1169	118	1287	20	0	46	66	0	0	0	0	2388
05:00 PM	102	151	0	253	0	343	39	382	8	0	13	21	0	0	0	0	656
05:15 PM	106	130	0	236	0	338	40	378	5	0	13	18	0	0	0	0	632
05:30 PM	104	110	0	214	0	324	24	348	3	0	8	11	0	0	0	0	573
05:45 PM	106	100	0	206	0	278	24	302	9	0	6	15	0	0	0	0	523
Total	418	491	0	909	0	1283	127	1410	25	0	40	65	0	0	0	0	2384
Grand Total	2199	2386	0	4585	0	3750	489	4239	115	0	152	267	0	0	0	0	9091
Apprch %	48	52	0		0	88.5	11.5		43.1	0	56.9		0	0	0		
Total %	24.2	26.2	0	50.4	0	41.2	5.4	46.6	1.3	0	1.7	2.9	0	0	0	0	
Cars & Buses	2044	2325	0	4369	0	3585	484	4069	104	0	144	248	0	0	0	0	8686
% Cars & Buses	93	97.4	0	95.3	0	95.6	99	96	90.4	0	94.7	92.9	0	0	0	0	95.5
Trucks	155	61	0	216	0	165	5	170	11	0	8	19	0	0	0	0	405
% Trucks	7	2.6	0	4.7	0	4.4	1	4	9.6	0	5.3	7.1	0	0	0	0	4.5

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TMC Data

SR 14 Alternate US 29 (s. Fulton Pkwy) @

SR 14-US 29 Roosevelt Hwy EB Ramps

7-9 am | 4-6 pm

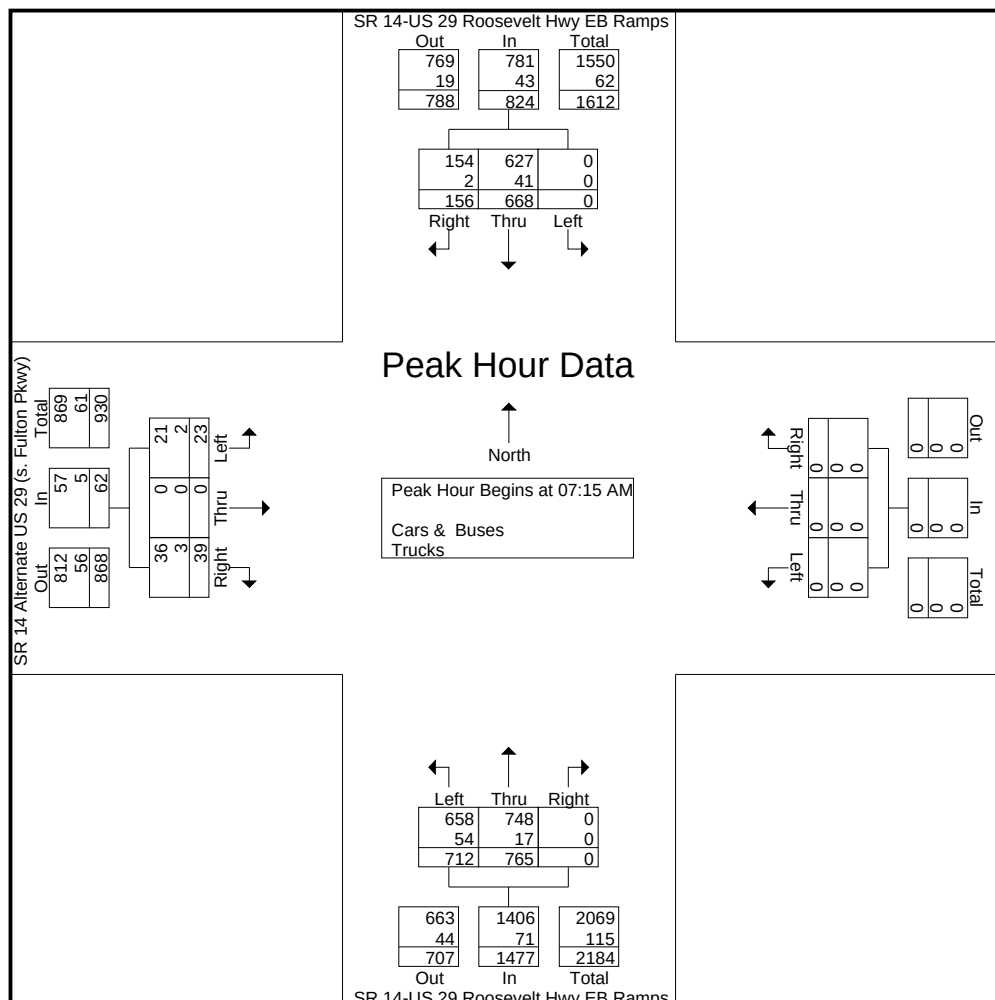
File Name : 20230257

Site Code : 20230257

Start Date : 08-15-2023

Page No : 2

	SR 14-US 29 Roosevelt Hwy EB Ramps Northbound				SR 14-US 29 Roosevelt Hwy EB Ramps Southbound				SR 14 Alternate US 29 (s. Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	172	181	0	353	0	156	33	189	4	0	11	15	0	0	0	0	557
07:30 AM	187	220	0	407	0	190	45	235	3	0	8	11	0	0	0	0	653
07:45 AM	182	207	0	389	0	156	44	200	5	0	10	15	0	0	0	0	604
08:00 AM	171	157	0	328	0	166	34	200	11	0	10	21	0	0	0	0	549
Total Volume	712	765	0	1477	0	668	156	824	23	0	39	62	0	0	0	0	2363
% App. Total	48.2	51.8	0		0	81.1	18.9		37.1	0	62.9		0	0	0		
PHF	.952	.869	.000	.907	.000	.879	.867	.877	.523	.000	.886	.738	.000	.000	.000	.000	.905
Cars & Buses	658	748	0	1406	0	627	154	781	21	0	36	57	0	0	0	0	2244
% Cars & Buses	92.4	97.8	0	95.2	0	93.9	98.7	94.8	91.3	0	92.3	91.9	0	0	0	0	95.0
Trucks	54	17	0	71	0	41	2	43	2	0	3	5	0	0	0	0	119
% Trucks	7.6	2.2	0	4.8	0	6.1	1.3	5.2	8.7	0	7.7	8.1	0	0	0	0	5.0



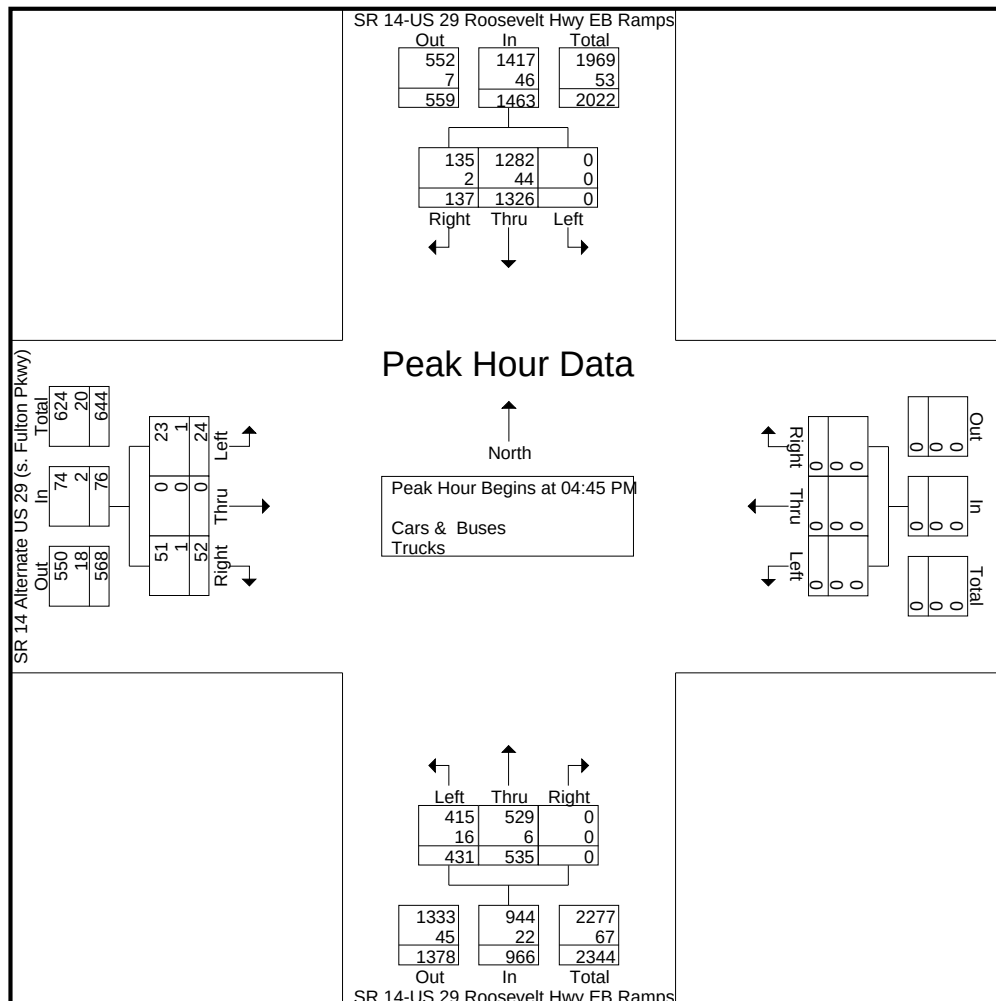
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TMC Data
SR 14 Alternate US 29 (s. Fulton Pkwy) @
SR 14-US 29 Roosevelt Hwy EB Ramps
7-9 am | 4-6 pm

File Name : 20230257
Site Code : 20230257
Start Date : 08-15-2023
Page No : 3

	SR 14-US 29 Roosevelt Hwy EB Ramps Northbound				SR 14-US 29 Roosevelt Hwy EB Ramps Southbound				SR 14 Alternate US 29 (s. Fulton Pkwy) 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 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	119	144	0	263	0	321	34	355	8	0	18	26	0	0	0	0	644
05:00 PM	102	151	0	253	0	343	39	382	8	0	13	21	0	0	0	0	656
05:15 PM	106	130	0	236	0	338	40	378	5	0	13	18	0	0	0	0	632
05:30 PM	104	110	0	214	0	324	24	348	3	0	8	11	0	0	0	0	573
Total Volume	431	535	0	966	0	1326	137	1463	24	0	52	76	0	0	0	0	2505
% App. Total	44.6	55.4	0		0	90.6	9.4		31.6	0	68.4		0	0	0		
PHF	.905	.886	.000	.918	.000	.966	.856	.957	.750	.000	.722	.731	.000	.000	.000	.000	.955
Cars & Buses	415	529	0	944	0	1282	135	1417	23	0	51	74	0	0	0	0	2435
% Cars & Buses	96.3	98.9	0	97.7	0	96.7	98.5	96.9	95.8	0	98.1	97.4	0	0	0	0	97.2
Trucks	16	6	0	22	0	44	2	46	1	0	1	2	0	0	0	0	70
% Trucks	3.7	1.1	0	2.3	0	3.3	1.5	3.1	4.2	0	1.9	2.6	0	0	0	0	2.8



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TMC Data
SR 14 Alternate US 29 (s. Fulton Pkwy) @
SR 14-US 29 Roosevelt Hwy WB Ramps
7-9 am | 4-6 pm

File Name : 20230258
Site Code : 20230258
Start Date : 08-15-2023
Page No : 1

Groups Printed- Cars & Buses - Trucks

	SR 14-US 29 Roosevelt Hwy WB Ramps Northbound				SR 14-US 29 Roosevelt Hwy WB Ramps Southbound				SR 14 Alternate US 29 (s. Fulton Pkwy) 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
07:00 AM	4	130	0	134	0	52	8	60	2	0	82	84	0	0	0	0	278
07:15 AM	2	183	0	185	0	105	12	117	8	0	84	92	0	0	0	0	394
07:30 AM	3	220	0	223	0	136	23	159	12	0	99	111	0	0	0	0	493
07:45 AM	5	207	0	212	0	122	21	143	23	0	78	101	0	0	0	0	456
Total	14	740	0	754	0	415	64	479	45	0	343	388	0	0	0	0	1621
08:00 AM	4	164	0	168	0	97	18	115	42	0	103	145	0	0	0	0	428
08:15 AM	5	167	0	172	0	88	20	108	58	0	116	174	0	0	0	0	454
08:30 AM	9	151	0	160	0	96	20	116	57	1	97	155	0	0	0	0	431
08:45 AM	1	132	0	133	0	99	9	108	39	0	88	127	0	0	0	0	368
Total	19	614	0	633	0	380	67	447	196	1	404	601	0	0	0	0	1681
*** BREAK ***																	
04:00 PM	5	141	0	146	0	162	28	190	14	0	131	145	0	0	0	0	481
04:15 PM	5	162	0	167	0	163	28	191	10	0	179	189	0	0	0	0	547
04:30 PM	9	124	0	133	0	155	23	178	7	0	142	149	0	0	0	0	460
04:45 PM	6	146	0	152	0	179	25	204	15	0	176	191	0	0	0	0	547
Total	25	573	0	598	0	659	104	763	46	0	628	674	0	0	0	0	2035
05:00 PM	10	149	0	159	0	188	25	213	20	0	194	214	0	0	0	0	586
05:15 PM	8	127	0	135	0	196	33	229	9	0	182	191	0	0	0	0	555
05:30 PM	7	106	0	113	0	152	38	190	10	0	196	206	0	0	0	0	509
05:45 PM	2	107	0	109	0	122	27	149	17	0	180	197	0	0	0	0	455
Total	27	489	0	516	0	658	123	781	56	0	752	808	0	0	0	0	2105
Grand Total	85	2416	0	2501	0	2112	358	2470	343	1	2127	2471	0	0	0	0	7442
Apprch %	3.4	96.6	0		0	85.5	14.5		13.9	0	86.1		0	0	0		
Total %	1.1	32.5	0	33.6	0	28.4	4.8	33.2	4.6	0	28.6	33.2	0	0	0	0	
Cars & Buses	78	2351	0	2429	0	2069	339	2408	324	0	2000	2324	0	0	0	0	7161
% Cars & Buses	91.8	97.3	0	97.1	0	98	94.7	97.5	94.5	0	94	94.1	0	0	0	0	96.2
Trucks	7	65	0	72	0	43	19	62	19	1	127	147	0	0	0	0	281
% Trucks	8.2	2.7	0	2.9	0	2	5.3	2.5	5.5	100	6	5.9	0	0	0	0	3.8

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TMC Data

SR 14 Alternate US 29 (s. Fulton Pkwy) @

SR 14-US 29 Roosevelt Hwy WB Ramps

7-9 am | 4-6 pm

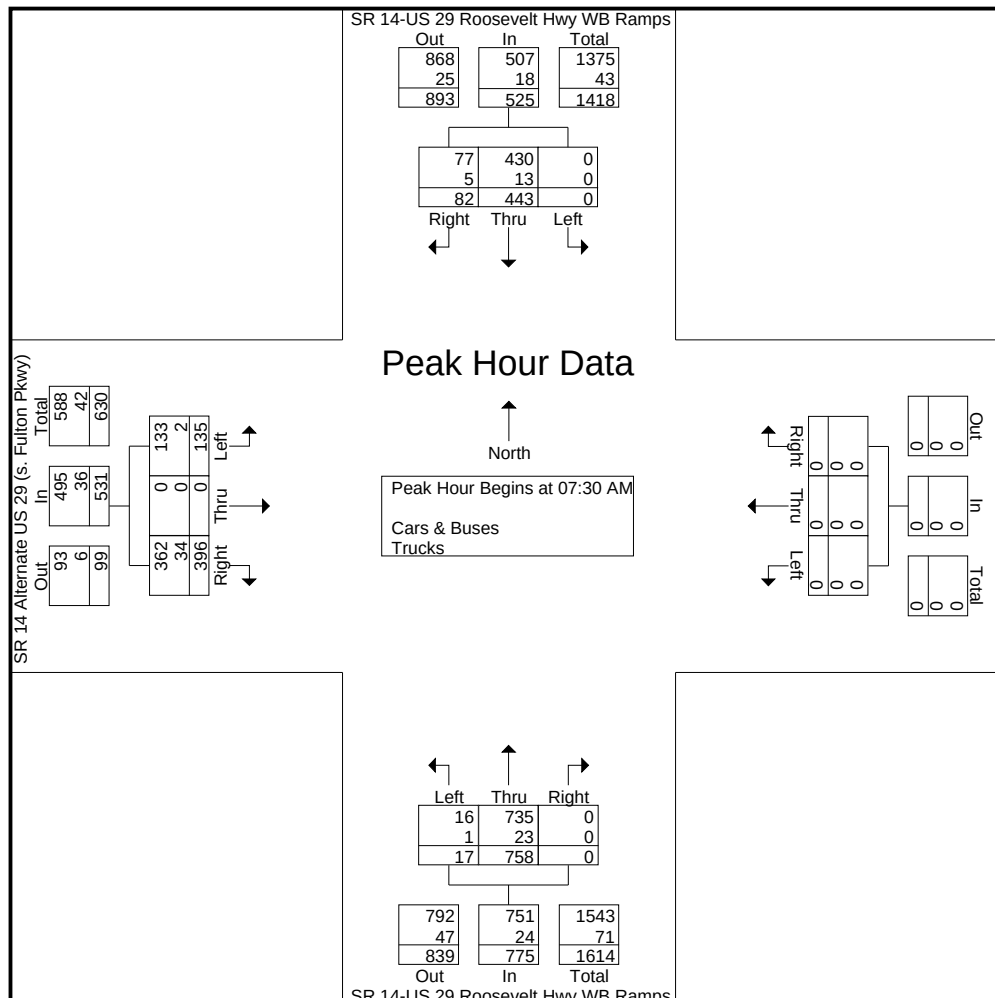
File Name : 20230258

Site Code : 20230258

Start Date : 08-15-2023

Page No : 2

	SR 14-US 29 Roosevelt Hwy WB Ramps Northbound				SR 14-US 29 Roosevelt Hwy WB Ramps Southbound				SR 14 Alternate US 29 (s. Fulton Pkwy) 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 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	3	220	0	223	0	136	23	159	12	0	99	111	0	0	0	0	493
07:45 AM	5	207	0	212	0	122	21	143	23	0	78	101	0	0	0	0	456
08:00 AM	4	164	0	168	0	97	18	115	42	0	103	145	0	0	0	0	428
08:15 AM	5	167	0	172	0	88	20	108	58	0	116	174	0	0	0	0	454
Total Volume	17	758	0	775	0	443	82	525	135	0	396	531	0	0	0	0	1831
% App. Total	2.2	97.8	0		0	84.4	15.6		25.4	0	74.6		0	0	0		
PHF	.850	.861	.000	.869	.000	.814	.891	.825	.582	.000	.853	.763	.000	.000	.000	.000	.928
Cars & Buses	16	735	0	751	0	430	77	507	133	0	362	495	0	0	0	0	1753
% Cars & Buses	94.1	97.0	0	96.9	0	97.1	93.9	96.6	98.5	0	91.4	93.2	0	0	0	0	95.7
Trucks	1	23	0	24	0	13	5	18	2	0	34	36	0	0	0	0	78
% Trucks	5.9	3.0	0	3.1	0	2.9	6.1	3.4	1.5	0	8.6	6.8	0	0	0	0	4.3



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7-9 am | 4-6 pm

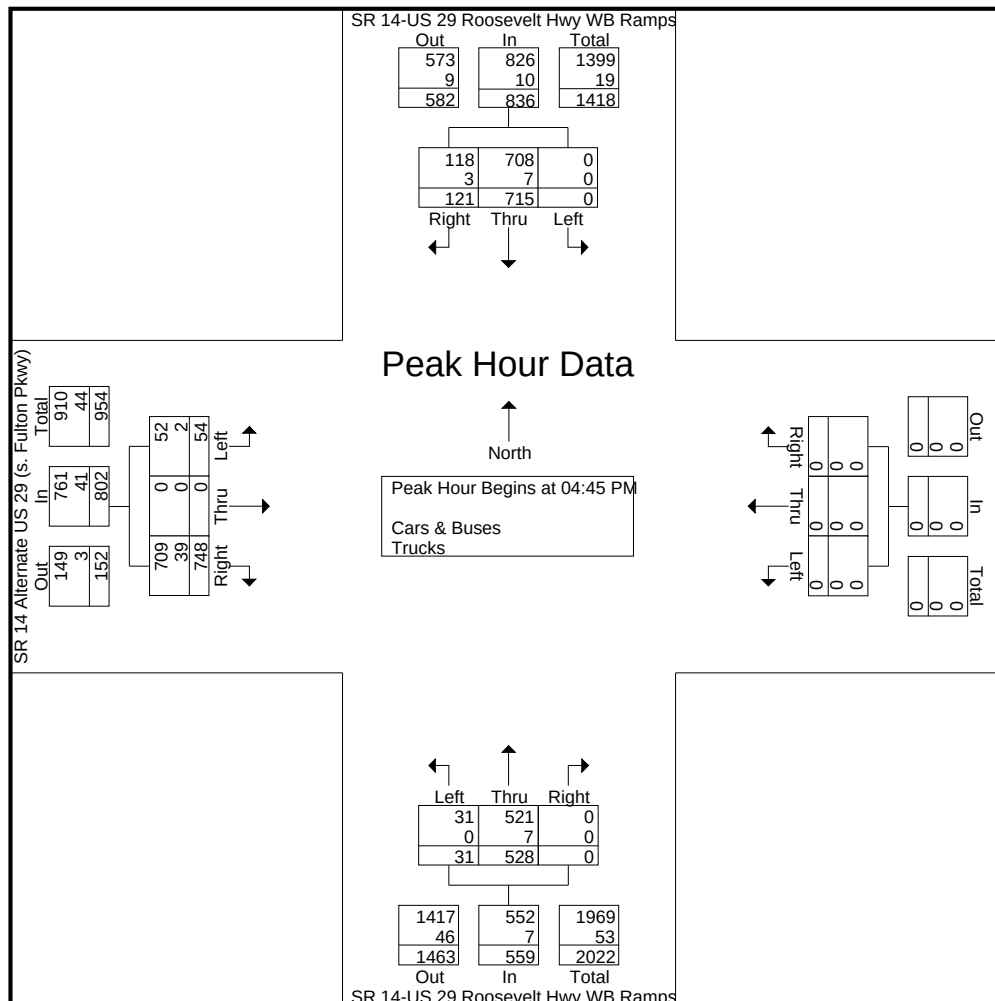
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	SR 14-US 29 Roosevelt Hwy WB Ramps Northbound				SR 14-US 29 Roosevelt Hwy WB Ramps Southbound				SR 14 Alternate US 29 (s. Fulton Pkwy) Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	6	146	0	152	0	179	25	204	15	0	176	191	0	0	0	0	547
05:00 PM	10	149	0	159	0	188	25	213	20	0	194	214	0	0	0	0	586
05:15 PM	8	127	0	135	0	196	33	229	9	0	182	191	0	0	0	0	555
05:30 PM	7	106	0	113	0	152	38	190	10	0	196	206	0	0	0	0	509
Total Volume	31	528	0	559	0	715	121	836	54	0	748	802	0	0	0	0	2197
% App. Total	5.5	94.5	0		0	85.5	14.5		6.7	0	93.3		0	0	0		
PHF	.775	.886	.000	.879	.000	.912	.796	.913	.675	.000	.954	.937	.000	.000	.000	.000	.937
Cars & Buses	31	521	0	552	0	708	118	826	52	0	709	761	0	0	0	0	2139
% Cars & Buses	100	98.7	0	98.7	0	99.0	97.5	98.8	96.3	0	94.8	94.9	0	0	0	0	97.4
Trucks	0	7	0	7	0	7	3	10	2	0	39	41	0	0	0	0	58
% Trucks	0	1.3	0	1.3	0	1.0	2.5	1.2	3.7	0	5.2	5.1	0	0	0	0	2.6



GRTA Letter of Understanding



LETTER OF UNDERSTANDING

August 25, 2023

William Harrison Merrill
WHM Chattahoochee Hills Investment, LLC
8000 Capps Ferry Road
Douglasville, GA 30135

RE: **Merrill Park Chattahoochee Hills (DRI#: 4004)**

Dear William Harrison Merrill:

The purpose of this Letter of Understanding is to document the discussions during the Methodology Meeting held virtually on July 24, 2023 regarding **Merrill Park Chattahoochee Hills** Development of Regional Impact (DRI). The *GRTA DRI Review Procedures*, as well as the inputs and parameters documented in this Letter of Understanding and the revised Methodology Meeting Packet, shall be adhered to in preparing the GRTA required Transportation Study.

PROJECT OVERVIEW

- The proposed site is located at the four corners of the intersection of Cochran Mill Road and South Fulton Parkway (SR 70).
- The proposed development includes:

Land Use	Density
Single-Family Detached Housing	400
Single Family Attached Housing	400
Multifamily Housing (Mid-Rise) not close to Rail Transit	1,200
Commercial/Retail	475,000 sf
Office	1,600,000 sf
Healthcare	225,000 sf
Educational Campus	200,000 sf / 445 students

- The projected build-out is two phases to be completed by 2038.
- The proposed development includes (11) site accesses along Cochran Mill Road and Wilkerson Road.
- The DRI trigger for this development is a rezoning.
- The vehicular trip generation is estimated to be 22,703 net daily trips based on the *ITE Trip Generation Manual 11th edition*.
- The applicant is applying for approval under GRTA's non-expedited Traffic Impact Study review process.

STUDY NETWORK

1. Collinsworth Road @ I-85 Northbound Ramps
2. Collinsworth Road @ I-85 Southbound Ramps
3. Collinsworth Road @ Weldon Road
4. SR 14/US 29 (Main Street) @ Toombs Street

5. Water Works Road / Toombs Street @ Hutchesons Ferry Road
6. Hutchesons Ferry Road @ Cochran Mill Road
7. Cochran Mill Road @ Wilkerson Mill Road
8. SR 70 (South Fulton Parkway) @ Cochran Mill Road
9. SR 70 (South Fulton Parkway) @ Rivertown Road
10. SR 70 (South Fulton Parkway) @ SR 154 (Cascade Palmetto Highway)
11. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Cedar Grove Road
12. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 92
13. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Derrick Road
14. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Stonewall Tell Road
15. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ Mason Road
16. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 14/US 29 (Roosevelt Highway)
Eastbound Ramps
17. SR 14 Alternate/US 29 Alternate (South Fulton Parkway) @ SR 14/US 29 (Roosevelt Highway)
Westbound Ramps

METHODOLOGY MEETING PACKET INPUTS & PARAMETERS

- The Site Plan shall meet all the applicable requirements in Section 7.1 of the *GRTA DRI Review Procedures*.
- All Study Network intersections shall be analyzed during the AM and PM peak hours for (1) existing conditions, (2) future “no-build” conditions, and (3) future “build” conditions as specified in the *GRTA DRI Review Procedures*.
- This DRI shall be modeled and reviewed in one phase to be completed by 2038.
- The Level of Service (LOS) standard for all analysis shall be LOS D unless specified otherwise in Section 3.2.2.1. For example, a LOS E standard is allowed if the existing LOS for the intersection or approach is a LOS F.
- Default values should not be assumed in the traffic modeling. Existing conditions shall be taken into account as required in Section 3.2.2.
- The trip generation calculations in the revised Methodology Meeting Packet shall be used in the Transportation Study. Mixed-use and pass-by reductions are allowed for this site. Pass-by reductions shall not exceed 15% of a roadway’s traffic volume standard established in Appendix 7.2.
- The trip assignment approach in the revised Methodology Meeting Packet shall be utilized for all Study Network intersection movements.
- The applicant shall research TIP, STIP, RTP and GDOT’s construction work program, as well as any local government and transit operator plans (SPLOST, CIP, etc.), to determine the open date, sponsor, cost of the project, funding source(s), for future roadway projects in the project vicinity. Programmed transportation projects anticipated to open on or before the Build Out year of the DRI Project shall be modeled as completed in the No-Build and Build conditions unless approved otherwise.
- A 4% annual traffic Background Growth Rate shall be used for all roadways.
- 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, unless specified otherwise. As specified in Section 2.3, turning movement counts shall be collected while local schools are in session, on a Tuesday, Wednesday or Thursday (unless approved otherwise) and not during holiday periods (weeks of July 4th, Thanksgiving and +/- 5 days of Christmas).
- If the *GRTA DRI Review Procedures* requires an Enhanced Focus Area for Heavy Vehicles or an Enhanced Focus Area for Dense Urban Environments, the Transportation Study shall incorporate the inputs and parameters agreed to at the Methodology Meeting and documented in the revised Methodology Meeting Packet. These inputs may include a Heavy Vehicle modeling percentages, a Heavy Vehicle route map, a pedestrian crosswalk delay adjustment and a bus blockage adjustment factor.

ADDITIONAL REQUIREMENTS

All applicable requirements of the *GRTA DRI Review Procedures* must be met for the Transportation Study to be considered complete. The *GRTA DRI Review Procedures* are located on GRTA's DRI website: <https://www.srta.ga.gov/programs-projects/dev-of-regional-impact/> Contact GRTA staff if you have any questions on these requirements.

The Transportation Study shall also include as attachments the native LOS modeling file (i.e., Synchro modeling files) as well as the modeling reports (PDFs) for all Study Network intersections for the Existing, No-Build and Build conditions for all phases. The PDF reports shall be numbered (in page headers) and organized in order according to the Study Network numbering sequence in this Letter of Understanding. The reports shall also be organized in the following sequence: *Existing condition AM, Existing condition PM, No-build condition AM, No-Build condition PM, Build condition AM, Build condition PM*. If improvements are modeled, those PDFs shall be labeled as such and follow the appropriate condition's applicable peak period.

The Transportation Study appendices shall also include all turning movement count data, regardless of if using historic data or newly collected turning movement counts.

When documenting any Queue Length impacts required in Section 3.2.3.6, the TIS Executive Summary shall also note any individual *movements* not meeting the LOS standard where the DRI Project adds trips in the Build condition and exceeds available storage capacity for that movement.

When identifying mitigations in the existing, no-build and build conditions, the mitigations identified in preceding conditions shall not be modeled as complete when conducting the LOS analysis. The same mitigation may still be proposed as mitigation in the subsequent condition but it shall not be included as completed in the default analysis. For example, a turn lane may be identified as a needed improvement in the no-build condition. The turn lane should not be modeled as completed in the build condition. The turn lane should only be modeled as complete in the no-build with improvements condition and the build with improvements condition.

DRI REVIEW PACKAGE SUBMITTAL

GRTA will begin reviewing the DRI once the DRI Review Package is submitted and deemed complete. The DRI Review Package includes: the permitting Local Government inputting both Department of Community Affairs (DCA) forms into the DCA DRI website; and the **Traffic Engineer submittal of the GRTA Transportation Study (including LOS appendices, traffic count data and any other required attachments) and Site Plan to GRTA staff and ALL stakeholders included in the CC list of this Letter of Understanding.**

All DRI Review Packages shall be submitted electronically via email to all stakeholders in the CC list of the Letter of Understanding. If the DRI Review Package total file size is greater than 10 MB, the DRI Review Package shall be submitted via email with a FTP link provided for downloading the files.

Please contact me if you have any questions about the Letter of Understanding or the *GRTA DRI Review Procedures*.

Sincerely,

December Weir
Transit Planner

Cc:

Donald Shockey, ARC
Reginald James, ARC
Caity Chandler, Chattahoochee Hills
Michael Morton, Chattahoochee Hills
Mayor Tom Reed, Chattahoochee Hills
Karla Poshedly, Douglas County

Naila Amer, A&R Engineering
Abdul Amer, A&R Engineering
Rob MacPherson, PE, Prime Engineering
Katie Strickland, P.E., Prime Engineering
Ryan Snodgrass, TSW Design

Bruce Mercer, Douglas County
Allison Duncan, Douglas County
Philip Shafer, Douglas County
Denise Brookins, Fairburn
Davina Williams, GDOT
Jasmine Taylor, GDOT
Megan R Wilson, GDOT
Joshua Higgins, GDOT
Daniel J Trevorrow, GDOT
Elizabeth Davis, GRTA/ATL
Haley McMillan, GRTA/ATL
Carlos Trias, GRTA/ATL
Akeenan Bridges, South Fulton
Reginald McClendon, South Fulton
Anthony Alston, Union City
Janna Keller, Union City
Chanelle Campbell, Union City

Linear Regression of Daily Traffic

Existing Intersection Analysis

Timings
1: I-85 NB Ramps & Collinsworth Rd

1a. Existing 2023 AM
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	351	438	435	632	286	351
Future Volume (vph)	351	438	435	632	286	351
Lane Group Flow (vph)	373	466	463	672	304	373
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	30.0	83.0	53.0	53.0	37.0	37.0
Total Split (%)	25.0%	69.2%	44.2%	44.2%	30.8%	30.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.64	0.19	0.53	0.62	0.83	0.60
Control Delay	12.9	4.5	25.9	4.6	63.4	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	4.5	25.9	4.6	63.4	8.0
Queue Length 50th (ft)	126	44	243	0	225	0
Queue Length 95th (ft)	161	61	407	82	315	78
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	639	2427	876	1088	447	675
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.19	0.53	0.62	0.68	0.55

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd

 Ø1	 Ø2 (R)	 Ø3
30 s	53 s	37 s
 Ø5 (R)		 Ø8
83 s		37 s

HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (veh/h)	351	438	0	0	435	632	286	0	351	0	0	0
Future Volume (veh/h)	351	438	0	0	435	632	286	0	351	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	373	466	0	0	463	0	304	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	612	2518	0	0	1024		335	0				
Arrive On Green	0.03	0.24	0.00	0.00	0.57	0.00	0.19	0.00	0.00			
Sat Flow, veh/h	1725	3618	0	0	1811	1535	1725	0	1535			
Grp Volume(v), veh/h	373	466	0	0	463	0	304	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1763	0	0	1811	1535	1725	0	1535			
Q Serve(g_s), s	9.5	12.7	0.0	0.0	17.9	0.0	20.7	0.0	0.0			
Cycle Q Clear(g_c), s	9.5	12.7	0.0	0.0	17.9	0.0	20.7	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	612	2518	0	0	1024		335	0				
V/C Ratio(X)	0.61	0.19	0.00	0.00	0.45		0.91	0.00				
Avail Cap(c_a), veh/h	786	2518	0	0	1024		453	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.82	0.82	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	11.2	18.0	0.0	0.0	15.2	0.0	47.3	0.0	0.0			
Incr Delay (d2), s/veh	0.8	0.1	0.0	0.0	1.4	0.0	17.9	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	6.3	8.8	0.0	0.0	11.2	0.0	15.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	18.1	0.0	0.0	16.7	0.0	65.1	0.0	0.0			
LnGrp LOS	B	B	A	A	B		E	A				
Approach Vol, veh/h	839			463			304					
Approach Delay, s/veh	15.4			16.7			65.1					
Approach LOS	B			B			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	17.9	73.3					91.2	28.8				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	24.5	47.5					77.5	31.5				
Max Q Clear Time (g_c+I1), s	11.5	19.9					14.7	22.7				
Green Ext Time (p_c), s	0.9	5.2					6.1	0.6				
Intersection Summary												
HCM 6th Ctrl Delay	25.2											
HCM 6th LOS	C											

Timings 2: I-85 SB Ramps & Collinsworth Rd

1a. Existing 2023 AM
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↘	↑	↘	↘
Traffic Volume (vph)	677	206	195	564	142	161
Future Volume (vph)	677	206	195	564	142	161
Lane Group Flow (vph)	713	217	205	594	149	169
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	77.0	77.0	20.0	97.0	23.0	23.0
Total Split (%)	64.2%	64.2%	16.7%	80.8%	19.2%	19.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.55	0.20	0.39	0.40	0.51	0.60
Control Delay	10.4	1.6	4.5	4.0	57.7	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	1.6	4.5	4.0	57.7	16.7
Queue Length 50th (ft)	268	1	15	51	57	0
Queue Length 95th (ft)	344	19	78	215	89	66
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	1295	1105	586	1467	481	354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.20	0.35	0.40	0.31	0.48

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 61 (51%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	677	206	195	564	0	0	0	0	142	0	161
Future Volume (veh/h)	0	677	206	195	564	0	0	0	0	142	0	161
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	713	0	205	594	0				149	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	1399		693	1532	0				209	0	
Arrive On Green	0.00	1.00	0.00	0.09	1.00	0.00				0.06	0.00	0.00
Sat Flow, veh/h	0	1856	1497	1767	1811	0				3346	0	1459
Grp Volume(v), veh/h	0	713	0	205	594	0				149	0	0
Grp Sat Flow(s),veh/h/ln	0	1856	1497	1767	1811	0				1673	0	1459
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	0.0				5.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.2	0.0	0.0				5.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1399		693	1532	0				209	0	
V/C Ratio(X)	0.00	0.51		0.30	0.39	0.00				0.71	0.00	
Avail Cap(c_a), veh/h	0	1399		825	1532	0				488	0	
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	0.92	0.00	0.72	0.72	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	2.2	0.0	0.0				55.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.2	0.5	0.0				4.5	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	0.0	0.9	0.0	0.9	0.4	0.0				4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.2	0.0	2.4	0.5	0.0				59.7	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		713			799						149	
Approach Delay, s/veh		1.2			1.0						59.7	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		107.0		13.0	11.0	96.0						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		91.5		17.5	14.5	71.5						
Max Q Clear Time (g_c+I1), s		2.0		7.2	5.2	2.0						
Green Ext Time (p_c), s		8.7		0.3	0.3	11.6						
Intersection Summary												
HCM 6th Ctrl Delay			6.4									
HCM 6th LOS			A									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
3: Weldon Rd & Collinsworth Rd

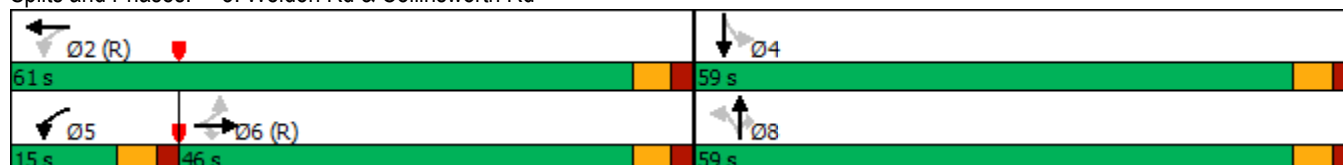
1a. Existing 2023 AM
08/31/2023

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	322	3	30	148	1	6	389	3
Future Volume (vph)	20	322	3	30	148	1	6	389	3
Lane Group Flow (vph)	0	356	3	31	449	1	6	0	415
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases		6		5	2	8			4
Permitted Phases	6		6	2			8	4	
Detector Phase	6	6	6	5	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	46.0	46.0	46.0	15.0	61.0	59.0	59.0	59.0	59.0
Total Split (%)	38.3%	38.3%	38.3%	12.5%	50.8%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None
v/c Ratio		0.41	0.00	0.07	0.46	0.00	0.01		0.86
Control Delay		25.1	0.0	8.3	8.0	20.0	0.0		52.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		25.1	0.0	8.3	8.0	20.0	0.0		52.3
Queue Length 50th (ft)		186	0	10	134	1	0		292
Queue Length 95th (ft)		322	0	m18	107	4	0		375
Internal Link Dist (ft)		914			947	293			729
Turn Bay Length (ft)			365	315					
Base Capacity (vph)		874	810	500	974	830	746		606
Starvation Cap Reductn		0	0	0	0	0	0		0
Spillback Cap Reductn		0	0	0	0	0	0		0
Storage Cap Reductn		0	0	0	0	0	0		0
Reduced v/c Ratio		0.41	0.00	0.06	0.46	0.00	0.01		0.68

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 47 (39%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

3: Weldon Rd & Collinsworth Rd

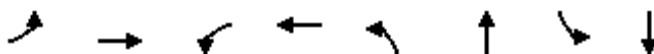
1a. Existing 2023 AM

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	322	3	30	148	283	0	1	6	389	3	7
Future Volume (veh/h)	20	322	3	30	148	283	0	1	6	389	3	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	335	3	31	154	295	0	1	6	405	3	7
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	62	908	820	529	339	649	0	595	504	498	3	8
Arrive On Green	0.52	0.52	0.52	0.04	0.99	0.99	0.00	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	59	1754	1585	1781	574	1099	0	1870	1585	1378	10	24
Grp Volume(v), veh/h	356	0	3	31	0	449	0	1	6	415	0	0
Grp Sat Flow(s),veh/h/ln	1812	0	1585	1781	0	1673	0	1870	1585	1412	0	0
Q Serve(g_s), s	0.0	0.0	0.1	0.9	0.0	0.8	0.0	0.0	0.3	34.0	0.0	0.0
Cycle Q Clear(g_c), s	13.6	0.0	0.1	0.9	0.0	0.8	0.0	0.0	0.3	34.1	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.66	0.00		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	970	0	820	529	0	987	0	595	504	508	0	0
V/C Ratio(X)	0.37	0.00	0.00	0.06	0.00	0.45	0.00	0.00	0.01	0.82	0.00	0.00
Avail Cap(c_a), veh/h	970	0	820	622	0	987	0	834	707	689	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.89	0.00	0.89	0.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.2	0.0	14.0	12.6	0.0	0.4	0.0	27.9	28.0	39.5	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	5.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.5	0.0	0.1	0.6	0.0	0.9	0.0	0.0	0.2	17.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	14.0	12.6	0.0	1.7	0.0	27.9	28.0	45.1	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	A	C	C	D	A	A
Approach Vol, veh/h		359			480			7			415	
Approach Delay, s/veh		18.3			2.4			28.0			45.1	
Approach LOS		B			A			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		76.3		43.7	8.7	67.6		43.7				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		55.5		53.5	9.5	40.5		53.5				
Max Q Clear Time (g_c+I1), s		2.8		36.1	2.9	15.6		2.3				
Green Ext Time (p_c), s		6.1		2.1	0.0	3.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				21.1								
HCM 6th LOS				C								

Timings
4: SR 14/US 29 (Main St) & Toombs St

1a. Existing 2023 AM
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	25	66	7	38	5	329	24	286
Future Volume (vph)	25	66	7	38	5	329	24	286
Lane Group Flow (vph)	0	110	0	74	0	381	0	352
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	37.0	37.0	37.0	37.0	83.0	83.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	69.2%	69.2%	69.2%	69.2%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.61		0.36		0.28		0.28
Control Delay		63.1		40.7		3.9		4.0
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		63.1		40.7		3.9		4.0
Queue Length 50th (ft)		80		39		60		56
Queue Length 95th (ft)		135		84		113		106
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		437		473		1379		1277
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.25		0.16		0.28		0.28

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	66	8	7	38	22	5	329	8	24	286	6
Future Volume (veh/h)	25	66	8	7	38	22	5	329	8	24	286	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	28	73	9	8	42	24	6	366	9	27	318	7
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	65	104	12	41	89	47	38	1398	34	108	1217	26
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.83	0.83	0.83	0.83	0.83	0.83
Sat Flow, veh/h	345	1296	146	102	1115	584	9	1688	41	92	1470	32
Grp Volume(v), veh/h	110	0	0	74	0	0	381	0	0	352	0	0
Grp Sat Flow(s),veh/h/ln	1787	0	0	1801	0	0	1738	0	0	1593	0	0
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	4.7	0.0	0.0	5.8	0.0	0.0	5.5	0.0	0.0
Prop In Lane	0.25		0.08	0.11		0.32	0.02		0.02	0.08		0.02
Lane Grp Cap(c), veh/h	181	0	0	177	0	0	1470	0	0	1352	0	0
V/C Ratio(X)	0.61	0.00	0.00	0.42	0.00	0.00	0.26	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	491	0	0	491	0	0	1470	0	0	1352	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.0	0.0	0.0	53.0	0.0	0.0	2.3	0.0	0.0	2.2	0.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	0.0	1.6	0.0	0.0	0.4	0.0	0.0	0.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	0.0	0.0	54.5	0.0	0.0	2.7	0.0	0.0	2.7	0.0	0.0
LnGrp LOS	E	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		110			74			381			352	
Approach Delay, s/veh		57.3			54.5			2.7			2.7	
Approach LOS		E			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		104.9		15.1		104.9		15.1				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		77.5		31.5		77.5		31.5				
Max Q Clear Time (g_c+I1), s		7.5		9.1		7.8		6.7				
Green Ext Time (p_c), s		5.5		0.5		5.9		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				13.4								
HCM 6th LOS				B								

Intersection

Intersection Delay, s/veh 8.9

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	50	26	140	210	17
Future Vol, veh/h	30	50	26	140	210	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	52	27	144	216	18
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.4	8.1	9.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	0%	93%
Vol Thru, %	62%	16%	0%
Vol Right, %	0%	84%	7%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	80	166	227
LT Vol	30	0	210
Through Vol	50	26	0
RT Vol	0	140	17
Lane Flow Rate	82	171	234
Geometry Grp	1	1	1
Degree of Util (X)	0.109	0.195	0.301
Departure Headway (Hd)	4.766	4.102	4.628
Convergence, Y/N	Yes	Yes	Yes
Cap	753	876	777
Service Time	2.791	2.123	2.654
HCM Lane V/C Ratio	0.109	0.195	0.301
HCM Control Delay	8.4	8.1	9.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.7	1.3

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	171	111	24	37	10
Future Vol, veh/h	5	171	111	24	37	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	180	117	25	39	11
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	142	0	-	0	320	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	190	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1441	-	-	-	673	920
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1441	-	-	-	670	920
Mov Cap-2 Maneuver	-	-	-	-	670	-
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	842	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		10.4		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1441	-	-	-	711	
HCM Lane V/C Ratio	0.004	-	-	-	0.07	
HCM Control Delay (s)	7.5	0	-	-	10.4	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	24	28	5	47	39
Future Vol, veh/h	7	24	28	5	47	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	31	36	6	60	50
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	209	39	0	0	42	0
Stage 1	39	-	-	-	-	-
Stage 2	170	-	-	-	-	-
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	779	1033	-	-	1567	-
Stage 1	983	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	749	1033	-	-	1567	-
Mov Cap-2 Maneuver	749	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.9	0	4			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	952	1567	-	
HCM Lane V/C Ratio	-	-	0.042	0.038	-	
HCM Control Delay (s)	-	-	8.9	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Vol, veh/h	0	394	61	9	110	2	31	7	14	1	14	1
Future Vol, veh/h	0	394	61	9	110	2	31	7	14	1	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	448	69	10	125	2	35	8	16	1	16	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	125	0	0	448	0	0	601	593	448	597	593	125
Stage 1	-	-	-	-	-	-	448	448	-	145	145	-
Stage 2	-	-	-	-	-	-	153	145	-	452	448	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1462	-	-	1112	-	-	412	418	611	415	418	926
Stage 1	-	-	-	-	-	-	590	573	-	858	777	-
Stage 2	-	-	-	-	-	-	849	777	-	587	573	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1462	-	-	1112	-	-	396	414	611	395	414	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	414	-	395	414	-
Stage 1	-	-	-	-	-	-	590	573	-	858	769	-
Stage 2	-	-	-	-	-	-	822	769	-	564	573	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			12.4			13.5		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	546	1462	-	-	1112	-	-	440				
HCM Lane V/C Ratio	0.108	-	-	-	0.009	-	-	0.041				
HCM Control Delay (s)	12.4	0	-	-	8.3	0	-	13.5				
HCM Lane LOS	B	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1				

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	344	52	3	91	5	28	4	0	15	19	0
Future Vol, veh/h	0	344	52	3	91	5	28	4	0	15	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	378	57	3	100	5	31	4	0	16	21	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	378	0	0	495	484	189	297	484	-
Stage 1	-	-	-	-	-	-	378	378	-	106	106	-
Stage 2	-	-	-	-	-	-	117	106	-	191	378	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	1492	-	-	1179	-	-	471	482	821	644	482	0
Stage 1	-	-	-	-	-	-	616	614	-	899	807	0
Stage 2	-	-	-	-	-	-	887	807	-	793	614	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1492	-	-	1179	-	-	455	481	821	639	481	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	525	-	639	481	-
Stage 1	-	-	-	-	-	-	616	614	-	899	805	-
Stage 2	-	-	-	-	-	-	862	805	-	787	614	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			12.4					
HCM LOS							B			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	521	1492	-	-	1179	-	-	639	-			
HCM Lane V/C Ratio	0.067	-	-	-	0.003	-	-	0.026	-			
HCM Control Delay (s)	12.4	0	-	-	8.1	-	-	10.8	-			
HCM Lane LOS	B	A	-	-	A	-	-	B	-			
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1	-			

Timings
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	7	347	7	38	84	3	4	230	2	249
Future Volume (vph)	7	347	7	38	84	3	4	230	2	249
Lane Group Flow (vph)	7	369	7	40	89	3	4	305	2	270
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	42.0	42.0	21.0	46.0	46.0	57.0	57.0	57.0	57.0
Total Split (%)	14.2%	35.0%	35.0%	17.5%	38.3%	38.3%	47.5%	47.5%	47.5%	47.5%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.08	0.17	0.01	0.33	0.04	0.00	0.03	0.77	0.02	0.68
Control Delay	55.7	12.9	0.0	63.0	3.4	0.0	33.8	55.3	33.5	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	12.9	0.0	63.0	3.4	0.0	33.8	55.3	33.5	51.5
Queue Length 50th (ft)	5	66	0	20	1	0	2	215	1	194
Queue Length 95th (ft)	21	115	0	49	16	m0	11	289	8	260
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	2122	978	228	2385	1090	267	782	212	797
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.17	0.01	0.18	0.04	0.00	0.01	0.39	0.01	0.34

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

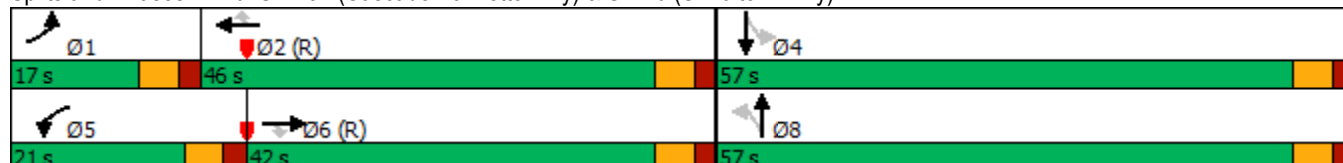
Offset: 8 (7%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	347	7	38	84	3	4	230	56	2	249	5
Future Volume (veh/h)	7	347	7	38	84	3	4	230	56	2	249	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	369	0	40	89	0	4	245	60	2	265	5
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	15	2268		55	2346		123	281	69	92	354	7
Arrive On Green	0.01	0.64	0.00	0.03	0.66	0.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1109	1451	355	1074	1830	35
Grp Volume(v), veh/h	7	369	0	40	89	0	4	0	305	2	0	270
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1109	0	1806	1074	0	1864
Q Serve(g_s), s	0.5	5.0	0.0	2.7	1.0	0.0	0.4	0.0	19.7	0.2	0.0	16.4
Cycle Q Clear(g_c), s	0.5	5.0	0.0	2.7	1.0	0.0	16.8	0.0	19.7	19.9	0.0	16.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.20	1.00		0.02
Lane Grp Cap(c), veh/h	15	2268		55	2346		123	0	350	92	0	361
V/C Ratio(X)	0.45	0.16		0.73	0.04		0.03	0.00	0.87	0.02	0.00	0.75
Avail Cap(c_a), veh/h	171	2268		230	2346		385	0	775	345	0	800
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	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	59.2	8.8	0.0	57.7	7.1	0.0	53.5	0.0	46.9	56.6	0.0	45.6
Incr Delay (d2), s/veh	19.3	0.2	0.0	17.0	0.0	0.0	0.1	0.0	6.8	0.1	0.0	3.1
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	0.5	3.1	0.0	2.6	0.6	0.0	0.2	0.0	14.0	0.1	0.0	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	8.9	0.0	74.7	7.1	0.0	53.6	0.0	53.7	56.7	0.0	48.7
LnGrp LOS	E	A		E	A		D	A	D	E	A	D
Approach Vol, veh/h	376			129			309			272		
Approach Delay, s/veh	10.2			28.1			53.7			48.8		
Approach LOS	B			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	84.7		28.7	9.2	82.1		28.7				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	40.5		51.5	15.5	36.5		51.5				
Max Q Clear Time (g_c+I1), s	2.5	3.0		21.9	4.7	7.0		21.7				
Green Ext Time (p_c), s	0.0	0.9		1.3	0.0	4.1		1.6				

Intersection Summary

HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗↗	↰	↰	↗↗	↰	↰	↗	↰	↗
Traffic Volume (vph)	26	665	36	125	338	80	28	103	152	153
Future Volume (vph)	26	665	36	125	338	80	28	103	152	153
Lane Group Flow (vph)	28	723	39	136	367	87	30	361	165	194
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	45.0	45.0	15.0	45.0	45.0	18.0	45.0	15.0	42.0
Total Split (%)	12.5%	37.5%	37.5%	12.5%	37.5%	37.5%	15.0%	37.5%	12.5%	35.0%
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	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
v/c Ratio	0.05	0.46	0.06	0.36	0.21	0.10	0.10	0.84	0.76	0.39
Control Delay	13.0	22.2	0.2	16.4	19.2	1.8	24.9	48.8	51.2	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	22.2	0.2	16.4	19.2	1.8	24.9	48.8	51.2	37.1
Queue Length 50th (ft)	8	163	0	46	86	0	16	200	93	125
Queue Length 95th (ft)	23	223	0	95	142	15	33	285	#139	180
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	570	1571	671	383	1721	875	371	621	217	560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.46	0.06	0.36	0.21	0.10	0.08	0.58	0.76	0.35

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

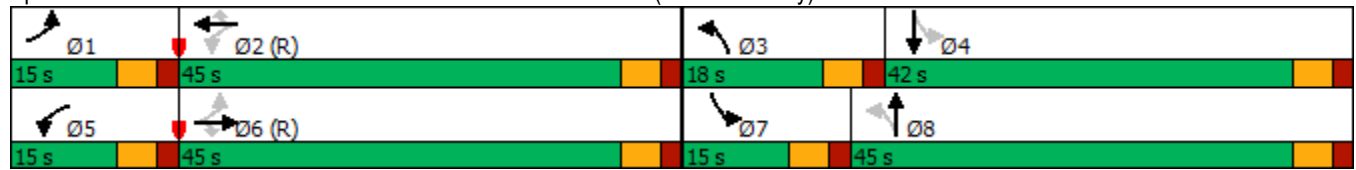
Natural Cycle: 105

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	665	36	125	338	80	28	103	229	152	153	26
Future Volume (veh/h)	26	665	36	125	338	80	28	103	229	152	153	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	28	723	0	136	367	0	30	112	249	165	166	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	513	1566		380	1615		317	124	277	235	455	77
Arrive On Green	0.03	0.44	0.00	0.06	0.47	0.00	0.03	0.24	0.24	0.08	0.29	0.29
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	520	1157	1810	1560	263
Grp Volume(v), veh/h	28	723	0	136	367	0	30	0	361	165	0	194
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	0	1677	1810	0	1823
Q Serve(g_s), s	1.0	17.1	0.0	4.9	7.6	0.0	1.7	0.0	25.0	8.0	0.0	10.1
Cycle Q Clear(g_c), s	1.0	17.1	0.0	4.9	7.6	0.0	1.7	0.0	25.0	8.0	0.0	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.14
Lane Grp Cap(c), veh/h	513	1566		380	1615		317	0	401	235	0	532
V/C Ratio(X)	0.05	0.46		0.36	0.23		0.09	0.00	0.90	0.70	0.00	0.36
Avail Cap(c_a), veh/h	608	1566		418	1615		438	0	552	235	0	554
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	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	17.5	23.6	0.0	17.7	18.7	0.0	33.1	0.0	44.3	32.8	0.0	33.7
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.6	0.3	0.0	0.1	0.0	14.1	9.1	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	0.7	11.1	0.0	3.4	5.2	0.0	1.2	0.0	17.2	7.1	0.0	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	24.6	0.0	18.3	19.0	0.0	33.2	0.0	58.4	41.8	0.0	34.1
LnGrp LOS	B	C		B	B		C	A	E	D	A	C
Approach Vol, veh/h	751			503			391			359		
Approach Delay, s/veh	24.3			18.8			56.4			37.6		
Approach LOS	C			B			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	62.3	8.7	40.5	12.4	58.4	15.0	34.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	39.5	12.5	36.5	9.5	39.5	9.5	39.5				
Max Q Clear Time (g_c+I1), s	3.0	9.6	3.7	12.1	6.9	19.1	10.0	27.0				
Green Ext Time (p_c), s	0.0	4.2	0.0	0.9	0.1	7.6	0.0	1.7				

Intersection Summary

HCM 6th Ctrl Delay	31.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	634	171	71	389	397	150	628	123	495	697	191
Future Volume (vph)	244	634	171	71	389	397	150	628	123	495	697	191
Lane Group Flow (vph)	262	682	184	76	418	427	161	675	132	532	749	205
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	20.0	48.5	48.5	15.0	43.5	43.5	29.0	53.5	53.5	33.0	57.5	57.5
Total Split (%)	13.3%	32.3%	32.3%	10.0%	29.0%	29.0%	19.3%	35.7%	35.7%	22.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.56	0.51	0.29	0.26	0.39	0.60	0.75	0.82	0.28	0.90	0.73	0.34
Control Delay	31.0	39.5	18.1	27.0	43.8	14.4	84.1	62.1	9.4	78.8	52.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	39.5	18.1	27.0	43.8	14.4	84.1	62.1	9.4	78.8	52.4	6.8
Queue Length 50th (ft)	157	272	56	41	173	67	154	332	7	263	347	4
Queue Length 95th (ft)	250	378	134	80	240	201	230	378	59	#352	407	63
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	467	1332	645	306	1077	714	269	1110	600	617	1226	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.51	0.29	0.25	0.39	0.60	0.60	0.61	0.22	0.86	0.61	0.30

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

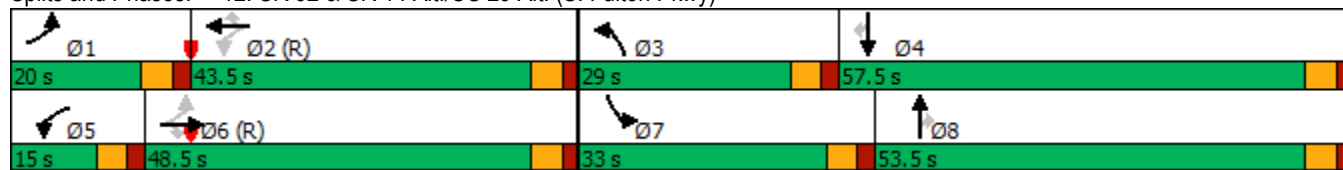
Natural Cycle: 130

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	634	171	71	389	397	150	628	123	495	697	191
Future Volume (veh/h)	244	634	171	71	389	397	150	628	123	495	697	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1870	1841	1856	1841	1841	1826	1841	1900	1841	1870	1885
Adj Flow Rate, veh/h	262	682	184	76	418	427	161	675	0	532	749	205
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, %	1	2	4	3	4	4	5	4	0	4	2	1
Cap, veh/h	403	1493	655	296	1267	565	184	783		580	1025	461
Arrive On Green	0.10	0.42	0.42	0.04	0.36	0.36	0.11	0.22	0.00	0.17	0.29	0.29
Sat Flow, veh/h	1795	3554	1560	1767	3497	1560	1739	3497	1610	3401	3554	1598
Grp Volume(v), veh/h	262	682	184	76	418	427	161	675	0	532	749	205
Grp Sat Flow(s),veh/h/ln	1795	1777	1560	1767	1749	1560	1739	1749	1610	1700	1777	1598
Q Serve(g_s), s	13.5	20.7	11.6	4.0	13.0	36.1	13.7	27.8	0.0	23.1	28.5	15.7
Cycle Q Clear(g_c), s	13.5	20.7	11.6	4.0	13.0	36.1	13.7	27.8	0.0	23.1	28.5	15.7
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	403	1493	655	296	1267	565	184	783		580	1025	461
V/C Ratio(X)	0.65	0.46	0.28	0.26	0.33	0.76	0.87	0.86		0.92	0.73	0.44
Avail Cap(c_a), veh/h	403	1493	655	339	1267	565	272	1119		624	1232	554
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	31.2	28.6	28.7	34.6	42.0	66.1	56.0	0.0	61.2	48.1	43.6
Incr Delay (d2), s/veh	3.7	1.0	1.1	0.5	0.7	9.1	18.4	5.0	0.0	17.8	1.8	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	9.9	13.5	7.8	3.1	9.3	21.0	11.1	18.2	0.0	16.5	18.2	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	32.2	29.7	29.1	35.3	51.1	84.5	61.0	0.0	79.0	49.9	44.2
LnGrp LOS	C	C	C	C	D	D	F	E		E	D	D
Approach Vol, veh/h	1128			921			836			1486		
Approach Delay, s/veh	31.1			42.1			65.6			59.6		
Approach LOS	C			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	59.8	21.4	48.8	11.3	68.5	31.1	39.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	14.5	38.0	23.5	52.0	9.5	43.0	27.5	48.0				
Max Q Clear Time (g_c+I1), s	15.5	38.1	15.7	30.5	6.0	22.7	25.1	29.8				
Green Ext Time (p_c), s	0.0	0.0	0.2	5.1	0.0	8.5	0.5	3.7				

Intersection Summary

HCM 6th Ctrl Delay 49.7
HCM 6th LOS D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	89	1082	73	120	645	40	44	42	87	78
Future Volume (vph)	89	1082	73	120	645	40	44	42	87	78
Lane Group Flow (vph)	93	1127	76	125	672	42	46	133	91	231
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	58.0	58.0	43.0	43.0	43.0	62.0	62.0	62.0	62.0
Total Split (%)	12.5%	48.3%	48.3%	35.8%	35.8%	35.8%	51.7%	51.7%	51.7%	51.7%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.18	0.41	0.06	0.39	0.29	0.04	0.75	0.57	0.71	0.75
Control Delay	4.7	5.3	1.7	19.1	12.3	2.2	107.4	45.0	77.3	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	5.3	1.7	19.1	12.3	2.2	107.4	45.0	77.3	41.6
Queue Length 50th (ft)	14	121	2	57	135	0	35	73	69	95
Queue Length 95th (ft)	36	211	17	m111	m205	m7	#76	128	119	171
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	529	2740	1238	321	2320	1032	230	772	477	863
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.41	0.06	0.39	0.29	0.04	0.20	0.17	0.19	0.27

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 110

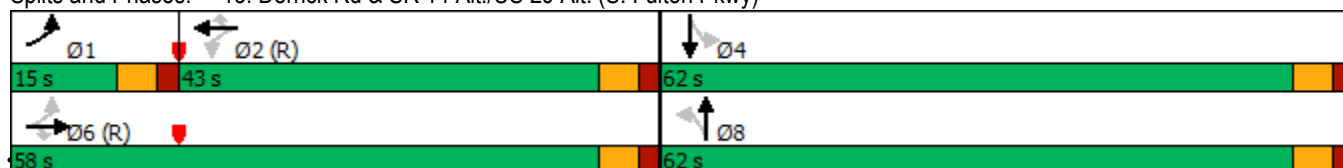
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	89	1082	73	120	645	40	44	42	85	87	78	144
Future Volume (veh/h)	89	1082	73	120	645	40	44	42	85	87	78	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	93	1127	76	125	672	42	46	44	89	91	81	150
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	479	2531	1129	334	2194	955	133	105	213	211	114	210
Arrive On Green	0.04	0.72	0.72	0.63	0.63	0.63	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1584	3526	1572	469	3469	1510	1149	552	1117	1257	597	1105
Grp Volume(v), veh/h	93	1127	76	125	672	42	46	0	133	91	0	231
Grp Sat Flow(s),veh/h/ln	1584	1763	1572	469	1735	1510	1149	0	1669	1257	0	1701
Q Serve(g_s), s	2.3	15.9	1.7	18.1	10.6	1.3	4.7	0.0	8.4	8.2	0.0	15.3
Cycle Q Clear(g_c), s	2.3	15.9	1.7	23.7	10.6	1.3	20.0	0.0	8.4	16.7	0.0	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.65
Lane Grp Cap(c), veh/h	479	2531	1129	334	2194	955	133	0	318	211	0	324
V/C Ratio(X)	0.19	0.45	0.07	0.37	0.31	0.04	0.35	0.00	0.42	0.43	0.00	0.71
Avail Cap(c_a), veh/h	542	2531	1129	334	2194	955	455	0	786	564	0	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	7.0	5.0	14.1	10.1	8.3	54.9	0.0	42.7	50.1	0.0	45.5
Incr Delay (d2), s/veh	0.2	0.6	0.1	3.2	0.4	0.1	1.5	0.0	0.9	1.4	0.0	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	1.2	8.2	0.8	3.5	6.4	0.7	2.5	0.0	6.2	4.7	0.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	7.6	5.1	17.2	10.4	8.4	56.4	0.0	43.6	51.4	0.0	48.4
LnGrp LOS	A	A	A	B	B	A	E	A	D	D	A	D
Approach Vol, veh/h		1296			839			179			322	
Approach Delay, s/veh		7.4			11.3			46.9			49.3	
Approach LOS		A			B			D			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.3	81.4		28.3		91.7		28.3				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	37.5		56.5		52.5		56.5				
Max Q Clear Time (g_c+I1), s	4.3	25.7		18.7		17.9		22.0				
Green Ext Time (p_c), s	0.1	6.6		1.7		17.4		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				16.5								
HCM 6th LOS				B								

Timings

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	91	976	178	48	293	82	402	219	20	58	155
Future Volume (vph)	91	976	178	48	293	82	402	219	20	58	155
Lane Group Flow (vph)	94	1006	184	49	302	85	414	226	21	60	279
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	57.5	57.5	57.5	57.5	57.5	57.5	47.5	47.5	47.5	15.0	62.5
Total Split (%)	47.9%	47.9%	47.9%	47.9%	47.9%	47.9%	39.6%	39.6%	39.6%	12.5%	52.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.21	0.66	0.25	0.39	0.21	0.12	0.98	0.32	0.03	0.12	0.33
Control Delay	28.3	32.8	14.6	32.8	18.6	3.0	78.2	29.3	0.1	17.9	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	32.8	14.6	32.8	18.6	3.0	78.2	29.3	0.1	17.9	17.7
Queue Length 50th (ft)	41	284	29	19	60	0	~349	128	0	25	110
Queue Length 95th (ft)	108	461	124	49	83	13	#551	197	0	50	173
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	438	1533	733	127	1422	714	422	705	627	494	844
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.66	0.25	0.39	0.21	0.12	0.98	0.32	0.03	0.12	0.33

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 95

Control Type: Actuated-Coordinated

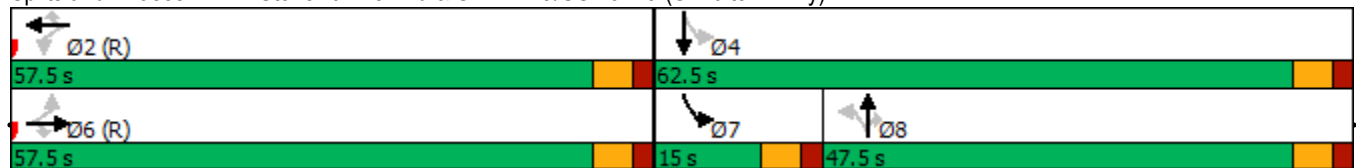
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	976	178	48	293	82	402	219	20	58	155	115
Future Volume (veh/h)	91	976	178	48	293	82	402	219	20	58	155	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	94	1006	184	49	302	85	414	226	0	60	160	119
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	476	1693	743	189	1586	737	422	655		422	434	322
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.35	0.35	0.00	0.04	0.43	0.43
Sat Flow, veh/h	981	3554	1560	478	3328	1547	1118	1870	1547	1767	1004	747
Grp Volume(v), veh/h	94	1006	184	49	302	85	414	226	0	60	0	279
Grp Sat Flow(s),veh/h/ln	981	1777	1560	478	1664	1547	1118	1870	1547	1767	0	1751
Q Serve(g_s), s	7.3	24.8	8.4	10.0	6.3	3.7	38.9	10.7	0.0	2.5	0.0	12.9
Cycle Q Clear(g_c), s	13.6	24.8	8.4	34.8	6.3	3.7	42.0	10.7	0.0	2.5	0.0	12.9
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	476	1693	743	189	1586	737	422	655		422	0	756
V/C Ratio(X)	0.20	0.59	0.25	0.26	0.19	0.12	0.98	0.35		0.14	0.00	0.37
Avail Cap(c_a), veh/h	476	1693	743	189	1586	737	422	655		499	0	832
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	0.99	0.99	0.99	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	22.9	18.6	35.6	18.1	17.4	43.0	28.8	0.0	22.9	0.0	23.0
Incr Delay (d2), s/veh	0.9	1.5	0.8	3.3	0.3	0.3	38.5	0.3	0.0	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	14.9	5.6	2.3	4.1	2.3	23.7	8.3	0.0	1.9	0.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	24.5	19.4	38.9	18.3	17.7	81.5	29.1	0.0	23.0	0.0	23.3
LnGrp LOS	C	C	B	D	B	B	F	C		C	A	C
Approach Vol, veh/h	1284			436			640			339		
Approach Delay, s/veh	23.6			20.5			63.0			23.3		
Approach LOS	C			C			E			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	62.7			57.3			62.7			9.8		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	52.0			57.0			52.0			9.5		
Max Q Clear Time (g_c+I1), s	36.8			14.9			26.8			4.5		
Green Ext Time (p_c), s	3.9			1.7			14.7			0.0		

Intersection Summary

HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	56	939	95	89	353	40	18	46	35	159	44
Future Volume (vph)	56	939	95	89	353	40	18	46	35	159	44
Lane Group Flow (vph)	61	1021	103	97	384	43	0	70	38	173	113
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.09	0.49	0.10	0.29	0.18	0.05		0.23	0.15	0.74	0.31
Control Delay	7.7	27.2	13.5	8.6	11.0	1.1		40.8	2.6	63.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	7.7	27.2	13.5	8.6	11.0	1.1		40.8	2.6	63.6	20.0
Queue Length 50th (ft)	18	410	42	20	63	0		47	0	128	31
Queue Length 95th (ft)	m43	498	m93	48	111	7		81	7	190	76
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	734	2093	992	354	2087	829		711	504	552	772
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.08	0.49	0.10	0.27	0.18	0.05		0.10	0.08	0.31	0.15

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

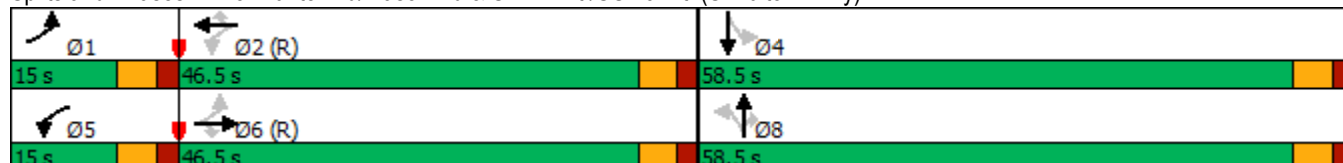
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1a. Existing 2023 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	939	95	89	353	40	18	46	35	159	44	60
Future Volume (veh/h)	56	939	95	89	353	40	18	46	35	159	44	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	61	1021	103	97	384	0	20	50	0	173	48	65
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	735	2261	1033	354	2182		90	204		263	118	160
Arrive On Green	0.04	0.65	0.65	0.04	0.66	0.00	0.17	0.17	0.00	0.17	0.17	0.17
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	301	1195	932	1290	691	936
Grp Volume(v), veh/h	61	1021	103	97	384	0	70	0	0	173	0	113
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1496	0	932	1290	0	1628
Q Serve(g_s), s	1.3	17.4	2.9	2.4	5.4	0.0	0.1	0.0	0.0	9.8	0.0	7.4
Cycle Q Clear(g_c), s	1.3	17.4	2.9	2.4	5.4	0.0	7.5	0.0	0.0	17.3	0.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	0.29		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	735	2261	1033	354	2182		294	0		263	0	278
V/C Ratio(X)	0.08	0.45	0.10	0.27	0.18		0.24	0.00		0.66	0.00	0.41
Avail Cap(c_a), veh/h	811	2261	1033	417	2182		742	0		612	0	719
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)	0.75	0.75	0.75	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.2	10.3	7.8	7.7	8.0	0.0	42.9	0.0	0.0	48.9	0.0	44.3
Incr Delay (d2), s/veh	0.0	0.5	0.1	0.4	0.2	0.0	0.4	0.0	0.0	2.8	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	9.0	1.6	1.2	3.0	0.0	3.2	0.0	0.0	8.8	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	10.8	7.9	8.1	8.2	0.0	43.3	0.0	0.0	51.8	0.0	45.3
LnGrp LOS	A	B	A	A	A		D	A		D	A	D
Approach Vol, veh/h	1185			481			70			286		
Approach Delay, s/veh	10.3			8.2			43.3			49.2		
Approach LOS	B			A			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	84.2		26.0	10.3	83.7		26.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.3	7.4		19.3	4.4	19.4		9.5				
Green Ext Time (p_c), s	0.0	4.5		1.2	0.1	12.1		0.3				

Intersection Summary

HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

1a. Existing 2023 AM
08/31/2023

Intersection						
Int Delay, s/veh	182.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	39	712	765	668	156
Future Vol, veh/h	23	39	712	765	668	156
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	9	8	8	2	6	1
Mvmt Flow	25	43	782	841	734	171
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2719	367	734	0	-	0
Stage 1	734	-	-	-	-	-
Stage 2	1985	-	-	-	-	-
Critical Hdwy	6.98	7.06	4.26	-	-	-
Critical Hdwy Stg 1	5.98	-	-	-	-	-
Critical Hdwy Stg 2	5.98	-	-	-	-	-
Follow-up Hdwy	3.59	3.38	2.28	-	-	-
Pot Cap-1 Maneuver	~ 15	613	828	-	-	-
Stage 1	418	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 1	613	828	-	-	-
Mov Cap-2 Maneuver	~ 1	-	-	-	-	-
Stage 1	~ 23	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	6491.5	20.1		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	828	-	1	613	-	-
HCM Lane V/C Ratio	0.945	-25.275	0.07		-	-
HCM Control Delay (s)	41.7	\$ 17479.7	11.3		-	-
HCM Lane LOS	E	-	F	B	-	-
HCM 95th %tile Q(veh)	14.5	-	4.9	0.2	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	135	396	17	758	443	82
Future Vol, veh/h	135	396	17	758	443	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	9	6	3	3	6
Mvmt Flow	145	426	18	815	476	88
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	964	282	564	0	-	0
Stage 1	520	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.84	7.08	4.22	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.39	2.26	-	-	-
Pot Cap-1 Maneuver	253	694	977	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	248	694	977	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	551	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.8	0.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	977	-	931	-	-	
HCM Lane V/C Ratio	0.019	-	0.613	-	-	
HCM Control Delay (s)	8.8	-	14.8	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	4.3	-	-	

Timings

1: I-85 NB Ramps & Collinsworth Rd

1b. Existing 2023 PM

08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	192	806	573	152	240	209
Future Volume (vph)	192	806	573	152	240	209
Lane Group Flow (vph)	202	848	603	160	253	220
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	18.0	86.0	68.0	68.0	34.0	34.0
Total Split (%)	15.0%	71.7%	56.7%	56.7%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.40	0.33	0.57	0.17	0.79	0.48
Control Delay	9.1	4.5	20.2	2.6	63.2	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	4.5	20.2	2.6	63.2	9.8
Queue Length 50th (ft)	41	92	290	0	188	7
Queue Length 95th (ft)	52	86	444	33	266	71
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	508	2556	1057	958	412	528
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.33	0.57	0.17	0.61	0.42

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary
1: I-85 NB Ramps & Collinsworth Rd

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (veh/h)	192	806	0	0	573	152	240	0	209	0	0	0
Future Volume (veh/h)	192	806	0	0	573	152	240	0	209	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	202	848	0	0	603	0	253	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	537	2652	0	0	1199		284	0				
Arrive On Green	0.02	0.25	0.00	0.00	0.65	0.00	0.16	0.00	0.00			
Sat Flow, veh/h	1753	3647	0	0	1856	1560	1753	0	1560			
Grp Volume(v), veh/h	202	848	0	0	603	0	253	0	0			
Grp Sat Flow(s),veh/h/ln	1753	1777	0	0	1856	1560	1753	0	1560			
Q Serve(g_s), s	4.2	23.4	0.0	0.0	20.4	0.0	17.0	0.0	0.0			
Cycle Q Clear(g_c), s	4.2	23.4	0.0	0.0	20.4	0.0	17.0	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	537	2652	0	0	1199		284	0				
V/C Ratio(X)	0.38	0.32	0.00	0.00	0.50		0.89	0.00				
Avail Cap(c_a), veh/h	625	2652	0	0	1199		416	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.67	0.67	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	8.6	20.3	0.0	0.0	11.1	0.0	49.2	0.0	0.0			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	1.5	0.0	15.1	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	2.4	15.5	0.0	0.0	12.0	0.0	13.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.8	20.5	0.0	0.0	12.6	0.0	64.3	0.0	0.0			
LnGrp LOS	A	C	A	A	B		E	A				
Approach Vol, veh/h	1050			603			253					
Approach Delay, s/veh	18.3			12.6			64.3					
Approach LOS	B			B			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	12.0	83.1					95.0	25.0				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	12.5	62.5					80.5	28.5				
Max Q Clear Time (g_c+I1), s	6.2	22.4					25.4	19.0				
Green Ext Time (p_c), s	0.3	8.2					13.1	0.5				
Intersection Summary												
HCM 6th Ctrl Delay				22.6								
HCM 6th LOS				C								

Timings
2: I-85 SB Ramps & Collinsworth Rd

1b. Existing 2023 PM

08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	282	363	304	528	726	230
Future Volume (vph)	282	363	304	528	726	230
Lane Group Flow (vph)	300	386	323	562	772	245
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	44.0	44.0	29.0	73.0	47.0	47.0
Total Split (%)	36.7%	36.7%	24.2%	60.8%	39.2%	39.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.35	0.42	0.48	0.48	0.82	0.41
Control Delay	29.1	9.5	15.0	17.0	48.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	9.5	15.0	17.0	48.3	5.9
Queue Length 50th (ft)	190	62	144	280	287	0
Queue Length 95th (ft)	m246	m94	222	403	335	57
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	862	926	728	1177	1211	697
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.42	0.44	0.48	0.64	0.35

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 61 (51%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

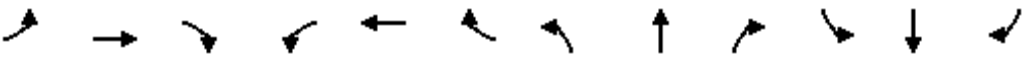
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	282	363	304	528	0	0	0	0	726	0	230
Future Volume (veh/h)	0	282	363	304	528	0	0	0	0	726	0	230
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	300	0	323	562	0				772	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	946		699	1221	0				878	0	
Arrive On Green	0.00	0.51	0.00	0.14	0.88	0.00				0.25	0.00	0.00
Sat Flow, veh/h	0	1870	1560	1795	1856	0				3510	0	1560
Grp Volume(v), veh/h	0	300	0	323	562	0				772	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1560	1795	1856	0				1755	0	1560
Q Serve(g_s), s	0.0	11.3	0.0	10.1	7.6	0.0				25.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.3	0.0	10.1	7.6	0.0				25.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	946		699	1221	0				878	0	
V/C Ratio(X)	0.00	0.32		0.46	0.46	0.00				0.88	0.00	
Avail Cap(c_a), veh/h	0	946		859	1221	0				1214	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.96	0.00	0.73	0.73	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.5	0.0	10.7	3.0	0.0				43.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.3	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	0.0	8.1	0.0	5.7	3.6	0.0				17.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.3	0.0	11.1	3.9	0.0				49.0	0.0	0.0
LnGrp LOS	A	B		B	A	A				D	A	
Approach Vol, veh/h		300			885						772	
Approach Delay, s/veh		18.3			6.5						49.0	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		84.5		35.5	18.3	66.2						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		67.5		41.5	23.5	38.5						
Max Q Clear Time (g_c+I1), s		9.6		27.4	12.1	13.3						
Green Ext Time (p_c), s		7.8		2.7	0.7	3.0						
Intersection Summary												
HCM 6th Ctrl Delay			25.1									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

1b. Existing 2023 PM
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↰	↰	↰		↰	↰		↰
Traffic Volume (vph)	7	264	9	305	5	3	22	474	0
Future Volume (vph)	7	264	9	305	5	3	22	474	0
Lane Group Flow (vph)	0	305	10	708	0	9	25	0	542
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6	5	2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	48.0	48.0	15.0	63.0	57.0	57.0	57.0	57.0	57.0
Total Split (%)	40.0%	40.0%	12.5%	52.5%	47.5%	47.5%	47.5%	47.5%	47.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5		5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	None
v/c Ratio		0.34	0.02	0.78		0.01	0.04		0.94
Control Delay		22.0	10.1	16.2		19.9	0.1		55.0
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		22.0	10.1	16.2		19.9	0.1		55.0
Queue Length 50th (ft)		143	2	92		4	0		338
Queue Length 95th (ft)		253	m5	192		14	0		#546
Internal Link Dist (ft)		914		947		293			729
Turn Bay Length (ft)			315						
Base Capacity (vph)		898	500	909		651	721		619
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.34	0.02	0.78		0.01	0.03		0.88

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 75

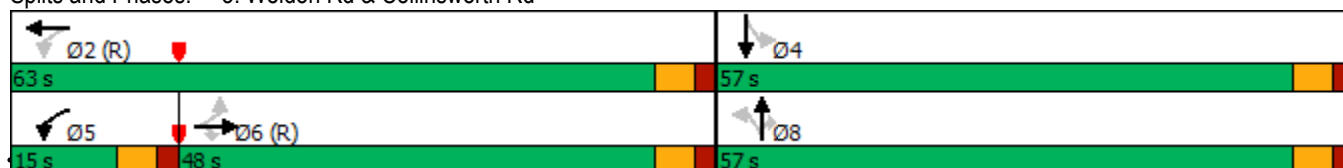
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

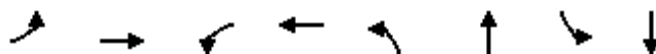
3: Weldon Rd & Collinsworth Rd

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱			↰	↱		↕	
Traffic Volume (veh/h)	7	264	0	9	305	325	5	3	22	474	0	8
Future Volume (veh/h)	7	264	0	9	305	325	5	3	22	474	0	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	297	0	10	343	365	6	3	25	533	0	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	808	699	499	414	440	530	255	649	614	0	9
Arrive On Green	0.44	0.44	0.00	0.02	0.83	0.83	0.41	0.41	0.41	0.41	0.00	0.41
Sat Flow, veh/h	15	1831	1585	1781	829	882	1171	623	1585	1353	0	23
Grp Volume(v), veh/h	305	0	0	10	0	708	9	0	25	542	0	0
Grp Sat Flow(s),veh/h/ln	1847	0	1585	1781	0	1712	1794	0	1585	1375	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	26.8	0.0	0.0	1.1	45.8	0.0	0.0
Cycle Q Clear(g_c), s	13.1	0.0	0.0	0.4	0.0	26.8	0.3	0.0	1.1	46.1	0.0	0.0
Prop In Lane	0.03		1.00	1.00		0.52	0.67		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	845	0	699	499	0	854	785	0	649	623	0	0
V/C Ratio(X)	0.36	0.00	0.00	0.02	0.00	0.83	0.01	0.00	0.04	0.87	0.00	0.00
Avail Cap(c_a), veh/h	845	0	699	619	0	854	815	0	680	650	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.89	0.00	0.89	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	0.0	0.0	16.8	0.0	7.3	21.0	0.0	21.2	34.7	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.0	0.0	8.2	0.0	0.0	0.0	11.9	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.5	0.0	0.0	0.2	0.0	9.0	0.3	0.0	0.8	23.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	0.0	0.0	16.9	0.0	15.5	21.0	0.0	21.3	46.6	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	C	A	C	D	A	A
Approach Vol, veh/h		305			718			34			542	
Approach Delay, s/veh		23.6			15.5			21.2			46.6	
Approach LOS		C			B			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.3		54.7	6.9	58.4		54.7				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		57.5		51.5	9.5	42.5		51.5				
Max Q Clear Time (g_c+I1), s		28.8		48.1	2.4	15.1		3.1				
Green Ext Time (p_c), s		9.8		1.0	0.0	3.2		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				27.7								
HCM 6th LOS				C								

Timings
4: SR 14/US 29 (Main St) & Toombs St

1b. Existing 2023 PM
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	14	59	21	86	6	319	45	475
Future Volume (vph)	14	59	21	86	6	319	45	475
Lane Group Flow (vph)	0	93	0	162	0	377	0	587
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	32.0	32.0	32.0	32.0	88.0	88.0	88.0	88.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.44		0.68		0.27		0.45
Control Delay		50.9		59.5		4.7		6.4
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		50.9		59.5		4.7		6.4
Queue Length 50th (ft)		64		111		68		129
Queue Length 95th (ft)		112		175		127		237
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		355		393		1378		1304
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.26		0.41		0.27		0.45

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	59	10	21	86	39	6	319	14	45	475	8
Future Volume (veh/h)	14	59	10	21	86	39	6	319	14	45	475	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	16	66	11	23	96	43	7	354	16	50	528	9
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	55	157	24	53	126	52	40	1352	60	121	1244	21
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.80	0.80	0.80	0.80	0.80	0.80
Sat Flow, veh/h	178	1409	213	165	1131	468	11	1697	76	111	1561	26
Grp Volume(v), veh/h	93	0	0	162	0	0	377	0	0	587	0	0
Grp Sat Flow(s),veh/h/ln	1800	0	0	1764	0	0	1784	0	0	1698	0	0
Q Serve(g_s), s	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	0.0	10.7	0.0	0.0	6.5	0.0	0.0	11.9	0.0	0.0
Prop In Lane	0.17		0.12	0.14		0.27	0.02		0.04	0.09		0.02
Lane Grp Cap(c), veh/h	236	0	0	231	0	0	1452	0	0	1385	0	0
V/C Ratio(X)	0.39	0.00	0.00	0.70	0.00	0.00	0.26	0.00	0.00	0.42	0.00	0.00
Avail Cap(c_a), veh/h	424	0	0	419	0	0	1452	0	0	1385	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.9	0.0	0.0	52.0	0.0	0.0	3.1	0.0	0.0	3.7	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	3.8	0.0	0.0	0.4	0.0	0.0	1.0	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	0.0	0.0	8.7	0.0	0.0	3.8	0.0	0.0	7.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	0.0	0.0	55.9	0.0	0.0	3.6	0.0	0.0	4.6	0.0	0.0
LnGrp LOS	D	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	93			162			377			587		
Approach Delay, s/veh	50.9			55.9			3.6			4.6		
Approach LOS	D			E			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	101.1			18.9			101.1			18.9		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	82.5			26.5			82.5			26.5		
Max Q Clear Time (g_c+I1), s	13.9			7.6			8.5			12.7		
Green Ext Time (p_c), s	10.9			0.4			5.8			0.7		
Intersection Summary												
HCM 6th Ctrl Delay	14.6											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 9
Intersection LOS A

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 
Traffic Vol, veh/h 24 56 32 213 167 23
Future Vol, veh/h 24 56 32 213 167 23
Peak Hour Factor 0.94 0.94 0.94 0.94 0.94 0.94
Heavy Vehicles, % 2 2 2 2 2 2
Mvmt Flow 26 60 34 227 178 24
Number of Lanes 0 1 1 0 1 0

Approach EB WB SB

Opposing Approach WB EB
Opposing Lanes 1 1 0
Conflicting Approach Left SB WB
Conflicting Lanes Left 1 0 1
Conflicting Approach Right SB EB
Conflicting Lanes Right 0 1 1
HCM Control Delay 8.4 8.7 9.6
HCM LOS A A A

Lane EBLn1WBLn1 SBLn1

Vol Left, % 30% 0% 88%
Vol Thru, % 70% 13% 0%
Vol Right, % 0% 87% 12%
Sign Control Stop Stop Stop
Traffic Vol by Lane 80 245 190
LT Vol 24 0 167
Through Vol 56 32 0
RT Vol 0 213 23
Lane Flow Rate 85 261 202
Geometry Grp 1 1 1
Degree of Util (X) 0.113 0.291 0.268
Departure Headway (Hd) 4.77 4.024 4.771
Convergence, Y/N Yes Yes Yes
Cap 751 894 752
Service Time 2.799 2.045 2.805
HCM Lane V/C Ratio 0.113 0.292 0.269
HCM Control Delay 8.4 8.7 9.6
HCM Lane LOS A A A
HCM 95th-tile Q 0.4 1.2 1.1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	119	162	48	27	13
Future Vol, veh/h	8	119	162	48	27	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	138	188	56	31	15
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	244	0	-	0	372	216
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	156	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1322	-	-	-	629	824
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	872	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1322	-	-	-	625	824
Mov Cap-2 Maneuver	-	-	-	-	625	-
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	872	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.5	0		10.7		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1322	-	-	-	678	
HCM Lane V/C Ratio	0.007	-	-	-	0.069	
HCM Control Delay (s)	7.7	0	-	-	10.7	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	58	42	7	14	53
Future Vol, veh/h	7	58	42	7	14	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	68	49	8	16	62
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	147	53	0	0	57	0
Stage 1	53	-	-	-	-	-
Stage 2	94	-	-	-	-	-
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	845	1014	-	-	1547	-
Stage 1	970	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	836	1014	-	-	1547	-
Mov Cap-2 Maneuver	836	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.9	0		1.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 991		1547	-	
HCM Lane V/C Ratio	-	- 0.077		0.011	-	
HCM Control Delay (s)	-	- 8.9		7.4	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.2		0	-	

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Vol, veh/h	2	131	36	13	568	2	73	12	14	5	16	3
Future Vol, veh/h	2	131	36	13	568	2	73	12	14	5	16	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	144	40	14	624	2	80	13	15	5	18	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	624	0	0	144	0	0	809	800	144	807	800	624
Stage 1	-	-	-	-	-	-	148	148	-	652	652	-
Stage 2	-	-	-	-	-	-	661	652	-	155	148	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	957	-	-	1438	-	-	299	318	903	300	318	485
Stage 1	-	-	-	-	-	-	855	775	-	457	464	-
Stage 2	-	-	-	-	-	-	452	464	-	847	775	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	957	-	-	1438	-	-	280	313	903	282	313	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	280	313	-	282	313	-
Stage 1	-	-	-	-	-	-	853	773	-	456	457	-
Stage 2	-	-	-	-	-	-	425	457	-	817	773	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			21.1			16.2		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	331	957	-	-	1438	-	-	349				
HCM Lane V/C Ratio	0.329	0.002	-	-	0.01	-	-	0.076				
HCM Control Delay (s)	21.1	8.8	0	-	7.5	0	-	16.2				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.4	0	-	-	0	-	-	0.2				

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	88	29	9	482	17	93	17	0	5	5	0
Future Vol, veh/h	0	88	29	9	482	17	93	17	0	5	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	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	0	96	32	10	524	18	101	18	0	5	5	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	524	0	0	96	0	0	643	640	48	601	640	-
Stage 1	-	-	-	-	-	-	96	96	-	544	544	-
Stage 2	-	-	-	-	-	-	547	544	-	57	96	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	1041	-	-	1497	-	-	372	393	1011	398	393	0
Stage 1	-	-	-	-	-	-	900	815	-	522	518	0
Stage 2	-	-	-	-	-	-	520	518	-	948	815	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1041	-	-	1497	-	-	366	390	1011	383	390	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	438	444	-	383	390	-
Stage 1	-	-	-	-	-	-	900	815	-	522	514	-
Stage 2	-	-	-	-	-	-	511	514	-	927	815	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			16.2					
HCM LOS							C			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	439	1041	-	-	1497	-	-	383	-			
HCM Lane V/C Ratio	0.272	-	-	-	0.007	-	-	0.014	-			
HCM Control Delay (s)	16.2	0	-	-	7.4	-	-	14.5	-			
HCM Lane LOS	C	A	-	-	A	-	-	B	-			
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0	-			

Timings

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

1b. Existing 2023 PM

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	11	91	9	61	453	5	3	308	4	326
Future Volume (vph)	11	91	9	61	453	5	3	308	4	326
Lane Group Flow (vph)	11	95	9	64	472	5	3	368	4	348
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	40.0	40.0	21.0	44.0	44.0	59.0	59.0	59.0	59.0
Total Split (%)	14.2%	33.3%	33.3%	17.5%	36.7%	36.7%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.12	0.05	0.01	0.45	0.21	0.00	0.03	0.79	0.04	0.75
Control Delay	56.4	16.0	0.0	46.2	9.1	0.6	30.0	53.2	30.8	50.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	16.0	0.0	46.2	9.1	0.6	30.0	53.2	30.8	50.8
Queue Length 50th (ft)	8	17	0	48	125	0	2	262	2	249
Queue Length 95th (ft)	28	40	0	48	224	m0	9	337	11	319
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	1946	903	228	2248	1032	214	818	186	828
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.05	0.01	0.28	0.21	0.00	0.01	0.45	0.02	0.42

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

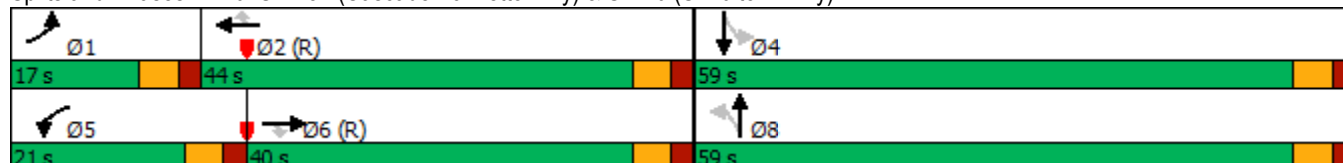
Offset: 8 (7%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	91	9	61	453	5	3	308	45	4	326	8
Future Volume (veh/h)	11	91	9	61	453	5	3	308	45	4	326	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	95	0	64	472	0	3	321	47	4	340	8
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	23	2084		83	2204		114	366	54	96	418	10
Arrive On Green	0.01	0.59	0.00	0.05	0.62	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1033	1595	234	1014	1820	43
Grp Volume(v), veh/h	11	95	0	64	472	0	3	0	368	4	0	348
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1033	0	1828	1014	0	1863
Q Serve(g_s), s	0.7	1.4	0.0	4.3	7.0	0.0	0.3	0.0	23.3	0.5	0.0	21.2
Cycle Q Clear(g_c), s	0.7	1.4	0.0	4.3	7.0	0.0	21.6	0.0	23.3	23.8	0.0	21.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.02
Lane Grp Cap(c), veh/h	23	2084		83	2204		114	0	420	96	0	428
V/C Ratio(X)	0.48	0.05		0.77	0.21		0.03	0.00	0.88	0.04	0.00	0.81
Avail Cap(c_a), veh/h	171	2084		230	2204		338	0	815	315	0	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	58.8	10.5	0.0	56.6	10.0	0.0	54.0	0.0	44.6	56.1	0.0	43.8
Incr Delay (d2), s/veh	15.0	0.0	0.0	14.0	0.2	0.0	0.1	0.0	6.0	0.2	0.0	3.8
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	0.7	0.9	0.0	3.9	4.4	0.0	0.2	0.0	16.0	0.2	0.0	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.8	10.6	0.0	70.6	10.2	0.0	54.1	0.0	50.6	56.2	0.0	47.6
LnGrp LOS	E	B		E	B		D	A	D	E	A	D
Approach Vol, veh/h	106			536			371			352		
Approach Delay, s/veh	17.1			17.4			50.6			47.7		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	79.9		33.0	11.1	75.9		33.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	38.5		53.5	15.5	34.5		53.5				
Max Q Clear Time (g_c+I1), s	2.7	9.0		25.8	6.3	3.4		25.3				
Green Ext Time (p_c), s	0.0	5.5		1.8	0.1	0.9		1.9				

Intersection Summary

HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	19	236	21	241	592	138	26	167	91	125
Future Volume (vph)	19	236	21	241	592	138	26	167	91	125
Lane Group Flow (vph)	21	257	23	262	643	150	28	382	99	151
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	23.0	44.0	44.0	15.0	36.0	36.0	15.0	46.0	15.0	46.0
Total Split (%)	19.2%	36.7%	36.7%	12.5%	30.0%	30.0%	12.5%	38.3%	12.5%	38.3%
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	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
v/c Ratio	0.05	0.19	0.03	0.42	0.36	0.17	0.07	0.83	0.43	0.27
Control Delay	16.2	24.7	0.1	18.6	21.3	2.9	22.2	52.7	29.7	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	24.7	0.1	18.6	21.3	2.9	22.2	52.7	29.7	32.1
Queue Length 50th (ft)	6	67	0	105	140	0	14	248	51	90
Queue Length 95th (ft)	m22	112	m0	187	261	31	30	331	79	136
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	562	1357	706	626	1800	899	446	621	236	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.19	0.03	0.42	0.36	0.17	0.06	0.62	0.42	0.24

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

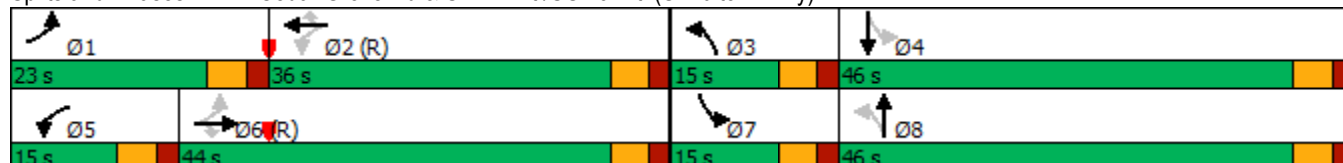
Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	236	21	241	592	138	26	167	184	91	125	14
Future Volume (veh/h)	19	236	21	241	592	138	26	167	184	91	125	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	21	257	0	262	643	0	28	182	200	99	136	15
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	404	1524		649	1769		373	202	222	191	465	51
Arrive On Green	0.02	0.44	0.00	0.08	0.49	0.00	0.03	0.25	0.25	0.06	0.28	0.28
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	821	902	1795	1681	185
Grp Volume(v), veh/h	21	257	0	262	643	0	28	0	382	99	0	151
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	0	1723	1795	0	1867
Q Serve(g_s), s	0.8	5.4	0.0	9.5	13.3	0.0	1.4	0.0	25.8	4.9	0.0	7.6
Cycle Q Clear(g_c), s	0.8	5.4	0.0	9.5	13.3	0.0	1.4	0.0	25.8	4.9	0.0	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.52	1.00		0.10
Lane Grp Cap(c), veh/h	404	1524		649	1769		373	0	424	191	0	516
V/C Ratio(X)	0.05	0.17		0.40	0.36		0.08	0.00	0.90	0.52	0.00	0.29
Avail Cap(c_a), veh/h	630	1524		649	1769		470	0	581	234	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	18.1	20.6	0.0	15.7	18.7	0.0	32.4	0.0	43.8	34.0	0.0	34.2
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.4	0.6	0.0	0.1	0.0	13.7	2.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	3.8	0.0	6.5	8.9	0.0	1.1	0.0	17.9	3.9	0.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	20.9	0.0	16.1	19.3	0.0	32.5	0.0	57.5	36.1	0.0	34.5
LnGrp LOS	B	C		B	B		C	A	E	D	A	C
Approach Vol, veh/h		278			905			410			250	
Approach Delay, s/veh		20.6			18.4			55.8			35.1	
Approach LOS		C			B			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	64.8	8.5	38.7	15.0	57.8	12.2	35.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	17.5	30.5	9.5	40.5	9.5	38.5	9.5	40.5				
Max Q Clear Time (g_c+I1), s	2.8	15.3	3.4	9.6	11.5	7.4	6.9	27.8				
Green Ext Time (p_c), s	0.0	5.7	0.0	0.7	0.0	2.8	0.0	1.8				

Intersection Summary

HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	215	132	161	644	585	75	776	33	381	538	119
Future Volume (vph)	216	215	132	161	644	585	75	776	33	381	538	119
Lane Group Flow (vph)	218	217	133	163	651	591	76	784	33	385	543	120
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	15.0	53.5	53.5	16.0	54.5	54.5	18.0	53.5	53.5	27.0	62.5	62.5
Total Split (%)	10.0%	35.7%	35.7%	10.7%	36.3%	36.3%	12.0%	35.7%	35.7%	18.0%	41.7%	41.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.63	0.17	0.20	0.30	0.51	0.80	0.60	0.83	0.06	0.86	0.49	0.20
Control Delay	35.6	34.3	5.7	25.8	41.0	31.9	86.2	59.9	0.2	82.1	40.8	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	34.3	5.7	25.8	41.0	31.9	86.2	59.9	0.2	82.1	40.8	5.7
Queue Length 50th (ft)	125	77	0	91	276	305	73	382	0	191	222	0
Queue Length 95th (ft)	#238	116	45	154	341	#495	129	431	0	#268	261	42
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	347	1251	668	540	1265	739	148	1121	581	464	1258	670
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.17	0.20	0.30	0.51	0.80	0.51	0.70	0.06	0.83	0.43	0.18

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

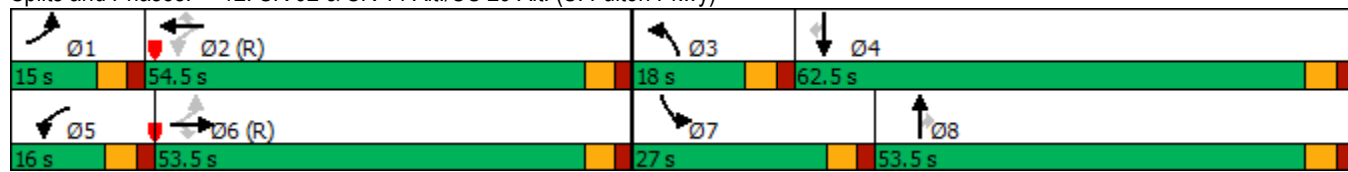
Natural Cycle: 130

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	215	132	161	644	585	75	776	33	381	538	119
Future Volume (veh/h)	216	215	132	161	644	585	75	776	33	381	538	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1811	1870	1841	1885	1856	1885	1856	1811	1781	1767	1856
Adj Flow Rate, veh/h	218	217	133	163	651	591	76	784	0	385	543	120
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, %	1	6	2	4	1	3	1	3	6	8	9	3
Cap, veh/h	286	1382	637	533	1455	639	95	893		430	1110	520
Arrive On Green	0.06	0.40	0.40	0.07	0.41	0.41	0.05	0.25	0.00	0.13	0.33	0.33
Sat Flow, veh/h	1795	3441	1585	1753	3582	1572	1795	3526	1535	3291	3357	1572
Grp Volume(v), veh/h	218	217	133	163	651	591	76	784	0	385	543	120
Grp Sat Flow(s),veh/h/ln	1795	1721	1585	1753	1791	1572	1795	1763	1535	1646	1678	1572
Q Serve(g_s), s	9.5	6.0	8.2	8.2	19.8	53.6	6.3	32.0	0.0	17.3	19.4	8.3
Cycle Q Clear(g_c), s	9.5	6.0	8.2	8.2	19.8	53.6	6.3	32.0	0.0	17.3	19.4	8.3
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	286	1382	637	533	1455	639	95	893		430	1110	520
V/C Ratio(X)	0.76	0.16	0.21	0.31	0.45	0.93	0.80	0.88		0.90	0.49	0.23
Avail Cap(c_a), veh/h	286	1382	637	537	1455	639	150	1128		472	1275	598
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	28.7	29.3	23.4	32.3	42.4	70.2	53.8	0.0	64.2	40.1	36.4
Incr Delay (d2), s/veh	11.6	0.2	0.7	0.3	1.0	21.4	14.6	6.7	0.0	18.3	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.3	4.4	5.7	5.9	13.2	31.4	5.8	20.8	0.0	12.8	12.3	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	28.9	30.0	23.7	33.3	63.7	84.8	60.5	0.0	82.5	40.4	36.6
LnGrp LOS	D	C	C	C	C	E	F	E		F	D	D
Approach Vol, veh/h	568				1405				860			
Approach Delay, s/veh	34.0				45.0				62.7			
Approach LOS	C				D				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	66.4	13.5	55.1	15.7	65.8	25.1	43.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	49.0	12.5	57.0	10.5	48.0	21.5	48.0				
Max Q Clear Time (g_c+I1), s	11.5	55.6	8.3	21.4	10.2	10.2	19.3	34.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.7	0.0	3.6	0.3	4.0				

Intersection Summary

HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	56	577	38	105	1320	100	52	39	54	81
Future Volume (vph)	56	577	38	105	1320	100	52	39	54	81
Lane Group Flow (vph)	57	589	39	107	1347	102	53	99	55	186
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	59.0	59.0	44.0	44.0	44.0	61.0	61.0	61.0	61.0
Total Split (%)	12.5%	49.2%	49.2%	36.7%	36.7%	36.7%	50.8%	50.8%	50.8%	50.8%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.20	0.21	0.03	0.18	0.54	0.09	0.74	0.40	0.39	0.71
Control Delay	5.0	3.7	1.3	5.3	6.4	0.7	98.6	25.8	54.9	45.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	3.7	1.3	5.3	6.4	0.7	98.6	25.8	54.9	45.7
Queue Length 50th (ft)	8	48	0	18	141	1	40	29	40	88
Queue Length 95th (ft)	22	87	9	m31	162	m6	83	77	78	157
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	329	2749	1287	580	2515	1135	289	816	567	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.21	0.03	0.18	0.54	0.09	0.18	0.12	0.10	0.22

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

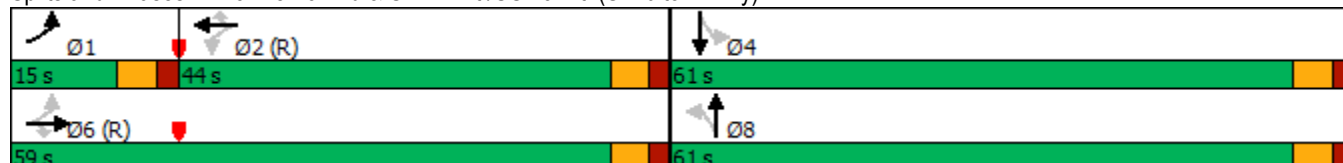
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	577	38	105	1320	100	52	39	58	54	81	101
Future Volume (veh/h)	56	577	38	105	1320	100	52	39	58	54	81	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	57	589	39	107	1347	102	53	40	59	55	83	103
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	285	2597	1196	596	2350	1040	139	110	163	206	128	159
Arrive On Green	0.04	0.74	0.74	0.66	0.66	0.66	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1739	3497	1610	810	3554	1572	1217	666	983	1296	771	957
Grp Volume(v), veh/h	57	589	39	107	1347	102	53	0	99	55	0	186
Grp Sat Flow(s),veh/h/ln	1739	1749	1610	810	1777	1572	1217	0	1649	1296	0	1728
Q Serve(g_s), s	1.2	6.3	0.8	6.2	24.8	2.8	5.1	0.0	6.4	4.7	0.0	12.1
Cycle Q Clear(g_c), s	1.2	6.3	0.8	6.2	24.8	2.8	17.2	0.0	6.4	11.1	0.0	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.55
Lane Grp Cap(c), veh/h	285	2597	1196	596	2350	1040	139	0	273	206	0	286
V/C Ratio(X)	0.20	0.23	0.03	0.18	0.57	0.10	0.38	0.00	0.36	0.27	0.00	0.65
Avail Cap(c_a), veh/h	361	2597	1196	596	2350	1040	500	0	763	590	0	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	4.8	4.1	7.9	11.1	7.4	54.8	0.0	44.4	49.4	0.0	46.8
Incr Delay (d2), s/veh	0.3	0.2	0.1	0.7	1.0	0.2	1.7	0.0	0.8	0.7	0.0	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	0.6	3.0	0.4	1.8	13.0	1.5	2.9	0.0	4.7	2.8	0.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	5.0	4.1	8.6	12.1	7.5	56.5	0.0	45.2	50.0	0.0	49.3
LnGrp LOS	A	A	A	A	B	A	E	A	D	D	A	D
Approach Vol, veh/h	685		1556				152		241			
Approach Delay, s/veh	5.3		11.6				49.2		49.5			
Approach LOS	A		B				D		D			
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	9.8	84.9	25.4		94.6		25.4					
Change Period (Y+Rc), s	5.5	5.5	5.5		5.5		5.5					
Max Green Setting (Gmax), s	9.5	38.5	55.5		53.5		55.5					
Max Q Clear Time (g_c+I1), s	3.2	26.8	14.1		8.3		19.2					
Green Ext Time (p_c), s	0.0	9.7	1.2		8.2		0.7					
Intersection Summary												
HCM 6th Ctrl Delay			15.6									
HCM 6th LOS			B									

Timings

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	88	226	334	21	1109	48	264	195	45	37	128
Future Volume (vph)	88	226	334	21	1109	48	264	195	45	37	128
Lane Group Flow (vph)	91	233	344	22	1143	49	272	201	46	38	281
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	57.5	57.5	57.5	57.5	57.5	57.5	47.5	47.5	47.5	15.0	62.5
Total Split (%)	47.9%	47.9%	47.9%	47.9%	47.9%	47.9%	39.6%	39.6%	39.6%	12.5%	52.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.57	0.13	0.33	0.04	0.58	0.05	0.88	0.37	0.09	0.10	0.44
Control Delay	45.8	17.4	4.9	20.7	20.0	5.0	67.4	34.3	2.7	20.2	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	17.4	4.9	20.7	20.0	5.0	67.4	34.3	2.7	20.2	25.6
Queue Length 50th (ft)	43	44	0	7	208	0	197	121	0	17	132
Queue Length 95th (ft)	#145	95	93	m22	327	19	#311	176	12	35	182
Internal Link Dist (ft)	2942			4520			1090			834	
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	160	1773	1028	628	1968	913	371	652	591	394	834
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.13	0.33	0.04	0.58	0.05	0.73	0.31	0.08	0.10	0.34

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 115

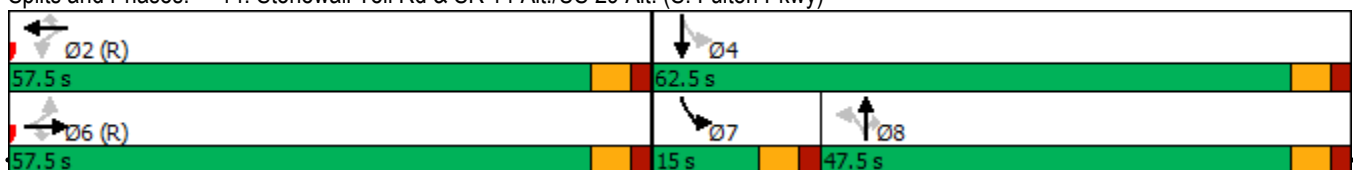
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	226	334	21	1109	48	264	195	45	37	128	145
Future Volume (veh/h)	88	226	334	21	1109	48	264	195	45	37	128	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	91	233	344	22	1143	49	272	201	0	38	132	149
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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	198	1705	826	468	1866	832	352	591		394	317	357
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.32	0.32	0.00	0.03	0.39	0.39
Sat Flow, veh/h	470	3300	1598	850	3610	1610	1072	1870	1560	1810	808	913
Grp Volume(v), veh/h	91	233	344	22	1143	49	272	201	0	38	0	281
Grp Sat Flow(s),veh/h/ln	470	1650	1598	850	1805	1610	1072	1870	1560	1810	0	1721
Q Serve(g_s), s	20.4	4.4	15.9	1.7	26.9	1.8	29.7	9.9	0.0	1.6	0.0	14.2
Cycle Q Clear(g_c), s	47.3	4.4	15.9	6.1	26.9	1.8	34.8	9.9	0.0	1.6	0.0	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	198	1705	826	468	1866	832	352	591		394	0	674
V/C Ratio(X)	0.46	0.14	0.42	0.05	0.61	0.06	0.77	0.34		0.10	0.00	0.42
Avail Cap(c_a), veh/h	198	1705	826	468	1866	832	389	655		483	0	817
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	0.87	0.87	0.87	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.2	15.1	17.9	16.7	20.5	14.5	42.5	31.5	0.0	25.5	0.0	26.5
Incr Delay (d2), s/veh	7.5	0.2	1.5	0.2	1.3	0.1	8.4	0.3	0.0	0.1	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	4.7	2.8	10.0	0.6	15.4	1.1	13.2	7.9	0.0	1.3	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	15.2	19.4	16.8	21.8	14.6	50.9	31.8	0.0	25.6	0.0	27.0
LnGrp LOS	D	B	B	B	C	B	D	C		C	A	C
Approach Vol, veh/h	668			1214			473			319		
Approach Delay, s/veh	21.4			21.4			42.8			26.8		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	67.5			52.5			67.5			9.1		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	52.0			57.0			52.0			9.5		
Max Q Clear Time (g_c+I1), s	28.9			16.2			49.3			3.6		
Green Ext Time (p_c), s	13.9			1.8			1.5			0.0		

Intersection Summary

HCM 6th Ctrl Delay	25.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	37	172	109	86	1089	34	23	61	87	125	52
Future Volume (vph)	37	172	109	86	1089	34	23	61	87	125	52
Lane Group Flow (vph)	39	183	116	91	1159	36	0	89	93	133	117
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.12	0.09	0.11	0.12	0.48	0.04		0.36	0.28	0.71	0.36
Control Delay	10.5	16.0	10.8	5.6	11.7	0.4		46.5	9.8	66.3	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	10.5	16.0	10.8	5.6	11.7	0.4		46.5	9.8	66.3	23.8
Queue Length 50th (ft)	14	44	0	17	227	0		62	0	99	38
Queue Length 95th (ft)	42	85	80	41	357	3		104	43	155	85
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	363	2049	1059	768	2420	913		679	751	510	787
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.11	0.09	0.11	0.12	0.48	0.04		0.13	0.12	0.26	0.15

Intersection Summary

Cycle Length: 120

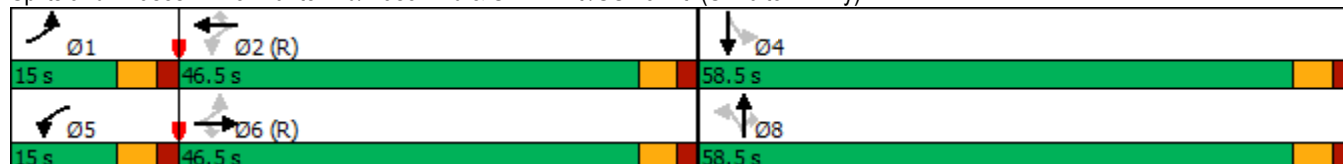
Actuated Cycle Length: 120

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

Natural Cycle: 110

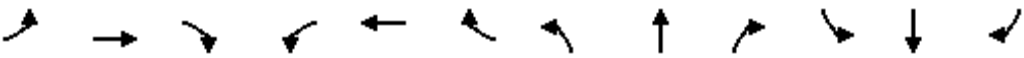
Control Type: Actuated-Coordinated

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

1b. Existing 2023 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	172	109	86	1089	34	23	61	87	125	52	58
Future Volume (veh/h)	37	172	109	86	1089	34	23	61	87	125	52	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	39	183	116	91	1159	0	24	65	0	133	55	62
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	355	2198	1073	743	2421		75	172		221	123	139
Arrive On Green	0.03	0.67	0.67	0.04	0.68	0.00	0.15	0.15	0.00	0.15	0.15	0.15
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	243	1139	1585	1199	815	919
Grp Volume(v), veh/h	39	183	116	91	1159	0	89	0	0	133	0	117
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1381	0	1585	1199	0	1735
Q Serve(g_s), s	0.8	2.3	3.1	2.1	18.5	0.0	0.7	0.0	0.0	6.9	0.0	7.4
Cycle Q Clear(g_c), s	0.8	2.3	3.1	2.1	18.5	0.0	8.1	0.0	0.0	15.0	0.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	0.27		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	355	2198	1073	743	2421		247	0		221	0	262
V/C Ratio(X)	0.11	0.08	0.11	0.12	0.48		0.36	0.00		0.60	0.00	0.45
Avail Cap(c_a), veh/h	437	2198	1073	805	2421		687	0		569	0	766
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.8	6.8	7.0	5.3	9.0	0.0	45.8	0.0	0.0	50.1	0.0	46.4
Incr Delay (d2), s/veh	0.1	0.1	0.2	0.1	0.7	0.0	0.9	0.0	0.0	2.6	0.0	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	0.4	1.2	1.7	1.0	9.9	0.0	4.3	0.0	0.0	7.1	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	6.9	7.2	5.4	9.7	0.0	46.7	0.0	0.0	52.8	0.0	47.6
LnGrp LOS	A	A	A	A	A		D	A		D	A	D
Approach Vol, veh/h	338			1250			89			250		
Approach Delay, s/veh	7.0			9.4			46.7			50.3		
Approach LOS	A			A			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	87.2		23.6	10.3	86.1		23.6				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	2.8	20.5		17.0	4.1	5.1		10.1				
Green Ext Time (p_c), s	0.0	12.5		1.1	0.1	3.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay 16.0
HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	178					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	52	431	535	1326	137
Future Vol, veh/h	24	52	431	535	1326	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	2	4	1	3	2
Mvmt Flow	25	55	454	563	1396	144
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2586	698	1396	0	-	0
Stage 1	1396	-	-	-	-	-
Stage 2	1190	-	-	-	-	-
Critical Hdwy	6.88	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 20	383	476	-	-	-
Stage 1	191	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 1	383	476	-	-	-
Mov Cap-2 Maneuver	~ 1	-	-	-	-	-
Stage 1	~ 9	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	5529.1	26.7		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	476	-	1	383	-	-
HCM Lane V/C Ratio	0.953	-25.263	0.143		-	-
HCM Control Delay (s)	59.9	\$ 17474.3	16		-	-
HCM Lane LOS	F	-	F	C	-	-
HCM 95th %tile Q(veh)	11.7	-	4.9	0.5	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	126.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	748	31	528	715	121
Future Vol, veh/h	54	748	31	528	715	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	5	0	1	1	3
Mvmt Flow	57	796	33	562	761	129
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1173	445	890	0	-	0
Stage 1	826	-	-	-	-	-
Stage 2	347	-	-	-	-	-
Critical Hdwy	6.88	7	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.35	2.2	-	-	-
Pot Cap-1 Maneuver	182	~ 552	770	-	-	-
Stage 1	385	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	174	~ 552	770	-	-	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	345.1	0.5		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	770	-	501	-	-	
HCM Lane V/C Ratio	0.043	-	1.703	-	-	
HCM Control Delay (s)	9.9	-\$ 345.1		-	-	
HCM Lane LOS	A	-	F	-	-	
HCM 95th %tile Q(veh)	0.1	-	50.4	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Future 2028 “No-Build” Intersection Analysis

Timings
1: I-85 NB Ramps & Collinsworth Rd

2a. No-Build 2028 AM
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	421	526	522	758	343	421
Future Volume (vph)	421	526	522	758	343	421
Lane Group Flow (vph)	448	560	555	806	365	448
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	30.0	83.0	53.0	53.0	37.0	37.0
Total Split (%)	25.0%	69.2%	44.2%	44.2%	30.8%	30.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.88	0.24	0.73	0.78	0.89	0.70
Control Delay	34.6	5.1	36.9	11.1	67.6	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	5.1	36.9	11.1	67.6	15.4
Queue Length 50th (ft)	212	70	371	64	266	57
Queue Length 95th (ft)	#376	36	518	267	#418	179
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	519	2337	759	1037	447	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.24	0.73	0.78	0.82	0.68

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

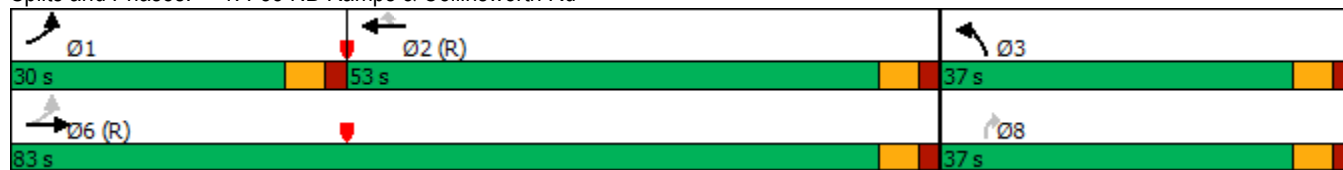
Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	421	526	0	0	522	758	343	0	421	0	0	0
Future Volume (veh/h)	421	526	0	0	522	758	343	0	421	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	448	560	0	0	555	0	365	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	522	2398	0	0	906		394	0				
Arrive On Green	0.04	0.22	0.00	0.00	0.50	0.00	0.23	0.00	0.00			
Sat Flow, veh/h	1725	3618	0	0	1811	1535	1725	0	1535			
Grp Volume(v), veh/h	448	560	0	0	555	0	365	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1763	0	0	1811	1535	1725	0	1535			
Q Serve(g_s), s	13.1	15.6	0.0	0.0	26.5	0.0	24.9	0.0	0.0			
Cycle Q Clear(g_c), s	13.1	15.6	0.0	0.0	26.5	0.0	24.9	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	522	2398	0	0	906		394	0				
V/C Ratio(X)	0.86	0.23	0.00	0.00	0.61		0.93	0.00				
Avail Cap(c_a), veh/h	643	2398	0	0	906		453	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	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	19.7	20.9	0.0	0.0	21.6	0.0	45.3	0.0	0.0			
Incr Delay (d2), s/veh	6.9	0.2	0.0	0.0	3.1	0.0	23.6	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	9.7	11.0	0.0	0.0	16.3	0.0	19.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	21.1	0.0	0.0	24.7	0.0	68.9	0.0	0.0			
LnGrp LOS	C	C	A	A	C		E	A				
Approach Vol, veh/h	1008			555			365					
Approach Delay, s/veh	23.5			24.7			68.9					
Approach LOS	C			C			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	21.6	65.5					87.1	32.9				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	24.5	47.5					77.5	31.5				
Max Q Clear Time (g_c+I1), s	15.1	28.5					17.6	26.9				
Green Ext Time (p_c), s	1.0	5.6					7.6	0.5				

Intersection Summary

HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

2a. No-Build 2028 AM
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	812	247	234	677	170	193
Future Volume (vph)	812	247	234	677	170	193
Lane Group Flow (vph)	855	260	246	713	179	203
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	77.0	77.0	20.0	97.0	23.0	23.0
Total Split (%)	64.2%	64.2%	16.7%	80.8%	19.2%	19.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.69	0.24	0.58	0.49	0.55	0.63
Control Delay	15.5	1.8	11.2	7.6	57.7	15.7
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	15.5	1.8	11.2	8.1	57.7	15.7
Queue Length 50th (ft)	329	6	67	183	69	0
Queue Length 95th (ft)	614	m23	m113	472	104	72
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	1247	1086	477	1451	481	383
Starvation Cap Reductn	0	0	0	326	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.24	0.52	0.63	0.37	0.53

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 61 (51%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

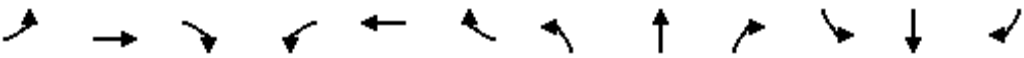
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖↗		↗
Traffic Volume (veh/h)	0	812	247	234	677	0	0	0	0	170	0	193
Future Volume (veh/h)	0	812	247	234	677	0	0	0	0	170	0	193
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	855	0	246	713	0				179	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	1365		628	1515	0				241	0	
Arrive On Green	0.00	1.00	0.00	0.11	1.00	0.00				0.07	0.00	0.00
Sat Flow, veh/h	0	1856	1497	1767	1811	0				3346	0	1459
Grp Volume(v), veh/h	0	855	0	246	713	0				179	0	0
Grp Sat Flow(s),veh/h/ln	0	1856	1497	1767	1811	0				1673	0	1459
Q Serve(g_s), s	0.0	0.0	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1365		628	1515	0				241	0	
V/C Ratio(X)	0.00	0.63		0.39	0.47	0.00				0.74	0.00	
Avail Cap(c_a), veh/h	0	1365		745	1515	0				488	0	
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.83	0.00	0.51	0.51	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	2.5	0.0	0.0				54.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.0	0.2	0.5	0.0				4.5	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	0.0	1.2	0.0	1.2	0.4	0.0				5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.8	0.0	2.7	0.5	0.0				59.1	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		855			959						179	
Approach Delay, s/veh		1.8			1.1						59.1	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.9		14.1	12.1	93.7						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		91.5		17.5	14.5	71.5						
Max Q Clear Time (g_c+I1), s		2.0		8.3	6.2	2.0						
Green Ext Time (p_c), s		11.8		0.4	0.4	16.3						
Intersection Summary												
HCM 6th Ctrl Delay			6.6									
HCM 6th LOS			A									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
3: Weldon Rd & Collinsworth Rd

2a. No-Build 2028 AM
08/31/2023

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	24	386	4	36	178	1	7	467	4
Future Volume (vph)	24	386	4	36	178	1	7	467	4
Lane Group Flow (vph)	0	427	4	38	539	1	7	0	498
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases		6		5	2	8			4
Permitted Phases	6		6	2			8	4	
Detector Phase	6	6	6	5	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	46.0	46.0	46.0	15.0	61.0	59.0	59.0	59.0	59.0
Total Split (%)	38.3%	38.3%	38.3%	12.5%	50.8%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None
v/c Ratio		0.55	0.01	0.10	0.60	0.00	0.01		0.91
Control Delay		31.3	0.0	10.9	10.6	19.0	0.0		55.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		31.3	0.0	10.9	10.6	19.0	0.0		55.3
Queue Length 50th (ft)		266	0	10	119	0	0		345
Queue Length 95th (ft)		403	0	m24	207	4	0		#525
Internal Link Dist (ft)		914			947	293			729
Turn Bay Length (ft)			365	315					
Base Capacity (vph)		780	737	391	901	830	746		606
Starvation Cap Reductn		0	0	0	0	0	0		0
Spillback Cap Reductn		0	0	0	0	0	0		0
Storage Cap Reductn		0	0	0	0	0	0		0
Reduced v/c Ratio		0.55	0.01	0.10	0.60	0.00	0.01		0.82

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 90

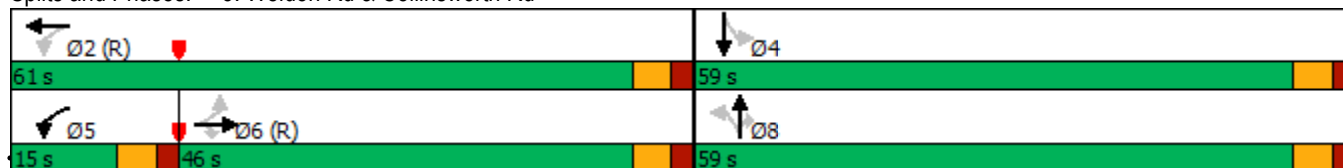
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

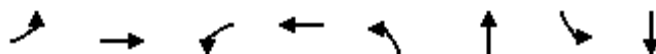
3: Weldon Rd & Collinsworth Rd

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	386	4	36	178	340	0	1	7	467	4	8
Future Volume (veh/h)	24	386	4	36	178	340	0	1	7	467	4	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	402	4	38	185	354	0	1	7	486	4	8
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	59	798	725	404	306	586	0	701	594	576	4	9
Arrive On Green	0.46	0.46	0.46	0.05	0.89	0.89	0.00	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	59	1743	1585	1781	574	1099	0	1870	1585	1377	11	23
Grp Volume(v), veh/h	427	0	4	38	0	539	0	1	7	498	0	0
Grp Sat Flow(s),veh/h/ln	1802	0	1585	1781	0	1673	0	1870	1585	1411	0	0
Q Serve(g_s), s	0.0	0.0	0.2	1.3	0.0	9.2	0.0	0.0	0.3	40.9	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	0.2	1.3	0.0	9.2	0.0	0.0	0.3	40.9	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.66	0.00		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	856	0	725	404	0	892	0	701	594	589	0	0
V/C Ratio(X)	0.50	0.00	0.01	0.09	0.00	0.60	0.00	0.00	0.01	0.85	0.00	0.00
Avail Cap(c_a), veh/h	856	0	725	492	0	892	0	834	707	689	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.84	0.00	0.84	0.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	0.0	17.7	16.7	0.0	3.6	0.0	23.5	23.5	36.2	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	0.1	0.0	2.6	0.0	0.0	0.0	8.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.0	0.0	0.1	0.9	0.0	4.0	0.0	0.0	0.2	21.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	17.7	16.8	0.0	6.1	0.0	23.5	23.5	44.7	0.0	0.0
LnGrp LOS	C	A	B	B	A	A	A	C	C	D	A	A
Approach Vol, veh/h		431			577			8			498	
Approach Delay, s/veh		24.9			6.8			23.5			44.7	
Approach LOS		C			A			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		69.5		50.5	9.1	60.4		50.5				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		55.5		53.5	9.5	40.5		53.5				
Max Q Clear Time (g_c+I1), s		11.2		42.9	3.3	21.3		2.3				
Green Ext Time (p_c), s		7.7		2.1	0.0	4.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				24.5								
HCM 6th LOS				C								

Timings
4: SR 14/US 29 (Main St) & Toombs St

2a. No-Build 2028 AM
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	30	79	8	46	6	395	29	343
Future Volume (vph)	30	79	8	46	6	395	29	343
Lane Group Flow (vph)	0	132	0	89	0	457	0	421
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	37.0	37.0	37.0	37.0	83.0	83.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	69.2%	69.2%	69.2%	69.2%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.67		0.39		0.34		0.34
Control Delay		64.9		41.4		4.8		4.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		64.9		41.4		4.8		4.9
Queue Length 50th (ft)		96		50		84		77
Queue Length 95th (ft)		156		97		154		145
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		426		472		1354		1244
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.31		0.19		0.34		0.34

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	79	10	8	46	26	6	395	10	29	343	7
Future Volume (veh/h)	30	79	10	8	46	26	6	395	10	29	343	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	33	88	11	9	51	29	7	439	11	32	381	8
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	69	121	14	42	104	55	37	1375	34	105	1194	25
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.82	0.82	0.82	0.82	0.82	0.82
Sat Flow, veh/h	343	1295	149	94	1122	588	8	1687	42	89	1464	30
Grp Volume(v), veh/h	132	0	0	89	0	0	457	0	0	421	0	0
Grp Sat Flow(s),veh/h/ln	1787	0	0	1804	0	0	1737	0	0	1584	0	0
Q Serve(g_s), s	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.5	0.0	0.0	5.7	0.0	0.0	7.9	0.0	0.0	7.5	0.0	0.0
Prop In Lane	0.25		0.08	0.10		0.33	0.02		0.02	0.08		0.02
Lane Grp Cap(c), veh/h	204	0	0	201	0	0	1447	0	0	1324	0	0
V/C Ratio(X)	0.65	0.00	0.00	0.44	0.00	0.00	0.32	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	491	0	0	493	0	0	1447	0	0	1324	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.1	0.0	0.0	51.9	0.0	0.0	2.8	0.0	0.0	2.7	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.0	1.5	0.0	0.0	0.6	0.0	0.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	0.0	0.0	4.8	0.0	0.0	4.3	0.0	0.0	4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	0.0	0.0	53.5	0.0	0.0	3.3	0.0	0.0	3.4	0.0	0.0
LnGrp LOS	E	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h	132		89				457			421		
Approach Delay, s/veh	56.6		53.5				3.3			3.4		
Approach LOS	E		D				A			A		
Timer - Assigned Phs	2		4				6			8		
Phs Duration (G+Y+Rc), s	103.3		16.7				103.3			16.7		
Change Period (Y+Rc), s	5.5		5.5				5.5			5.5		
Max Green Setting (Gmax), s	77.5		31.5				77.5			31.5		
Max Q Clear Time (g_c+I1), s	9.5		10.5				9.9			7.7		
Green Ext Time (p_c), s	6.9		0.6				7.5			0.4		
Intersection Summary												
HCM 6th Ctrl Delay	13.8											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 9.6

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	60	31	168	252	20
Future Vol, veh/h	36	60	31	168	252	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	62	32	173	260	21
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.8	8.7	10.6
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	0%	93%
Vol Thru, %	62%	16%	0%
Vol Right, %	0%	84%	7%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	199	272
LT Vol	36	0	252
Through Vol	60	31	0
RT Vol	0	168	20
Lane Flow Rate	99	205	280
Geometry Grp	1	1	1
Degree of Util (X)	0.136	0.243	0.37
Departure Headway (Hd)	4.941	4.256	4.752
Convergence, Y/N	Yes	Yes	Yes
Cap	724	843	754
Service Time	2.98	2.288	2.794
HCM Lane V/C Ratio	0.137	0.243	0.371
HCM Control Delay	8.8	8.7	10.6
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1	1.7

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	205	133	29	44	12
Future Vol, veh/h	6	205	133	29	44	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	216	140	31	46	13
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	171	0	-	0	384	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	619	890
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	616	890
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	810	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		11		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1406	-	-	-	660	
HCM Lane V/C Ratio	0.004	-	-	-	0.089	
HCM Control Delay (s)	7.6	0	-	-	11	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	29	34	6	56	47
Future Vol, veh/h	8	29	34	6	56	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	37	44	8	72	60
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	252	48	0	0	52	0
Stage 1	48	-	-	-	-	-
Stage 2	204	-	-	-	-	-
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	737	1021	-	-	1554	-
Stage 1	974	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	702	1021	-	-	1554	-
Mov Cap-2 Maneuver	702	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	790	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	930	1554	-	
HCM Lane V/C Ratio	-	-	0.051	0.046	-	
HCM Control Delay (s)	-	-	9.1	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Vol, veh/h	0	473	73	11	132	2	37	8	17	1	17	1
Future Vol, veh/h	0	473	73	11	132	2	37	8	17	1	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	538	83	13	150	2	42	9	19	1	19	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	538	0	0	724	714	538	719	714	150
Stage 1	-	-	-	-	-	-	538	538	-	176	176	-
Stage 2	-	-	-	-	-	-	186	176	-	543	538	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1431	-	-	1030	-	-	341	357	543	344	357	896
Stage 1	-	-	-	-	-	-	527	522	-	826	753	-
Stage 2	-	-	-	-	-	-	816	753	-	524	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1030	-	-	323	352	543	322	352	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	352	-	322	352	-
Stage 1	-	-	-	-	-	-	527	522	-	826	742	-
Stage 2	-	-	-	-	-	-	783	742	-	497	522	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			14.4			15.3		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	452	1431	-	-	1030	-	-	370				
HCM Lane V/C Ratio	0.156	-	-	-	0.012	-	-	0.058				
HCM Control Delay (s)	14.4	0	-	-	8.5	0	-	15.3				
HCM Lane LOS	B	A	-	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.2				

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	413	62	4	109	6	34	5	0	18	23	0
Future Vol, veh/h	0	413	62	4	109	6	34	5	0	18	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	454	68	4	120	7	37	5	0	20	25	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	120	0	0	454	0	0	595	582	227	358	582	-
Stage 1	-	-	-	-	-	-	454	454	-	128	128	-
Stage 2	-	-	-	-	-	-	141	128	-	230	454	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	1467	-	-	1105	-	-	402	424	777	585	424	0
Stage 1	-	-	-	-	-	-	556	568	-	875	790	0
Stage 2	-	-	-	-	-	-	861	790	-	753	568	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1467	-	-	1105	-	-	383	422	777	579	422	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	463	480	-	579	422	-
Stage 1	-	-	-	-	-	-	556	568	-	875	787	-
Stage 2	-	-	-	-	-	-	830	787	-	746	568	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			13.5					
HCM LOS							B			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	465	1467	-	-	1105	-	-	579	-			
HCM Lane V/C Ratio	0.092	-	-	-	0.004	-	-	0.034	-			
HCM Control Delay (s)	13.5	0	-	-	8.3	-	-	11.4	-			
HCM Lane LOS	B	A	-	-	A	-	-	B	-			
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1	-			

Timings
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	416	8	46	101	4	5	276	2	299
Future Volume (vph)	8	416	8	46	101	4	5	276	2	299
Lane Group Flow (vph)	9	443	9	49	107	4	5	365	2	324
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	42.0	42.0	20.0	45.0	45.0	58.0	58.0	58.0	58.0
Total Split (%)	14.2%	35.0%	35.0%	16.7%	37.5%	37.5%	48.3%	48.3%	48.3%	48.3%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.10	0.22	0.01	0.38	0.05	0.00	0.04	0.80	0.02	0.70
Control Delay	56.1	15.8	0.0	70.2	3.7	0.2	30.6	53.2	30.0	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	15.8	0.0	70.2	3.7	0.2	30.6	53.2	30.0	48.6
Queue Length 50th (ft)	7	90	0	29	2	0	3	257	1	229
Queue Length 95th (ft)	24	153	0	58	18	m0	12	332	8	296
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	1982	918	213	2260	1037	239	798	183	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.22	0.01	0.23	0.05	0.00	0.02	0.46	0.01	0.40

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

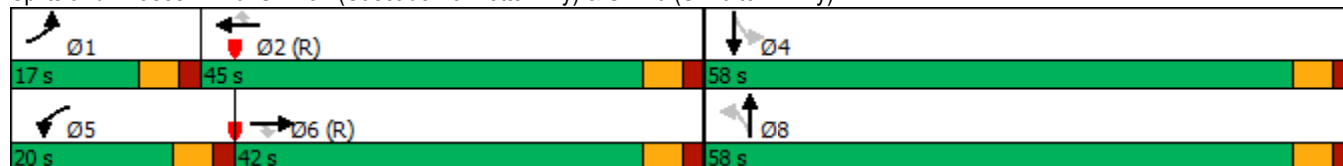
Offset: 8 (7%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	416	8	46	101	4	5	276	67	2	299	6
Future Volume (veh/h)	8	416	8	46	101	4	5	276	67	2	299	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	443	0	49	107	0	5	294	71	2	318	6
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	19	2128		63	2216		129	332	80	93	417	8
Arrive On Green	0.01	0.60	0.00	0.04	0.62	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1056	1456	352	1017	1830	35
Grp Volume(v), veh/h	9	443	0	49	107	0	5	0	365	2	0	324
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1056	0	1807	1017	0	1864
Q Serve(g_s), s	0.6	6.9	0.0	3.3	1.4	0.0	0.5	0.0	23.4	0.2	0.0	19.5
Cycle Q Clear(g_c), s	0.6	6.9	0.0	3.3	1.4	0.0	20.0	0.0	23.4	23.7	0.0	19.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		0.02
Lane Grp Cap(c), veh/h	19	2128		63	2216		129	0	412	93	0	425
V/C Ratio(X)	0.47	0.21		0.77	0.05		0.04	0.00	0.89	0.02	0.00	0.76
Avail Cap(c_a), veh/h	171	2128		215	2216		350	0	791	306	0	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	59.0	11.0	0.0	57.4	8.8	0.0	52.6	0.0	44.8	56.2	0.0	43.3
Incr Delay (d2), s/veh	16.6	0.2	0.0	17.7	0.0	0.0	0.1	0.0	6.5	0.1	0.0	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	0.6	4.4	0.0	3.1	0.9	0.0	0.3	0.0	16.0	0.1	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.6	11.3	0.0	75.0	8.8	0.0	52.7	0.0	51.3	56.3	0.0	46.1
LnGrp LOS	E	B		E	A		D	A	D	E	A	D
Approach Vol, veh/h	452			156			370			326		
Approach Delay, s/veh	12.5			29.6			51.3			46.2		
Approach LOS	B			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	80.3		32.9	9.8	77.3		32.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	39.5		52.5	14.5	36.5		52.5				
Max Q Clear Time (g_c+I1), s	2.6	3.4		25.7	5.3	8.9		25.4				
Green Ext Time (p_c), s	0.0	1.1		1.6	0.0	5.0		1.9				

Intersection Summary

HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

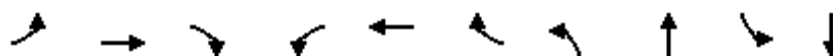
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗↗	↰	↰	↗↗	↰	↰	↗	↰	↗
Traffic Volume (vph)	31	798	43	150	406	96	34	124	182	184
Future Volume (vph)	31	798	43	150	406	96	34	124	182	184
Lane Group Flow (vph)	34	867	47	163	441	104	37	434	198	234
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	45.0	45.0	15.0	45.0	45.0	18.0	45.0	15.0	42.0
Total Split (%)	12.5%	37.5%	37.5%	12.5%	37.5%	37.5%	15.0%	37.5%	12.5%	35.0%
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	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
v/c Ratio	0.07	0.62	0.08	0.57	0.28	0.13	0.11	0.87	0.92	0.41
Control Delay	16.5	28.0	0.4	25.3	23.0	3.5	22.1	50.4	71.1	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	28.0	0.4	25.3	23.0	3.5	22.1	50.4	71.1	34.3
Queue Length 50th (ft)	11	212	0	63	116	0	18	255	105	146
Queue Length 95th (ft)	m31	291	0	#126	183	28	36	351	#214	207
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	497	1406	613	292	1572	811	390	621	216	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.62	0.08	0.56	0.28	0.13	0.09	0.70	0.92	0.40

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

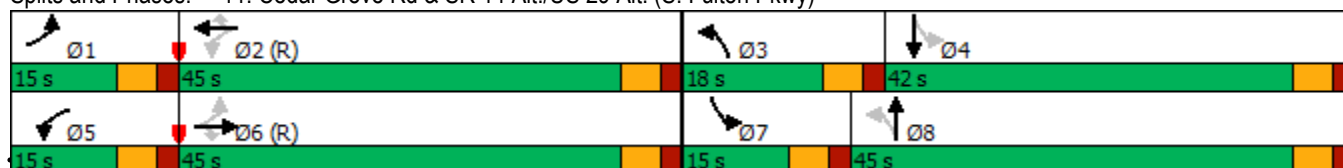
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	798	43	150	406	96	34	124	275	182	184	31
Future Volume (veh/h)	31	798	43	150	406	96	34	124	275	182	184	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	34	867	0	163	441	0	37	135	299	198	200	34
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	431	1375		306	1463		338	146	324	232	514	87
Arrive On Green	0.03	0.39	0.00	0.07	0.43	0.00	0.03	0.28	0.28	0.08	0.33	0.33
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	522	1155	1810	1558	265
Grp Volume(v), veh/h	34	867	0	163	441	0	37	0	434	198	0	234
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	0	1677	1810	0	1823
Q Serve(g_s), s	1.4	23.7	0.0	6.4	10.2	0.0	2.0	0.0	30.1	9.2	0.0	11.8
Cycle Q Clear(g_c), s	1.4	23.7	0.0	6.4	10.2	0.0	2.0	0.0	30.1	9.2	0.0	11.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.15
Lane Grp Cap(c), veh/h	431	1375		306	1463		338	0	470	232	0	602
V/C Ratio(X)	0.08	0.63		0.53	0.30		0.11	0.00	0.92	0.85	0.00	0.39
Avail Cap(c_a), veh/h	520	1375		322	1463		454	0	552	232	0	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	21.0	29.8	0.0	22.1	22.5	0.0	29.4	0.0	41.9	31.3	0.0	30.9
Incr Delay (d2), s/veh	0.1	2.2	0.0	1.5	0.5	0.0	0.1	0.0	19.5	25.4	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	1.0	15.0	0.0	4.6	7.0	0.0	1.3	0.0	20.7	9.3	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	32.0	0.0	23.7	23.0	0.0	29.6	0.0	61.4	56.7	0.0	31.3
LnGrp LOS	C	C		C	C		C	A	E	E	A	C
Approach Vol, veh/h	901				604				471			
Approach Delay, s/veh	31.6				23.2				58.9			
Approach LOS	C				C				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	57.0	9.0	45.1	13.9	51.9	15.0	39.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	39.5	12.5	36.5	9.5	39.5	9.5	39.5				
Max Q Clear Time (g_c+I1), s	3.4	12.2	4.0	13.8	8.4	25.7	11.2	32.1				
Green Ext Time (p_c), s	0.0	5.0	0.0	1.2	0.0	7.2	0.0	1.5				

Intersection Summary

HCM 6th Ctrl Delay 36.9
HCM 6th LOS D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	761	205	85	467	476	180	754	148	594	836	229
Future Volume (vph)	293	761	205	85	467	476	180	754	148	594	836	229
Lane Group Flow (vph)	318	827	223	92	508	517	196	820	161	646	909	249
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	20.0	48.5	48.5	15.0	43.5	43.5	29.0	53.5	53.5	33.0	57.5	57.5
Total Split (%)	13.3%	32.3%	32.3%	10.0%	29.0%	29.0%	19.3%	35.7%	35.7%	22.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.83	0.71	0.39	0.45	0.58	0.80	0.82	0.85	0.30	1.05	0.79	0.38
Control Delay	52.2	49.5	24.7	35.7	52.1	28.3	88.7	59.7	12.2	106.9	52.0	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	49.5	24.7	35.7	52.1	28.3	88.7	59.7	12.2	106.9	52.0	10.3
Queue Length 50th (ft)	216	378	93	54	230	179	186	399	27	~352	433	35
Queue Length 95th (ft)	#384	481	180	99	293	340	#291	456	82	#478	493	102
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	384	1160	575	212	879	644	269	1110	601	617	1226	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.71	0.39	0.43	0.58	0.80	0.73	0.74	0.27	1.05	0.74	0.36

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: 140

Control Type: Actuated-Coordinated

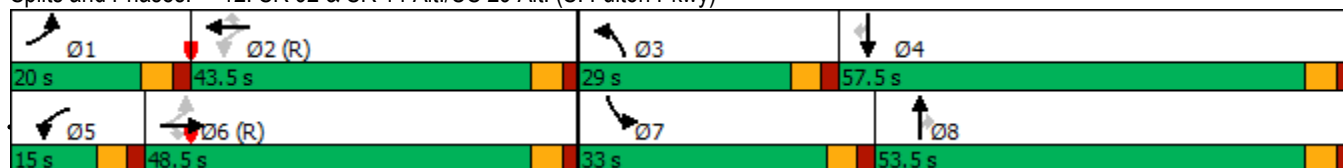
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	761	205	85	467	476	180	754	148	594	836	229
Future Volume (veh/h)	293	761	205	85	467	476	180	754	148	594	836	229
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1870	1841	1856	1841	1841	1826	1841	1900	1841	1870	1885
Adj Flow Rate, veh/h	318	827	223	92	508	517	196	820	0	646	909	249
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, %	1	2	4	3	4	4	5	4	0	4	2	1
Cap, veh/h	328	1271	558	219	1080	482	219	925		624	1145	515
Arrive On Green	0.10	0.36	0.36	0.05	0.31	0.31	0.13	0.26	0.00	0.18	0.32	0.32
Sat Flow, veh/h	1795	3554	1560	1767	3497	1560	1739	3497	1610	3401	3554	1598
Grp Volume(v), veh/h	318	827	223	92	508	517	196	820	0	646	909	249
Grp Sat Flow(s),veh/h/ln	1795	1777	1560	1767	1749	1560	1739	1749	1610	1700	1777	1598
Q Serve(g_s), s	14.5	29.2	16.1	5.3	17.6	46.3	16.7	33.8	0.0	27.5	34.9	18.8
Cycle Q Clear(g_c), s	14.5	29.2	16.1	5.3	17.6	46.3	16.7	33.8	0.0	27.5	34.9	18.8
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	328	1271	558	219	1080	482	219	925		624	1145	515
V/C Ratio(X)	0.97	0.65	0.40	0.42	0.47	1.07	0.90	0.89		1.04	0.79	0.48
Avail Cap(c_a), veh/h	328	1271	558	247	1080	482	272	1119		624	1232	554
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	40.3	36.1	34.7	41.9	51.8	64.6	53.0	0.0	61.2	46.3	40.8
Incr Delay (d2), s/veh	41.6	2.6	2.1	1.3	1.5	62.0	25.7	7.7	0.0	45.7	3.4	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	13.3	18.6	10.3	4.1	12.1	35.5	13.6	21.7	0.0	22.3	21.8	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	42.9	38.2	36.0	43.4	113.9	90.3	60.7	0.0	106.9	49.8	41.5
LnGrp LOS	F	D	D	D	D	F	F	E		F	D	D
Approach Vol, veh/h	1368			1117			1016			1804		
Approach Delay, s/veh	51.1			75.4			66.4			69.1		
Approach LOS	D			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	51.8	24.4	53.8	12.7	59.1	33.0	45.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	14.5	38.0	23.5	52.0	9.5	43.0	27.5	48.0				
Max Q Clear Time (g_c+I1), s	16.5	48.3	18.7	36.9	7.3	31.2	29.5	35.8				
Green Ext Time (p_c), s	0.0	0.0	0.2	5.6	0.0	7.2	0.0	3.9				

Intersection Summary

HCM 6th Ctrl Delay 65.3

HCM 6th LOS E

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	107	1298	88	144	774	48	53	50	104	94
Future Volume (vph)	107	1298	88	144	774	48	53	50	104	94
Lane Group Flow (vph)	110	1338	91	148	798	49	55	157	107	275
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	58.0	58.0	43.0	43.0	43.0	62.0	62.0	62.0	62.0
Total Split (%)	12.5%	48.3%	48.3%	35.8%	35.8%	35.8%	51.7%	51.7%	51.7%	51.7%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.25	0.51	0.08	0.60	0.36	0.05	0.90	0.60	0.73	0.78
Control Delay	6.5	7.6	2.5	32.6	15.7	3.4	136.6	49.9	73.4	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	7.6	2.5	32.6	15.7	3.4	136.6	49.9	73.4	44.1
Queue Length 50th (ft)	19	185	5	94	181	0	42	102	80	130
Queue Length 95th (ft)	48	321	25	m148	m336	m7	#101	157	132	207
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	450	2638	1195	245	2199	982	187	763	447	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.51	0.08	0.60	0.36	0.05	0.29	0.21	0.24	0.32

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 140

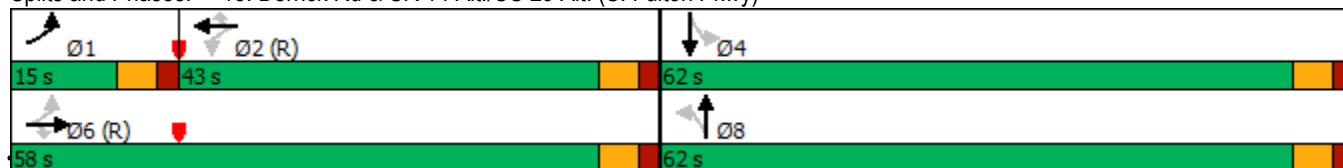
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	1298	88	144	774	48	53	50	102	104	94	173
Future Volume (veh/h)	107	1298	88	144	774	48	53	50	102	104	94	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	110	1338	91	148	798	49	55	52	105	107	97	178
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	402	2413	1076	246	2070	901	142	124	250	236	134	246
Arrive On Green	0.04	0.68	0.68	0.60	0.60	0.60	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1584	3526	1572	378	3469	1510	1104	553	1116	1230	600	1101
Grp Volume(v), veh/h	110	1338	91	148	798	49	55	0	157	107	0	275
Grp Sat Flow(s),veh/h/ln	1584	1763	1572	378	1735	1510	1104	0	1669	1230	0	1702
Q Serve(g_s), s	3.1	23.2	2.3	39.3	14.5	1.6	5.8	0.0	9.7	9.8	0.0	18.0
Cycle Q Clear(g_c), s	3.1	23.2	2.3	51.9	14.5	1.6	23.8	0.0	9.7	19.5	0.0	18.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.65
Lane Grp Cap(c), veh/h	402	2413	1076	246	2070	901	142	0	374	236	0	381
V/C Ratio(X)	0.27	0.55	0.08	0.60	0.39	0.05	0.39	0.00	0.42	0.45	0.00	0.72
Avail Cap(c_a), veh/h	461	2413	1076	246	2070	901	415	0	786	540	0	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	9.6	6.3	25.5	12.7	10.1	54.1	0.0	39.9	48.2	0.0	43.1
Incr Delay (d2), s/veh	0.4	0.9	0.2	10.5	0.5	0.1	1.7	0.0	0.8	1.4	0.0	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	1.7	11.8	1.2	7.0	8.7	0.9	3.0	0.0	7.1	5.4	0.0	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	10.5	6.5	36.0	13.2	10.2	55.9	0.0	40.7	49.6	0.0	45.7
LnGrp LOS	A	B	A	D	B	B	E	A	D	D	A	D
Approach Vol, veh/h	1539			995			212			382		
Approach Delay, s/veh	10.2			16.5			44.6			46.8		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	10.5	77.1	32.4		87.6		32.4					
Change Period (Y+Rc), s	5.5	5.5	5.5		5.5		5.5					
Max Green Setting (Gmax), s	9.5	37.5	56.5		52.5		56.5					
Max Q Clear Time (g_c+I1), s	5.1	53.9	21.5		25.2		25.8					
Green Ext Time (p_c), s	0.1	0.0	2.0		18.2		1.1					
Intersection Summary												
HCM 6th Ctrl Delay				19.0								
HCM 6th LOS				B								

Timings

2a. No-Build 2028 AM

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	109	1171	214	58	352	98	482	263	24	70	186
Future Volume (vph)	109	1171	214	58	352	98	482	263	24	70	186
Lane Group Flow (vph)	116	1246	228	62	374	104	513	280	26	74	345
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6			6	2			8			4
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	46.4	46.4	46.4	46.4	46.4	46.4	58.6	58.6	58.6	15.0	73.6
Total Split (%)	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%	48.8%	48.8%	48.8%	12.5%	61.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.40	1.03	0.39	0.95	0.33	0.18	1.04	0.32	0.03	0.13	0.34
Control Delay	42.3	79.8	27.5	149.0	34.1	12.8	84.6	22.2	0.1	12.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	79.8	27.5	149.0	34.1	12.8	84.6	22.2	0.1	12.4	12.8
Queue Length 50th (ft)	78	~562	100	33	88	0	~451	140	0	25	114
Queue Length 95th (ft)	142	#696	185	#136	193	75	#664	207	0	47	175
Internal Link Dist (ft)	2942				4520		1090				834
Turn Bay Length (ft)	255	120		240	115		105	160		80	
Base Capacity (vph)	293	1206	589	65	1118	592	493	874	760	567	1004
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	1.03	0.39	0.95	0.33	0.18	1.04	0.32	0.03	0.13	0.34

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 135

Control Type: Actuated-Coordinated

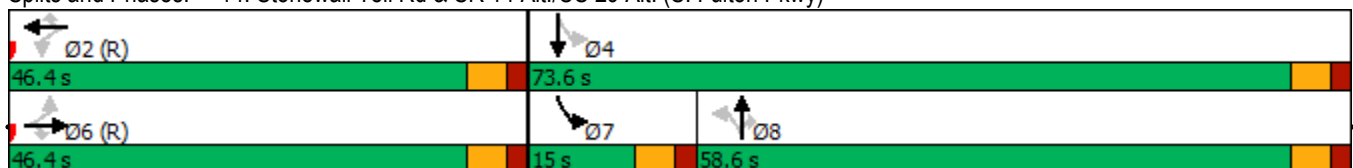
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



23-060 Merrill Park Chattahoochee Hills (DRI #4004)

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HCM 6th Signalized Intersection Summary
 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM

08/31/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	1171	214	58	352	98	482	263	24	70	186	138
Future Volume (veh/h)	109	1171	214	58	352	98	482	263	24	70	186	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	116	1246	228	62	374	104	513	280	0	74	198	147
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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	334	1357	596	78	1271	591	492	828		503	529	393
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.44	0.44	0.00	0.04	0.53	0.53
Sat Flow, veh/h	902	3554	1560	364	3328	1547	1052	1870	1547	1767	1005	746
Grp Volume(v), veh/h	116	1246	228	62	374	104	513	280	0	74	0	345
Grp Sat Flow(s),veh/h/ln	902	1777	1560	364	1664	1547	1052	1870	1547	1767	0	1751
Q Serve(g_s), s	12.3	40.1	12.7	5.8	9.4	5.3	49.2	11.8	0.0	2.6	0.0	13.9
Cycle Q Clear(g_c), s	21.7	40.1	12.7	45.8	9.4	5.3	53.1	11.8	0.0	2.6	0.0	13.9
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	334	1357	596	78	1271	591	492	828		503	0	922
V/C Ratio(X)	0.35	0.92	0.38	0.80	0.29	0.18	1.04	0.34		0.15	0.00	0.37
Avail Cap(c_a), veh/h	334	1357	596	78	1271	591	492	828		575	0	994
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	0.98	0.98	0.98	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	35.3	26.8	59.2	25.8	24.6	38.4	21.9	0.0	16.7	0.0	16.8
Incr Delay (d2), s/veh	2.8	11.4	1.9	56.0	0.6	0.6	52.4	0.2	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	25.0	8.6	5.4	6.5	3.5	30.5	8.8	0.0	1.9	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	46.7	28.7	115.2	26.4	25.2	90.8	22.2	0.0	16.8	0.0	17.0
LnGrp LOS	D	D	C	F	C	C	F	C		B	A	B
Approach Vol, veh/h	1590			540			793			419		
Approach Delay, s/veh	43.3			36.4			66.5			17.0		
Approach LOS	D			D			E			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	51.3			68.7			51.3			10.1		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	40.9			68.1			40.9			9.5		
Max Q Clear Time (g_c+I1), s	47.8			15.9			42.1			4.6		
Green Ext Time (p_c), s	0.0			2.2			0.0			0.0		

Intersection Summary

HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	67	1127	114	107	424	48	22	55	42	191	53
Future Volume (vph)	67	1127	114	107	424	48	22	55	42	191	53
Lane Group Flow (vph)	69	1162	118	110	437	49	0	80	43	197	129
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.11	0.58	0.12	0.39	0.22	0.06		0.24	0.16	0.76	0.32
Control Delay	9.4	34.7	17.4	11.4	12.7	1.8		38.7	3.4	62.1	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	9.4	34.7	17.4	11.4	12.7	1.8		38.7	3.4	62.1	19.1
Queue Length 50th (ft)	21	497	57	25	78	0		52	0	145	36
Queue Length 95th (ft)	m38	m493	m72	58	136	11		87	11	208	82
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	679	1996	949	298	2010	801		706	504	547	776
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.10	0.58	0.12	0.37	0.22	0.06		0.11	0.09	0.36	0.17

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

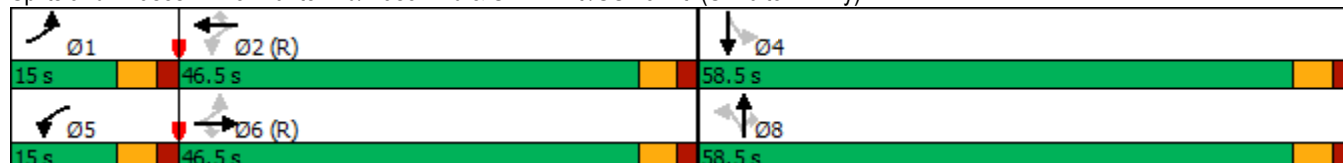
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

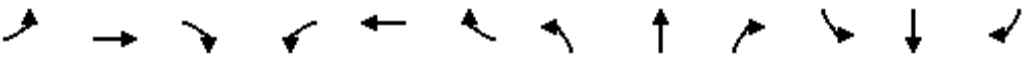
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2a. No-Build 2028 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1127	114	107	424	48	22	55	42	191	53	72
Future Volume (veh/h)	67	1127	114	107	424	48	22	55	42	191	53	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	69	1162	118	110	437	0	23	57	0	197	55	74
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	672	2169	991	296	2092		99	225		287	136	183
Arrive On Green	0.04	0.63	0.63	0.04	0.63	0.00	0.20	0.20	0.00	0.20	0.20	0.20
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	306	1145	932	1282	694	934
Grp Volume(v), veh/h	69	1162	118	110	437	0	80	0	0	197	0	129
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1451	0	932	1282	0	1628
Q Serve(g_s), s	1.6	22.6	3.6	2.9	6.7	0.0	0.2	0.0	0.0	11.8	0.0	8.3
Cycle Q Clear(g_c), s	1.6	22.6	3.6	2.9	6.7	0.0	8.5	0.0	0.0	20.2	0.0	8.3
Prop In Lane	1.00		1.00	1.00		1.00	0.29		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	672	2169	991	296	2092		324	0		287	0	320
V/C Ratio(X)	0.10	0.54	0.12	0.37	0.21		0.25	0.00		0.69	0.00	0.40
Avail Cap(c_a), veh/h	746	2169	991	358	2092		726	0		602	0	719
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)	0.17	0.17	0.17	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.3	12.7	9.1	10.2	9.5	0.0	40.5	0.0	0.0	47.6	0.0	42.1
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.8	0.2	0.0	0.4	0.0	0.0	2.9	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	9.3	1.8	1.6	3.9	0.0	3.6	0.0	0.0	9.7	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	12.8	9.1	10.9	9.8	0.0	40.9	0.0	0.0	50.5	0.0	42.9
LnGrp LOS	A	B	A	B	A		D	A		D	A	D
Approach Vol, veh/h	1349				547				80			
Approach Delay, s/veh	12.2				10.0				40.9			
Approach LOS	B				A				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	80.9		29.1	10.4	80.5		29.1				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.6	8.7		22.2	4.9	24.6		10.5				
Green Ext Time (p_c), s	0.0	5.2		1.3	0.1	11.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	48.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	47	854	918	802	187
Future Vol, veh/h	28	47	854	918	802	187
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	9	8	8	2	6	1
Mvmt Flow	31	52	938	1009	881	205
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	3262	441	881	0	-	0
Stage 1	881	-	-	-	-	-
Stage 2	2381	-	-	-	-	-
Critical Hdwy	6.98	7.06	4.26	-	-	-
Critical Hdwy Stg 1	5.98	-	-	-	-	-
Critical Hdwy Stg 2	5.98	-	-	-	-	-
Follow-up Hdwy	3.59	3.38	2.28	-	-	-
Pot Cap-1 Maneuver	~ 6	548	~ 726	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	548	~ 726	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s		77.5		0		
HCM LOS	-					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 726	-	-	548	-	-
HCM Lane V/C Ratio	1.293	-	-	0.094	-	-
HCM Control Delay (s)	160.8	-	-	12.3	-	-
HCM Lane LOS	F	-	-	B	-	-
HCM 95th %tile Q(veh)	36.3	-	-	0.3	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	13.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	162	475	20	910	532	98
Future Vol, veh/h	162	475	20	910	532	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	9	6	3	3	6
Mvmt Flow	174	511	22	978	572	105
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1158	339	677	0	-	0
Stage 1	625	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Critical Hdwy	6.84	7.08	4.22	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.39	2.26	-	-	-
Pot Cap-1 Maneuver	189	637	884	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	184	637	884	-	-	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	45.4	0.2		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	884	-	724	-	-	
HCM Lane V/C Ratio	0.024	-	0.946	-	-	
HCM Control Delay (s)	9.2	-	45.4	-	-	
HCM Lane LOS	A	-	E	-	-	
HCM 95th %tile Q(veh)	0.1	-	13.8	-	-	

Timings
1: I-85 NB Ramps & Collinsworth Rd

2b. No-Build 2028 PM
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	230	967	688	182	288	251
Future Volume (vph)	230	967	688	182	288	251
Lane Group Flow (vph)	242	1018	724	192	303	264
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	18.0	86.0	68.0	68.0	34.0	34.0
Total Split (%)	15.0%	71.7%	56.7%	56.7%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.62	0.41	0.71	0.20	0.84	0.60
Control Delay	24.1	3.6	25.8	3.0	66.4	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	3.6	25.8	3.0	66.4	23.9
Queue Length 50th (ft)	69	114	418	3	224	78
Queue Length 95th (ft)	m99	60	588	39	#325	164
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	394	2482	1017	939	412	481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.41	0.71	0.20	0.74	0.55

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary
1: I-85 NB Ramps & Collinsworth Rd

2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (veh/h)	230	967	0	0	688	182	288	0	251	0	0	0
Future Volume (veh/h)	230	967	0	0	688	182	288	0	251	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	242	1018	0	0	724	0	303	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	430	2553	0	0	1125		333	0				
Arrive On Green	0.02	0.24	0.00	0.00	0.61	0.00	0.19	0.00	0.00			
Sat Flow, veh/h	1753	3647	0	0	1856	1560	1753	0	1560			
Grp Volume(v), veh/h	242	1018	0	0	724	0	303	0	0			
Grp Sat Flow(s),veh/h/ln	1753	1777	0	0	1856	1560	1753	0	1560			
Q Serve(g_s), s	5.7	29.0	0.0	0.0	30.2	0.0	20.3	0.0	0.0			
Cycle Q Clear(g_c), s	5.7	29.0	0.0	0.0	30.2	0.0	20.3	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	430	2553	0	0	1125		333	0				
V/C Ratio(X)	0.56	0.40	0.00	0.00	0.64		0.91	0.00				
Avail Cap(c_a), veh/h	497	2553	0	0	1125		416	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.58	0.58	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	14.0	23.9	0.0	0.0	15.2	0.0	47.6	0.0	0.0			
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.0	2.8	0.0	20.7	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	3.6	18.3	0.0	0.0	17.3	0.0	16.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	24.2	0.0	0.0	18.1	0.0	68.2	0.0	0.0			
LnGrp LOS	B	C	A	A	B		E	A				
Approach Vol, veh/h	1260			724			303					
Approach Delay, s/veh	22.4			18.1			68.2					
Approach LOS	C			B			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	13.4	78.3					91.7	28.3				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	12.5	62.5					80.5	28.5				
Max Q Clear Time (g_c+I1), s	7.7	32.2					31.0	22.3				
Green Ext Time (p_c), s	0.3	9.8					16.7	0.5				

Intersection Summary

HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

2b. No-Build 2028 PM
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	338	436	365	634	871	276
Future Volume (vph)	338	436	365	634	871	276
Lane Group Flow (vph)	360	464	388	674	927	294
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	44.0	44.0	29.0	73.0	47.0	47.0
Total Split (%)	36.7%	36.7%	24.2%	60.8%	39.2%	39.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.49	0.52	0.67	0.61	0.85	0.46
Control Delay	34.1	9.0	18.6	20.4	47.3	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	9.0	18.6	20.4	47.3	10.1
Queue Length 50th (ft)	263	67	190	377	344	37
Queue Length 95th (ft)	m254	m82	268	497	406	106
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	739	896	622	1104	1211	686
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.52	0.62	0.61	0.77	0.43

Intersection Summary

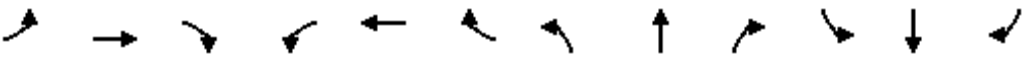
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 61 (51%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	338	436	365	634	0	0	0	0	871	0	276
Future Volume (veh/h)	0	338	436	365	634	0	0	0	0	871	0	276
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	360	0	388	674	0				927	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	810		612	1142	0				1028	0	
Arrive On Green	0.00	0.43	0.00	0.14	0.62	0.00				0.29	0.00	0.00
Sat Flow, veh/h	0	1870	1560	1795	1856	0				3510	0	1560
Grp Volume(v), veh/h	0	360	0	388	674	0				927	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1560	1795	1856	0				1755	0	1560
Q Serve(g_s), s	0.0	16.2	0.0	13.7	26.3	0.0				30.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	16.2	0.0	13.7	26.3	0.0				30.5	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	810		612	1142	0				1028	0	
V/C Ratio(X)	0.00	0.44		0.63	0.59	0.00				0.90	0.00	
Avail Cap(c_a), veh/h	0	810		718	1142	0				1214	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	0.81	0.00	0.58	0.58	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.9	0.0	15.3	13.9	0.0				40.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.8	1.3	0.0				8.5	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	0.0	10.9	0.0	7.7	13.7	0.0				20.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.3	0.0	16.1	15.2	0.0				49.3	0.0	0.0
LnGrp LOS	A	C		B	B	A				D	A	
Approach Vol, veh/h		360			1062						927	
Approach Delay, s/veh		25.3			15.6						49.3	
Approach LOS		C			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		79.4		40.6	21.9	57.5						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		67.5		41.5	23.5	38.5						
Max Q Clear Time (g_c+l1), s		28.3		32.5	15.7	18.2						
Green Ext Time (p_c), s		9.6		2.7	0.7	3.4						
Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

2b. No-Build 2028 PM
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↔	↔		↔	↔		↔
Traffic Volume (vph)	8	317	11	366	6	4	26	569	0
Future Volume (vph)	8	317	11	366	6	4	26	569	0
Lane Group Flow (vph)	0	365	12	849	0	11	29	0	650
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6	5	2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	49.0	49.0	15.0	64.0	56.0	56.0	56.0	56.0	56.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	46.7%	46.7%	46.7%	46.7%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5		5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	None
v/c Ratio		0.60	0.03	0.98		0.02	0.04		1.07
Control Delay		31.7	11.5	37.6		20.5	0.1		87.7
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		31.7	11.5	37.6		20.5	0.1		87.7
Queue Length 50th (ft)		192	2	551		5	0		~524
Queue Length 95th (ft)		347	m6	#855		16	0		#742
Internal Link Dist (ft)		914		947		293			729
Turn Bay Length (ft)			315						
Base Capacity (vph)		609	422	869		622	708		607
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.60	0.03	0.98		0.02	0.04		1.07

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

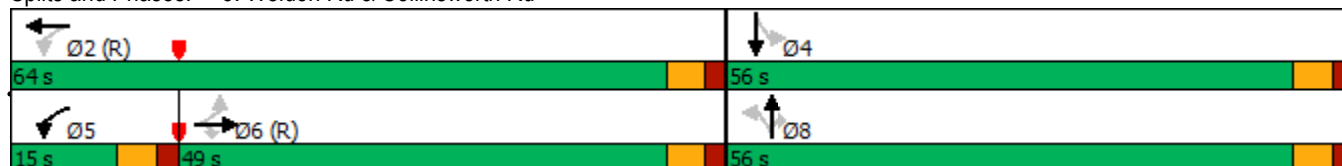
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

3: Weldon Rd & Collinsworth Rd

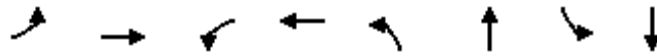
2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	317	0	11	366	390	6	4	26	569	0	10
Future Volume (veh/h)	8	317	0	11	366	390	6	4	26	569	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	356	0	12	411	438	7	4	29	639	0	11
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	521	678	151	404	430	524	289	667	625	0	10
Arrive On Green	0.43	0.43	0.00	0.02	0.81	0.81	0.42	0.42	0.42	0.42	0.00	0.42
Sat Flow, veh/h	0	1216	1585	1781	829	883	1127	687	1585	1345	0	23
Grp Volume(v), veh/h	365	0	0	12	0	849	11	0	29	650	0	0
Grp Sat Flow(s),veh/h/ln	1216	0	1585	1781	0	1711	1814	0	1585	1368	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	58.5	0.0	0.0	1.3	50.1	0.0	0.0
Cycle Q Clear(g_c), s	51.4	0.0	0.0	0.4	0.0	58.5	0.4	0.0	1.3	50.5	0.0	0.0
Prop In Lane	0.02		1.00	1.00		0.52	0.64		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	551	0	678	151	0	834	812	0	667	635	0	0
V/C Ratio(X)	0.66	0.00	0.00	0.08	0.00	1.02	0.01	0.00	0.04	1.02	0.00	0.00
Avail Cap(c_a), veh/h	551	0	678	267	0	834	812	0	667	635	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.80	0.00	0.80	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	0.0	0.0	17.6	0.0	11.2	20.2	0.0	20.5	37.3	0.0	0.0
Incr Delay (d2), s/veh	6.1	0.0	0.0	0.2	0.0	32.3	0.0	0.0	0.0	41.8	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.6	0.0	0.0	0.3	0.0	17.7	0.3	0.0	0.9	35.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	0.0	17.7	0.0	43.5	20.3	0.0	20.5	79.1	0.0	0.0
LnGrp LOS	D	A	A	B	A	F	C	A	C	F	A	A
Approach Vol, veh/h	365			861			40			650		
Approach Delay, s/veh	37.5			43.1			20.5			79.1		
Approach LOS	D			D			C			E		
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	64.0			56.0		7.1	56.9	56.0				
Change Period (Y+Rc), s	5.5			5.5		5.5	5.5	5.5				
Max Green Setting (Gmax), s	58.5			50.5		9.5	43.5	50.5				
Max Q Clear Time (g_c+I1), s	60.5			52.5		2.4	53.4	3.3				
Green Ext Time (p_c), s	0.0			0.0		0.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	53.8											
HCM 6th LOS	D											

Timings
4: SR 14/US 29 (Main St) & Toombs St

2b. No-Build 2028 PM

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	71	25	103	7	383	54	570
Future Volume (vph)	17	71	25	103	7	383	54	570
Lane Group Flow (vph)	0	111	0	194	0	453	0	704
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	32.0	32.0	32.0	32.0	88.0	88.0	88.0	88.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.47		0.73		0.34		0.56
Control Delay		50.0		60.5		6.0		8.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		50.0		60.5		6.0		8.9
Queue Length 50th (ft)		76		135		96		194
Queue Length 95th (ft)		127		203		176		357
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		347		388		1342		1255
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.32		0.50		0.34		0.56

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 59 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	17	71	12	25	103	47	7	383	17	54	570	10
Future Volume (veh/h)	17	71	12	25	103	47	7	383	17	54	570	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	19	79	13	28	114	52	8	426	19	60	633	11
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	58	179	27	57	145	61	39	1322	58	117	1206	20
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.78	0.78	0.78	0.78	0.78	0.78
Sat Flow, veh/h	175	1379	206	173	1117	472	10	1698	75	109	1549	26
Grp Volume(v), veh/h	111	0	0	194	0	0	453	0	0	704	0	0
Grp Sat Flow(s),veh/h/ln	1760	0	0	1763	0	0	1783	0	0	1685	0	0
Q Serve(g_s), s	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.7	0.0	0.0	12.8	0.0	0.0	9.0	0.0	0.0	17.2	0.0	0.0
Prop In Lane	0.17		0.12	0.14		0.27	0.02		0.04	0.09		0.02
Lane Grp Cap(c), veh/h	264	0	0	263	0	0	1419	0	0	1344	0	0
V/C Ratio(X)	0.42	0.00	0.00	0.74	0.00	0.00	0.32	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	419	0	0	419	0	0	1419	0	0	1344	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.3	0.0	0.0	50.9	0.0	0.0	3.9	0.0	0.0	4.9	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	4.0	0.0	0.0	0.6	0.0	0.0	1.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.7	0.0	0.0	10.0	0.0	0.0	5.6	0.0	0.0	10.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	0.0	0.0	54.9	0.0	0.0	4.5	0.0	0.0	6.3	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		111			194			453			704	
Approach Delay, s/veh		49.4			54.9			4.5			6.3	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		98.9		21.1		98.9		21.1				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		82.5		26.5		82.5		26.5				
Max Q Clear Time (g_c+I1), s		19.2		8.7		11.0		14.8				
Green Ext Time (p_c), s		14.6		0.5		7.4		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				15.5								
HCM 6th LOS				B								

Intersection

Intersection Delay, s/veh 9.8

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	67	38	256	200	28
Future Vol, veh/h	29	67	38	256	200	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	71	40	272	213	30
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.8	9.6	10.4
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	0%	88%
Vol Thru, %	70%	13%	0%
Vol Right, %	0%	87%	12%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	294	228
LT Vol	29	0	200
Through Vol	67	38	0
RT Vol	0	256	28
Lane Flow Rate	102	313	243
Geometry Grp	1	1	1
Degree of Util (X)	0.141	0.362	0.332
Departure Headway (Hd)	4.954	4.166	4.93
Convergence, Y/N	Yes	Yes	Yes
Cap	721	863	725
Service Time	3.003	2.2	2.984
HCM Lane V/C Ratio	0.141	0.363	0.335
HCM Control Delay	8.8	9.6	10.4
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1.7	1.5

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	143	194	58	32	16
Future Vol, veh/h	10	143	194	58	32	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	166	226	67	37	19
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	293	0	-	0	450	260
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	190	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1269	-	-	-	567	779
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1269	-	-	-	561	779
Mov Cap-2 Maneuver	-	-	-	-	561	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	842	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.5	0		11.4		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1269	-	-	-	619	
HCM Lane V/C Ratio	0.009	-	-	-	0.09	
HCM Control Delay (s)	7.9	0	-	-	11.4	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	70	50	8	17	64
Future Vol, veh/h	8	70	50	8	17	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	82	59	9	20	75
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	179	64	0	0	68	0
Stage 1	64	-	-	-	-	-
Stage 2	115	-	-	-	-	-
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	811	1000	-	-	1533	-
Stage 1	959	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	800	1000	-	-	1533	-
Mov Cap-2 Maneuver	800	-	-	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		1.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 975		1533	-	
HCM Lane V/C Ratio	-	- 0.094		0.013	-	
HCM Control Delay (s)	-	- 9.1		7.4	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.3		0	-	

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	157	43	16	682	2	88	14	17	6	19	4
Future Vol, veh/h	2	157	43	16	682	2	88	14	17	6	19	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	173	47	18	749	2	97	15	19	7	21	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	749	0	0	173	0	0	973	962	173	970	962	749
Stage 1	-	-	-	-	-	-	177	177	-	785	785	-
Stage 2	-	-	-	-	-	-	796	785	-	185	177	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	860	-	-	1404	-	-	231	256	871	233	256	412
Stage 1	-	-	-	-	-	-	825	753	-	386	404	-
Stage 2	-	-	-	-	-	-	380	404	-	817	753	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	860	-	-	1404	-	-	210	250	871	213	250	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	250	-	213	250	-
Stage 1	-	-	-	-	-	-	823	751	-	385	395	-
Stage 2	-	-	-	-	-	-	348	395	-	781	751	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			34			19.6		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	251	860	-	-	1404	-	-	278				
HCM Lane V/C Ratio	0.521	0.003	-	-	0.013	-	-	0.115				
HCM Control Delay (s)	34	9.2	0	-	7.6	0	-	19.6				
HCM Lane LOS	D	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	2.8	0	-	-	0	-	-	0.4				

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	106	35	11	578	20	112	20	0	6	6	0
Future Vol, veh/h	0	106	35	11	578	20	112	20	0	6	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	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	0	115	38	12	628	22	122	22	0	7	7	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	628	0	0	115	0	0	771	767	58	721	767	-
Stage 1	-	-	-	-	-	-	115	115	-	652	652	-
Stage 2	-	-	-	-	-	-	656	652	-	69	115	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	952	-	-	1473	-	-	303	332	996	328	332	0
Stage 1	-	-	-	-	-	-	878	800	-	456	463	0
Stage 2	-	-	-	-	-	-	454	463	-	933	800	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	952	-	-	1473	-	-	297	329	996	312	329	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	378	393	-	312	329	-
Stage 1	-	-	-	-	-	-	878	800	-	456	459	-
Stage 2	-	-	-	-	-	-	444	459	-	908	800	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			20.1					
HCM LOS							C			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	380	952	-	-	1473	-	-	312	-			
HCM Lane V/C Ratio	0.378	-	-	-	0.008	-	-	0.021	-			
HCM Control Delay (s)	20.1	0	-	-	7.5	-	-	16.8	-			
HCM Lane LOS	C	A	-	-	A	-	-	C	-			
HCM 95th %tile Q(veh)	1.7	0	-	-	0	-	-	0.1	-			

Timings

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

2b. No-Build 2028 PM

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	13	109	11	73	544	6	4	370	5	391
Future Volume (vph)	13	109	11	73	544	6	4	370	5	391
Lane Group Flow (vph)	14	114	11	76	567	6	4	441	5	417
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	16.0	39.0	39.0	21.0	44.0	44.0	60.0	60.0	60.0	60.0
Total Split (%)	13.3%	32.5%	32.5%	17.5%	36.7%	36.7%	50.0%	50.0%	50.0%	50.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.15	0.06	0.01	0.49	0.28	0.01	0.03	0.81	0.05	0.76
Control Delay	56.8	19.5	0.0	50.1	10.7	0.3	26.2	50.0	27.0	47.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	19.5	0.0	50.1	10.7	0.3	26.2	50.0	27.0	47.1
Queue Length 50th (ft)	11	24	0	31	3	0	2	311	3	293
Queue Length 95th (ft)	32	51	0	66	288	m0	10	383	12	361
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	154	1770	828	228	2016	933	190	834	163	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.01	0.33	0.28	0.01	0.02	0.53	0.03	0.49

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

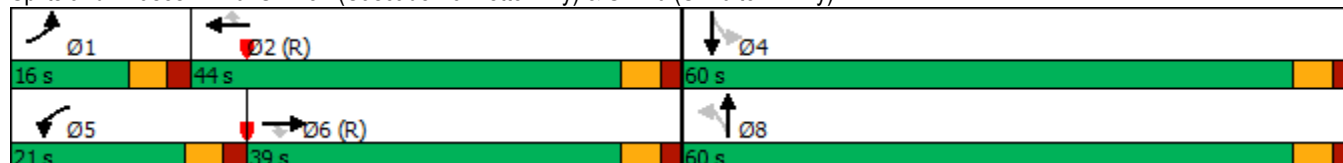
Offset: 8 (7%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	109	11	73	544	6	4	370	54	5	391	10
Future Volume (veh/h)	13	109	11	73	544	6	4	370	54	5	391	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	114	0	76	567	0	4	385	56	5	407	10
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	28	1906		97	2045		119	433	63	98	493	12
Arrive On Green	0.02	0.54	0.00	0.05	0.58	0.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	969	1596	232	948	1818	45
Grp Volume(v), veh/h	14	114	0	76	567	0	4	0	441	5	0	417
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	969	0	1829	948	0	1862
Q Serve(g_s), s	0.9	1.8	0.0	5.1	9.7	0.0	0.5	0.0	27.8	0.6	0.0	25.2
Cycle Q Clear(g_c), s	0.9	1.8	0.0	5.1	9.7	0.0	25.7	0.0	27.8	28.4	0.0	25.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.02
Lane Grp Cap(c), veh/h	28	1906		97	2045		119	0	496	98	0	505
V/C Ratio(X)	0.51	0.06		0.78	0.28		0.03	0.00	0.89	0.05	0.00	0.83
Avail Cap(c_a), veh/h	156	1906		230	2045		296	0	830	271	0	846
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	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	58.6	13.3	0.0	56.0	12.9	0.0	53.1	0.0	42.0	55.6	0.0	41.0
Incr Delay (d2), s/veh	13.6	0.1	0.0	12.5	0.3	0.0	0.1	0.0	6.8	0.2	0.0	3.5
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	0.9	1.2	0.0	4.5	6.3	0.0	0.2	0.0	18.6	0.3	0.0	16.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.2	13.4	0.0	68.5	13.2	0.0	53.2	0.0	48.7	55.8	0.0	44.5
LnGrp LOS	E	B		E	B		D	A	D	E	A	D
Approach Vol, veh/h	128			643			445			422		
Approach Delay, s/veh	19.8			19.7			48.8			44.7		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	74.6		38.1	12.1	69.9		38.1				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	10.5	38.5		54.5	15.5	33.5		54.5				
Max Q Clear Time (g_c+I1), s	2.9	11.7		30.4	7.1	3.8		29.8				
Green Ext Time (p_c), s	0.0	6.6		2.2	0.1	1.1		2.4				

Intersection Summary

HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	283	25	289	710	166	31	200	109	150
Future Volume (vph)	23	283	25	289	710	166	31	200	109	150
Lane Group Flow (vph)	25	308	27	314	772	180	34	457	118	181
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	23.0	44.0	44.0	15.0	36.0	36.0	15.0	46.0	15.0	46.0
Total Split (%)	19.2%	36.7%	36.7%	12.5%	30.0%	30.0%	12.5%	38.3%	12.5%	38.3%
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	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
v/c Ratio	0.08	0.25	0.04	0.58	0.49	0.22	0.08	0.88	0.52	0.29
Control Delay	21.2	29.9	0.9	25.7	27.4	5.3	20.1	54.8	30.2	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	29.9	0.9	25.7	27.4	5.3	20.1	54.8	30.2	29.9
Queue Length 50th (ft)	8	86	0	143	237	3	16	303	57	104
Queue Length 95th (ft)	m32	155	m0	235	333	53	33	408	88	157
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	462	1231	652	542	1591	814	482	621	229	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.25	0.04	0.58	0.49	0.22	0.07	0.74	0.52	0.28

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

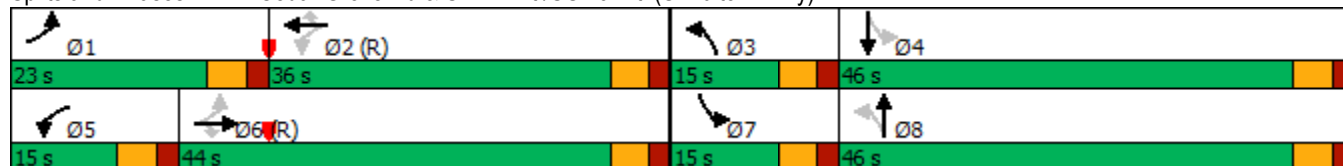
Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	283	25	289	710	166	31	200	221	109	150	17
Future Volume (veh/h)	23	283	25	289	710	166	31	200	221	109	150	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	25	308	0	314	772	0	34	217	240	118	163	18
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	309	1359		562	1591		414	235	260	199	539	60
Arrive On Green	0.02	0.39	0.00	0.08	0.44	0.00	0.03	0.29	0.29	0.06	0.32	0.32
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	818	905	1795	1681	186
Grp Volume(v), veh/h	25	308	0	314	772	0	34	0	457	118	0	181
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	0	1722	1795	0	1867
Q Serve(g_s), s	1.0	7.1	0.0	9.5	18.3	0.0	1.6	0.0	30.9	5.5	0.0	8.8
Cycle Q Clear(g_c), s	1.0	7.1	0.0	9.5	18.3	0.0	1.6	0.0	30.9	5.5	0.0	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		0.10
Lane Grp Cap(c), veh/h	309	1359		562	1591		414	0	495	199	0	598
V/C Ratio(X)	0.08	0.23		0.56	0.49		0.08	0.00	0.92	0.59	0.00	0.30
Avail Cap(c_a), veh/h	531	1359		562	1591		506	0	581	231	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	21.6	24.6	0.0	21.8	23.6	0.0	28.7	0.0	41.5	31.6	0.0	30.7
Incr Delay (d2), s/veh	0.1	0.4	0.0	1.2	1.1	0.0	0.1	0.0	18.8	3.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	5.1	0.0	2.8	11.8	0.0	1.2	0.0	21.5	4.4	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	25.0	0.0	23.0	24.7	0.0	28.8	0.0	60.2	34.6	0.0	30.9
LnGrp LOS	C	C		C	C		C	A	E	C	A	C
Approach Vol, veh/h		333			1086			491			299	
Approach Delay, s/veh		24.7			24.2			58.0			32.4	
Approach LOS		C			C			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	58.8	8.9	44.0	15.0	52.1	12.9	40.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	17.5	30.5	9.5	40.5	9.5	38.5	9.5	40.5				
Max Q Clear Time (g_c+I1), s	3.0	20.3	3.6	10.8	11.5	9.1	7.5	32.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.9	0.0	3.4	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	258	158	193	773	702	90	931	40	457	646	143
Future Volume (vph)	259	258	158	193	773	702	90	931	40	457	646	143
Lane Group Flow (vph)	267	266	163	199	797	724	93	960	41	471	666	147
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	15.0	53.5	53.5	16.0	54.5	54.5	18.0	53.5	53.5	27.0	62.5	62.5
Total Split (%)	10.0%	35.7%	35.7%	10.7%	36.3%	36.3%	12.0%	35.7%	35.7%	18.0%	41.7%	41.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.09	0.24	0.26	0.43	0.68	1.06	0.69	0.90	0.07	1.02	0.54	0.22
Control Delay	116.6	37.6	6.0	31.2	47.4	82.0	92.7	62.1	0.2	107.9	38.9	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.6	37.6	6.0	31.2	47.4	82.0	92.7	62.1	0.2	107.9	38.9	5.1
Queue Length 50th (ft)	~218	101	0	125	356	~596	90	464	0	~245	265	0
Queue Length 95th (ft)	#410	140	53	187	432	#849	#161	554	0	#364	328	47
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	245	1127	633	464	1167	684	148	1121	581	464	1258	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.24	0.26	0.43	0.68	1.06	0.63	0.86	0.07	1.02	0.53	0.21

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: 150

Control Type: Actuated-Coordinated

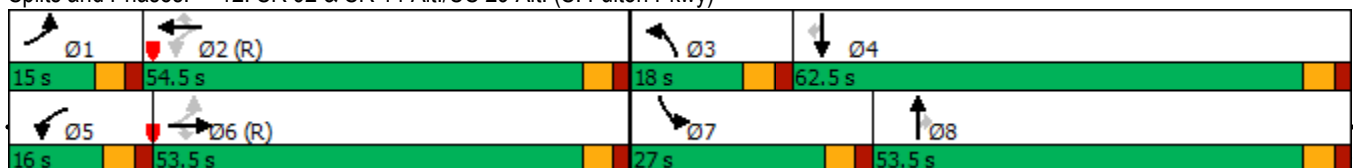
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



23-060 Merrill Park Chattahoochee Hills (DRI #4004)

HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	258	158	193	773	702	90	931	40	457	646	143
Future Volume (veh/h)	259	258	158	193	773	702	90	931	40	457	646	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1811	1870	1841	1885	1856	1885	1856	1811	1781	1767	1856
Adj Flow Rate, veh/h	267	266	163	199	797	724	93	960	0	471	666	147
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, %	1	6	2	4	1	3	1	3	6	8	9	3
Cap, veh/h	218	1181	544	443	1253	550	114	1046		472	1265	592
Arrive On Green	0.06	0.34	0.34	0.07	0.35	0.35	0.06	0.30	0.00	0.14	0.38	0.38
Sat Flow, veh/h	1795	3441	1585	1753	3582	1572	1795	3526	1535	3291	3357	1572
Grp Volume(v), veh/h	267	266	163	199	797	724	93	960	0	471	666	147
Grp Sat Flow(s),veh/h/ln	1795	1721	1585	1753	1791	1572	1795	1763	1535	1646	1678	1572
Q Serve(g_s), s	9.5	8.3	11.3	10.5	27.9	52.5	7.7	39.5	0.0	21.5	23.1	9.6
Cycle Q Clear(g_c), s	9.5	8.3	11.3	10.5	27.9	52.5	7.7	39.5	0.0	21.5	23.1	9.6
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	218	1181	544	443	1253	550	114	1046		472	1265	592
V/C Ratio(X)	1.22	0.23	0.30	0.45	0.64	1.32	0.82	0.92		1.00	0.53	0.25
Avail Cap(c_a), veh/h	218	1181	544	443	1253	550	150	1128		472	1275	598
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	35.1	36.1	29.9	40.8	48.8	69.4	51.0	0.0	64.2	36.3	32.1
Incr Delay (d2), s/veh	134.2	0.4	1.4	0.7	2.5	154.8	22.5	11.2	0.0	41.0	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.4	6.2	7.9	8.2	18.0	63.6	7.5	25.3	0.0	16.9	14.2	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	176.7	35.5	37.5	30.6	43.3	203.5	91.9	62.2	0.0	105.2	36.7	32.4
LnGrp LOS	F	D	D	C	D	F	F	E		F	D	C
Approach Vol, veh/h	696			1720			1053			1284		
Approach Delay, s/veh	90.1			109.3			64.8			61.4		
Approach LOS	F			F			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	58.0	15.0	62.0	16.0	57.0	27.0	50.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	49.0	12.5	57.0	10.5	48.0	21.5	48.0				
Max Q Clear Time (g_c+I1), s	11.5	54.5	9.7	25.1	12.5	13.3	23.5	41.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.7	0.0	4.4	0.0	3.1				

Intersection Summary

HCM 6th Ctrl Delay 83.7
HCM 6th LOS F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	67	692	46	126	1584	120	62	47	65	97
Future Volume (vph)	67	692	46	126	1584	120	62	47	65	97
Lane Group Flow (vph)	68	706	47	129	1616	122	63	119	66	222
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	59.0	59.0	44.0	44.0	44.0	61.0	61.0	61.0	61.0
Total Split (%)	12.5%	49.2%	49.2%	36.7%	36.7%	36.7%	50.8%	50.8%	50.8%	50.8%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.31	0.26	0.04	0.26	0.67	0.11	0.85	0.40	0.42	0.74
Control Delay	8.0	4.8	1.5	5.8	7.2	1.0	119.0	23.6	53.6	47.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	4.8	1.5	5.8	7.2	1.0	119.0	23.6	53.6	47.9
Queue Length 50th (ft)	11	70	0	20	164	1	48	33	47	115
Queue Length 95th (ft)	28	122	11	m31	m202	m6	#108	84	87	188
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	250	2671	1253	498	2424	1097	247	823	522	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.26	0.04	0.26	0.67	0.11	0.26	0.14	0.13	0.26

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 130

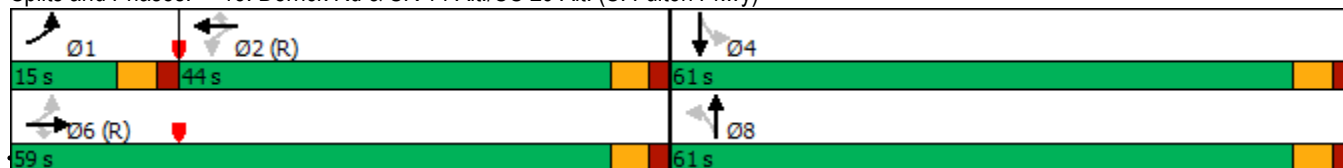
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	692	46	126	1584	120	62	47	70	65	97	121
Future Volume (veh/h)	67	692	46	126	1584	120	62	47	70	65	97	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	68	706	47	129	1616	122	63	48	71	66	99	123
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	212	2496	1149	515	2240	991	150	130	192	228	150	186
Arrive On Green	0.04	0.71	0.71	0.63	0.63	0.63	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1739	3497	1610	721	3554	1572	1177	665	984	1273	770	957
Grp Volume(v), veh/h	68	706	47	129	1616	122	63	0	119	66	0	222
Grp Sat Flow(s),veh/h/ln	1739	1749	1610	721	1777	1572	1177	0	1649	1273	0	1728
Q Serve(g_s), s	1.5	8.7	1.0	9.7	37.0	3.7	6.3	0.0	7.5	5.7	0.0	14.2
Cycle Q Clear(g_c), s	1.5	8.7	1.0	9.7	37.0	3.7	20.5	0.0	7.5	13.2	0.0	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.55
Lane Grp Cap(c), veh/h	212	2496	1149	515	2240	991	150	0	321	228	0	336
V/C Ratio(X)	0.32	0.28	0.04	0.25	0.72	0.12	0.42	0.00	0.37	0.29	0.00	0.66
Avail Cap(c_a), veh/h	285	2496	1149	515	2240	991	465	0	763	569	0	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	6.2	5.1	10.0	15.0	8.9	54.1	0.0	41.9	47.7	0.0	44.6
Incr Delay (d2), s/veh	0.9	0.3	0.1	1.2	2.0	0.3	1.9	0.0	0.7	0.7	0.0	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	1.2	4.6	0.5	2.7	18.9	2.1	3.4	0.0	5.5	3.3	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	6.5	5.1	11.1	17.1	9.1	56.0	0.0	42.6	48.4	0.0	46.8
LnGrp LOS	B	A	A	B	B	A	E	A	D	D	A	D
Approach Vol, veh/h	821			1867			182			288		
Approach Delay, s/veh	7.1			16.2			47.3			47.2		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	81.1		28.9		91.1		28.9				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	38.5		55.5		53.5		55.5				
Max Q Clear Time (g_c+I1), s	3.5	39.0		16.2		10.7		22.5				
Green Ext Time (p_c), s	0.0	0.0		1.5		10.3		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				18.4								
HCM 6th LOS				B								

Timings

2b. No-Build 2028 PM

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	106	271	401	25	1331	58	317	234	54	44	154
Future Volume (vph)	106	271	401	25	1331	58	317	234	54	44	154
Lane Group Flow (vph)	112	285	422	26	1401	61	334	246	57	46	345
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	57.5	57.5	57.5	57.5	57.5	57.5	47.5	47.5	47.5	15.0	62.5
Total Split (%)	47.9%	47.9%	47.9%	47.9%	47.9%	47.9%	39.6%	39.6%	39.6%	12.5%	52.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	1.81	0.19	0.44	0.05	0.83	0.08	0.95	0.38	0.10	0.10	0.45
Control Delay	440.7	24.7	9.0	27.4	32.4	10.1	76.1	31.1	4.2	17.7	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	440.7	24.7	9.0	27.4	32.4	10.1	76.1	31.1	4.2	17.7	23.6
Queue Length 50th (ft)	~127	62	1	9	260	0	245	139	0	19	164
Queue Length 95th (ft)	#247	133	168	m25	487	m31	#441	214	21	40	241
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	62	1513	970	506	1679	790	358	666	602	453	824
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.81	0.19	0.44	0.05	0.83	0.08	0.93	0.37	0.09	0.10	0.42

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

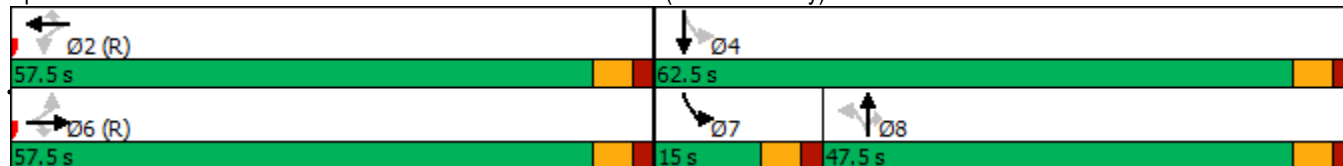
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	271	401	25	1331	58	317	234	54	44	154	174
Future Volume (veh/h)	106	271	401	25	1331	58	317	234	54	44	154	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	112	285	422	26	1401	61	334	246	0	46	162	183
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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	114	1584	767	384	1732	773	348	655		409	346	391
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.35	0.35	0.00	0.03	0.43	0.43
Sat Flow, veh/h	363	3300	1598	753	3610	1610	1011	1870	1560	1810	808	913
Grp Volume(v), veh/h	112	285	422	26	1401	61	334	246	0	46	0	345
Grp Sat Flow(s),veh/h/ln	363	1650	1598	753	1805	1610	1011	1870	1560	1810	0	1721
Q Serve(g_s), s	18.0	5.9	22.4	2.4	39.6	2.5	34.2	11.8	0.0	1.9	0.0	17.2
Cycle Q Clear(g_c), s	57.6	5.9	22.4	8.3	39.6	2.5	42.0	11.8	0.0	1.9	0.0	17.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	114	1584	767	384	1732	773	348	655		409	0	737
V/C Ratio(X)	0.98	0.18	0.55	0.07	0.81	0.08	0.96	0.38		0.11	0.00	0.47
Avail Cap(c_a), veh/h	114	1584	767	384	1732	773	348	655		493	0	817
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	0.76	0.76	0.76	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.6	17.8	22.1	20.1	26.5	16.9	45.2	29.2	0.0	23.0	0.0	24.5
Incr Delay (d2), s/veh	78.6	0.2	2.8	0.3	3.2	0.2	37.3	0.4	0.0	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.7	3.8	13.4	0.8	21.8	1.6	19.7	9.0	0.0	1.4	0.0	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.3	18.0	24.9	20.4	29.8	17.0	82.5	29.5	0.0	23.2	0.0	25.0
LnGrp LOS	F	B	C	C	C	B	F	C		C	A	C
Approach Vol, veh/h	819				1488				580			
Approach Delay, s/veh	37.5				29.1				60.1			
Approach LOS	D				C				E			
Timer - Assigned Phs	2			4		6		7	8			
Phs Duration (G+Y+Rc), s	63.1			56.9		63.1		9.4	47.5			
Change Period (Y+Rc), s	5.5			5.5		5.5		5.5	5.5			
Max Green Setting (Gmax), s	52.0			57.0		52.0		9.5	42.0			
Max Q Clear Time (g_c+I1), s	41.6			19.2		59.6		3.9	44.0			
Green Ext Time (p_c), s	8.6			2.2		0.0		0.0	0.0			

Intersection Summary

HCM 6th Ctrl Delay 36.1

HCM 6th LOS D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM
08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	44	206	131	103	1307	41	28	73	104	150	62
Future Volume (vph)	44	206	131	103	1307	41	28	73	104	150	62
Lane Group Flow (vph)	46	217	138	108	1376	43	0	106	109	158	139
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.19	0.11	0.14	0.15	0.61	0.05		0.37	0.28	0.76	0.38
Control Delay	13.8	20.3	14.3	6.8	16.4	1.1		44.2	8.4	67.6	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	13.8	20.3	14.3	6.8	16.4	1.1		44.2	8.4	67.6	24.9
Queue Length 50th (ft)	18	57	37	22	324	0		72	0	117	52
Queue Length 95th (ft)	56	109	103	54	506	7		115	44	177	101
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	279	1951	1022	725	2258	857		672	760	488	786
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.16	0.11	0.14	0.15	0.61	0.05		0.16	0.14	0.32	0.18

Intersection Summary

Cycle Length: 120

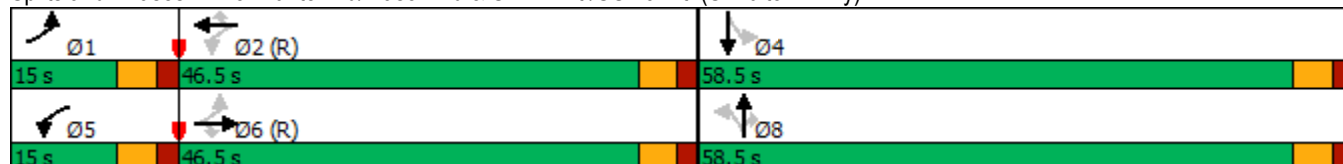
Actuated Cycle Length: 120

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

Natural Cycle: 130

Control Type: Actuated-Coordinated

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2b. No-Build 2028 PM

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	206	131	103	1307	41	28	73	104	150	62	70
Future Volume (veh/h)	44	206	131	103	1307	41	28	73	104	150	62	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	46	217	138	108	1376	0	29	77	0	158	65	74
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	272	2077	1014	674	2284		86	201		247	152	173
Arrive On Green	0.03	0.63	0.63	0.04	0.64	0.00	0.19	0.19	0.00	0.19	0.19	0.19
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	256	1072	1585	1186	811	923
Grp Volume(v), veh/h	46	217	138	108	1376	0	106	0	0	158	0	139
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1327	0	1585	1186	0	1734
Q Serve(g_s), s	1.1	3.1	4.1	2.9	27.1	0.0	1.7	0.0	0.0	8.9	0.0	8.5
Cycle Q Clear(g_c), s	1.1	3.1	4.1	2.9	27.1	0.0	10.2	0.0	0.0	19.1	0.0	8.5
Prop In Lane	1.00		1.00	1.00		1.00	0.27		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	272	2077	1014	674	2284		287	0		247	0	324
V/C Ratio(X)	0.17	0.10	0.14	0.16	0.60		0.37	0.00		0.64	0.00	0.43
Avail Cap(c_a), veh/h	351	2077	1014	735	2284		669	0		548	0	766
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	0.99	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.1	8.6	8.8	6.8	12.5	0.0	42.9	0.0	0.0	48.4	0.0	43.1
Incr Delay (d2), s/veh	0.3	0.1	0.3	0.1	1.2	0.0	0.8	0.0	0.0	2.8	0.0	0.9
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	0.6	1.8	2.4	1.5	14.3	0.0	5.1	0.0	0.0	8.2	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.4	8.7	9.0	6.9	13.7	0.0	43.7	0.0	0.0	51.2	0.0	44.0
LnGrp LOS	B	A	A	A	B		D	A		D	A	D
Approach Vol, veh/h	401			1484			106			297		
Approach Delay, s/veh	9.0			13.2			43.7			47.8		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	82.6		28.0	10.4	81.7		28.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.1	29.1		21.1	4.9	6.1		12.2				
Green Ext Time (p_c), s	0.0	9.4		1.3	0.1	3.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay 18.4

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection							
Int Delay, s/veh	43.6						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Vol, veh/h	29	62	517	642	1591	164	
Future Vol, veh/h	29	62	517	642	1591	164	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	Yield	-	None	-	Yield	
Storage Length	0	170	395	-	-	0	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	95	95	95	95	95	95	
Heavy Vehicles, %	4	2	4	1	3	2	
Mvmt Flow	31	65	544	676	1675	173	
Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	3101	838	1675	0	-	0	
Stage 1	1675	-	-	-	-	-	
Stage 2	1426	-	-	-	-	-	
Critical Hdwy	6.88	6.94	4.18	-	-	-	
Critical Hdwy Stg 1	5.88	-	-	-	-	-	
Critical Hdwy Stg 2	5.88	-	-	-	-	-	
Follow-up Hdwy	3.54	3.32	2.24	-	-	-	
Pot Cap-1 Maneuver	~ 9	309	~ 370	-	-	-	
Stage 1	135	-	-	-	-	-	
Stage 2	184	-	-	-	-	-	
Platoon blocked, %				-	-	-	
Mov Cap-1 Maneuver	0	309	~ 370	-	-	-	
Mov Cap-2 Maneuver	0	-	-	-	-	-	
Stage 1	0	-	-	-	-	-	
Stage 2	184	-	-	-	-	-	
Approach	EB		NB		SB		
HCM Control Delay, s			113.1		0		
HCM LOS	-						
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 370		-	-	309	-	-
HCM Lane V/C Ratio	1.471		-	-	0.211	-	-
HCM Control Delay (s)	253.6		-	-	19.7	-	-
HCM Lane LOS	F		-	-	C	-	-
HCM 95th %tile Q(veh)	28.9		-	-	0.8	-	-
Notes							
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon	

Intersection						
Int Delay, s/veh	257.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	898	37	634	858	145
Future Vol, veh/h	65	898	37	634	858	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	5	0	1	1	3
Mvmt Flow	69	955	39	674	913	154
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1405	534	1067	0	-	0
Stage 1	990	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	6.88	7	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.35	2.2	-	-	-
Pot Cap-1 Maneuver	128	~ 483	661	-	-	-
Stage 1	316	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	120	~ 483	661	-	-	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	297	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s\$	705.3		0.6		0	
HCM LOS	F					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	661		-	409	-	-
HCM Lane V/C Ratio	0.06		-	2.505	-	-
HCM Control Delay (s)	10.8		-\$ 705.3		-	-
HCM Lane LOS	B		-	F	-	-
HCM 95th %tile Q(veh)	0.2		-	81.6	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

**Future 2028 “No-Build” Intersection Analysis
with Improvements**

Timings
1: I-85 NB Ramps & Collinsworth Rd

2c. No-Build 2028 AM - Improved
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	421	526	522	758	343	421
Future Volume (vph)	421	526	522	758	343	421
Lane Group Flow (vph)	448	560	555	806	365	448
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	30.0	83.0	53.0	53.0	37.0	37.0
Total Split (%)	25.0%	69.2%	44.2%	44.2%	30.8%	30.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.88	0.24	0.73	0.78	0.89	0.70
Control Delay	37.3	6.6	36.9	11.1	67.6	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	6.6	36.9	11.1	67.6	15.4
Queue Length 50th (ft)	164	53	371	64	266	57
Queue Length 95th (ft)	#376	63	518	267	#418	179
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	519	2337	759	1037	447	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.24	0.73	0.78	0.82	0.68

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 105 (88%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

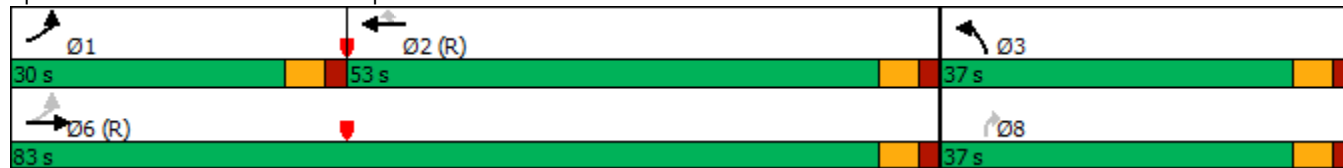
Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

2c. No-Build 2028 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	421	526	0	0	522	758	343	0	421	0	0	0
Future Volume (veh/h)	421	526	0	0	522	758	343	0	421	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	448	560	0	0	555	0	365	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	542	2398	0	0	838		394	0				
Arrive On Green	0.34	1.00	0.00	0.00	0.46	0.00	0.23	0.00	0.00			
Sat Flow, veh/h	1725	3618	0	0	1811	1535	1725	0	1535			
Grp Volume(v), veh/h	448	560	0	0	555	0	365	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1763	0	0	1811	1535	1725	0	1535			
Q Serve(g_s), s	18.0	0.0	0.0	0.0	28.5	0.0	24.9	0.0	0.0			
Cycle Q Clear(g_c), s	18.0	0.0	0.0	0.0	28.5	0.0	24.9	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	542	2398	0	0	838		394	0				
V/C Ratio(X)	0.83	0.23	0.00	0.00	0.66		0.93	0.00				
Avail Cap(c_a), veh/h	599	2398	0	0	838		453	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.70	0.70	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	13.7	0.0	0.0	0.0	25.0	0.0	45.3	0.0	0.0			
Incr Delay (d2), s/veh	6.2	0.2	0.0	0.0	4.1	0.0	23.6	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	7.2	0.1	0.0	0.0	17.8	0.0	19.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	0.2	0.0	0.0	29.1	0.0	68.9	0.0	0.0			
LnGrp LOS	B	A	A	A	C		E	A				
Approach Vol, veh/h	1008			555			365					
Approach Delay, s/veh	8.9			29.1			68.9					
Approach LOS	A			C			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	26.1	61.0					87.1	32.9				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	24.5	47.5					77.5	31.5				
Max Q Clear Time (g_c+I1), s	20.0	30.5					2.0	26.9				
Green Ext Time (p_c), s	0.6	5.3					7.7	0.5				

Intersection Summary

HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
2: I-85 SB Ramps & Collinsworth Rd

2c. No-Build 2028 AM - Improved

08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	812	247	234	677	170	193
Future Volume (vph)	812	247	234	677	170	193
Lane Group Flow (vph)	855	260	246	713	179	203
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	77.0	77.0	20.0	97.0	23.0	23.0
Total Split (%)	64.2%	64.2%	16.7%	80.8%	19.2%	19.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.69	0.24	0.58	0.49	0.55	0.63
Control Delay	13.6	1.3	10.7	5.6	57.7	15.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	13.6	1.3	10.7	5.8	57.7	15.7
Queue Length 50th (ft)	314	4	41	60	69	0
Queue Length 95th (ft)	560	m14	m102	429	104	72
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	1247	1086	477	1451	481	383
Starvation Cap Reductn	0	0	0	183	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.24	0.52	0.56	0.37	0.53

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 75 (63%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

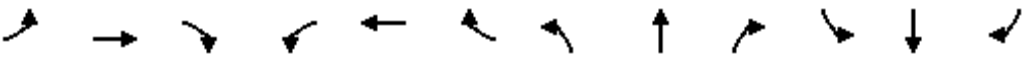
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



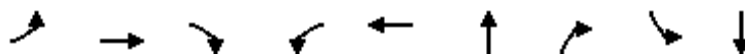
HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

2c. No-Build 2028 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	812	247	234	677	0	0	0	0	170	0	193
Future Volume (veh/h)	0	812	247	234	677	0	0	0	0	170	0	193
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	855	0	246	713	0				179	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	1365		612	1515	0				241	0	
Arrive On Green	0.00	0.98	0.00	0.11	1.00	0.00				0.07	0.00	0.00
Sat Flow, veh/h	0	1856	1497	1767	1811	0				3346	0	1459
Grp Volume(v), veh/h	0	855	0	246	713	0				179	0	0
Grp Sat Flow(s),veh/h/ln	0	1856	1497	1767	1811	0				1673	0	1459
Q Serve(g_s), s	0.0	3.1	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.1	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1365		612	1515	0				241	0	
V/C Ratio(X)	0.00	0.63		0.40	0.47	0.00				0.74	0.00	
Avail Cap(c_a), veh/h	0	1365		728	1515	0				488	0	
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.83	0.00	0.51	0.51	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.4	0.0	2.6	0.0	0.0				54.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.0	0.2	0.5	0.0				4.5	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	0.0	1.9	0.0	1.2	0.4	0.0				5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.2	0.0	2.9	0.5	0.0				59.1	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		855			959						179	
Approach Delay, s/veh		2.2			1.1						59.1	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.9		14.1	12.1	93.7						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		91.5		17.5	14.5	71.5						
Max Q Clear Time (g_c+I1), s		2.0		8.3	6.2	5.1						
Green Ext Time (p_c), s		11.8		0.4	0.4	16.2						
Intersection Summary												
HCM 6th Ctrl Delay			6.8									
HCM 6th LOS			A									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

2c. No-Build 2028 AM - Improved
08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations		↰	↱	↰	↱	↰	↱		↕
Traffic Volume (vph)	24	386	4	36	178	1	7	467	4
Future Volume (vph)	24	386	4	36	178	1	7	467	4
Lane Group Flow (vph)	0	427	4	38	539	1	7	0	498
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases		6		5	2	8			4
Permitted Phases	6		6	2			8	4	
Detector Phase	6	6	6	5	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	46.0	46.0	46.0	15.0	61.0	59.0	59.0	59.0	59.0
Total Split (%)	38.3%	38.3%	38.3%	12.5%	50.8%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None
v/c Ratio		0.55	0.01	0.10	0.60	0.00	0.01		0.91
Control Delay		31.3	0.0	12.8	13.6	19.0	0.0		55.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		31.3	0.0	12.8	13.6	19.0	0.0		55.3
Queue Length 50th (ft)		266	0	10	197	0	0		345
Queue Length 95th (ft)		403	0	m29	320	4	0		#525
Internal Link Dist (ft)		914			947	293			729
Turn Bay Length (ft)			365	315					
Base Capacity (vph)		780	737	391	901	830	746		606
Starvation Cap Reductn		0	0	0	0	0	0		0
Spillback Cap Reductn		0	0	0	0	0	0		0
Storage Cap Reductn		0	0	0	0	0	0		0
Reduced v/c Ratio		0.55	0.01	0.10	0.60	0.00	0.01		0.82

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 48 (40%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 90

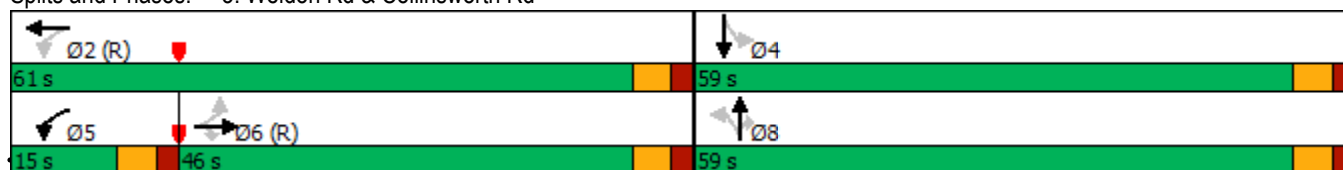
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

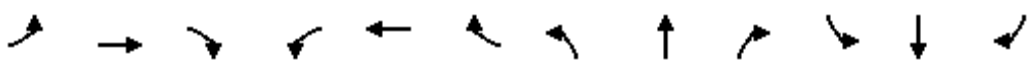
Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

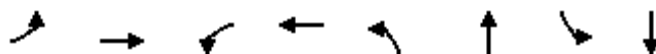
3: Weldon Rd & Collinsworth Rd

2c. No-Build 2028 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱			↰	↱		↰↱	
Traffic Volume (veh/h)	24	386	4	36	178	340	0	1	7	467	4	8
Future Volume (veh/h)	24	386	4	36	178	340	0	1	7	467	4	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	402	4	38	185	354	0	1	7	486	4	8
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	59	798	725	404	306	586	0	701	594	576	4	9
Arrive On Green	0.46	0.46	0.46	0.05	0.89	0.89	0.00	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	59	1743	1585	1781	574	1099	0	1870	1585	1377	11	23
Grp Volume(v), veh/h	427	0	4	38	0	539	0	1	7	498	0	0
Grp Sat Flow(s),veh/h/ln	1802	0	1585	1781	0	1673	0	1870	1585	1411	0	0
Q Serve(g_s), s	0.0	0.0	0.2	1.3	0.0	9.2	0.0	0.0	0.3	40.9	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	0.2	1.3	0.0	9.2	0.0	0.0	0.3	40.9	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.66	0.00		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	856	0	725	404	0	892	0	701	594	589	0	0
V/C Ratio(X)	0.50	0.00	0.01	0.09	0.00	0.60	0.00	0.00	0.01	0.85	0.00	0.00
Avail Cap(c_a), veh/h	856	0	725	492	0	892	0	834	707	689	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.84	0.00	0.84	0.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	0.0	17.7	16.7	0.0	3.6	0.0	23.5	23.5	36.2	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	0.1	0.0	2.6	0.0	0.0	0.0	8.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.0	0.0	0.1	0.9	0.0	4.0	0.0	0.0	0.2	21.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	17.7	16.8	0.0	6.1	0.0	23.5	23.5	44.7	0.0	0.0
LnGrp LOS	C	A	B	B	A	A	A	C	C	D	A	A
Approach Vol, veh/h		431			577			8			498	
Approach Delay, s/veh		24.9			6.8			23.5			44.7	
Approach LOS		C			A			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		69.5		50.5	9.1	60.4		50.5				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		55.5		53.5	9.5	40.5		53.5				
Max Q Clear Time (g_c+I1), s		11.2		42.9	3.3	21.3		2.3				
Green Ext Time (p_c), s		7.7		2.1	0.0	4.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			24.5									
HCM 6th LOS			C									

Timings
4: SR 14/US 29 (Main St) & Toombs St

2c. No-Build 2028 AM - Improved
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	30	79	8	46	6	395	29	343
Future Volume (vph)	30	79	8	46	6	395	29	343
Lane Group Flow (vph)	0	132	0	89	0	457	0	421
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	37.0	37.0	37.0	37.0	83.0	83.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	69.2%	69.2%	69.2%	69.2%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.67		0.39		0.34		0.34
Control Delay		64.9		41.4		4.8		4.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		64.9		41.4		4.8		4.9
Queue Length 50th (ft)		96		50		84		77
Queue Length 95th (ft)		156		97		154		145
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		426		472		1354		1244
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.31		0.19		0.34		0.34

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: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

2c. No-Build 2028 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	79	10	8	46	26	6	395	10	29	343	7
Future Volume (veh/h)	30	79	10	8	46	26	6	395	10	29	343	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	33	88	11	9	51	29	7	439	11	32	381	8
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	69	121	14	42	104	55	37	1375	34	105	1194	25
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.82	0.82	0.82	0.82	0.82	0.82
Sat Flow, veh/h	343	1295	149	94	1122	588	8	1687	42	89	1464	30
Grp Volume(v), veh/h	132	0	0	89	0	0	457	0	0	421	0	0
Grp Sat Flow(s),veh/h/ln	1787	0	0	1804	0	0	1737	0	0	1584	0	0
Q Serve(g_s), s	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.5	0.0	0.0	5.7	0.0	0.0	7.9	0.0	0.0	7.5	0.0	0.0
Prop In Lane	0.25		0.08	0.10		0.33	0.02		0.02	0.08		0.02
Lane Grp Cap(c), veh/h	204	0	0	201	0	0	1447	0	0	1324	0	0
V/C Ratio(X)	0.65	0.00	0.00	0.44	0.00	0.00	0.32	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	491	0	0	493	0	0	1447	0	0	1324	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.1	0.0	0.0	51.9	0.0	0.0	2.8	0.0	0.0	2.7	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.0	1.5	0.0	0.0	0.6	0.0	0.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	0.0	0.0	4.8	0.0	0.0	4.3	0.0	0.0	4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	0.0	0.0	53.5	0.0	0.0	3.3	0.0	0.0	3.4	0.0	0.0
LnGrp LOS	E	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h	132		89				457			421		
Approach Delay, s/veh	56.6		53.5				3.3			3.4		
Approach LOS	E		D				A			A		
Timer - Assigned Phs	2		4				6			8		
Phs Duration (G+Y+Rc), s	103.3		16.7				103.3			16.7		
Change Period (Y+Rc), s	5.5		5.5				5.5			5.5		
Max Green Setting (Gmax), s	77.5		31.5				77.5			31.5		
Max Q Clear Time (g_c+I1), s	9.5		10.5				9.9			7.7		
Green Ext Time (p_c), s	6.9		0.6				7.5			0.4		
Intersection Summary												
HCM 6th Ctrl Delay	13.8											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 9.6

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	60	31	168	252	20
Future Vol, veh/h	36	60	31	168	252	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	62	32	173	260	21
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.8	8.7	10.6
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	0%	93%
Vol Thru, %	62%	16%	0%
Vol Right, %	0%	84%	7%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	199	272
LT Vol	36	0	252
Through Vol	60	31	0
RT Vol	0	168	20
Lane Flow Rate	99	205	280
Geometry Grp	1	1	1
Degree of Util (X)	0.136	0.243	0.37
Departure Headway (Hd)	4.941	4.256	4.752
Convergence, Y/N	Yes	Yes	Yes
Cap	724	843	754
Service Time	2.98	2.288	2.794
HCM Lane V/C Ratio	0.137	0.243	0.371
HCM Control Delay	8.8	8.7	10.6
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1	1.7

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	205	133	29	44	12
Future Vol, veh/h	6	205	133	29	44	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	216	140	31	46	13
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	171	0	-	0	384	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	619	890
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	616	890
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	810	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		11		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1406	-	-	-	660	
HCM Lane V/C Ratio	0.004	-	-	-	0.089	
HCM Control Delay (s)	7.6	0	-	-	11	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	29	34	6	56	47
Future Vol, veh/h	8	29	34	6	56	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	37	44	8	72	60
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	252	48	0	0	52	0
Stage 1	48	-	-	-	-	-
Stage 2	204	-	-	-	-	-
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	737	1021	-	-	1554	-
Stage 1	974	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	702	1021	-	-	1554	-
Mov Cap-2 Maneuver	702	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	790	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	930	1554	-	
HCM Lane V/C Ratio	-	-	0.051	0.046	-	
HCM Control Delay (s)	-	-	9.1	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Vol, veh/h	0	473	73	11	132	2	37	8	17	1	17	1
Future Vol, veh/h	0	473	73	11	132	2	37	8	17	1	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	538	83	13	150	2	42	9	19	1	19	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	538	0	0	724	714	538	719	714	150
Stage 1	-	-	-	-	-	-	538	538	-	176	176	-
Stage 2	-	-	-	-	-	-	186	176	-	543	538	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1431	-	-	1030	-	-	341	357	543	344	357	896
Stage 1	-	-	-	-	-	-	527	522	-	826	753	-
Stage 2	-	-	-	-	-	-	816	753	-	524	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1030	-	-	323	352	543	322	352	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	352	-	322	352	-
Stage 1	-	-	-	-	-	-	527	522	-	826	742	-
Stage 2	-	-	-	-	-	-	783	742	-	497	522	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			14.4			15.3		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	452	1431	-	-	1030	-	-	370				
HCM Lane V/C Ratio	0.156	-	-	-	0.012	-	-	0.058				
HCM Control Delay (s)	14.4	0	-	-	8.5	0	-	15.3				
HCM Lane LOS	B	A	-	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.2				

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	413	62	4	109	6	34	5	0	18	23	0
Future Vol, veh/h	0	413	62	4	109	6	34	5	0	18	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	454	68	4	120	7	37	5	0	20	25	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	120	0	0	454	0	0	595	582	227	358	582	-
Stage 1	-	-	-	-	-	-	454	454	-	128	128	-
Stage 2	-	-	-	-	-	-	141	128	-	230	454	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	1467	-	-	1105	-	-	402	424	777	585	424	0
Stage 1	-	-	-	-	-	-	556	568	-	875	790	0
Stage 2	-	-	-	-	-	-	861	790	-	753	568	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1467	-	-	1105	-	-	383	422	777	577	422	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	383	422	-	577	422	-
Stage 1	-	-	-	-	-	-	556	568	-	875	787	-
Stage 2	-	-	-	-	-	-	830	787	-	746	568	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			15.4					
HCM LOS							C			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	388	1467	-	-	1105	-	-	577	-			
HCM Lane V/C Ratio	0.11	-	-	-	0.004	-	-	0.034	-			
HCM Control Delay (s)	15.4	0	-	-	8.3	-	-	11.5	-			
HCM Lane LOS	C	A	-	-	A	-	-	B	-			
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1	-			

Timings

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

2c. No-Build 2028 AM - Improved

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	416	8	46	101	4	5	276	2	299
Future Volume (vph)	8	416	8	46	101	4	5	276	2	299
Lane Group Flow (vph)	9	443	9	49	107	4	5	365	2	324
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	42.0	42.0	20.0	45.0	45.0	58.0	58.0	58.0	58.0
Total Split (%)	14.2%	35.0%	35.0%	16.7%	37.5%	37.5%	48.3%	48.3%	48.3%	48.3%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.10	0.22	0.01	0.38	0.05	0.00	0.04	0.80	0.02	0.70
Control Delay	56.1	15.8	0.0	82.2	3.3	0.0	30.6	53.2	30.0	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	15.8	0.0	82.2	3.3	0.0	30.6	53.2	30.0	48.6
Queue Length 50th (ft)	7	90	0	36	3	0	3	257	1	229
Queue Length 95th (ft)	24	153	0	69	6	m0	12	332	8	296
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	1982	918	213	2260	1037	239	798	183	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.22	0.01	0.23	0.05	0.00	0.02	0.46	0.01	0.40

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

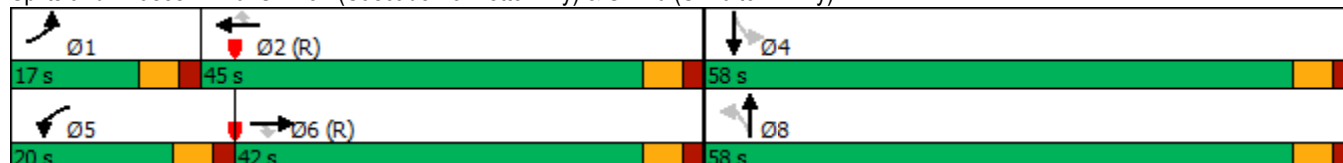
Offset: 5 (4%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

2c. No-Build 2028 AM - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	416	8	46	101	4	5	276	67	2	299	6
Future Volume (veh/h)	8	416	8	46	101	4	5	276	67	2	299	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	443	0	49	107	0	5	294	71	2	318	6
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	19	2128		63	2216		129	332	80	93	417	8
Arrive On Green	0.01	0.60	0.00	0.04	0.62	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1056	1456	352	1017	1830	35
Grp Volume(v), veh/h	9	443	0	49	107	0	5	0	365	2	0	324
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1056	0	1807	1017	0	1864
Q Serve(g_s), s	0.6	6.9	0.0	3.3	1.4	0.0	0.5	0.0	23.4	0.2	0.0	19.5
Cycle Q Clear(g_c), s	0.6	6.9	0.0	3.3	1.4	0.0	20.0	0.0	23.4	23.7	0.0	19.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		0.02
Lane Grp Cap(c), veh/h	19	2128		63	2216		129	0	412	93	0	425
V/C Ratio(X)	0.47	0.21		0.77	0.05		0.04	0.00	0.89	0.02	0.00	0.76
Avail Cap(c_a), veh/h	171	2128		215	2216		350	0	791	306	0	816
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	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	59.0	11.0	0.0	57.4	8.8	0.0	52.6	0.0	44.8	56.2	0.0	43.3
Incr Delay (d2), s/veh	16.6	0.2	0.0	17.7	0.0	0.0	0.1	0.0	6.5	0.1	0.0	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	0.6	4.4	0.0	3.1	0.9	0.0	0.3	0.0	16.0	0.1	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.6	11.3	0.0	75.0	8.8	0.0	52.7	0.0	51.3	56.3	0.0	46.1
LnGrp LOS	E	B		E	A		D	A	D	E	A	D
Approach Vol, veh/h		452			156			370			326	
Approach Delay, s/veh		12.5			29.6			51.3			46.2	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	80.3		32.9	9.8	77.3		32.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	39.5		52.5	14.5	36.5		52.5				
Max Q Clear Time (g_c+I1), s	2.6	3.4		25.7	5.3	8.9		25.4				
Green Ext Time (p_c), s	0.0	1.1		1.6	0.0	5.0		1.9				

Intersection Summary

HCM 6th Ctrl Delay 34.0

HCM 6th LOS C

Notes

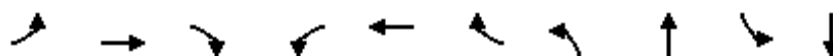
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

2c. No-Build 2028 AM - Improved

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗↗	↰	↰	↗↗	↰	↰	↗	↰	↗
Traffic Volume (vph)	31	798	43	150	406	96	34	124	182	184
Future Volume (vph)	31	798	43	150	406	96	34	124	182	184
Lane Group Flow (vph)	34	867	47	163	441	104	37	434	198	234
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	45.0	45.0	15.0	45.0	45.0	18.0	45.0	15.0	42.0
Total Split (%)	12.5%	37.5%	37.5%	12.5%	37.5%	37.5%	15.0%	37.5%	12.5%	35.0%
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	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
v/c Ratio	0.07	0.62	0.08	0.57	0.28	0.13	0.11	0.87	0.92	0.41
Control Delay	15.0	26.5	0.2	25.3	23.0	3.5	22.1	50.4	71.1	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	26.5	0.2	25.3	23.0	3.5	22.1	50.4	71.1	34.3
Queue Length 50th (ft)	11	207	0	63	116	0	18	255	105	146
Queue Length 95th (ft)	m28	261	0	#126	183	28	36	351	#214	207
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	497	1406	613	292	1572	811	390	621	216	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.62	0.08	0.56	0.28	0.13	0.09	0.70	0.92	0.40

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

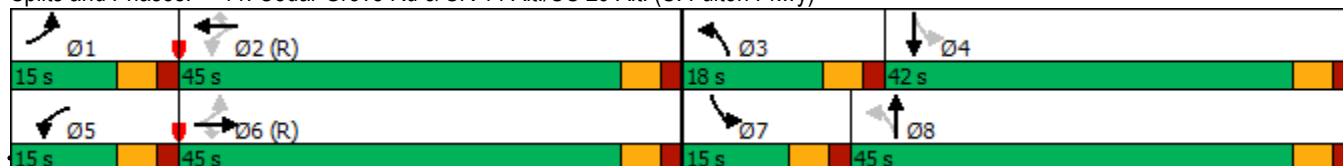
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2c. No-Build 2028 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	798	43	150	406	96	34	124	275	182	184	31
Future Volume (veh/h)	31	798	43	150	406	96	34	124	275	182	184	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	34	867	0	163	441	0	37	135	299	198	200	34
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	431	1375		306	1463		338	146	324	232	514	87
Arrive On Green	0.03	0.39	0.00	0.07	0.43	0.00	0.03	0.28	0.28	0.08	0.33	0.33
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	522	1155	1810	1558	265
Grp Volume(v), veh/h	34	867	0	163	441	0	37	0	434	198	0	234
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	0	1677	1810	0	1823
Q Serve(g_s), s	1.4	23.7	0.0	6.4	10.2	0.0	2.0	0.0	30.1	9.2	0.0	11.8
Cycle Q Clear(g_c), s	1.4	23.7	0.0	6.4	10.2	0.0	2.0	0.0	30.1	9.2	0.0	11.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.15
Lane Grp Cap(c), veh/h	431	1375		306	1463		338	0	470	232	0	602
V/C Ratio(X)	0.08	0.63		0.53	0.30		0.11	0.00	0.92	0.85	0.00	0.39
Avail Cap(c_a), veh/h	520	1375		322	1463		454	0	552	232	0	602
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	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	21.0	29.8	0.0	22.1	22.5	0.0	29.4	0.0	41.9	31.3	0.0	30.9
Incr Delay (d2), s/veh	0.1	2.2	0.0	1.5	0.5	0.0	0.1	0.0	19.5	25.4	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	1.0	15.0	0.0	4.6	7.0	0.0	1.3	0.0	20.7	9.3	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	32.0	0.0	23.7	23.0	0.0	29.6	0.0	61.4	56.7	0.0	31.3
LnGrp LOS	C	C		C	C		C	A	E	E	A	C
Approach Vol, veh/h	901				604				471			
Approach Delay, s/veh	31.6				23.2				58.9			
Approach LOS	C				C				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	57.0	9.0	45.1	13.9	51.9	15.0	39.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	39.5	12.5	36.5	9.5	39.5	9.5	39.5				
Max Q Clear Time (g_c+I1), s	3.4	12.2	4.0	13.8	8.4	25.7	11.2	32.1				
Green Ext Time (p_c), s	0.0	5.0	0.0	1.2	0.0	7.2	0.0	1.5				

Intersection Summary

HCM 6th Ctrl Delay 36.9
HCM 6th LOS D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2c. No-Build 2028 AM - Improved

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	761	205	85	467	476	180	754	148	594	836	229
Future Volume (vph)	293	761	205	85	467	476	180	754	148	594	836	229
Lane Group Flow (vph)	318	827	223	92	508	517	196	820	161	646	909	249
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	20.0	48.5	48.5	15.0	43.5	43.5	29.0	53.5	53.5	33.0	57.5	57.5
Total Split (%)	13.3%	32.3%	32.3%	10.0%	29.0%	29.0%	19.3%	35.7%	35.7%	22.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.83	0.71	0.39	0.45	0.58	0.80	0.82	0.85	0.30	1.05	0.79	0.38
Control Delay	52.2	49.5	24.7	35.7	52.1	28.3	88.7	59.7	12.2	106.9	52.0	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	49.5	24.7	35.7	52.1	28.3	88.7	59.7	12.2	106.9	52.0	10.3
Queue Length 50th (ft)	216	378	93	54	230	179	186	399	27	~352	433	35
Queue Length 95th (ft)	#384	481	180	99	293	340	#291	456	82	#478	493	102
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	384	1160	575	212	879	644	269	1110	601	617	1226	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.71	0.39	0.43	0.58	0.80	0.73	0.74	0.27	1.05	0.74	0.36

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: 140

Control Type: Actuated-Coordinated

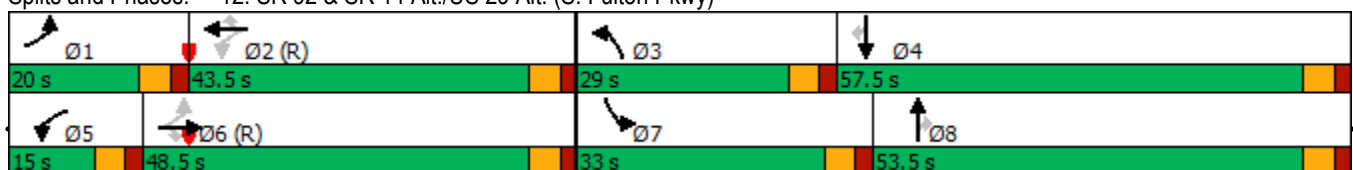
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2c. No-Build 2028 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	761	205	85	467	476	180	754	148	594	836	229
Future Volume (veh/h)	293	761	205	85	467	476	180	754	148	594	836	229
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1870	1841	1856	1841	1841	1826	1841	1900	1841	1870	1885
Adj Flow Rate, veh/h	318	827	223	92	508	517	196	820	0	646	909	249
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, %	1	2	4	3	4	4	5	4	0	4	2	1
Cap, veh/h	328	1271	558	219	1080	482	219	925		624	1145	515
Arrive On Green	0.10	0.36	0.36	0.05	0.31	0.31	0.13	0.26	0.00	0.18	0.32	0.32
Sat Flow, veh/h	1795	3554	1560	1767	3497	1560	1739	3497	1610	3401	3554	1598
Grp Volume(v), veh/h	318	827	223	92	508	517	196	820	0	646	909	249
Grp Sat Flow(s),veh/h/ln	1795	1777	1560	1767	1749	1560	1739	1749	1610	1700	1777	1598
Q Serve(g_s), s	14.5	29.2	16.1	5.3	17.6	46.3	16.7	33.8	0.0	27.5	34.9	18.8
Cycle Q Clear(g_c), s	14.5	29.2	16.1	5.3	17.6	46.3	16.7	33.8	0.0	27.5	34.9	18.8
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	328	1271	558	219	1080	482	219	925		624	1145	515
V/C Ratio(X)	0.97	0.65	0.40	0.42	0.47	1.07	0.90	0.89		1.04	0.79	0.48
Avail Cap(c_a), veh/h	328	1271	558	247	1080	482	272	1119		624	1232	554
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	40.3	36.1	34.7	41.9	51.8	64.6	53.0	0.0	61.2	46.3	40.8
Incr Delay (d2), s/veh	41.6	2.6	2.1	1.3	1.5	62.0	25.7	7.7	0.0	45.7	3.4	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	13.3	18.6	10.3	4.1	12.1	35.5	13.6	21.7	0.0	22.3	21.8	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	42.9	38.2	36.0	43.4	113.9	90.3	60.7	0.0	106.9	49.8	41.5
LnGrp LOS	F	D	D	D	D	F	F	E		F	D	D
Approach Vol, veh/h	1368			1117			1016			1804		
Approach Delay, s/veh	51.1			75.4			66.4			69.1		
Approach LOS	D			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	51.8	24.4	53.8	12.7	59.1	33.0	45.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	14.5	38.0	23.5	52.0	9.5	43.0	27.5	48.0				
Max Q Clear Time (g_c+I1), s	16.5	48.3	18.7	36.9	7.3	31.2	29.5	35.8				
Green Ext Time (p_c), s	0.0	0.0	0.2	5.6	0.0	7.2	0.0	3.9				

Intersection Summary

HCM 6th Ctrl Delay	65.3
HCM 6th LOS	E

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2c. No-Build 2028 AM - Improved
08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	107	1298	88	144	774	48	53	50	104	94
Future Volume (vph)	107	1298	88	144	774	48	53	50	104	94
Lane Group Flow (vph)	110	1338	91	148	798	49	55	157	107	275
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	58.0	58.0	43.0	43.0	43.0	62.0	62.0	62.0	62.0
Total Split (%)	12.5%	48.3%	48.3%	35.8%	35.8%	35.8%	51.7%	51.7%	51.7%	51.7%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.25	0.51	0.08	0.60	0.36	0.05	0.90	0.60	0.73	0.78
Control Delay	6.5	7.6	2.5	18.9	4.5	0.2	136.6	49.9	73.4	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	7.6	2.5	18.9	4.5	0.2	136.6	49.9	73.4	44.1
Queue Length 50th (ft)	19	185	5	18	42	0	42	102	80	130
Queue Length 95th (ft)	48	321	25	m98	m112	m1	#101	157	132	207
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	450	2638	1195	245	2199	982	187	763	447	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.51	0.08	0.60	0.36	0.05	0.29	0.21	0.24	0.32

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

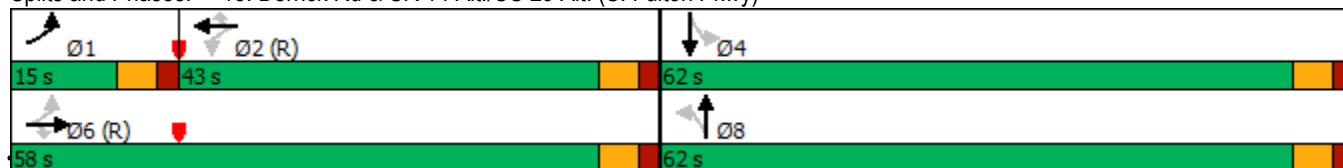
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2c. No-Build 2028 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	1298	88	144	774	48	53	50	102	104	94	173
Future Volume (veh/h)	107	1298	88	144	774	48	53	50	102	104	94	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	110	1338	91	148	798	49	55	52	105	107	97	178
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	402	2413	1076	246	2070	901	142	124	250	236	134	246
Arrive On Green	0.04	0.68	0.68	0.60	0.60	0.60	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1584	3526	1572	378	3469	1510	1104	553	1116	1230	600	1101
Grp Volume(v), veh/h	110	1338	91	148	798	49	55	0	157	107	0	275
Grp Sat Flow(s),veh/h/ln	1584	1763	1572	378	1735	1510	1104	0	1669	1230	0	1702
Q Serve(g_s), s	3.1	23.2	2.3	39.3	14.5	1.6	5.8	0.0	9.7	9.8	0.0	18.0
Cycle Q Clear(g_c), s	3.1	23.2	2.3	51.9	14.5	1.6	23.8	0.0	9.7	19.5	0.0	18.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.65
Lane Grp Cap(c), veh/h	402	2413	1076	246	2070	901	142	0	374	236	0	381
V/C Ratio(X)	0.27	0.55	0.08	0.60	0.39	0.05	0.39	0.00	0.42	0.45	0.00	0.72
Avail Cap(c_a), veh/h	461	2413	1076	246	2070	901	415	0	786	540	0	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	9.6	6.3	25.5	12.7	10.1	54.1	0.0	39.9	48.2	0.0	43.1
Incr Delay (d2), s/veh	0.4	0.9	0.2	10.5	0.5	0.1	1.7	0.0	0.8	1.4	0.0	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	1.7	11.8	1.2	7.0	8.7	0.9	3.0	0.0	7.1	5.4	0.0	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	10.5	6.5	36.0	13.2	10.2	55.9	0.0	40.7	49.6	0.0	45.7
LnGrp LOS	A	B	A	D	B	B	E	A	D	D	A	D
Approach Vol, veh/h		1539			995			212			382	
Approach Delay, s/veh		10.2			16.5			44.6			46.8	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.5	77.1		32.4		87.6		32.4				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	37.5		56.5		52.5		56.5				
Max Q Clear Time (g_c+I1), s	5.1	53.9		21.5		25.2		25.8				
Green Ext Time (p_c), s	0.1	0.0		2.0		18.2		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				19.0								
HCM 6th LOS				B								

Timings

2c. No-Build 2028 AM - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰↰	↰	↰	↰↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	109	1171	214	58	352	98	482	263	24	70	186
Future Volume (vph)	109	1171	214	58	352	98	482	263	24	70	186
Lane Group Flow (vph)	116	1246	228	62	374	104	513	280	26	74	345
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		6			2			8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	46.4	46.4	46.4	46.4	46.4	46.4	58.6	58.6	58.6	15.0	73.6
Total Split (%)	38.7%	38.7%	38.7%	38.7%	38.7%	38.7%	48.8%	48.8%	48.8%	12.5%	61.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.40	1.03	0.39	0.95	0.33	0.18	1.04	0.32	0.03	0.13	0.34
Control Delay	29.0	67.9	14.4	137.0	24.5	6.8	84.6	22.2	0.1	12.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	67.9	14.4	137.0	24.5	6.8	84.6	22.2	0.1	12.4	12.8
Queue Length 50th (ft)	55	~548	48	48	118	8	~451	140	0	25	114
Queue Length 95th (ft)	82	#667	87	#141	164	64	#664	207	0	47	175
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	293	1206	589	65	1118	592	493	874	760	567	1004
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	1.03	0.39	0.95	0.33	0.18	1.04	0.32	0.03	0.13	0.34

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 44 (37%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

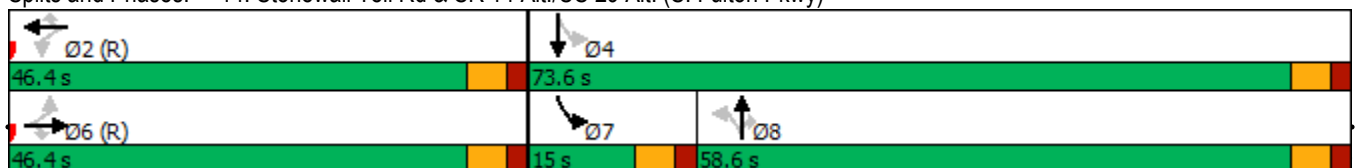
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



23-060 Merrill Park Chattahoochee Hills (DRI #4004)

HCM 6th Signalized Intersection Summary
 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2c. No-Build 2028 AM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	1171	214	58	352	98	482	263	24	70	186	138
Future Volume (veh/h)	109	1171	214	58	352	98	482	263	24	70	186	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	116	1246	228	62	374	104	513	280	0	74	198	147
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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	334	1357	596	78	1271	591	492	828		503	529	393
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.44	0.44	0.00	0.04	0.53	0.53
Sat Flow, veh/h	902	3554	1560	364	3328	1547	1052	1870	1547	1767	1005	746
Grp Volume(v), veh/h	116	1246	228	62	374	104	513	280	0	74	0	345
Grp Sat Flow(s),veh/h/ln	902	1777	1560	364	1664	1547	1052	1870	1547	1767	0	1751
Q Serve(g_s), s	12.3	40.1	12.7	5.8	9.4	5.3	49.2	11.8	0.0	2.6	0.0	13.9
Cycle Q Clear(g_c), s	21.7	40.1	12.7	45.8	9.4	5.3	53.1	11.8	0.0	2.6	0.0	13.9
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	334	1357	596	78	1271	591	492	828		503	0	922
V/C Ratio(X)	0.35	0.92	0.38	0.80	0.29	0.18	1.04	0.34		0.15	0.00	0.37
Avail Cap(c_a), veh/h	334	1357	596	78	1271	591	492	828		575	0	994
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	0.98	0.98	0.98	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	35.3	26.8	59.2	25.8	24.6	38.4	21.9	0.0	16.7	0.0	16.8
Incr Delay (d2), s/veh	2.8	11.4	1.9	56.0	0.6	0.6	52.4	0.2	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	25.0	8.6	5.4	6.5	3.5	30.5	8.8	0.0	1.9	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	46.7	28.7	115.2	26.4	25.2	90.8	22.2	0.0	16.8	0.0	17.0
LnGrp LOS	D	D	C	F	C	C	F	C		B	A	B
Approach Vol, veh/h	1590			540			793			419		
Approach Delay, s/veh	43.3			36.4			66.5			17.0		
Approach LOS	D			D			E			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	51.3			68.7			51.3			10.1		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	40.9			68.1			40.9			9.5		
Max Q Clear Time (g_c+I1), s	47.8			15.9			42.1			4.6		
Green Ext Time (p_c), s	0.0			2.2			0.0			0.0		

Intersection Summary

HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

2c. No-Build 2028 AM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↗	↘	↰	↗	↘		↗	↘	↰	↗
Traffic Volume (vph)	67	1127	114	107	424	48	22	55	42	191	53
Future Volume (vph)	67	1127	114	107	424	48	22	55	42	191	53
Lane Group Flow (vph)	69	1162	118	110	437	49	0	80	43	197	129
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.11	0.58	0.12	0.39	0.22	0.06		0.24	0.16	0.76	0.32
Control Delay	0.6	1.8	0.1	11.4	12.7	1.8		38.7	3.4	62.1	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	0.6	1.8	0.1	11.4	12.7	1.8		38.7	3.4	62.1	19.1
Queue Length 50th (ft)	1	14	0	25	78	0		52	0	145	36
Queue Length 95th (ft)	m1	m19	m0	58	136	11		87	11	208	82
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	679	1996	949	298	2010	801		706	504	547	776
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.10	0.58	0.12	0.37	0.22	0.06		0.11	0.09	0.36	0.17

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

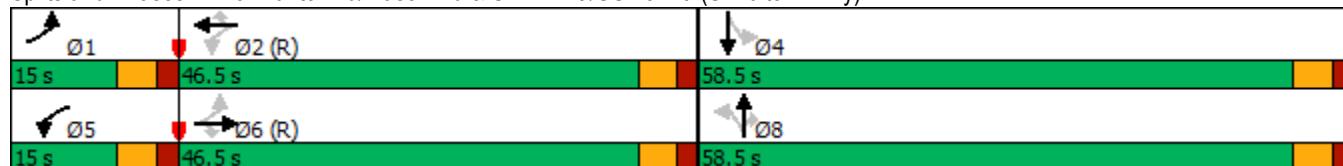
Offset: 112 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

2c. No-Build 2028 AM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1127	114	107	424	48	22	55	42	191	53	72
Future Volume (veh/h)	67	1127	114	107	424	48	22	55	42	191	53	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	69	1162	118	110	437	0	23	57	0	197	55	74
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	672	2169	991	296	2092		99	225		287	136	183
Arrive On Green	0.04	0.63	0.63	0.04	0.63	0.00	0.20	0.20	0.00	0.20	0.20	0.20
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	306	1145	932	1282	694	934
Grp Volume(v), veh/h	69	1162	118	110	437	0	80	0	0	197	0	129
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1451	0	932	1282	0	1628
Q Serve(g_s), s	1.6	22.6	3.6	2.9	6.7	0.0	0.2	0.0	0.0	11.8	0.0	8.3
Cycle Q Clear(g_c), s	1.6	22.6	3.6	2.9	6.7	0.0	8.5	0.0	0.0	20.2	0.0	8.3
Prop In Lane	1.00		1.00	1.00		1.00	0.29		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	672	2169	991	296	2092		324	0		287	0	320
V/C Ratio(X)	0.10	0.54	0.12	0.37	0.21		0.25	0.00		0.69	0.00	0.40
Avail Cap(c_a), veh/h	746	2169	991	358	2092		726	0		602	0	719
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)	0.17	0.17	0.17	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.3	12.7	9.1	10.2	9.5	0.0	40.5	0.0	0.0	47.6	0.0	42.1
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.8	0.2	0.0	0.4	0.0	0.0	2.9	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	9.3	1.8	1.6	3.9	0.0	3.6	0.0	0.0	9.7	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	12.8	9.1	10.9	9.8	0.0	40.9	0.0	0.0	50.5	0.0	42.9
LnGrp LOS	A	B	A	B	A		D	A		D	A	D
Approach Vol, veh/h	1349				547				80			
Approach Delay, s/veh	12.2				10.0				40.9			
Approach LOS	B				A				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	80.9		29.1	10.4	80.5		29.1				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.6	8.7		22.2	4.9	24.6		10.5				
Green Ext Time (p_c), s	0.0	5.2		1.3	0.1	11.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 17.7

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

2c. No-Build 2028 AM - Improved

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	28	47	854	918	802	187
Future Volume (vph)	28	47	854	918	802	187
Lane Group Flow (vph)	31	52	938	1009	881	205
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	38.0	75.0	37.0	37.0
Total Split (%)	16.7%	16.7%	42.2%	83.3%	41.1%	41.1%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.23	0.31	0.86	0.34	0.61	0.26
Control Delay	42.4	16.4	36.3	2.8	20.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	16.4	36.3	2.8	20.3	4.0
Queue Length 50th (ft)	17	0	247	62	174	8
Queue Length 95th (ft)	44	34	319	96	270	m36
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	174	204	1182	2952	1440	794
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.25	0.79	0.34	0.61	0.26

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

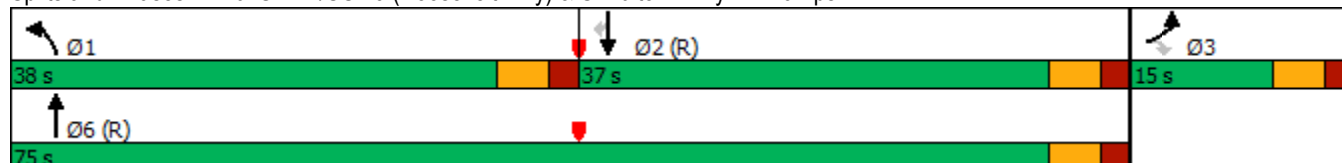
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

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

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary

2c. No-Build 2028 AM - Improved

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	47	854	918	802	187
Future Volume (veh/h)	28	47	854	918	802	187
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1767	1781	1781	1870	1811	1885
Adj Flow Rate, veh/h	31	0	938	1009	881	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	8	8	2	6	1
Cap, veh/h	50		1044	3013	1616	
Arrive On Green	0.03	0.00	0.32	0.85	0.47	0.00
Sat Flow, veh/h	1682	1510	3291	3647	3532	1598
Grp Volume(v), veh/h	31	0	938	1009	881	0
Grp Sat Flow(s),veh/h/ln	1682	1510	1646	1777	1721	1598
Q Serve(g_s), s	1.6	0.0	24.5	5.4	16.4	0.0
Cycle Q Clear(g_c), s	1.6	0.0	24.5	5.4	16.4	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	50		1044	3013	1616	
V/C Ratio(X)	0.61		0.90	0.33	0.55	
Avail Cap(c_a), veh/h	178		1189	3013	1616	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.80	0.00
Uniform Delay (d), s/veh	43.1	0.0	29.3	1.5	17.0	0.0
Incr Delay (d2), s/veh	11.6	0.0	8.6	0.3	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.0	15.3	0.5	9.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.7	0.0	38.0	1.8	18.1	0.0
LnGrp LOS	D		D	A	B	
Approach Vol, veh/h	31			1947	881	
Approach Delay, s/veh	54.7			19.2	18.1	
Approach LOS	D			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	34.0	47.8			81.8	8.2
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	32.5	31.5			69.5	9.5
Max Q Clear Time (g_c+I1), s	26.5	18.4			7.4	3.6
Green Ext Time (p_c), s	2.0	7.3			18.4	0.0

Intersection Summary

HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

2c. No-Build 2028 AM - Improved

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	162	475	20	910	532
Future Volume (vph)	162	475	20	910	532
Lane Group Flow (vph)	174	511	22	978	677
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	46.0	46.0	44.0	44.0	44.0
Total Split (%)	51.1%	51.1%	48.9%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.31	0.86	0.06	0.50	0.35
Control Delay	22.8	31.6	11.0	12.9	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	31.6	11.0	12.9	12.5
Queue Length 50th (ft)	74	177	3	173	98
Queue Length 95th (ft)	101	254	23	295	181
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	796	770	365	1974	1933
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.66	0.06	0.50	0.35

Intersection Summary

Cycle Length: 90

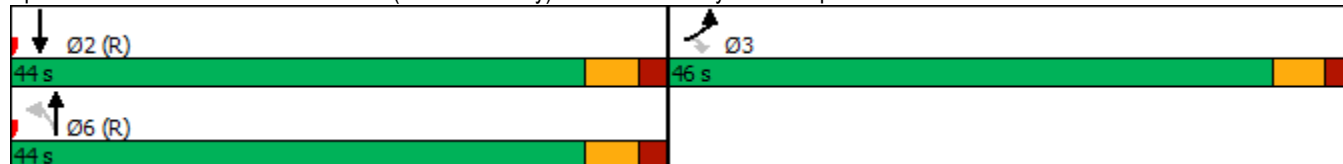
Actuated Cycle Length: 90

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

Natural Cycle: 50

Control Type: Actuated-Coordinated

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Summary
 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

2c. No-Build 2028 AM - Improved

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	475	20	910	532	98
Future Volume (veh/h)	162	475	20	910	532	98
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1767	1811	1856	1856	1811
Adj Flow Rate, veh/h	174	0	22	978	572	105
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	9	6	3	3	6
Cap, veh/h	216		596	2667	2251	412
Arrive On Green	0.12	0.00	0.76	0.76	0.76	0.76
Sat Flow, veh/h	1781	1497	738	3618	3068	545
Grp Volume(v), veh/h	174	0	22	978	338	339
Grp Sat Flow(s),veh/h/ln	1781	1497	738	1763	1763	1758
Q Serve(g_s), s	8.6	0.0	0.8	8.4	5.2	5.2
Cycle Q Clear(g_c), s	8.6	0.0	6.1	8.4	5.2	5.2
Prop In Lane	1.00	1.00	1.00			0.31
Lane Grp Cap(c), veh/h	216		596	2667	1334	1330
V/C Ratio(X)	0.81		0.04	0.37	0.25	0.25
Avail Cap(c_a), veh/h	802		596	2667	1334	1330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	4.2	3.7	3.3	3.3
Incr Delay (d2), s/veh	6.9	0.0	0.1	0.4	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	0.0	0.2	3.3	2.2	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	0.0	4.3	4.1	3.8	3.8
LnGrp LOS	D		A	A	A	A
Approach Vol, veh/h	174			1000	677	
Approach Delay, s/veh	45.4			4.1	3.8	
Approach LOS	D			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	73.6		73.6		16.4	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	38.5		38.5		40.5	
Max Q Clear Time (g_c+I1), s	7.2		10.4		10.6	
Green Ext Time (p_c), s	8.4		13.4		0.5	

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings 1: I-85 NB Ramps & Collinsworth Rd

2d. No-Build 2028 PM - Improved
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	230	967	688	182	288	251
Future Volume (vph)	230	967	688	182	288	251
Lane Group Flow (vph)	242	1018	724	192	303	264
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	18.0	86.0	68.0	68.0	34.0	34.0
Total Split (%)	15.0%	71.7%	56.7%	56.7%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.62	0.41	0.71	0.20	0.84	0.60
Control Delay	23.9	5.1	25.8	3.0	66.4	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	5.1	25.8	3.0	66.4	23.9
Queue Length 50th (ft)	61	118	418	3	224	78
Queue Length 95th (ft)	m106	123	588	39	#325	164
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	394	2482	1017	939	412	481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.41	0.71	0.20	0.74	0.55

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 94 (78%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

2d. No-Build 2028 PM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (veh/h)	230	967	0	0	688	182	288	0	251	0	0	0
Future Volume (veh/h)	230	967	0	0	688	182	288	0	251	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	242	1018	0	0	724	0	303	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	431	2553	0	0	1123		333	0				
Arrive On Green	0.05	0.48	0.00	0.00	0.61	0.00	0.19	0.00	0.00			
Sat Flow, veh/h	1753	3647	0	0	1856	1560	1753	0	1560			
Grp Volume(v), veh/h	242	1018	0	0	724	0	303	0	0			
Grp Sat Flow(s),veh/h/ln	1753	1777	0	0	1856	1560	1753	0	1560			
Q Serve(g_s), s	5.8	22.1	0.0	0.0	30.3	0.0	20.3	0.0	0.0			
Cycle Q Clear(g_c), s	5.8	22.1	0.0	0.0	30.3	0.0	20.3	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	431	2553	0	0	1123		333	0				
V/C Ratio(X)	0.56	0.40	0.00	0.00	0.64		0.91	0.00				
Avail Cap(c_a), veh/h	496	2553	0	0	1123		416	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.58	0.58	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	13.7	14.5	0.0	0.0	15.3	0.0	47.6	0.0	0.0			
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.0	2.9	0.0	20.7	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	3.5	13.1	0.0	0.0	17.4	0.0	16.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	14.8	0.0	0.0	18.2	0.0	68.2	0.0	0.0			
LnGrp LOS	B	B	A	A	B		E	A				
Approach Vol, veh/h	1260			724			303					
Approach Delay, s/veh	14.7			18.2			68.2					
Approach LOS	B			B			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	13.6	78.1					91.7	28.3				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	12.5	62.5					80.5	28.5				
Max Q Clear Time (g_c+I1), s	7.8	32.3					24.1	22.3				
Green Ext Time (p_c), s	0.3	9.8					17.3	0.5				
Intersection Summary												
HCM 6th Ctrl Delay				22.9								
HCM 6th LOS				C								

Timings
2: I-85 SB Ramps & Collinsworth Rd

2d. No-Build 2028 PM - Improved

08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	338	436	365	634	871	276
Future Volume (vph)	338	436	365	634	871	276
Lane Group Flow (vph)	360	464	388	674	927	294
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	44.0	44.0	29.0	73.0	47.0	47.0
Total Split (%)	36.7%	36.7%	24.2%	60.8%	39.2%	39.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.49	0.52	0.67	0.61	0.85	0.46
Control Delay	30.1	7.3	13.4	14.4	47.3	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	7.3	13.4	14.4	47.3	10.1
Queue Length 50th (ft)	218	68	158	339	344	37
Queue Length 95th (ft)	m254	m82	196	470	406	106
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	739	896	622	1104	1211	686
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.52	0.62	0.61	0.77	0.43

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 42 (35%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

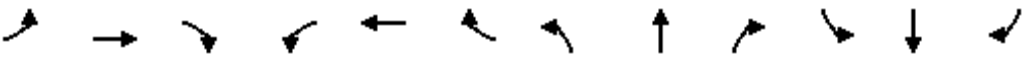
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

2d. No-Build 2028 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	338	436	365	634	0	0	0	0	871	0	276
Future Volume (veh/h)	0	338	436	365	634	0	0	0	0	871	0	276
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	360	0	388	674	0				927	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	817		669	1142	0				1028	0	
Arrive On Green	0.00	0.73	0.00	0.09	0.41	0.00				0.29	0.00	0.00
Sat Flow, veh/h	0	1870	1560	1795	1856	0				3510	0	1560
Grp Volume(v), veh/h	0	360	0	388	674	0				927	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1560	1795	1856	0				1755	0	1560
Q Serve(g_s), s	0.0	9.2	0.0	13.2	33.9	0.0				30.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.2	0.0	13.2	33.9	0.0				30.5	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	817		669	1142	0				1028	0	
V/C Ratio(X)	0.00	0.44		0.58	0.59	0.00				0.90	0.00	
Avail Cap(c_a), veh/h	0	817		783	1142	0				1214	0	
HCM Platoon Ratio	1.00	1.67	1.67	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.81	0.00	0.58	0.58	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.4	0.0	14.6	23.5	0.0				40.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.5	1.3	0.0				8.5	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	0.0	5.6	0.0	8.1	20.4	0.0				20.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.8	0.0	15.0	24.8	0.0				49.3	0.0	0.0
LnGrp LOS	A	B		B	C	A				D	A	
Approach Vol, veh/h		360			1062						927	
Approach Delay, s/veh		11.8			21.2						49.3	
Approach LOS		B			C						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		79.4		40.6	21.4	57.9						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		67.5		41.5	23.5	38.5						
Max Q Clear Time (g_c+I1), s		35.9		32.5	15.2	11.2						
Green Ext Time (p_c), s		9.0		2.7	0.8	3.8						
Intersection Summary												
HCM 6th Ctrl Delay			30.8									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

2d. No-Build 2028 PM - Improved
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↔	↔		↔	↔		↔
Traffic Volume (vph)	8	317	11	366	6	4	26	569	0
Future Volume (vph)	8	317	11	366	6	4	26	569	0
Lane Group Flow (vph)	0	365	12	849	0	11	29	0	650
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6	5	2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	49.0	49.0	15.0	64.0	56.0	56.0	56.0	56.0	56.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	46.7%	46.7%	46.7%	46.7%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5		5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	None
v/c Ratio		0.60	0.03	0.98		0.02	0.04		1.07
Control Delay		31.7	10.2	41.2		20.5	0.1		87.7
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		31.7	10.2	41.2		20.5	0.1		87.7
Queue Length 50th (ft)		192	2	516		5	0		~524
Queue Length 95th (ft)		347	m5	#873		16	0		#742
Internal Link Dist (ft)		914		947		293			729
Turn Bay Length (ft)			315						
Base Capacity (vph)		609	422	869		622	708		607
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.60	0.03	0.98		0.02	0.04		1.07

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 42 (35%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

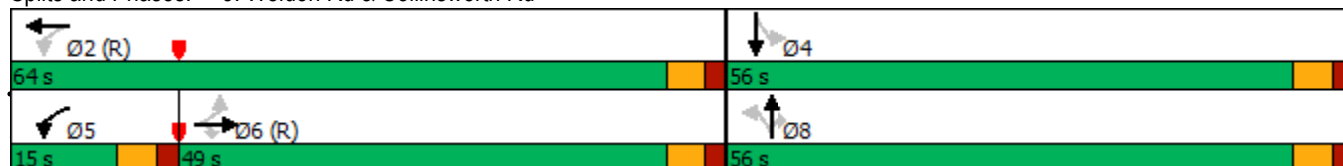
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

3: Weldon Rd & Collinsworth Rd

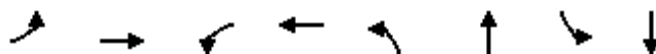
2d. No-Build 2028 PM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	317	0	11	366	390	6	4	26	569	0	10
Future Volume (veh/h)	8	317	0	11	366	390	6	4	26	569	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	356	0	12	411	438	7	4	29	639	0	11
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	521	678	151	404	430	524	289	667	625	0	10
Arrive On Green	0.43	0.43	0.00	0.02	0.81	0.81	0.42	0.42	0.42	0.42	0.00	0.42
Sat Flow, veh/h	0	1216	1585	1781	829	883	1127	687	1585	1345	0	23
Grp Volume(v), veh/h	365	0	0	12	0	849	11	0	29	650	0	0
Grp Sat Flow(s),veh/h/ln	1216	0	1585	1781	0	1711	1814	0	1585	1368	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	58.5	0.0	0.0	1.3	50.1	0.0	0.0
Cycle Q Clear(g_c), s	51.4	0.0	0.0	0.4	0.0	58.5	0.4	0.0	1.3	50.5	0.0	0.0
Prop In Lane	0.02		1.00	1.00		0.52	0.64		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	551	0	678	151	0	834	812	0	667	635	0	0
V/C Ratio(X)	0.66	0.00	0.00	0.08	0.00	1.02	0.01	0.00	0.04	1.02	0.00	0.00
Avail Cap(c_a), veh/h	551	0	678	267	0	834	812	0	667	635	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	0.80	0.00	0.80	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	0.0	0.0	17.6	0.0	11.2	20.2	0.0	20.5	37.3	0.0	0.0
Incr Delay (d2), s/veh	6.1	0.0	0.0	0.2	0.0	32.3	0.0	0.0	0.0	41.8	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.6	0.0	0.0	0.3	0.0	17.7	0.3	0.0	0.9	35.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	0.0	17.7	0.0	43.5	20.3	0.0	20.5	79.1	0.0	0.0
LnGrp LOS	D	A	A	B	A	F	C	A	C	F	A	A
Approach Vol, veh/h		365			861			40			650	
Approach Delay, s/veh		37.5			43.1			20.5			79.1	
Approach LOS		D			D			C			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		64.0		56.0	7.1	56.9		56.0				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		58.5		50.5	9.5	43.5		50.5				
Max Q Clear Time (g_c+I1), s		60.5		52.5	2.4	53.4		3.3				
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				53.8								
HCM 6th LOS				D								

Timings
4: SR 14/US 29 (Main St) & Toombs St

2d. No-Build 2028 PM - Improved
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↔		↔		↔		↔
Traffic Volume (vph)	17	71	25	103	7	383	54	570
Future Volume (vph)	17	71	25	103	7	383	54	570
Lane Group Flow (vph)	0	111	0	194	0	453	0	704
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	32.0	32.0	32.0	32.0	88.0	88.0	88.0	88.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.47		0.73		0.34		0.56
Control Delay		50.0		60.5		6.0		8.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		50.0		60.5		6.0		8.9
Queue Length 50th (ft)		76		135		96		194
Queue Length 95th (ft)		127		203		176		357
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		347		388		1342		1255
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.32		0.50		0.34		0.56

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: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

2d. No-Build 2028 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	71	12	25	103	47	7	383	17	54	570	10
Future Volume (veh/h)	17	71	12	25	103	47	7	383	17	54	570	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	19	79	13	28	114	52	8	426	19	60	633	11
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	58	179	27	57	145	61	39	1322	58	117	1206	20
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.78	0.78	0.78	0.78	0.78	0.78
Sat Flow, veh/h	175	1379	206	173	1117	472	10	1698	75	109	1549	26
Grp Volume(v), veh/h	111	0	0	194	0	0	453	0	0	704	0	0
Grp Sat Flow(s),veh/h/ln	1760	0	0	1763	0	0	1783	0	0	1685	0	0
Q Serve(g_s), s	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.7	0.0	0.0	12.8	0.0	0.0	9.0	0.0	0.0	17.2	0.0	0.0
Prop In Lane	0.17		0.12	0.14		0.27	0.02		0.04	0.09		0.02
Lane Grp Cap(c), veh/h	264	0	0	263	0	0	1419	0	0	1344	0	0
V/C Ratio(X)	0.42	0.00	0.00	0.74	0.00	0.00	0.32	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	419	0	0	419	0	0	1419	0	0	1344	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.3	0.0	0.0	50.9	0.0	0.0	3.9	0.0	0.0	4.9	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	4.0	0.0	0.0	0.6	0.0	0.0	1.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.7	0.0	0.0	10.0	0.0	0.0	5.6	0.0	0.0	10.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	0.0	0.0	54.9	0.0	0.0	4.5	0.0	0.0	6.3	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		111			194			453			704	
Approach Delay, s/veh		49.4			54.9			4.5			6.3	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		98.9		21.1		98.9		21.1				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		82.5		26.5		82.5		26.5				
Max Q Clear Time (g_c+I1), s		19.2		8.7		11.0		14.8				
Green Ext Time (p_c), s		14.6		0.5		7.4		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				15.5								
HCM 6th LOS				B								

Intersection

Intersection Delay, s/veh 9.8

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	67	38	256	200	28
Future Vol, veh/h	29	67	38	256	200	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	71	40	272	213	30
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.8	9.6	10.4
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	0%	88%
Vol Thru, %	70%	13%	0%
Vol Right, %	0%	87%	12%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	294	228
LT Vol	29	0	200
Through Vol	67	38	0
RT Vol	0	256	28
Lane Flow Rate	102	313	243
Geometry Grp	1	1	1
Degree of Util (X)	0.141	0.362	0.332
Departure Headway (Hd)	4.954	4.166	4.93
Convergence, Y/N	Yes	Yes	Yes
Cap	721	863	725
Service Time	3.003	2.2	2.984
HCM Lane V/C Ratio	0.141	0.363	0.335
HCM Control Delay	8.8	9.6	10.4
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1.7	1.5

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	143	194	58	32	16
Future Vol, veh/h	10	143	194	58	32	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	166	226	67	37	19
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	293	0	-	0	450	260
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	190	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1269	-	-	-	567	779
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1269	-	-	-	561	779
Mov Cap-2 Maneuver	-	-	-	-	561	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	842	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.5	0		11.4		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1269	-	-	-	619	
HCM Lane V/C Ratio	0.009	-	-	-	0.09	
HCM Control Delay (s)	7.9	0	-	-	11.4	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	70	50	8	17	64
Future Vol, veh/h	8	70	50	8	17	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	82	59	9	20	75
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	179	64	0	0	68	0
Stage 1	64	-	-	-	-	-
Stage 2	115	-	-	-	-	-
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	811	1000	-	-	1533	-
Stage 1	959	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	800	1000	-	-	1533	-
Mov Cap-2 Maneuver	800	-	-	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		1.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	975	1533	-	
HCM Lane V/C Ratio	-	-	0.094	0.013	-	
HCM Control Delay (s)	-	-	9.1	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	157	43	16	682	2	88	14	17	6	19	4
Future Vol, veh/h	2	157	43	16	682	2	88	14	17	6	19	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	173	47	18	749	2	97	15	19	7	21	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	749	0	0	173	0	0	973	962	173	970	962	749
Stage 1	-	-	-	-	-	-	177	177	-	785	785	-
Stage 2	-	-	-	-	-	-	796	785	-	185	177	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	860	-	-	1404	-	-	231	256	871	233	256	412
Stage 1	-	-	-	-	-	-	825	753	-	386	404	-
Stage 2	-	-	-	-	-	-	380	404	-	817	753	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	860	-	-	1404	-	-	210	250	871	213	250	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	250	-	213	250	-
Stage 1	-	-	-	-	-	-	823	751	-	385	395	-
Stage 2	-	-	-	-	-	-	348	395	-	781	751	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			34			19.6		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	251	860	-	-	1404	-	-	278
HCM Lane V/C Ratio	0.521	0.003	-	-	0.013	-	-	0.115
HCM Control Delay (s)	34	9.2	0	-	7.6	0	-	19.6
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.8	0	-	-	0	-	-	0.4

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	106	35	11	578	20	112	20	0	6	6	0
Future Vol, veh/h	0	106	35	11	578	20	112	20	0	6	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	115	38	12	628	22	122	22	0	7	7	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	628	0	0	115	0	0	771	767	58	721	767	-
Stage 1	-	-	-	-	-	-	115	115	-	652	652	-
Stage 2	-	-	-	-	-	-	656	652	-	69	115	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	952	-	-	1473	-	-	303	332	996	328	332	0
Stage 1	-	-	-	-	-	-	878	800	-	456	463	0
Stage 2	-	-	-	-	-	-	454	463	-	933	800	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	952	-	-	1473	-	-	297	329	996	310	329	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	297	329	-	310	329	-
Stage 1	-	-	-	-	-	-	878	800	-	456	459	-
Stage 2	-	-	-	-	-	-	444	459	-	908	800	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			27.4					
HCM LOS							D			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	301	952	-	-	1473	-	-	310	-			
HCM Lane V/C Ratio	0.477	-	-	-	0.008	-	-	0.021	-			
HCM Control Delay (s)	27.4	0	-	-	7.5	-	-	16.9	-			
HCM Lane LOS	D	A	-	-	A	-	-	C	-			
HCM 95th %tile Q(veh)	2.4	0	-	-	0	-	-	0.1	-			

Timings

2d. No-Build 2028 PM - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗	↘	↰	↗	↘	↰	↗	↘	↘
Traffic Volume (vph)	13	109	11	73	544	6	4	370	5	391
Future Volume (vph)	13	109	11	73	544	6	4	370	5	391
Lane Group Flow (vph)	14	114	11	76	567	6	4	441	5	417
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	16.0	39.0	39.0	21.0	44.0	44.0	60.0	60.0	60.0	60.0
Total Split (%)	13.3%	32.5%	32.5%	17.5%	36.7%	36.7%	50.0%	50.0%	50.0%	50.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.15	0.06	0.01	0.49	0.28	0.01	0.03	0.81	0.05	0.76
Control Delay	56.8	19.5	0.0	71.3	5.5	0.2	26.2	50.0	27.0	47.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	19.5	0.0	71.3	5.5	0.2	26.2	50.0	27.0	47.1
Queue Length 50th (ft)	11	24	0	48	6	0	2	311	3	293
Queue Length 95th (ft)	32	51	0	72	219	m0	10	383	12	361
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	154	1770	828	228	2016	933	190	834	163	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.06	0.01	0.33	0.28	0.01	0.02	0.53	0.03	0.49

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

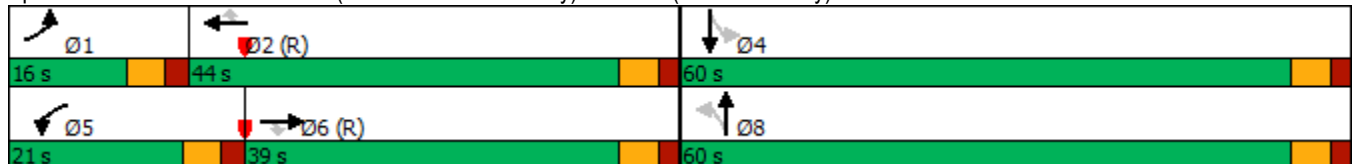
Offset: 119 (99%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

2d. No-Build 2028 PM - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	109	11	73	544	6	4	370	54	5	391	10
Future Volume (veh/h)	13	109	11	73	544	6	4	370	54	5	391	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	114	0	76	567	0	4	385	56	5	407	10
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	28	1906		97	2045		119	433	63	98	493	12
Arrive On Green	0.02	0.54	0.00	0.05	0.58	0.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	969	1596	232	948	1818	45
Grp Volume(v), veh/h	14	114	0	76	567	0	4	0	441	5	0	417
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	969	0	1829	948	0	1862
Q Serve(g_s), s	0.9	1.8	0.0	5.1	9.7	0.0	0.5	0.0	27.8	0.6	0.0	25.2
Cycle Q Clear(g_c), s	0.9	1.8	0.0	5.1	9.7	0.0	25.7	0.0	27.8	28.4	0.0	25.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.02
Lane Grp Cap(c), veh/h	28	1906		97	2045		119	0	496	98	0	505
V/C Ratio(X)	0.51	0.06		0.78	0.28		0.03	0.00	0.89	0.05	0.00	0.83
Avail Cap(c_a), veh/h	156	1906		230	2045		296	0	830	271	0	846
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	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	58.6	13.3	0.0	56.0	12.9	0.0	53.1	0.0	42.0	55.6	0.0	41.0
Incr Delay (d2), s/veh	13.6	0.1	0.0	12.5	0.3	0.0	0.1	0.0	6.8	0.2	0.0	3.5
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	0.9	1.2	0.0	4.5	6.3	0.0	0.2	0.0	18.6	0.3	0.0	16.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.2	13.4	0.0	68.5	13.2	0.0	53.2	0.0	48.7	55.8	0.0	44.5
LnGrp LOS	E	B		E	B		D	A	D	E	A	D
Approach Vol, veh/h	128			643			445			422		
Approach Delay, s/veh	19.8			19.7			48.8			44.7		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	74.6		38.1	12.1	69.9		38.1				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	10.5	38.5		54.5	15.5	33.5		54.5				
Max Q Clear Time (g_c+I1), s	2.9	11.7		30.4	7.1	3.8		29.8				
Green Ext Time (p_c), s	0.0	6.6		2.2	0.1	1.1		2.4				

Intersection Summary

HCM 6th Ctrl Delay 34.0

HCM 6th LOS C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2d. No-Build 2028 PM - Improved

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	283	25	289	710	166	31	200	109	150
Future Volume (vph)	23	283	25	289	710	166	31	200	109	150
Lane Group Flow (vph)	25	308	27	314	772	180	34	457	118	181
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	23.0	44.0	44.0	15.0	36.0	36.0	15.0	46.0	15.0	46.0
Total Split (%)	19.2%	36.7%	36.7%	12.5%	30.0%	30.0%	12.5%	38.3%	12.5%	38.3%
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	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
v/c Ratio	0.08	0.25	0.04	0.58	0.49	0.22	0.08	0.88	0.52	0.29
Control Delay	15.9	25.7	0.1	25.7	27.4	5.3	20.1	54.8	30.2	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	25.7	0.1	25.7	27.4	5.3	20.1	54.8	30.2	29.9
Queue Length 50th (ft)	9	84	0	143	237	3	16	303	57	104
Queue Length 95th (ft)	m23	115	m0	235	333	53	33	408	88	157
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	462	1231	652	542	1591	814	482	621	229	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.25	0.04	0.58	0.49	0.22	0.07	0.74	0.52	0.28

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

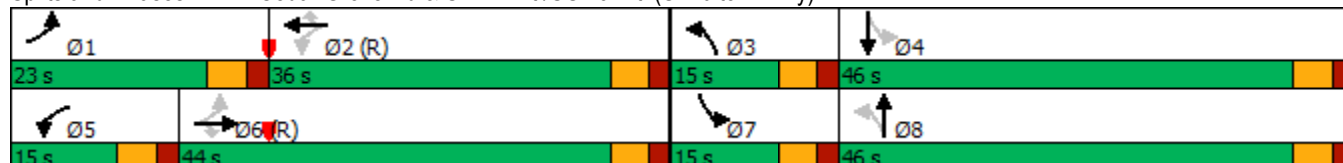
Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2d. No-Build 2028 PM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	283	25	289	710	166	31	200	221	109	150	17
Future Volume (veh/h)	23	283	25	289	710	166	31	200	221	109	150	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	25	308	0	314	772	0	34	217	240	118	163	18
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	309	1359		562	1591		414	235	260	199	539	60
Arrive On Green	0.02	0.39	0.00	0.08	0.44	0.00	0.03	0.29	0.29	0.06	0.32	0.32
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	818	905	1795	1681	186
Grp Volume(v), veh/h	25	308	0	314	772	0	34	0	457	118	0	181
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	0	1722	1795	0	1867
Q Serve(g_s), s	1.0	7.1	0.0	9.5	18.3	0.0	1.6	0.0	30.9	5.5	0.0	8.8
Cycle Q Clear(g_c), s	1.0	7.1	0.0	9.5	18.3	0.0	1.6	0.0	30.9	5.5	0.0	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		0.10
Lane Grp Cap(c), veh/h	309	1359		562	1591		414	0	495	199	0	598
V/C Ratio(X)	0.08	0.23		0.56	0.49		0.08	0.00	0.92	0.59	0.00	0.30
Avail Cap(c_a), veh/h	531	1359		562	1591		506	0	581	231	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	21.6	24.6	0.0	21.8	23.6	0.0	28.7	0.0	41.5	31.6	0.0	30.7
Incr Delay (d2), s/veh	0.1	0.4	0.0	1.2	1.1	0.0	0.1	0.0	18.8	3.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	5.1	0.0	2.8	11.8	0.0	1.2	0.0	21.5	4.4	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	25.0	0.0	23.0	24.7	0.0	28.8	0.0	60.2	34.6	0.0	30.9
LnGrp LOS	C	C		C	C		C	A	E	C	A	C
Approach Vol, veh/h	333			1086			491			299		
Approach Delay, s/veh	24.7			24.2			58.0			32.4		
Approach LOS	C			C			E			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	58.8	8.9	44.0	15.0	52.1	12.9	40.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	17.5	30.5	9.5	40.5	9.5	38.5	9.5	40.5				
Max Q Clear Time (g_c+I1), s	3.0	20.3	3.6	10.8	11.5	9.1	7.5	32.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.9	0.0	3.4	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			32.9									
HCM 6th LOS			C									
Notes												

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2d. No-Build 2028 PM - Improved
08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	258	158	193	773	702	90	931	40	457	646	143
Future Volume (vph)	259	258	158	193	773	702	90	931	40	457	646	143
Lane Group Flow (vph)	267	266	163	199	797	724	93	960	41	471	666	147
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	15.0	53.5	53.5	16.0	54.5	54.5	18.0	53.5	53.5	27.0	62.5	62.5
Total Split (%)	10.0%	35.7%	35.7%	10.7%	36.3%	36.3%	12.0%	35.7%	35.7%	18.0%	41.7%	41.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.09	0.24	0.26	0.43	0.68	1.06	0.69	0.90	0.07	1.02	0.54	0.22
Control Delay	116.6	37.6	6.0	31.2	47.4	82.0	92.7	62.1	0.2	107.9	38.9	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.6	37.6	6.0	31.2	47.4	82.0	92.7	62.1	0.2	107.9	38.9	5.1
Queue Length 50th (ft)	~218	101	0	125	356	~596	90	464	0	~245	265	0
Queue Length 95th (ft)	#410	140	53	187	432	#849	#161	554	0	#364	328	47
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	245	1127	633	464	1167	684	148	1121	581	464	1258	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.24	0.26	0.43	0.68	1.06	0.63	0.86	0.07	1.02	0.53	0.21

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: 150

Control Type: Actuated-Coordinated

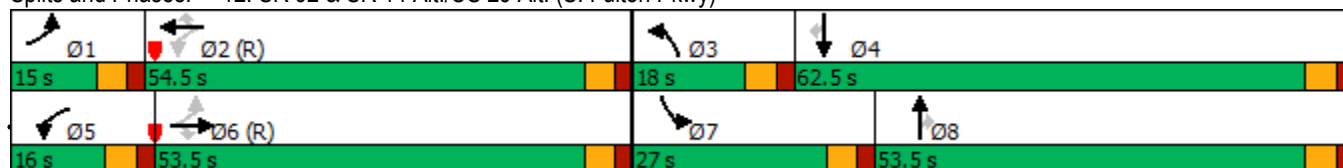
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2d. No-Build 2028 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	258	158	193	773	702	90	931	40	457	646	143
Future Volume (veh/h)	259	258	158	193	773	702	90	931	40	457	646	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1811	1870	1841	1885	1856	1885	1856	1811	1781	1767	1856
Adj Flow Rate, veh/h	267	266	163	199	797	724	93	960	0	471	666	147
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, %	1	6	2	4	1	3	1	3	6	8	9	3
Cap, veh/h	218	1181	544	443	1253	550	114	1046		472	1265	592
Arrive On Green	0.06	0.34	0.34	0.07	0.35	0.35	0.06	0.30	0.00	0.14	0.38	0.38
Sat Flow, veh/h	1795	3441	1585	1753	3582	1572	1795	3526	1535	3291	3357	1572
Grp Volume(v), veh/h	267	266	163	199	797	724	93	960	0	471	666	147
Grp Sat Flow(s),veh/h/ln	1795	1721	1585	1753	1791	1572	1795	1763	1535	1646	1678	1572
Q Serve(g_s), s	9.5	8.3	11.3	10.5	27.9	52.5	7.7	39.5	0.0	21.5	23.1	9.6
Cycle Q Clear(g_c), s	9.5	8.3	11.3	10.5	27.9	52.5	7.7	39.5	0.0	21.5	23.1	9.6
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	218	1181	544	443	1253	550	114	1046		472	1265	592
V/C Ratio(X)	1.22	0.23	0.30	0.45	0.64	1.32	0.82	0.92		1.00	0.53	0.25
Avail Cap(c_a), veh/h	218	1181	544	443	1253	550	150	1128		472	1275	598
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	35.1	36.1	29.9	40.8	48.8	69.4	51.0	0.0	64.2	36.3	32.1
Incr Delay (d2), s/veh	134.2	0.4	1.4	0.7	2.5	154.8	22.5	11.2	0.0	41.0	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.4	6.2	7.9	8.2	18.0	63.6	7.5	25.3	0.0	16.9	14.2	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	176.7	35.5	37.5	30.6	43.3	203.5	91.9	62.2	0.0	105.2	36.7	32.4
LnGrp LOS	F	D	D	C	D	F	F	E		F	D	C
Approach Vol, veh/h	696			1720			1053			1284		
Approach Delay, s/veh	90.1			109.3			64.8			61.4		
Approach LOS	F			F			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	58.0	15.0	62.0	16.0	57.0	27.0	50.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	49.0	12.5	57.0	10.5	48.0	21.5	48.0				
Max Q Clear Time (g_c+I1), s	11.5	54.5	9.7	25.1	12.5	13.3	23.5	41.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.7	0.0	4.4	0.0	3.1				

Intersection Summary

HCM 6th Ctrl Delay 83.7
HCM 6th LOS F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2d. No-Build 2028 PM - Improved

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	67	692	46	126	1584	120	62	47	65	97
Future Volume (vph)	67	692	46	126	1584	120	62	47	65	97
Lane Group Flow (vph)	68	706	47	129	1616	122	63	119	66	222
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	59.0	59.0	44.0	44.0	44.0	61.0	61.0	61.0	61.0
Total Split (%)	12.5%	49.2%	49.2%	36.7%	36.7%	36.7%	50.8%	50.8%	50.8%	50.8%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.31	0.26	0.04	0.26	0.67	0.11	0.85	0.40	0.42	0.74
Control Delay	8.0	4.8	1.5	4.5	5.1	0.7	119.0	23.6	53.6	47.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	4.8	1.5	4.5	5.1	0.7	119.0	23.6	53.6	47.9
Queue Length 50th (ft)	11	70	0	16	134	1	48	33	47	115
Queue Length 95th (ft)	28	122	11	m28	m204	m5	#108	84	87	188
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	250	2671	1253	498	2424	1097	247	823	522	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.26	0.04	0.26	0.67	0.11	0.26	0.14	0.13	0.26

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 3 (3%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 130

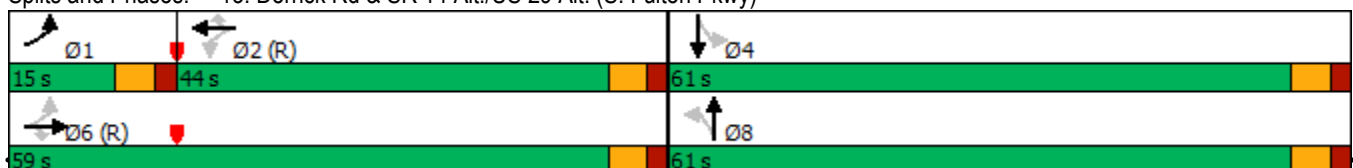
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2d. No-Build 2028 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	692	46	126	1584	120	62	47	70	65	97	121
Future Volume (veh/h)	67	692	46	126	1584	120	62	47	70	65	97	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	68	706	47	129	1616	122	63	48	71	66	99	123
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	212	2496	1149	515	2240	991	150	130	192	228	150	186
Arrive On Green	0.04	0.71	0.71	0.63	0.63	0.63	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1739	3497	1610	721	3554	1572	1177	665	984	1273	770	957
Grp Volume(v), veh/h	68	706	47	129	1616	122	63	0	119	66	0	222
Grp Sat Flow(s),veh/h/ln	1739	1749	1610	721	1777	1572	1177	0	1649	1273	0	1728
Q Serve(g_s), s	1.5	8.7	1.0	9.7	37.0	3.7	6.3	0.0	7.5	5.7	0.0	14.2
Cycle Q Clear(g_c), s	1.5	8.7	1.0	9.7	37.0	3.7	20.5	0.0	7.5	13.2	0.0	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.55
Lane Grp Cap(c), veh/h	212	2496	1149	515	2240	991	150	0	321	228	0	336
V/C Ratio(X)	0.32	0.28	0.04	0.25	0.72	0.12	0.42	0.00	0.37	0.29	0.00	0.66
Avail Cap(c_a), veh/h	285	2496	1149	515	2240	991	465	0	763	569	0	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	6.2	5.1	10.0	15.0	8.9	54.1	0.0	41.9	47.7	0.0	44.6
Incr Delay (d2), s/veh	0.9	0.3	0.1	1.2	2.0	0.3	1.9	0.0	0.7	0.7	0.0	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	1.2	4.6	0.5	2.7	18.9	2.1	3.4	0.0	5.5	3.3	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	6.5	5.1	11.1	17.1	9.1	56.0	0.0	42.6	48.4	0.0	46.8
LnGrp LOS	B	A	A	B	B	A	E	A	D	D	A	D
Approach Vol, veh/h		821			1867			182			288	
Approach Delay, s/veh		7.1			16.2			47.3			47.2	
Approach LOS		A			B			D			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	81.1		28.9		91.1		28.9				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	38.5		55.5		53.5		55.5				
Max Q Clear Time (g_c+I1), s	3.5	39.0		16.2		10.7		22.5				
Green Ext Time (p_c), s	0.0	0.0		1.5		10.3		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				18.4								
HCM 6th LOS				B								

Timings

2d. No-Build 2028 PM - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	106	271	401	25	1331	58	317	234	54	44	154
Future Volume (vph)	106	271	401	25	1331	58	317	234	54	44	154
Lane Group Flow (vph)	112	285	422	26	1401	61	334	246	57	46	345
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	57.5	57.5	57.5	57.5	57.5	57.5	47.5	47.5	47.5	15.0	62.5
Total Split (%)	47.9%	47.9%	47.9%	47.9%	47.9%	47.9%	39.6%	39.6%	39.6%	12.5%	52.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	1.81	0.19	0.44	0.05	0.83	0.08	0.95	0.38	0.10	0.10	0.45
Control Delay	438.5	19.5	4.3	7.2	22.2	1.3	76.1	31.1	4.2	17.7	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	438.5	19.5	4.3	7.2	22.2	1.3	76.1	31.1	4.2	17.7	23.6
Queue Length 50th (ft)	~136	62	1	8	526	7	245	139	0	19	164
Queue Length 95th (ft)	#239	101	72	m5	631	m2	#441	214	21	40	241
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	62	1513	970	506	1679	790	358	666	602	453	824
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.81	0.19	0.44	0.05	0.83	0.08	0.93	0.37	0.09	0.10	0.42

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 12 (10%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

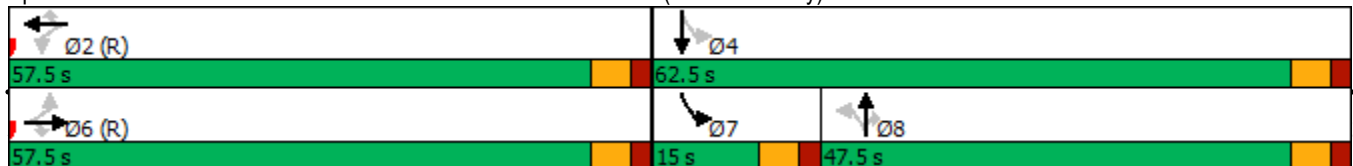
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

2d. No-Build 2028 PM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (veh/h)	106	271	401	25	1331	58	317	234	54	44	154	174
Future Volume (veh/h)	106	271	401	25	1331	58	317	234	54	44	154	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	112	285	422	26	1401	61	334	246	0	46	162	183
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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	114	1584	767	384	1732	773	348	655		409	346	391
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.35	0.35	0.00	0.03	0.43	0.43
Sat Flow, veh/h	363	3300	1598	753	3610	1610	1011	1870	1560	1810	808	913
Grp Volume(v), veh/h	112	285	422	26	1401	61	334	246	0	46	0	345
Grp Sat Flow(s),veh/h/ln	363	1650	1598	753	1805	1610	1011	1870	1560	1810	0	1721
Q Serve(g_s), s	18.0	5.9	22.4	2.4	39.6	2.5	34.2	11.8	0.0	1.9	0.0	17.2
Cycle Q Clear(g_c), s	57.6	5.9	22.4	8.3	39.6	2.5	42.0	11.8	0.0	1.9	0.0	17.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	114	1584	767	384	1732	773	348	655		409	0	737
V/C Ratio(X)	0.98	0.18	0.55	0.07	0.81	0.08	0.96	0.38		0.11	0.00	0.47
Avail Cap(c_a), veh/h	114	1584	767	384	1732	773	348	655		493	0	817
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	0.76	0.76	0.76	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.6	17.8	22.1	20.1	26.5	16.9	45.2	29.2	0.0	23.0	0.0	24.5
Incr Delay (d2), s/veh	78.6	0.2	2.8	0.3	3.2	0.2	37.3	0.4	0.0	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.7	3.8	13.4	0.8	21.8	1.6	19.7	9.0	0.0	1.4	0.0	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.3	18.0	24.9	20.4	29.8	17.0	82.5	29.5	0.0	23.2	0.0	25.0
LnGrp LOS	F	B	C	C	C	B	F	C		C	A	C
Approach Vol, veh/h	819				1488				580			
Approach Delay, s/veh	37.5				29.1				60.1			
Approach LOS	D				C				E			
Timer - Assigned Phs	2			4		6		7	8			
Phs Duration (G+Y+Rc), s	63.1			56.9		63.1		9.4	47.5			
Change Period (Y+Rc), s	5.5			5.5		5.5		5.5	5.5			
Max Green Setting (Gmax), s	52.0			57.0		52.0		9.5	42.0			
Max Q Clear Time (g_c+I1), s	41.6			19.2		59.6		3.9	44.0			
Green Ext Time (p_c), s	8.6			2.2		0.0		0.0	0.0			

Intersection Summary

HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

2d. No-Build 2028 PM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	44	206	131	103	1307	41	28	73	104	150	62
Future Volume (vph)	44	206	131	103	1307	41	28	73	104	150	62
Lane Group Flow (vph)	46	217	138	108	1376	43	0	106	109	158	139
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.19	0.11	0.14	0.15	0.61	0.05		0.37	0.28	0.76	0.38
Control Delay	6.2	3.9	0.4	6.8	16.4	1.1		44.2	8.4	67.6	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	6.2	3.9	0.4	6.8	16.4	1.1		44.2	8.4	67.6	24.9
Queue Length 50th (ft)	3	9	0	22	324	0		72	0	117	52
Queue Length 95th (ft)	13	22	0	54	506	7		115	44	177	101
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	279	1951	1022	725	2258	857		672	760	488	786
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.16	0.11	0.14	0.15	0.61	0.05		0.16	0.14	0.32	0.18

Intersection Summary

Cycle Length: 120

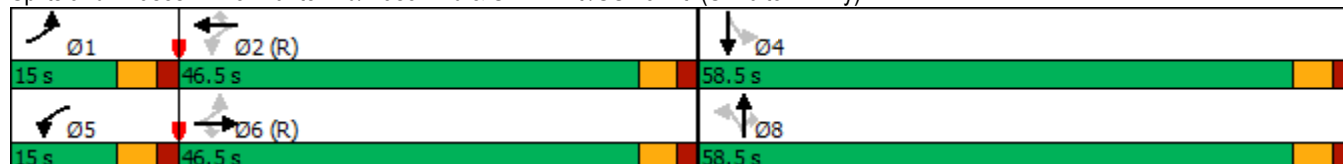
Actuated Cycle Length: 120

Offset: 89 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

2d. No-Build 2028 PM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	206	131	103	1307	41	28	73	104	150	62	70
Future Volume (veh/h)	44	206	131	103	1307	41	28	73	104	150	62	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	46	217	138	108	1376	0	29	77	0	158	65	74
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	272	2077	1014	674	2284		86	201		247	152	173
Arrive On Green	0.03	0.63	0.63	0.04	0.64	0.00	0.19	0.19	0.00	0.19	0.19	0.19
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	256	1072	1585	1186	811	923
Grp Volume(v), veh/h	46	217	138	108	1376	0	106	0	0	158	0	139
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1327	0	1585	1186	0	1734
Q Serve(g_s), s	1.1	3.1	4.1	2.9	27.1	0.0	1.7	0.0	0.0	8.9	0.0	8.5
Cycle Q Clear(g_c), s	1.1	3.1	4.1	2.9	27.1	0.0	10.2	0.0	0.0	19.1	0.0	8.5
Prop In Lane	1.00		1.00	1.00		1.00	0.27		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	272	2077	1014	674	2284		287	0		247	0	324
V/C Ratio(X)	0.17	0.10	0.14	0.16	0.60		0.37	0.00		0.64	0.00	0.43
Avail Cap(c_a), veh/h	351	2077	1014	735	2284		669	0		548	0	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.99	0.99	0.99	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.1	8.6	8.8	6.8	12.5	0.0	42.9	0.0	0.0	48.4	0.0	43.1
Incr Delay (d2), s/veh	0.3	0.1	0.3	0.1	1.2	0.0	0.8	0.0	0.0	2.8	0.0	0.9
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	0.6	1.8	2.4	1.5	14.3	0.0	5.1	0.0	0.0	8.2	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.4	8.7	9.0	6.9	13.7	0.0	43.7	0.0	0.0	51.2	0.0	44.0
LnGrp LOS	B	A	A	A	B		D	A		D	A	D
Approach Vol, veh/h	401			1484			106			297		
Approach Delay, s/veh	9.0			13.2			43.7			47.8		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	82.6		28.0	10.4	81.7		28.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.1	29.1		21.1	4.9	6.1		12.2				
Green Ext Time (p_c), s	0.0	9.4		1.3	0.1	3.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay 18.4

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

2d. No-Build 2028 PM - Improved

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	62	517	642	1591	164
Future Volume (vph)	29	62	517	642	1591	164
Lane Group Flow (vph)	31	65	544	676	1675	173
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	21.0	75.0	54.0	54.0
Total Split (%)	16.7%	16.7%	23.3%	83.3%	60.0%	60.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.22	0.35	0.85	0.23	0.84	0.18
Control Delay	42.1	15.9	50.1	2.3	12.8	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	15.9	50.1	2.3	12.8	0.9
Queue Length 50th (ft)	17	0	153	36	294	1
Queue Length 95th (ft)	43	37	#255	58	m301	m0
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	183	225	637	2983	2005	979
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.29	0.85	0.23	0.84	0.18

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

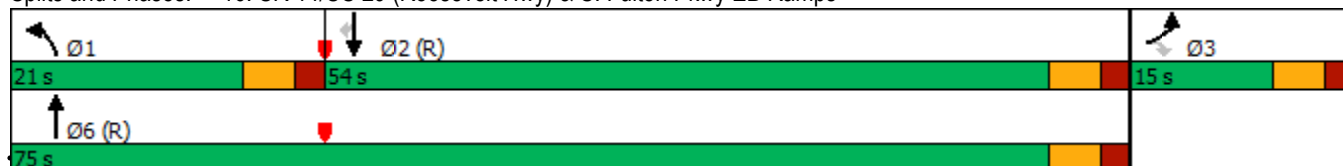
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary

2d. No-Build 2028 PM - Improved

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	62	517	642	1591	164
Future Volume (veh/h)	29	62	517	642	1591	164
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1870	1841	1885	1856	1870
Adj Flow Rate, veh/h	31	0	544	676	1675	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	4	1	3	2
Cap, veh/h	53		586	3037	2166	
Arrive On Green	0.03	0.00	0.17	0.85	0.61	0.00
Sat Flow, veh/h	1753	1585	3401	3676	3618	1585
Grp Volume(v), veh/h	31	0	544	676	1675	0
Grp Sat Flow(s),veh/h/ln	1753	1585	1700	1791	1763	1585
Q Serve(g_s), s	1.6	0.0	14.2	3.2	31.4	0.0
Cycle Q Clear(g_c), s	1.6	0.0	14.2	3.2	31.4	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	53		586	3037	2166	
V/C Ratio(X)	0.59		0.93	0.22	0.77	
Avail Cap(c_a), veh/h	185		586	3037	2166	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.09	0.00
Uniform Delay (d), s/veh	43.1	0.0	36.7	1.3	12.7	0.0
Incr Delay (d2), s/veh	10.1	0.0	21.4	0.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.0	11.7	0.3	11.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.2	0.0	58.1	1.5	13.0	0.0
LnGrp LOS	D		E	A	B	
Approach Vol, veh/h	31			1220	1675	
Approach Delay, s/veh	53.2			26.7	13.0	
Approach LOS	D			C	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	60.8			81.8	8.2
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	15.5	48.5			69.5	9.5
Max Q Clear Time (g_c+I1), s	16.2	33.4			5.2	3.6
Green Ext Time (p_c), s	0.0	13.1			10.3	0.0

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

2d. No-Build 2028 PM - Improved

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	65	898	37	634	858
Future Volume (vph)	65	898	37	634	858
Lane Group Flow (vph)	69	955	39	674	1067
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	56.0	56.0	34.0	34.0	34.0
Total Split (%)	62.2%	62.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.07	1.10	0.46	0.60	0.95
Control Delay	9.3	81.5	43.4	26.3	48.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	81.5	43.4	26.3	48.5
Queue Length 50th (ft)	17	~616	18	171	304
Queue Length 95th (ft)	35	#853	#63	230	#441
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	974	872	84	1131	1118
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	1.10	0.46	0.60	0.95

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

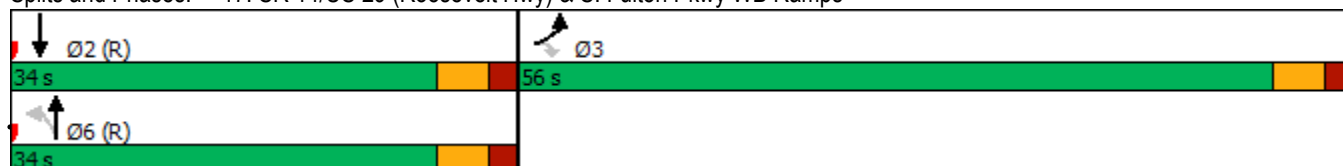
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	898	37	634	858	145
Future Volume (veh/h)	65	898	37	634	858	145
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1826	1900	1885	1885	1856
Adj Flow Rate, veh/h	69	0	39	674	913	154
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	5	0	1	1	3
Cap, veh/h	91		484	2958	2532	427
Arrive On Green	0.05	0.00	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1753	1547	537	3676	3160	517
Grp Volume(v), veh/h	69	0	39	674	533	534
Grp Sat Flow(s),veh/h/ln	1753	1547	537	1791	1791	1792
Q Serve(g_s), s	3.5	0.0	1.7	3.6	6.6	6.6
Cycle Q Clear(g_c), s	3.5	0.0	8.4	3.6	6.6	6.6
Prop In Lane	1.00	1.00	1.00			0.29
Lane Grp Cap(c), veh/h	91		484	2958	1479	1480
V/C Ratio(X)	0.76		0.08	0.23	0.36	0.36
Avail Cap(c_a), veh/h	984		484	2958	1479	1480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	3.0	1.7	1.9	1.9
Incr Delay (d2), s/veh	12.1	0.0	0.3	0.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	0.0	0.3	0.7	1.6	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.2	0.0	3.3	1.9	2.6	2.6
LnGrp LOS	D		A	A	A	A
Approach Vol, veh/h	69			713	1067	
Approach Delay, s/veh	54.2			1.9	2.6	
Approach LOS	D			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	79.8		79.8		10.2	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	28.5		28.5		50.5	
Max Q Clear Time (g_c+I1), s	8.6		10.4		5.5	
Green Ext Time (p_c), s	11.3		7.5		0.2	

Intersection Summary

HCM 6th Ctrl Delay	4.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Future 2028 Phase 1 “Build” Intersections Analysis

Timings
1: I-85 NB Ramps & Collinsworth Rd

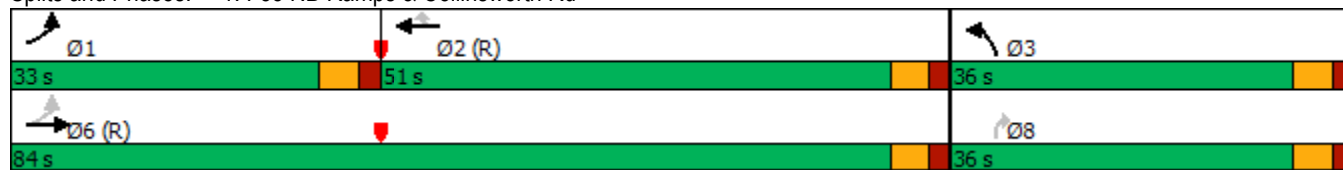
3a. Build 2028 AM (Phase 1)
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	427	527	522	758	345	421
Future Volume (vph)	427	527	522	758	345	421
Lane Group Flow (vph)	454	561	555	806	367	448
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	33.0	84.0	51.0	51.0	36.0	36.0
Total Split (%)	27.5%	70.0%	42.5%	42.5%	30.0%	30.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.87	0.24	0.75	0.80	0.91	0.70
Control Delay	33.3	11.9	39.1	13.2	70.9	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	11.9	39.1	13.2	70.9	15.3
Queue Length 50th (ft)	240	126	383	98	271	55
Queue Length 95th (ft)	#367	115	#548	316	#435	177
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	545	2348	739	1011	432	655
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.24	0.75	0.80	0.85	0.68

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 93 (78%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary
1: I-85 NB Ramps & Collinsworth Rd

3a. Build 2028 AM (Phase 1)
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	427	527	0	0	522	758	345	0	421	0	0	0
Future Volume (veh/h)	427	527	0	0	522	758	345	0	421	0	0	0
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			
Work Zone On Approach	No				No			No				
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	454	561	0	0	555	0	367	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	523	2396	0	0	899		394	0				
Arrive On Green	0.05	0.22	0.00	0.00	0.50	0.00	0.23	0.00	0.00			
Sat Flow, veh/h	1725	3618	0	0	1811	1535	1725	0	1535			
Grp Volume(v), veh/h	454	561	0	0	555	0	367	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1763	0	0	1811	1535	1725	0	1535			
Q Serve(g_s), s	13.4	15.6	0.0	0.0	26.7	0.0	25.0	0.0	0.0			
Cycle Q Clear(g_c), s	13.4	15.6	0.0	0.0	26.7	0.0	25.0	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	523	2396	0	0	899		394	0				
V/C Ratio(X)	0.87	0.23	0.00	0.00	0.62		0.93	0.00				
Avail Cap(c_a), veh/h	682	2396	0	0	899		438	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.69	0.69	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	20.0	21.0	0.0	0.0	21.9	0.0	45.3	0.0	0.0			
Incr Delay (d2), s/veh	6.6	0.2	0.0	0.0	3.2	0.0	25.2	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	9.8	11.0	0.0	0.0	16.5	0.0	19.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	21.1	0.0	0.0	25.1	0.0	70.6	0.0	0.0			
LnGrp LOS	C	C	A	A	C		E	A				
Approach Vol, veh/h	1015				555			367				
Approach Delay, s/veh	23.6				25.1			70.6				
Approach LOS	C				C			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	22.0	65.1				87.1		32.9				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	27.5	45.5				78.5		30.5				
Max Q Clear Time (g_c+I1), s	15.4	28.7				17.6		27.0				
Green Ext Time (p_c), s	1.1	5.3				7.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

3a. Build 2028 AM (Phase 1)
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	819	250	234	679	170	196
Future Volume (vph)	819	250	234	679	170	196
Lane Group Flow (vph)	862	263	246	715	179	206
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	78.0	78.0	20.0	98.0	22.0	22.0
Total Split (%)	65.0%	65.0%	16.7%	81.7%	18.3%	18.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.69	0.24	0.59	0.49	0.55	0.63
Control Delay	17.1	2.6	8.3	6.7	57.7	15.7
Queue Delay	0.0	0.0	0.0	1.0	0.0	0.0
Total Delay	17.1	2.6	8.3	7.7	57.7	15.7
Queue Length 50th (ft)	396	18	32	282	69	0
Queue Length 95th (ft)	491	m38	m50	m387	104	73
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	1251	1089	472	1451	454	375
Starvation Cap Reductn	0	0	0	450	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.24	0.52	0.71	0.39	0.55

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 21 (18%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

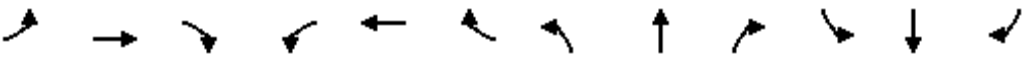
Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖	↗	↖
Traffic Volume (veh/h)	0	819	250	234	679	0	0	0	0	170	0	196
Future Volume (veh/h)	0	819	250	234	679	0	0	0	0	170	0	196
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	862	0	246	715	0				179	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	1365		625	1515	0				240	0	
Arrive On Green	0.00	1.00	0.00	0.11	1.00	0.00				0.07	0.00	0.00
Sat Flow, veh/h	0	1856	1497	1767	1811	0				3346	0	1459
Grp Volume(v), veh/h	0	862	0	246	715	0				179	0	0
Grp Sat Flow(s),veh/h/ln	0	1856	1497	1767	1811	0				1673	0	1459
Q Serve(g_s), s	0.0	0.0	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1365		625	1515	0				240	0	
V/C Ratio(X)	0.00	0.63		0.39	0.47	0.00				0.75	0.00	
Avail Cap(c_a), veh/h	0	1365		742	1515	0				460	0	
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.82	0.00	0.48	0.48	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	2.5	0.0	0.0				54.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.0	0.2	0.5	0.0				4.6	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	0.0	1.3	0.0	1.2	0.4	0.0				5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.8	0.0	2.7	0.5	0.0				59.2	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		862			961						179	
Approach Delay, s/veh		1.8			1.1						59.2	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.9		14.1	12.1	93.8						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		92.5		16.5	14.5	72.5						
Max Q Clear Time (g_c+I1), s		2.0		8.3	6.2	2.0						
Green Ext Time (p_c), s		11.9		0.3	0.4	16.6						
Intersection Summary												
HCM 6th Ctrl Delay			6.6									
HCM 6th LOS			A									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

3a. Build 2028 AM (Phase 1)
08/31/2023

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	24	386	4	36	178	1	7	477	4
Future Volume (vph)	24	386	4	36	178	1	7	477	4
Lane Group Flow (vph)	0	427	4	38	544	1	7	0	509
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases		6		5	2	8			4
Permitted Phases	6		6	2			8	4	
Detector Phase	6	6	6	5	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	45.0	45.0	45.0	15.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	12.5%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None
v/c Ratio		0.56	0.01	0.11	0.61	0.00	0.01		0.91
Control Delay		32.3	0.0	7.5	10.3	18.0	0.0		54.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		32.3	0.0	7.5	10.3	18.0	0.0		54.5
Queue Length 50th (ft)		270	0	9	225	0	0		351
Queue Length 95th (ft)		410	0	m19	346	4	0		#536
Internal Link Dist (ft)		914			947	293			729
Turn Bay Length (ft)			365	315					
Base Capacity (vph)		763	724	381	887	846	758		617
Starvation Cap Reductn		0	0	0	0	0	0		0
Spillback Cap Reductn		0	0	0	0	0	0		0
Storage Cap Reductn		0	0	0	0	0	0		0
Reduced v/c Ratio		0.56	0.01	0.10	0.61	0.00	0.01		0.82

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43 (36%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 90

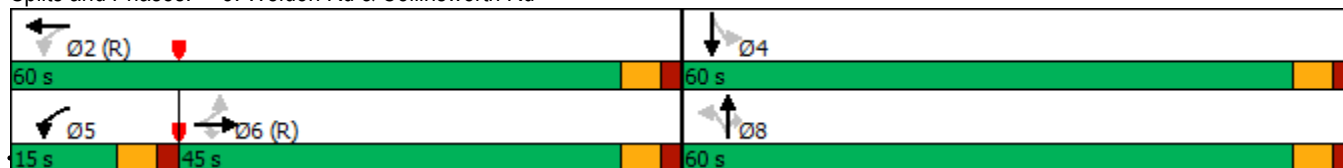
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

3: Weldon Rd & Collinsworth Rd

3a. Build 2028 AM (Phase 1)

08/31/2023

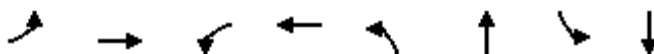
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	386	4	36	178	345	0	1	7	477	4	8
Future Volume (veh/h)	24	386	4	36	178	345	0	1	7	477	4	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	402	4	38	185	359	0	1	7	497	4	8
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	58	783	713	394	299	580	0	716	607	587	4	8
Arrive On Green	0.45	0.45	0.45	0.05	0.88	0.88	0.00	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	59	1742	1585	1781	569	1103	0	1870	1585	1378	11	22
Grp Volume(v), veh/h	427	0	4	38	0	544	0	1	7	509	0	0
Grp Sat Flow(s),veh/h/ln	1801	0	1585	1781	0	1672	0	1870	1585	1411	0	0
Q Serve(g_s), s	0.0	0.0	0.2	1.3	0.0	10.5	0.0	0.0	0.3	41.7	0.0	0.0
Cycle Q Clear(g_c), s	19.5	0.0	0.2	1.3	0.0	10.5	0.0	0.0	0.3	41.8	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.66	0.00		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	842	0	713	394	0	878	0	716	607	600	0	0
V/C Ratio(X)	0.51	0.00	0.01	0.10	0.00	0.62	0.00	0.00	0.01	0.85	0.00	0.00
Avail Cap(c_a), veh/h	842	0	713	482	0	878	0	849	720	700	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.84	0.00	0.84	0.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.5	0.0	18.2	17.2	0.0	4.1	0.0	22.9	22.9	35.8	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.1	0.0	2.8	0.0	0.0	0.0	8.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.2	0.0	0.1	0.9	0.0	4.5	0.0	0.0	0.2	21.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	0.0	18.2	17.3	0.0	6.9	0.0	22.9	23.0	44.3	0.0	0.0
LnGrp LOS	C	A	B	B	A	A	A	C	C	D	A	A
Approach Vol, veh/h		431			582			8			509	
Approach Delay, s/veh		25.7			7.6			22.9			44.3	
Approach LOS		C			A			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		68.5		51.5	9.1	59.5		51.5				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		54.5		54.5	9.5	39.5		54.5				
Max Q Clear Time (g_c+I1), s		12.5		43.8	3.3	21.5		2.3				
Green Ext Time (p_c), s		7.7		2.2	0.0	4.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				25.0								
HCM 6th LOS				C								

Timings

4: SR 14/US 29 (Main St) & Toombs St

3a. Build 2028 AM (Phase 1)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	30	89	8	51	7	395	29	343
Future Volume (vph)	30	89	8	51	7	395	29	343
Lane Group Flow (vph)	0	145	0	95	0	458	0	421
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	36.0	36.0	36.0	36.0	84.0	84.0	84.0	84.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.69		0.40		0.34		0.34
Control Delay		64.7		42.5		5.2		5.3
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		64.7		42.5		5.2		5.3
Queue Length 50th (ft)		106		55		88		80
Queue Length 95th (ft)		168		104		161		151
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		417		457		1341		1231
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.35		0.21		0.34		0.34

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: 50

Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	89	12	8	51	26	7	395	10	29	343	7
Future Volume (veh/h)	30	89	12	8	51	26	7	395	10	29	343	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	33	99	13	9	57	29	8	439	11	32	381	8
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	68	133	16	41	118	56	39	1360	34	104	1183	24
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.81	0.81	0.81	0.81	0.81	0.81
Sat Flow, veh/h	307	1323	161	86	1172	552	10	1684	42	89	1465	30
Grp Volume(v), veh/h	145	0	0	95	0	0	458	0	0	421	0	0
Grp Sat Flow(s),veh/h/ln	1790	0	0	1810	0	0	1735	0	0	1584	0	0
Q Serve(g_s), s	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.4	0.0	0.0	6.0	0.0	0.0	8.2	0.0	0.0	7.8	0.0	0.0
Prop In Lane	0.23		0.09	0.09		0.31	0.02		0.02	0.08		0.02
Lane Grp Cap(c), veh/h	217	0	0	215	0	0	1432	0	0	1312	0	0
V/C Ratio(X)	0.67	0.00	0.00	0.44	0.00	0.00	0.32	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	479	0	0	481	0	0	1432	0	0	1312	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.7	0.0	0.0	51.2	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.0	1.4	0.0	0.0	0.6	0.0	0.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	0.0	5.0	0.0	0.0	4.6	0.0	0.0	4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	0.0	52.7	0.0	0.0	3.6	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	E	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		145			95			458			421	
Approach Delay, s/veh		56.2			52.7			3.6			3.6	
Approach LOS		E			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		102.4		17.6		102.4		17.6				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		78.5		30.5		78.5		30.5				
Max Q Clear Time (g_c+I1), s		9.8		11.4		10.2		8.0				
Green Ext Time (p_c), s		6.9		0.7		7.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				14.6								
HCM 6th LOS				B								

Intersection

Intersection Delay, s/veh 9.8

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	60	31	174	264	20
Future Vol, veh/h	36	60	31	174	264	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	62	32	179	272	21
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.8	8.8	10.8
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	0%	93%
Vol Thru, %	62%	15%	0%
Vol Right, %	0%	85%	7%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	205	284
LT Vol	36	0	264
Through Vol	60	31	0
RT Vol	0	174	20
Lane Flow Rate	99	211	293
Geometry Grp	1	1	1
Degree of Util (X)	0.137	0.252	0.388
Departure Headway (Hd)	4.984	4.288	4.771
Convergence, Y/N	Yes	Yes	Yes
Cap	718	837	752
Service Time	3.027	2.322	2.815
HCM Lane V/C Ratio	0.138	0.252	0.39
HCM Control Delay	8.8	8.8	10.8
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1	1.8

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	205	133	35	56	13
Future Vol, veh/h	6	205	133	35	56	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	216	140	37	59	14
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	177	0	-	0	387	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1399	-	-	-	616	886
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1399	-	-	-	613	886
Mov Cap-2 Maneuver	-	-	-	-	613	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	810	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		11.2		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1399	-	-	-	651	
HCM Lane V/C Ratio	0.005	-	-	-	0.112	
HCM Control Delay (s)	7.6	0	-	-	11.2	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.4	

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	29	40	6	57	60
Future Vol, veh/h	8	29	40	6	57	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	37	51	8	73	77
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	278	55	0	0	59	0
Stage 1	55	-	-	-	-	-
Stage 2	223	-	-	-	-	-
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	712	1012	-	-	1545	-
Stage 1	968	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	677	1012	-	-	1545	-
Mov Cap-2 Maneuver	677	-	-	-	-	-
Stage 1	968	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		3.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	914	1545	-	
HCM Lane V/C Ratio	-	-	0.052	0.047	-	
HCM Control Delay (s)	-	-	9.2	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰↱	
Traffic Vol, veh/h	2	473	73	11	132	32	37	15	17	62	31	4
Future Vol, veh/h	2	473	73	11	132	32	37	15	17	62	31	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	None
Storage Length	-	-	210	-	-	250	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	538	83	13	150	36	42	17	19	70	35	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	538	0	0	738	718	538	727	718	150
Stage 1	-	-	-	-	-	-	542	542	-	176	176	-
Stage 2	-	-	-	-	-	-	196	176	-	551	542	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1431	-	-	1030	-	-	334	355	543	339	355	896
Stage 1	-	-	-	-	-	-	525	520	-	826	753	-
Stage 2	-	-	-	-	-	-	806	753	-	519	520	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1431	-	-	1030	-	-	303	349	543	311	349	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	349	-	311	349	-
Stage 1	-	-	-	-	-	-	524	519	-	824	742	-
Stage 2	-	-	-	-	-	-	753	742	-	483	519	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			17.3			21.2		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	315	543	1431	-	-	1030	-	-	331			
HCM Lane V/C Ratio	0.188	0.036	0.002	-	-	0.012	-	-	0.333			
HCM Control Delay (s)	19	11.9	7.5	0	-	8.5	0	-	21.2			
HCM Lane LOS	C	B	A	A	-	A	A	-	C			
HCM 95th %tile Q(veh)	0.7	0.1	0	-	-	0	-	-	1.4			

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	473	63	4	138	6	34	5	0	18	23	0
Future Vol, veh/h	0	473	63	4	138	6	34	5	0	18	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	520	69	4	152	7	37	5	0	20	25	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	520	0	0	693	680	260	423	680	-
Stage 1	-	-	-	-	-	-	520	520	-	160	160	-
Stage 2	-	-	-	-	-	-	173	160	-	263	520	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	1428	-	-	1044	-	-	343	372	740	528	372	0
Stage 1	-	-	-	-	-	-	508	531	-	842	765	0
Stage 2	-	-	-	-	-	-	828	765	-	720	531	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1428	-	-	1044	-	-	324	371	740	522	371	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	417	442	-	522	371	-
Stage 1	-	-	-	-	-	-	508	531	-	842	762	-
Stage 2	-	-	-	-	-	-	797	762	-	713	531	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	14.5	
HCM LOS			B	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	420	1428	-	-	1044	-	-	522	-
HCM Lane V/C Ratio	0.102	-	-	-	0.004	-	-	0.038	-
HCM Control Delay (s)	14.5	0	-	-	8.5	-	-	12.2	-
HCM Lane LOS	B	A	-	-	A	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1	-

Timings

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	12	470	10	46	127	4	6	276	2	299
Future Volume (vph)	12	470	10	46	127	4	6	276	2	299
Lane Group Flow (vph)	13	500	11	49	135	4	6	365	2	327
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	45.0	45.0	19.0	47.0	47.0	56.0	56.0	56.0	56.0
Total Split (%)	14.2%	37.5%	37.5%	15.8%	39.2%	39.2%	46.7%	46.7%	46.7%	46.7%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.14	0.25	0.01	0.38	0.06	0.00	0.05	0.80	0.02	0.71
Control Delay	56.7	16.0	0.0	92.2	2.8	0.0	31.0	53.6	30.0	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	16.0	0.0	92.2	2.8	0.0	31.0	53.6	30.0	49.3
Queue Length 50th (ft)	10	104	0	41	4	0	4	258	1	232
Queue Length 95th (ft)	31	172	0	84	8	m0	14	333	8	301
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	1985	920	199	2186	1005	225	768	175	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.25	0.01	0.25	0.06	0.00	0.03	0.48	0.01	0.42

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

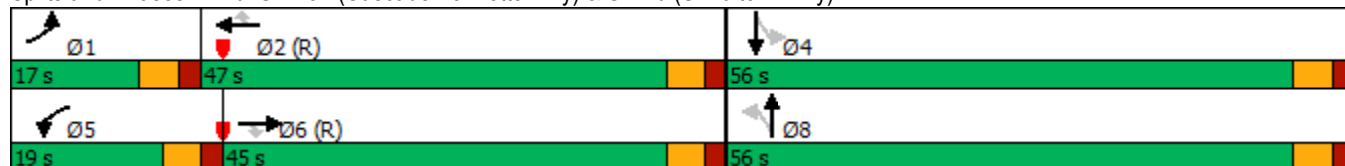
Offset: 116 (97%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	470	10	46	127	4	6	276	67	2	299	8
Future Volume (veh/h)	12	470	10	46	127	4	6	276	67	2	299	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	500	0	49	135	0	6	294	71	2	318	9
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	26	2128		63	2203		127	332	80	93	413	12
Arrive On Green	0.01	0.60	0.00	0.04	0.62	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1053	1456	352	1017	1810	51
Grp Volume(v), veh/h	13	500	0	49	135	0	6	0	365	2	0	327
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1053	0	1807	1017	0	1861
Q Serve(g_s), s	0.9	7.9	0.0	3.3	1.8	0.0	0.6	0.0	23.4	0.2	0.0	19.7
Cycle Q Clear(g_c), s	0.9	7.9	0.0	3.3	1.8	0.0	20.4	0.0	23.4	23.7	0.0	19.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		0.03
Lane Grp Cap(c), veh/h	26	2128		63	2203		127	0	412	93	0	424
V/C Ratio(X)	0.50	0.23		0.77	0.06		0.05	0.00	0.89	0.02	0.00	0.77
Avail Cap(c_a), veh/h	171	2128		200	2203		330	0	760	289	0	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	58.7	11.2	0.0	57.4	9.0	0.0	52.9	0.0	44.8	56.3	0.0	43.4
Incr Delay (d2), s/veh	13.9	0.3	0.0	17.7	0.1	0.0	0.2	0.0	6.5	0.1	0.0	3.0
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	0.9	5.1	0.0	3.1	1.1	0.0	0.3	0.0	16.0	0.1	0.0	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.6	11.5	0.0	75.1	9.1	0.0	53.1	0.0	51.3	56.4	0.0	46.4
LnGrp LOS	E	B		E	A		D	A	D	E	A	D
Approach Vol, veh/h		513			184			371			329	
Approach Delay, s/veh		13.0			26.7			51.3			46.4	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	79.9		32.9	9.8	77.4		32.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	41.5		50.5	13.5	39.5		50.5				
Max Q Clear Time (g_c+I1), s	2.9	3.8		25.7	5.3	9.9		25.4				
Green Ext Time (p_c), s	0.0	1.4		1.6	0.0	5.9		1.9				

Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

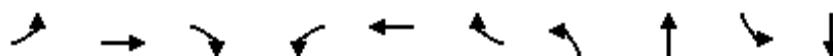
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←	↑↑	←	←	↑↑	←	←	↑	←	←
Traffic Volume (vph)	32	848	44	150	431	96	34	124	182	184
Future Volume (vph)	32	848	44	150	431	96	34	124	182	184
Lane Group Flow (vph)	35	922	48	163	468	104	37	434	198	234
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	46.0	46.0	15.0	46.0	46.0	15.0	44.0	15.0	44.0
Total Split (%)	12.5%	38.3%	38.3%	12.5%	38.3%	38.3%	12.5%	36.7%	12.5%	36.7%
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	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
v/c Ratio	0.08	0.65	0.08	0.60	0.30	0.13	0.11	0.88	0.93	0.41
Control Delay	14.2	26.5	0.2	27.0	23.0	3.5	22.3	51.4	73.3	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	26.5	0.2	27.0	23.0	3.5	22.3	51.4	73.3	34.3
Queue Length 50th (ft)	10	202	0	63	124	0	18	256	105	146
Queue Length 95th (ft)	m26	252	0	#137	192	28	37	357	#221	209
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	489	1413	616	275	1578	813	351	607	214	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.65	0.08	0.59	0.30	0.13	0.11	0.71	0.93	0.39

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

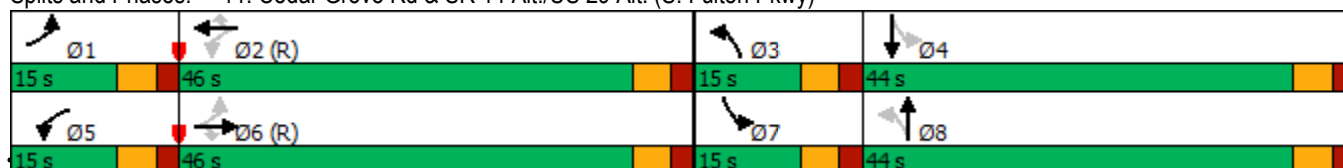
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	848	44	150	431	96	34	124	275	182	184	31
Future Volume (veh/h)	32	848	44	150	431	96	34	124	275	182	184	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	35	922	0	163	468	0	37	135	299	198	200	34
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	419	1378		290	1465		337	146	323	230	513	87
Arrive On Green	0.03	0.39	0.00	0.07	0.43	0.00	0.03	0.28	0.28	0.08	0.33	0.33
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	522	1155	1810	1558	265
Grp Volume(v), veh/h	35	922	0	163	468	0	37	0	434	198	0	234
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	0	1677	1810	0	1823
Q Serve(g_s), s	1.4	25.7	0.0	6.4	10.9	0.0	2.0	0.0	30.2	9.2	0.0	11.9
Cycle Q Clear(g_c), s	1.4	25.7	0.0	6.4	10.9	0.0	2.0	0.0	30.2	9.2	0.0	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.15
Lane Grp Cap(c), veh/h	419	1378		290	1465		337	0	469	230	0	600
V/C Ratio(X)	0.08	0.67		0.56	0.32		0.11	0.00	0.93	0.86	0.00	0.39
Avail Cap(c_a), veh/h	507	1378		306	1465		414	0	538	230	0	600
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	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	21.0	30.4	0.0	22.8	22.6	0.0	29.5	0.0	42.0	31.3	0.0	31.0
Incr Delay (d2), s/veh	0.1	2.6	0.0	2.1	0.6	0.0	0.1	0.0	20.6	26.3	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	1.0	16.1	0.0	4.7	7.5	0.0	1.4	0.0	20.9	9.4	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	32.9	0.0	24.9	23.2	0.0	29.6	0.0	62.6	57.6	0.0	31.4
LnGrp LOS	C	C		C	C		C	A	E	E	A	C
Approach Vol, veh/h	957				631				471			
Approach Delay, s/veh	32.5				23.6				60.0			
Approach LOS	C				C				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	57.0	9.0	45.0	13.9	52.0	15.0	39.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	40.5	9.5	38.5	9.5	40.5	9.5	38.5				
Max Q Clear Time (g_c+I1), s	3.4	12.9	4.0	13.9	8.4	27.7	11.2	32.2				
Green Ext Time (p_c), s	0.0	5.3	0.0	1.2	0.0	7.3	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay 37.4

HCM 6th LOS D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	807	208	85	489	476	182	754	148	594	836	230
Future Volume (vph)	295	807	208	85	489	476	182	754	148	594	836	230
Lane Group Flow (vph)	317	868	224	91	526	512	196	811	159	639	899	247
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	19.0	48.5	48.5	15.0	44.5	44.5	28.0	53.5	53.5	33.0	58.5	58.5
Total Split (%)	12.7%	32.3%	32.3%	10.0%	29.7%	29.7%	18.7%	35.7%	35.7%	22.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.85	0.75	0.39	0.47	0.58	0.80	0.84	0.84	0.30	1.04	0.78	0.38
Control Delay	55.0	50.5	24.7	36.6	51.5	28.6	91.0	59.5	11.9	104.2	51.3	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	50.5	24.7	36.6	51.5	28.6	91.0	59.5	11.9	104.2	51.3	9.6
Queue Length 50th (ft)	214	402	93	53	237	185	187	394	25	~345	427	31
Queue Length 95th (ft)	#399	511	182	99	301	345	#302	449	81	#471	481	97
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	373	1165	577	200	902	643	257	1110	601	617	1250	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.75	0.39	0.46	0.58	0.80	0.76	0.73	0.26	1.04	0.72	0.36

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: 150

Control Type: Actuated-Coordinated

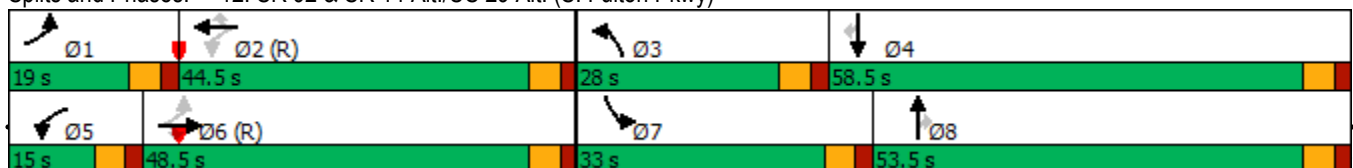
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	807	208	85	489	476	182	754	148	594	836	230
Future Volume (veh/h)	295	807	208	85	489	476	182	754	148	594	836	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1870	1841	1856	1841	1841	1826	1841	1900	1841	1870	1885
Adj Flow Rate, veh/h	317	868	224	91	526	512	196	811	0	639	899	247
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, %	1	2	4	3	4	4	5	4	0	4	2	1
Cap, veh/h	318	1283	563	210	1112	496	218	917		624	1137	511
Arrive On Green	0.09	0.36	0.36	0.05	0.32	0.32	0.13	0.26	0.00	0.18	0.32	0.32
Sat Flow, veh/h	1795	3554	1560	1767	3497	1560	1739	3497	1610	3401	3554	1598
Grp Volume(v), veh/h	317	868	224	91	526	512	196	811	0	639	899	247
Grp Sat Flow(s),veh/h/ln	1795	1777	1560	1767	1749	1560	1739	1749	1610	1700	1777	1598
Q Serve(g_s), s	13.5	31.0	16.1	5.2	18.1	47.7	16.7	33.4	0.0	27.5	34.5	18.7
Cycle Q Clear(g_c), s	13.5	31.0	16.1	5.2	18.1	47.7	16.7	33.4	0.0	27.5	34.5	18.7
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	318	1283	563	210	1112	496	218	917		624	1137	511
V/C Ratio(X)	1.00	0.68	0.40	0.43	0.47	1.03	0.90	0.88		1.02	0.79	0.48
Avail Cap(c_a), veh/h	318	1283	563	239	1112	496	261	1119		624	1256	564
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	40.5	35.8	34.3	41.1	51.2	64.6	53.2	0.0	61.2	46.4	41.0
Incr Delay (d2), s/veh	50.0	2.9	2.1	1.4	1.4	49.0	27.6	7.5	0.0	42.5	3.2	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	14.7	19.5	10.3	4.0	12.4	33.3	13.7	21.4	0.0	21.8	21.6	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.2	43.4	37.9	35.7	42.5	100.2	92.3	60.6	0.0	103.8	49.6	41.7
LnGrp LOS	F	D	D	D	D	F	F	E		F	D	D
Approach Vol, veh/h	1409			1129			1007			1785		
Approach Delay, s/veh	53.3			68.1			66.8			67.9		
Approach LOS	D			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	53.2	24.3	53.5	12.5	59.6	33.0	44.8				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	13.5	39.0	22.5	53.0	9.5	43.0	27.5	48.0				
Max Q Clear Time (g_c+I1), s	15.5	49.7	18.7	36.5	7.2	33.0	29.5	35.4				
Green Ext Time (p_c), s	0.0	0.0	0.2	5.8	0.0	6.5	0.0	3.9				

Intersection Summary

HCM 6th Ctrl Delay 63.9

HCM 6th LOS E

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	108	1341	89	144	795	48	53	50	104	94
Future Volume (vph)	108	1341	89	144	795	48	53	50	104	94
Lane Group Flow (vph)	113	1397	93	150	828	50	55	158	108	278
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	67.5	67.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5
Total Split (%)	12.5%	56.3%	56.3%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.27	0.54	0.08	0.68	0.38	0.05	0.89	0.56	0.69	0.78
Control Delay	6.9	8.3	2.3	25.6	6.4	0.7	135.4	43.8	67.8	46.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	8.3	2.3	25.6	6.4	0.7	135.4	43.8	67.8	46.5
Queue Length 50th (ft)	21	207	4	41	78	0	42	93	80	142
Queue Length 95th (ft)	51	352	24	m#165	m168	m3	#103	149	132	218
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	432	2611	1185	222	2170	971	148	644	377	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.54	0.08	0.68	0.38	0.05	0.37	0.25	0.29	0.38

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

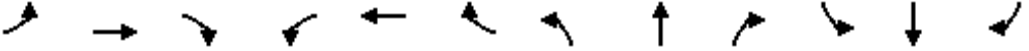
Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	1341	89	144	795	48	53	50	102	104	94	173
Future Volume (veh/h)	108	1341	89	144	795	48	53	50	102	104	94	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	112	1397	93	150	828	50	55	52	106	108	98	180
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	390	2410	1075	229	2064	898	141	124	252	237	135	248
Arrive On Green	0.04	0.68	0.68	0.60	0.60	0.60	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1584	3526	1572	356	3469	1510	1101	549	1120	1228	600	1102
Grp Volume(v), veh/h	112	1397	93	150	828	50	55	0	158	108	0	278
Grp Sat Flow(s),veh/h/ln	1584	1763	1572	356	1735	1510	1101	0	1669	1228	0	1702
Q Serve(g_s), s	3.2	24.9	2.4	45.8	15.2	1.7	5.8	0.0	9.7	9.9	0.0	18.2
Cycle Q Clear(g_c), s	3.2	24.9	2.4	60.1	15.2	1.7	24.0	0.0	9.7	19.6	0.0	18.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.65
Lane Grp Cap(c), veh/h	390	2410	1075	229	2064	898	141	0	375	237	0	383
V/C Ratio(X)	0.29	0.58	0.09	0.65	0.40	0.06	0.39	0.00	0.42	0.46	0.00	0.73
Avail Cap(c_a), veh/h	448	2410	1075	229	2064	898	325	0	654	442	0	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	10.0	6.4	28.5	12.9	10.2	54.2	0.0	39.8	48.2	0.0	43.1
Incr Delay (d2), s/veh	0.4	1.0	0.2	13.6	0.6	0.1	1.8	0.0	0.8	1.4	0.0	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	1.7	12.5	1.2	7.8	9.1	0.9	3.0	0.0	7.1	5.5	0.0	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.7	11.0	6.5	42.1	13.5	10.3	56.0	0.0	40.6	49.6	0.0	45.7
LnGrp LOS	A	B	A	D	B	B	E	A	D	D	A	D
Approach Vol, veh/h	1602			1028			213			386		
Approach Delay, s/veh	10.6			17.5			44.5			46.8		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.6	76.9		32.5		87.5		32.5				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	47.0		47.0		62.0		47.0				
Max Q Clear Time (g_c+I1), s	5.2	62.1		21.6		26.9		26.0				
Green Ext Time (p_c), s	0.1	0.0		1.9		22.5		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				19.4								
HCM 6th LOS				B								

Timings

3a. Build 2028 AM (Phase 1)

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↰	↰	↱	↰	↰	↱	↰	↰	↰
Traffic Volume (vph)	111	1212	215	58	372	98	482	263	24	70	186
Future Volume (vph)	111	1212	215	58	372	98	482	263	24	70	186
Lane Group Flow (vph)	114	1249	222	60	384	101	497	271	25	72	335
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		6			2			8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	57.0	57.0	57.0	15.0	72.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	47.5%	47.5%	47.5%	12.5%	60.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.38	1.00	0.37	0.92	0.33	0.17	1.03	0.32	0.03	0.13	0.34
Control Delay	32.9	58.7	18.1	127.0	22.4	6.1	82.4	23.2	0.1	13.1	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	58.7	18.1	127.0	22.4	6.1	82.4	23.2	0.1	13.1	13.4
Queue Length 50th (ft)	55	457	44	45	120	12	~434	138	0	25	114
Queue Length 95th (ft)	115	#650	141	#135	165	41	#645	205	0	47	175
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	302	1253	608	65	1162	609	484	849	740	558	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	1.00	0.37	0.92	0.33	0.17	1.03	0.32	0.03	0.13	0.34

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 48 (40%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

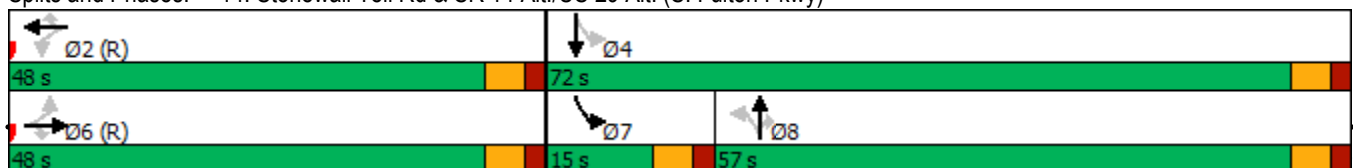
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



23-060 Merrill Park Chattahoochee Hills (DRI #4004)

HCM 6th Signalized Intersection Summary
 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3a. Build 2028 AM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1212	215	58	372	98	482	263	24	70	186	139
Future Volume (veh/h)	111	1212	215	58	372	98	482	263	24	70	186	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	114	1249	222	60	384	101	497	271	0	72	192	143
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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	344	1405	617	85	1316	612	482	803		492	515	383
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.43	0.43	0.00	0.04	0.51	0.51
Sat Flow, veh/h	896	3554	1560	366	3328	1547	1062	1870	1547	1767	1003	747
Grp Volume(v), veh/h	114	1249	222	60	384	101	497	271	0	72	0	335
Grp Sat Flow(s),veh/h/ln	896	1777	1560	366	1664	1547	1062	1870	1547	1767	0	1751
Q Serve(g_s), s	12.0	39.3	12.0	8.1	9.5	5.1	47.7	11.6	0.0	2.6	0.0	13.8
Cycle Q Clear(g_c), s	21.4	39.3	12.0	47.5	9.5	5.1	51.5	11.6	0.0	2.6	0.0	13.8
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	344	1405	617	85	1316	612	482	803		492	0	898
V/C Ratio(X)	0.33	0.89	0.36	0.71	0.29	0.17	1.03	0.34		0.15	0.00	0.37
Avail Cap(c_a), veh/h	344	1405	617	85	1316	612	482	803		565	0	970
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	0.98	0.98	0.98	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	33.8	25.6	58.3	24.8	23.5	39.1	22.9	0.0	17.5	0.0	17.6
Incr Delay (d2), s/veh	2.6	8.7	1.6	38.9	0.6	0.6	49.1	0.2	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	24.1	8.2	4.8	6.5	3.3	29.2	8.7	0.0	1.9	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	42.5	27.2	97.2	25.3	24.0	88.2	23.1	0.0	17.6	0.0	17.9
LnGrp LOS	C	D	C	F	C	C	F	C		B	A	B
Approach Vol, veh/h	1585			545			768			407		
Approach Delay, s/veh	39.8			33.0			65.2			17.8		
Approach LOS	D			C			E			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	53.0			67.0			53.0			10.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	42.5			66.5			42.5			9.5		
Max Q Clear Time (g_c+I1), s	49.5			15.8			41.3			4.6		
Green Ext Time (p_c), s	0.0			2.2			1.1			0.0		

Intersection Summary

HCM 6th Ctrl Delay	41.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3a. Build 2028 AM (Phase 1)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↗↗	↰	↰	↗↗	↰		↗	↰	↰	↗
Traffic Volume (vph)	68	1166	115	107	443	48	22	55	42	191	53
Future Volume (vph)	68	1166	115	107	443	48	22	55	42	191	53
Lane Group Flow (vph)	74	1267	125	116	482	52	0	84	46	208	136
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.12	0.65	0.13	0.46	0.24	0.07		0.24	0.16	0.77	0.32
Control Delay	1.4	3.9	0.1	13.9	13.6	2.1		37.8	3.9	61.5	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	1.4	3.9	0.1	13.9	13.6	2.1		37.8	3.9	61.5	19.3
Queue Length 50th (ft)	2	33	0	27	90	0		54	0	152	41
Queue Length 95th (ft)	m4	m45	m0	63	155	13		89	13	216	86
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	643	1948	928	266	1972	787		705	504	545	776
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.12	0.65	0.13	0.44	0.24	0.07		0.12	0.09	0.38	0.18

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

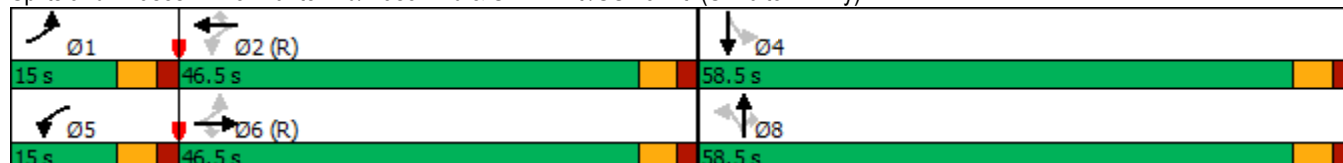
Offset: 116 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3a. Build 2028 AM (Phase 1)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1166	115	107	443	48	22	55	42	191	53	72
Future Volume (veh/h)	68	1166	115	107	443	48	22	55	42	191	53	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	74	1267	125	116	482	0	24	60	0	208	58	78
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	631	2120	969	266	2051		102	236		299	144	194
Arrive On Green	0.04	0.61	0.61	0.04	0.62	0.00	0.21	0.21	0.00	0.21	0.21	0.21
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	306	1134	932	1279	694	934
Grp Volume(v), veh/h	74	1267	125	116	482	0	84	0	0	208	0	136
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1441	0	932	1279	0	1628
Q Serve(g_s), s	1.8	26.8	4.0	3.2	7.8	0.0	0.2	0.0	0.0	12.7	0.0	8.7
Cycle Q Clear(g_c), s	1.8	26.8	4.0	3.2	7.8	0.0	8.9	0.0	0.0	21.5	0.0	8.7
Prop In Lane	1.00		1.00	1.00		1.00	0.29		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	631	2120	969	266	2051		338	0		299	0	339
V/C Ratio(X)	0.12	0.60	0.13	0.44	0.23		0.25	0.00		0.70	0.00	0.40
Avail Cap(c_a), veh/h	704	2120	969	324	2051		721	0		597	0	719
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)	0.25	0.25	0.25	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	14.3	9.8	12.2	10.3	0.0	39.5	0.0	0.0	47.0	0.0	41.1
Incr Delay (d2), s/veh	0.0	0.3	0.1	1.1	0.3	0.0	0.4	0.0	0.0	2.9	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	11.5	2.1	1.8	4.6	0.0	3.7	0.0	0.0	10.1	0.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	14.6	9.9	13.3	10.6	0.0	39.8	0.0	0.0	49.9	0.0	41.8
LnGrp LOS	A	B	A	B	B		D	A		D	A	D
Approach Vol, veh/h	1466			598			84			344		
Approach Delay, s/veh	13.9			11.1			39.8			46.7		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	79.5		30.5	10.7	78.8		30.5				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.8	9.8		23.5	5.2	28.8		10.9				
Green Ext Time (p_c), s	0.1	5.8		1.4	0.1	9.4		0.4				

Intersection Summary

HCM 6th Ctrl Delay 18.6

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	48.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	49	854	918	802	187
Future Vol, veh/h	30	49	854	918	802	187
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	9	8	8	2	6	1
Mvmt Flow	33	54	938	1009	881	205
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	3262	441	881	0	-	0
Stage 1	881	-	-	-	-	-
Stage 2	2381	-	-	-	-	-
Critical Hdwy	6.98	7.06	4.26	-	-	-
Critical Hdwy Stg 1	5.98	-	-	-	-	-
Critical Hdwy Stg 2	5.98	-	-	-	-	-
Follow-up Hdwy	3.59	3.38	2.28	-	-	-
Pot Cap-1 Maneuver	~ 6	548	~ 726	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	548	~ 726	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s		77.5		0		
HCM LOS	-					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 726	-	-	548	-	-
HCM Lane V/C Ratio	1.293	-	-	0.098	-	-
HCM Control Delay (s)	160.8	-	-	12.3	-	-
HCM Lane LOS	F	-	-	B	-	-
HCM 95th %tile Q(veh)	36.3	-	-	0.3	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	13.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	162	475	21	910	532	99
Future Vol, veh/h	162	475	21	910	532	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	9	6	3	3	6
Mvmt Flow	174	511	23	978	572	106
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1160	339	678	0	-	0
Stage 1	625	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Critical Hdwy	6.84	7.08	4.22	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.39	2.26	-	-	-
Pot Cap-1 Maneuver	189	637	883	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	184	637	883	-	-	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	45.4	0.2		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	883	-	724	-	-	
HCM Lane V/C Ratio	0.026	-	0.946	-	-	
HCM Control Delay (s)	9.2	-	45.4	-	-	
HCM Lane LOS	A	-	E	-	-	
HCM 95th %tile Q(veh)	0.1	-	13.8	-	-	

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	13	4	0	20
Future Vol, veh/h	8	0	13	4	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	14	4	0	22

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	36	14	0
Stage 1	14	-	-
Stage 2	22	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	977	1066	-
Stage 1	1009	-	-
Stage 2	1001	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	977	1066	-
Mov Cap-2 Maneuver	977	-	-
Stage 1	1009	-	-
Stage 2	1001	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	977	1599
HCM Lane V/C Ratio	-	-	0.009	-
HCM Control Delay (s)	-	-	8.7	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	16	11	0	27
Future Vol, veh/h	23	1	16	11	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	17	12	0	29

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	46	17	0
Stage 1	17	-	-
Stage 2	29	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	964	1062	-
Stage 1	1006	-	-
Stage 2	994	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	964	1062	-
Mov Cap-2 Maneuver	964	-	-
Stage 1	1006	-	-
Stage 2	994	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	968	1584
HCM Lane V/C Ratio	-	-	0.027	-
HCM Control Delay (s)	-	-	8.8	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	1	26	23	0	50
Future Vol, veh/h	47	1	26	23	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	51	1	28	25	0	54
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	82	28	0	0	53	0
Stage 1	28	-	-	-	-	-
Stage 2	54	-	-	-	-	-
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	920	1047	-	-	1553	-
Stage 1	995	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	920	1047	-	-	1553	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	922	1553	-	
HCM Lane V/C Ratio	-	-	0.057	-	-	
HCM Control Delay (s)	-	-	9.1	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Timings 1: I-85 NB Ramps & Collinsworth Rd

3b. Build 2028 PM (Phase 1)
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations		 				
Traffic Volume (vph)	236	968	689	182	292	251
Future Volume (vph)	236	968	689	182	292	251
Lane Group Flow (vph)	248	1019	725	192	307	264
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	19.0	86.0	67.0	67.0	34.0	34.0
Total Split (%)	15.8%	71.7%	55.8%	55.8%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.63	0.41	0.72	0.21	0.85	0.60
Control Delay	25.4	5.1	26.6	3.3	66.7	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	5.1	26.6	3.3	66.7	23.7
Queue Length 50th (ft)	66	120	423	5	226	78
Queue Length 95th (ft)	m103	108	602	42	#335	164
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	398	2476	1007	929	412	481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.41	0.72	0.21	0.75	0.55

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 77 (64%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary
1: I-85 NB Ramps & Collinsworth Rd

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (veh/h)	236	968	0	0	689	182	292	0	251	0	0	0
Future Volume (veh/h)	236	968	0	0	689	182	292	0	251	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	248	1019	0	0	725	0	307	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	433	2545	0	0	1103		337	0				
Arrive On Green	0.15	1.00	0.00	0.00	0.59	0.00	0.19	0.00	0.00			
Sat Flow, veh/h	1753	3647	0	0	1856	1560	1753	0	1560			
Grp Volume(v), veh/h	248	1019	0	0	725	0	307	0	0			
Grp Sat Flow(s),veh/h/ln	1753	1777	0	0	1856	1560	1753	0	1560			
Q Serve(g_s), s	6.8	0.0	0.0	0.0	31.2	0.0	20.6	0.0	0.0			
Cycle Q Clear(g_c), s	6.8	0.0	0.0	0.0	31.2	0.0	20.6	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	433	2545	0	0	1103		337	0				
V/C Ratio(X)	0.57	0.40	0.00	0.00	0.66		0.91	0.00				
Avail Cap(c_a), veh/h	497	2545	0	0	1103		416	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.57	0.57	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	12.6	0.0	0.0	0.0	16.2	0.0	47.5	0.0	0.0			
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.0	3.1	0.0	21.1	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	3.3	0.2	0.0	0.0	18.0	0.0	16.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	0.3	0.0	0.0	19.3	0.0	68.5	0.0	0.0			
LnGrp LOS	B	A	A	A	B		E	A				
Approach Vol, veh/h	1267			725			307					
Approach Delay, s/veh	2.8			19.3			68.5					
Approach LOS	A			B			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	14.6	76.8					91.4	28.6				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	13.5	61.5					80.5	28.5				
Max Q Clear Time (g_c+I1), s	8.8	33.2					2.0	22.6				
Green Ext Time (p_c), s	0.3	9.6					18.4	0.5				

Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

3b. Build 2028 PM (Phase 1)
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	345	439	365	639	871	284
Future Volume (vph)	345	439	365	639	871	284
Lane Group Flow (vph)	367	467	388	680	927	302
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	42.0	42.0	32.0	74.0	46.0	46.0
Total Split (%)	35.0%	35.0%	26.7%	61.7%	38.3%	38.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.50	0.52	0.67	0.61	0.86	0.47
Control Delay	31.1	7.4	12.7	13.7	48.1	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.1	7.4	12.7	13.7	48.1	10.6
Queue Length 50th (ft)	223	70	152	341	344	40
Queue Length 95th (ft)	m268	m81	178	464	411	114
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	736	896	646	1109	1181	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.52	0.60	0.61	0.78	0.45

Intersection Summary

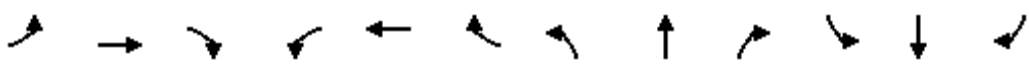
Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

3b. Build 2028 PM (Phase 1)
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	345	439	365	639	0	0	0	0	871	0	284
Future Volume (veh/h)	0	345	439	365	639	0	0	0	0	871	0	284
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	367	0	388	680	0				927	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	825		666	1144	0				1024	0	
Arrive On Green	0.00	0.74	0.00	0.04	0.20	0.00				0.29	0.00	0.00
Sat Flow, veh/h	0	1870	1560	1795	1856	0				3510	0	1560
Grp Volume(v), veh/h	0	367	0	388	680	0				927	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1560	1795	1856	0				1755	0	1560
Q Serve(g_s), s	0.0	9.2	0.0	12.7	39.8	0.0				30.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.2	0.0	12.7	39.8	0.0				30.5	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	825		666	1144	0				1024	0	
V/C Ratio(X)	0.00	0.44		0.58	0.59	0.00				0.91	0.00	
Avail Cap(c_a), veh/h	0	825		829	1144	0				1185	0	
HCM Platoon Ratio	1.00	1.67	1.67	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.78	0.00	0.57	0.57	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.0	0.0	15.1	34.2	0.0				40.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.5	1.3	0.0				9.1	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	0.0	5.6	0.0	8.4	25.5	0.0				20.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.4	0.0	15.6	35.5	0.0				50.0	0.0	0.0
LnGrp LOS	A	B		B	D	A				D	A	
Approach Vol, veh/h		367			1068						927	
Approach Delay, s/veh		11.4			28.3						50.0	
Approach LOS		B			C						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		79.5		40.5	21.1	58.4						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		68.5		40.5	26.5	36.5						
Max Q Clear Time (g_c+I1), s		41.8		32.5	14.7	11.2						
Green Ext Time (p_c), s		8.6		2.5	0.9	3.8						
Intersection Summary												
HCM 6th Ctrl Delay			34.2									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

3b. Build 2028 PM (Phase 1)
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↔	↔		↔	↔		↔
Traffic Volume (vph)	8	317	11	366	6	4	26	579	0
Future Volume (vph)	8	317	11	366	6	4	26	579	0
Lane Group Flow (vph)	0	365	12	864	0	11	29	0	662
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6	5	2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	49.0	49.0	15.0	64.0	56.0	56.0	56.0	56.0	56.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	46.7%	46.7%	46.7%	46.7%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5		5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	None
v/c Ratio		0.63	0.03	0.99		0.02	0.04		1.09
Control Delay		33.1	10.5	45.5		20.5	0.1		94.2
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		33.1	10.5	45.5		20.5	0.1		94.2
Queue Length 50th (ft)		196	2	525		5	0		~544
Queue Length 95th (ft)		356	m5	#896		16	0		#764
Internal Link Dist (ft)		914		947		293			729
Turn Bay Length (ft)			315						
Base Capacity (vph)		579	422	869		620	708		607
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.63	0.03	0.99		0.02	0.04		1.09

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

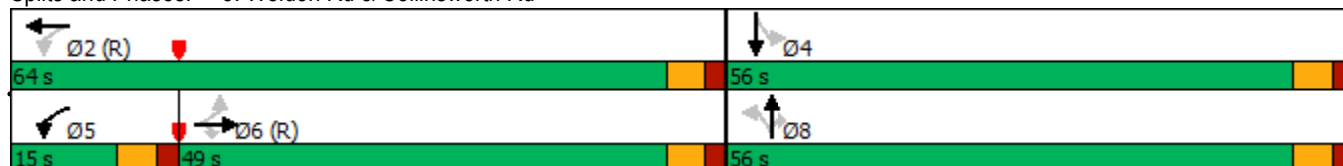
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary 3: Weldon Rd & Collinsworth Rd

3b. Build 2028 PM (Phase 1)
08/31/2023

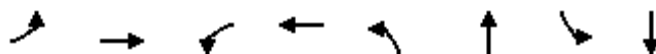
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	317	0	11	366	403	6	4	26	579	0	10
Future Volume (veh/h)	8	317	0	11	366	403	6	4	26	579	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	356	0	12	411	453	7	4	29	651	0	11
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	521	678	151	396	437	524	289	667	626	0	10
Arrive On Green	0.43	0.43	0.00	0.02	0.81	0.81	0.42	0.42	0.42	0.42	0.00	0.42
Sat Flow, veh/h	0	1216	1585	1781	813	896	1127	687	1585	1345	0	23
Grp Volume(v), veh/h	365	0	0	12	0	864	11	0	29	662	0	0
Grp Sat Flow(s),veh/h/ln	1216	0	1585	1781	0	1709	1814	0	1585	1368	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	58.5	0.0	0.0	1.3	50.1	0.0	0.0
Cycle Q Clear(g_c), s	51.4	0.0	0.0	0.4	0.0	58.5	0.4	0.0	1.3	50.5	0.0	0.0
Prop In Lane	0.02		1.00	1.00		0.52	0.64		1.00	0.98		0.02
Lane Grp Cap(c), veh/h	551	0	678	151	0	833	812	0	667	635	0	0
V/C Ratio(X)	0.66	0.00	0.00	0.08	0.00	1.04	0.01	0.00	0.04	1.04	0.00	0.00
Avail Cap(c_a), veh/h	551	0	678	267	0	833	812	0	667	635	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.80	0.00	0.80	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	0.0	0.0	17.6	0.0	11.2	20.2	0.0	20.5	37.3	0.0	0.0
Incr Delay (d2), s/veh	6.1	0.0	0.0	0.2	0.0	37.9	0.0	0.0	0.0	47.2	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.6	0.0	0.0	0.3	0.0	19.5	0.3	0.0	0.9	36.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	0.0	17.7	0.0	49.1	20.3	0.0	20.5	84.5	0.0	0.0
LnGrp LOS	D	A	A	B	A	F	C	A	C	F	A	A
Approach Vol, veh/h	365			876			40			662		
Approach Delay, s/veh	37.5			48.6			20.5			84.5		
Approach LOS	D			D			C			F		
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	64.0			56.0		7.1	56.9	56.0				
Change Period (Y+Rc), s	5.5			5.5		5.5	5.5	5.5				
Max Green Setting (Gmax), s	58.5			50.5		9.5	43.5	50.5				
Max Q Clear Time (g_c+I1), s	60.5			52.5		2.4	53.4	3.3				
Green Ext Time (p_c), s	0.0			0.0		0.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay				58.2								
HCM 6th LOS				E								

Timings

3b. Build 2028 PM (Phase 1)

4: SR 14/US 29 (Main St) & Toombs St

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	17	81	25	116	9	383	54	570
Future Volume (vph)	17	81	25	116	9	383	54	570
Lane Group Flow (vph)	0	125	0	209	0	455	0	704
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	32.0	32.0	32.0	32.0	88.0	88.0	88.0	88.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.50		0.75		0.34		0.57
Control Delay		49.5		61.0		6.4		9.4
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		49.5		61.0		6.4		9.4
Queue Length 50th (ft)		85		147		101		203
Queue Length 95th (ft)		138		217		184		372
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		352		388		1322		1241
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.36		0.54		0.34		0.57

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: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	81	14	25	116	47	9	383	17	54	570	10
Future Volume (veh/h)	17	81	14	25	116	47	9	383	17	54	570	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	19	90	16	28	129	52	10	426	19	60	633	11
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	56	190	31	56	162	61	42	1301	57	116	1194	20
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.77	0.77	0.77	0.77	0.77	0.77
Sat Flow, veh/h	154	1382	225	160	1172	441	15	1689	74	109	1550	26
Grp Volume(v), veh/h	125	0	0	209	0	0	455	0	0	704	0	0
Grp Sat Flow(s),veh/h/ln	1761	0	0	1774	0	0	1778	0	0	1685	0	0
Q Serve(g_s), s	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	13.7	0.0	0.0	9.3	0.0	0.0	17.8	0.0	0.0
Prop In Lane	0.15		0.13	0.13		0.25	0.02		0.04	0.09		0.02
Lane Grp Cap(c), veh/h	277	0	0	278	0	0	1400	0	0	1331	0	0
V/C Ratio(X)	0.45	0.00	0.00	0.75	0.00	0.00	0.32	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	420	0	0	421	0	0	1400	0	0	1331	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	47.8	0.0	0.0	50.4	0.0	0.0	4.2	0.0	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	4.1	0.0	0.0	0.6	0.0	0.0	1.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.4	0.0	0.0	10.6	0.0	0.0	5.9	0.0	0.0	10.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	0.0	54.5	0.0	0.0	4.8	0.0	0.0	6.7	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h	125			209			455			704		
Approach Delay, s/veh	49.0			54.5			4.8			6.7		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	98.0			22.0			98.0			22.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	82.5			26.5			82.5			26.5		
Max Q Clear Time (g_c+I1), s	19.8			9.6			11.3			15.7		
Green Ext Time (p_c), s	14.6			0.5			7.5			0.8		
Intersection Summary												
HCM 6th Ctrl Delay	16.4											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 10.1

Intersection LOS B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	67	38	271	212	28
Future Vol, veh/h	29	67	38	271	212	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	71	40	288	226	30
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.9	9.9	10.8
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	0%	88%
Vol Thru, %	70%	12%	0%
Vol Right, %	0%	88%	12%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	309	240
LT Vol	29	0	212
Through Vol	67	38	0
RT Vol	0	271	28
Lane Flow Rate	102	329	255
Geometry Grp	1	1	1
Degree of Util (X)	0.142	0.384	0.353
Departure Headway (Hd)	5.013	4.201	4.972
Convergence, Y/N	Yes	Yes	Yes
Cap	712	855	720
Service Time	3.069	2.24	3.032
HCM Lane V/C Ratio	0.143	0.385	0.354
HCM Control Delay	8.9	9.9	10.8
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1.8	1.6

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	143	194	73	44	17
Future Vol, veh/h	11	143	194	73	44	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	166	226	85	51	20
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	311	0	-	0	461	269
Stage 1	-	-	-	-	269	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1249	-	-	-	559	770
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	841	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1249	-	-	-	553	770
Mov Cap-2 Maneuver	-	-	-	-	553	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	841	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.6	0		11.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1249	-	-	-	600	
HCM Lane V/C Ratio	0.01	-	-	-	0.118	
HCM Control Delay (s)	7.9	0	-	-	11.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.4	

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	71	66	8	18	76
Future Vol, veh/h	8	71	66	8	18	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	84	78	9	21	89

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	214	83	0
Stage 1	83	-	-
Stage 2	131	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	774	976	-
Stage 1	940	-	-
Stage 2	895	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	762	976	-
Mov Cap-2 Maneuver	762	-	-
Stage 1	940	-	-
Stage 2	882	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	949	1509
HCM Lane V/C Ratio	-	-	0.098	0.014
HCM Control Delay (s)	-	-	9.2	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰↱	
Traffic Vol, veh/h	6	157	43	16	682	78	88	31	17	65	32	7
Future Vol, veh/h	6	157	43	16	682	78	88	31	17	65	32	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	None
Storage Length	-	-	210	-	-	250	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	173	47	18	749	86	97	34	19	71	35	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	749	0	0	173	0	0	994	972	173	989	972	749
Stage 1	-	-	-	-	-	-	187	187	-	785	785	-
Stage 2	-	-	-	-	-	-	807	785	-	204	187	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	860	-	-	1404	-	-	224	252	871	226	252	412
Stage 1	-	-	-	-	-	-	815	745	-	386	404	-
Stage 2	-	-	-	-	-	-	375	404	-	798	745	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	860	-	-	1404	-	-	191	244	871	193	244	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	244	-	193	244	-
Stage 1	-	-	-	-	-	-	808	738	-	383	394	-
Stage 2	-	-	-	-	-	-	327	394	-	738	738	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	45.5	39.6
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	202	871	860	-	-	1404	-	-	214
HCM Lane V/C Ratio	0.647	0.021	0.008	-	-	0.013	-	-	0.534
HCM Control Delay (s)	50.7	9.2	9.2	0	-	7.6	0	-	39.6
HCM Lane LOS	F	A	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	3.8	0.1	0	-	-	0	-	-	2.8

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	165	36	11	653	20	113	20	0	6	6	0
Future Vol, veh/h	0	165	36	11	653	20	113	20	0	6	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	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	0	179	39	12	710	22	123	22	0	7	7	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	710	0	0	179	0	0	917	913	90	835	913	-
Stage 1	-	-	-	-	-	-	179	179	-	734	734	-
Stage 2	-	-	-	-	-	-	738	734	-	101	179	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	887	-	-	1395	-	-	239	273	950	273	273	0
Stage 1	-	-	-	-	-	-	806	751	-	411	425	0
Stage 2	-	-	-	-	-	-	409	425	-	895	751	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	887	-	-	1395	-	-	233	271	950	259	271	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	330	352	-	259	271	-
Stage 1	-	-	-	-	-	-	806	751	-	411	421	-
Stage 2	-	-	-	-	-	-	399	421	-	869	751	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			23.9					
HCM LOS							C			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	333	887	-	-	1395	-	-	259	-			
HCM Lane V/C Ratio	0.434	-	-	-	0.009	-	-	0.025	-			
HCM Control Delay (s)	23.9	0	-	-	7.6	-	-	19.3	-			
HCM Lane LOS	C	A	-	-	A	-	-	C	-			
HCM 95th %tile Q(veh)	2.1	0	-	-	0	-	-	0.1	-			

Timings

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗	↘	↰	↗	↘	↰	↗	↘	↘
Traffic Volume (vph)	17	161	13	73	611	6	7	370	5	391
Future Volume (vph)	17	161	13	73	611	6	7	370	5	391
Lane Group Flow (vph)	18	168	14	76	636	6	7	441	5	423
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	43.0	43.0	20.0	46.0	46.0	57.0	57.0	57.0	57.0
Total Split (%)	14.2%	35.8%	35.8%	16.7%	38.3%	38.3%	47.5%	47.5%	47.5%	47.5%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.18	0.09	0.02	0.49	0.31	0.01	0.06	0.82	0.05	0.78
Control Delay	57.5	19.1	0.0	94.6	2.7	0.0	27.9	50.9	27.4	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	19.1	0.0	94.6	2.7	0.0	27.9	50.9	27.4	48.6
Queue Length 50th (ft)	14	36	0	63	15	0	4	312	3	299
Queue Length 95th (ft)	38	71	0	116	21	m0	14	387	12	370
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	1780	832	213	2022	935	169	788	149	795
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.09	0.02	0.36	0.31	0.01	0.04	0.56	0.03	0.53

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

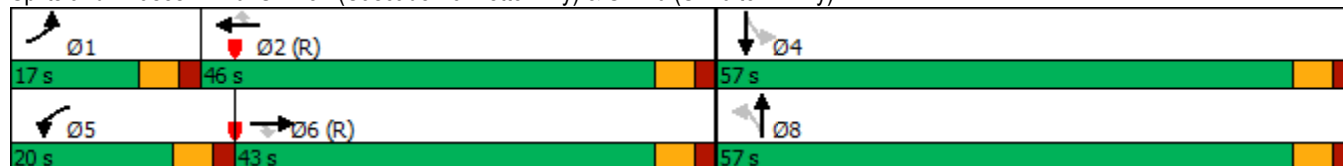
Offset: 96 (80%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	161	13	73	611	6	7	370	54	5	391	15
Future Volume (veh/h)	17	161	13	73	611	6	7	370	54	5	391	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	168	0	76	636	0	7	385	56	5	407	16
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	33	1907		97	2034		114	433	63	98	485	19
Arrive On Green	0.02	0.54	0.00	0.05	0.57	0.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	964	1596	232	948	1787	70
Grp Volume(v), veh/h	18	168	0	76	636	0	7	0	441	5	0	423
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	964	0	1829	948	0	1858
Q Serve(g_s), s	1.2	2.8	0.0	5.1	11.2	0.0	0.8	0.0	27.8	0.6	0.0	25.8
Cycle Q Clear(g_c), s	1.2	2.8	0.0	5.1	11.2	0.0	26.6	0.0	27.8	28.4	0.0	25.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.04
Lane Grp Cap(c), veh/h	33	1907		97	2034		114	0	496	98	0	504
V/C Ratio(X)	0.54	0.09		0.78	0.31		0.06	0.00	0.89	0.05	0.00	0.84
Avail Cap(c_a), veh/h	171	1907		215	2034		267	0	785	247	0	797
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	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	58.4	13.5	0.0	56.0	13.4	0.0	53.8	0.0	42.0	55.6	0.0	41.3
Incr Delay (d2), s/veh	12.7	0.1	0.0	12.6	0.4	0.0	0.2	0.0	7.9	0.2	0.0	4.6
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	1.2	1.9	0.0	4.5	7.3	0.0	0.4	0.0	18.8	0.3	0.0	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.1	13.6	0.0	68.6	13.8	0.0	54.0	0.0	49.9	55.9	0.0	45.9
LnGrp LOS	E	B		E	B		D	A	D	E	A	D
Approach Vol, veh/h		186			712			448			428	
Approach Delay, s/veh		19.2			19.6			49.9			46.0	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	74.2		38.0	12.1	69.9		38.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	40.5		51.5	14.5	37.5		51.5				
Max Q Clear Time (g_c+I1), s	3.2	13.2		30.4	7.1	4.8		29.8				
Green Ext Time (p_c), s	0.0	7.5		2.1	0.1	1.8		2.3				

Intersection Summary

HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	24	332	26	289	773	166	32	200	109	150
Future Volume (vph)	24	332	26	289	773	166	32	200	109	150
Lane Group Flow (vph)	26	361	28	314	840	180	35	457	118	183
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	34.0	34.0	25.0	44.0	44.0	15.0	46.0	15.0	46.0
Total Split (%)	12.5%	28.3%	28.3%	20.8%	36.7%	36.7%	12.5%	38.3%	12.5%	38.3%
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	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
v/c Ratio	0.09	0.33	0.04	0.58	0.53	0.23	0.08	0.88	0.52	0.29
Control Delay	16.5	29.4	0.2	23.9	28.3	9.0	20.1	54.8	30.3	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	29.4	0.2	23.9	28.3	9.0	20.1	54.8	30.3	29.8
Queue Length 50th (ft)	9	122	0	143	265	22	16	303	57	105
Queue Length 95th (ft)	m23	121	m0	235	370	78	34	408	88	158
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	320	1108	633	565	1589	792	482	621	228	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.33	0.04	0.56	0.53	0.23	0.07	0.74	0.52	0.28

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

			
Ø1	Ø2 (R)	Ø3	Ø4
15 s	44 s	15 s	46 s
			
Ø5	Ø6 (R)	Ø7	Ø8
25 s	34 s	15 s	46 s

HCM 6th Signalized Intersection Summary
 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	332	26	289	773	166	32	200	221	109	150	18
Future Volume (veh/h)	24	332	26	289	773	166	32	200	221	109	150	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	26	361	0	314	840	0	35	217	240	118	163	20
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	285	1188		565	1589		412	235	260	199	531	65
Arrive On Green	0.02	0.34	0.00	0.13	0.44	0.00	0.03	0.29	0.29	0.06	0.32	0.32
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	818	905	1795	1660	204
Grp Volume(v), veh/h	26	361	0	314	840	0	35	0	457	118	0	183
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	0	1722	1795	0	1863
Q Serve(g_s), s	1.1	9.1	0.0	13.0	20.5	0.0	1.6	0.0	30.9	5.5	0.0	8.9
Cycle Q Clear(g_c), s	1.1	9.1	0.0	13.0	20.5	0.0	1.6	0.0	30.9	5.5	0.0	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		0.11
Lane Grp Cap(c), veh/h	285	1188		565	1589		412	0	495	199	0	597
V/C Ratio(X)	0.09	0.30		0.56	0.53		0.08	0.00	0.92	0.59	0.00	0.31
Avail Cap(c_a), veh/h	385	1188		627	1589		504	0	581	231	0	629
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	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	24.9	29.2	0.0	20.0	24.3	0.0	28.7	0.0	41.5	31.6	0.0	30.7
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.9	1.3	0.0	0.1	0.0	18.8	3.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	6.7	0.0	8.8	13.0	0.0	1.3	0.0	21.5	4.4	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	29.8	0.0	20.9	25.5	0.0	28.8	0.0	60.2	34.6	0.0	31.0
LnGrp LOS	C	C		C	C		C	A	E	C	A	C
Approach Vol, veh/h	387				1154				492			
Approach Delay, s/veh	29.5				24.3				58.0			
Approach LOS	C				C				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	58.7	8.9	43.9	20.9	46.3	12.9	40.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	38.5	9.5	40.5	19.5	28.5	9.5	40.5				
Max Q Clear Time (g_c+I1), s	3.1	22.5	3.6	10.9	15.0	11.1	7.5	32.9				
Green Ext Time (p_c), s	0.0	7.8	0.0	0.9	0.4	3.3	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	302	161	193	830	702	94	931	40	457	646	145
Future Volume (vph)	261	302	161	193	830	702	94	931	40	457	646	145
Lane Group Flow (vph)	264	305	163	195	838	709	95	940	40	462	653	146
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	20.0	55.5	55.5	17.0	52.5	52.5	20.0	53.5	53.5	24.0	57.5	57.5
Total Split (%)	13.3%	37.0%	37.0%	11.3%	35.0%	35.0%	13.3%	35.7%	35.7%	16.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.92	0.26	0.25	0.42	0.75	1.08	0.65	0.89	0.08	1.16	0.58	0.23
Control Delay	69.6	36.1	5.7	29.1	51.2	90.8	86.5	61.8	0.3	151.4	42.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	36.1	5.7	29.1	51.2	90.8	86.5	61.8	0.3	151.4	42.9	5.8
Queue Length 50th (ft)	182	115	0	116	388	~603	91	456	0	~274	273	0
Queue Length 95th (ft)	#392	156	52	176	467	#855	155	539	0	#389	338	49
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	286	1194	661	464	1119	656	172	1121	554	399	1148	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.26	0.25	0.42	0.75	1.08	0.55	0.84	0.07	1.16	0.57	0.23

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: 150

Control Type: Actuated-Coordinated

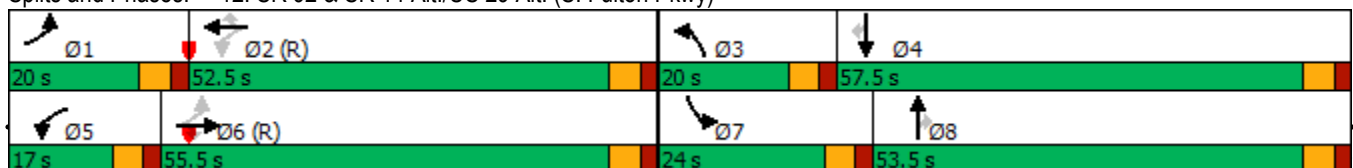
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	302	161	193	830	702	94	931	40	457	646	145
Future Volume (veh/h)	261	302	161	193	830	702	94	931	40	457	646	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1811	1870	1841	1885	1856	1885	1856	1811	1781	1767	1856
Adj Flow Rate, veh/h	264	305	163	195	838	709	95	940	0	462	653	146
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, %	1	6	2	4	1	3	1	3	6	8	9	3
Cap, veh/h	269	1242	572	454	1221	536	116	1031		406	1178	552
Arrive On Green	0.10	0.36	0.36	0.08	0.34	0.34	0.06	0.29	0.00	0.12	0.35	0.35
Sat Flow, veh/h	1795	3441	1585	1753	3582	1572	1795	3526	1535	3291	3357	1572
Grp Volume(v), veh/h	264	305	163	195	838	709	95	940	0	462	653	146
Grp Sat Flow(s),veh/h/ln	1795	1721	1585	1753	1791	1572	1795	1763	1535	1646	1678	1572
Q Serve(g_s), s	14.5	9.3	11.0	10.9	30.2	51.1	7.8	38.6	0.0	18.5	23.5	10.0
Cycle Q Clear(g_c), s	14.5	9.3	11.0	10.9	30.2	51.1	7.8	38.6	0.0	18.5	23.5	10.0
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	269	1242	572	454	1221	536	116	1031		406	1178	552
V/C Ratio(X)	0.98	0.25	0.28	0.43	0.69	1.32	0.82	0.91		1.14	0.55	0.26
Avail Cap(c_a), veh/h	269	1242	572	454	1221	536	174	1128		406	1178	552
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	33.6	34.1	28.8	42.5	49.4	69.3	51.2	0.0	65.8	39.2	34.8
Incr Delay (d2), s/veh	50.0	0.5	1.2	0.6	3.2	157.9	16.7	10.5	0.0	88.0	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.8	7.0	7.7	8.0	19.4	62.9	7.3	24.8	0.0	19.3	14.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.7	34.1	35.4	29.4	45.7	207.3	85.9	61.7	0.0	153.7	39.8	35.1
LnGrp LOS	F	C	D	C	D	F	F	E		F	D	D
Approach Vol, veh/h		732			1742			1035			1261	
Approach Delay, s/veh		52.6			109.7			63.9			81.0	
Approach LOS		D			F			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	56.6	15.2	58.2	17.0	59.6	24.0	49.4				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	14.5	47.0	14.5	52.0	11.5	50.0	18.5	48.0				
Max Q Clear Time (g_c+I1), s	16.5	53.1	9.8	25.5	12.9	13.0	20.5	40.6				
Green Ext Time (p_c), s	0.0	0.0	0.1	4.5	0.0	5.0	0.0	3.3				

Intersection Summary

HCM 6th Ctrl Delay 83.4

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	68	734	47	126	1638	120	63	47	65	97
Future Volume (vph)	68	734	47	126	1638	120	63	47	65	97
Lane Group Flow (vph)	69	749	48	129	1671	122	64	119	66	223
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	67.5	67.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5
Total Split (%)	12.5%	56.3%	56.3%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.34	0.28	0.04	0.27	0.69	0.11	0.82	0.39	0.41	0.74
Control Delay	8.8	5.0	1.5	5.9	7.5	0.9	108.6	23.2	52.6	49.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	5.0	1.5	5.9	7.5	0.9	108.6	23.2	52.6	49.6
Queue Length 50th (ft)	11	76	0	20	172	1	49	33	47	121
Queue Length 95th (ft)	29	131	11	m31	m214	m5	#105	83	87	195
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	237	2659	1248	474	2410	1091	216	707	444	720
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.28	0.04	0.27	0.69	0.11	0.30	0.17	0.15	0.31

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 44 (37%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

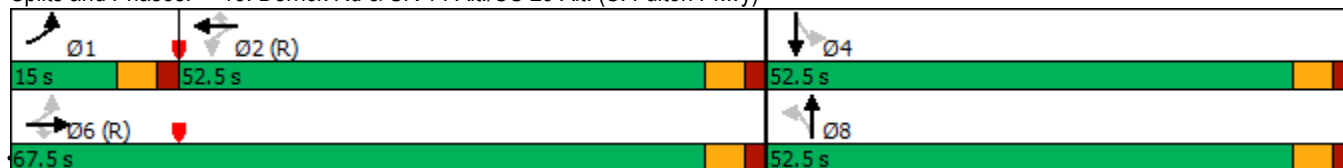
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	734	47	126	1638	120	63	47	70	65	97	122
Future Volume (veh/h)	68	734	47	126	1638	120	63	47	70	65	97	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	69	749	48	129	1671	122	64	48	71	66	99	124
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	202	2492	1147	496	2236	990	150	130	193	229	150	188
Arrive On Green	0.04	0.71	0.71	0.63	0.63	0.63	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1739	3497	1610	692	3554	1572	1176	665	984	1273	767	960
Grp Volume(v), veh/h	69	749	48	129	1671	122	64	0	119	66	0	223
Grp Sat Flow(s),veh/h/ln	1739	1749	1610	692	1777	1572	1176	0	1649	1273	0	1727
Q Serve(g_s), s	1.6	9.4	1.1	10.2	39.5	3.7	6.4	0.0	7.5	5.7	0.0	14.3
Cycle Q Clear(g_c), s	1.6	9.4	1.1	10.2	39.5	3.7	20.7	0.0	7.5	13.2	0.0	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.56
Lane Grp Cap(c), veh/h	202	2492	1147	496	2236	990	150	0	323	229	0	338
V/C Ratio(X)	0.34	0.30	0.04	0.26	0.75	0.12	0.43	0.00	0.37	0.29	0.00	0.66
Avail Cap(c_a), veh/h	275	2492	1147	496	2236	990	380	0	646	479	0	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.1	6.3	5.1	10.1	15.6	8.9	54.1	0.0	41.8	47.6	0.0	44.6
Incr Delay (d2), s/veh	1.0	0.3	0.1	1.3	2.3	0.3	1.9	0.0	0.7	0.7	0.0	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	1.4	4.9	0.5	2.7	20.0	2.1	3.5	0.0	5.5	3.2	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	6.6	5.2	11.4	17.9	9.2	56.0	0.0	42.5	48.2	0.0	46.8
LnGrp LOS	B	A	A	B	B	A	E	A	D	D	A	D
Approach Vol, veh/h		866			1922			183			289	
Approach Delay, s/veh		7.4			16.9			47.3			47.1	
Approach LOS		A			B			D			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	81.0		29.0		91.0		29.0				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	47.0		47.0		62.0		47.0				
Max Q Clear Time (g_c+I1), s	3.6	41.5		16.3		11.4		22.7				
Green Ext Time (p_c), s	0.1	5.2		1.5		11.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				18.8								
HCM 6th LOS				B								

Timings

3b. Build 2028 PM (Phase 1)

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	108	311	402	25	1382	58	318	234	54	44	154
Future Volume (vph)	108	311	402	25	1382	58	318	234	54	44	154
Lane Group Flow (vph)	111	321	414	26	1425	60	328	241	56	45	340
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	57.5	57.5	57.5	57.5	57.5	57.5	47.5	47.5	47.5	15.0	62.5
Total Split (%)	47.9%	47.9%	47.9%	47.9%	47.9%	47.9%	39.6%	39.6%	39.6%	12.5%	52.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	1.76	0.21	0.43	0.05	0.84	0.08	0.95	0.37	0.10	0.10	0.45
Control Delay	429.2	25.1	9.1	6.3	21.5	1.6	74.9	31.2	4.1	17.7	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	429.2	25.1	9.1	6.3	21.5	1.6	74.9	31.2	4.1	17.7	23.9
Queue Length 50th (ft)	~124	71	1	9	541	8	238	135	0	18	161
Queue Length 95th (ft)	#245	151	170	m5	#667	m4	#429	210	20	40	238
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	63	1530	971	487	1698	798	358	663	600	450	824
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.76	0.21	0.43	0.05	0.84	0.08	0.92	0.36	0.09	0.10	0.41

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 53 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

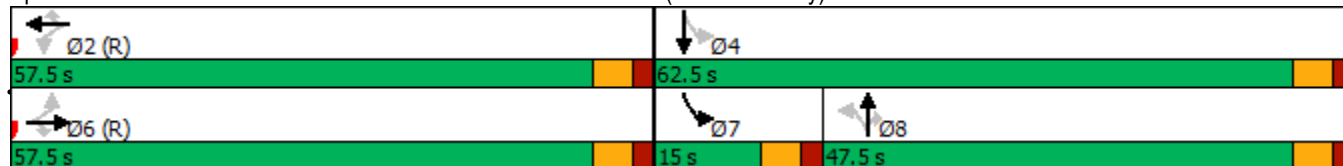
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3b. Build 2028 PM (Phase 1)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	311	402	25	1382	58	318	234	54	44	154	176
Future Volume (veh/h)	108	311	402	25	1382	58	318	234	54	44	154	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	111	321	414	26	1425	60	328	241	0	45	159	181
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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	110	1585	767	371	1733	773	352	655		412	344	392
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.35	0.35	0.00	0.03	0.43	0.43
Sat Flow, veh/h	355	3300	1598	734	3610	1610	1016	1870	1560	1810	805	916
Grp Volume(v), veh/h	111	321	414	26	1425	60	328	241	0	45	0	340
Grp Sat Flow(s),veh/h/ln	355	1650	1598	734	1805	1610	1016	1870	1560	1810	0	1720
Q Serve(g_s), s	16.9	6.7	21.8	2.5	40.7	2.4	34.5	11.5	0.0	1.8	0.0	16.9
Cycle Q Clear(g_c), s	57.6	6.7	21.8	9.3	40.7	2.4	42.0	11.5	0.0	1.8	0.0	16.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	110	1585	767	371	1733	773	352	655		412	0	737
V/C Ratio(X)	1.01	0.20	0.54	0.07	0.82	0.08	0.93	0.37		0.11	0.00	0.46
Avail Cap(c_a), veh/h	110	1585	767	371	1733	773	352	655		497	0	817
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	0.72	0.72	0.72	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	18.0	21.9	20.6	26.8	16.8	44.7	29.1	0.0	23.0	0.0	24.4
Incr Delay (d2), s/veh	88.0	0.3	2.7	0.3	3.3	0.1	31.1	0.3	0.0	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	4.4	13.1	0.8	22.1	1.5	18.8	8.8	0.0	1.4	0.0	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.2	18.3	24.6	20.9	30.1	17.0	75.8	29.4	0.0	23.1	0.0	24.9
LnGrp LOS	F	B	C	C	C	B	E	C		C	A	C
Approach Vol, veh/h	846			1511			569			385		
Approach Delay, s/veh	37.9			29.4			56.1			24.7		
Approach LOS	D			C			E			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	63.1			56.9			63.1			9.4		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	52.0			57.0			52.0			9.5		
Max Q Clear Time (g_c+I1), s	42.7			18.9			59.6			3.8		
Green Ext Time (p_c), s	7.9			2.2			0.0			0.0		

Intersection Summary

HCM 6th Ctrl Delay	35.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3b. Build 2028 PM (Phase 1)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	45	244	132	103	1356	41	29	73	104	150	62
Future Volume (vph)	45	244	132	103	1356	41	29	73	104	150	62
Lane Group Flow (vph)	48	260	140	110	1443	44	0	109	111	160	142
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.22	0.13	0.14	0.16	0.64	0.05		0.38	0.28	0.77	0.38
Control Delay	10.1	5.5	0.5	7.0	17.4	1.2		44.1	8.2	68.1	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	10.1	5.5	0.5	7.0	17.4	1.2		44.1	8.2	68.1	24.8
Queue Length 50th (ft)	4	15	0	23	353	0		74	0	119	53
Queue Length 95th (ft)	22	32	0	55	555	8		117	44	180	102
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	261	1941	1018	699	2247	853		668	761	484	786
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.18	0.13	0.14	0.16	0.64	0.05		0.16	0.15	0.33	0.18

Intersection Summary

Cycle Length: 120

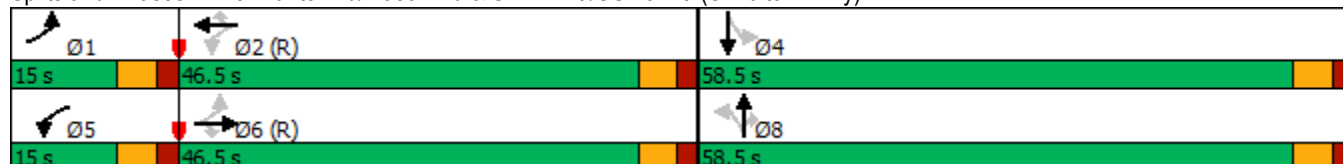
Actuated Cycle Length: 120

Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3b. Build 2028 PM (Phase 1)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	244	132	103	1356	41	29	73	104	150	62	71
Future Volume (veh/h)	45	244	132	103	1356	41	29	73	104	150	62	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	48	260	140	110	1443	0	31	78	0	160	66	76
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	253	2058	1005	642	2263		90	199		249	155	178
Arrive On Green	0.03	0.63	0.63	0.04	0.64	0.00	0.19	0.19	0.00	0.19	0.19	0.19
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	266	1034	1585	1185	805	928
Grp Volume(v), veh/h	48	260	140	110	1443	0	109	0	0	160	0	142
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1300	0	1585	1185	0	1733
Q Serve(g_s), s	1.2	3.8	4.3	3.0	29.8	0.0	2.2	0.0	0.0	8.9	0.0	8.6
Cycle Q Clear(g_c), s	1.2	3.8	4.3	3.0	29.8	0.0	10.9	0.0	0.0	19.7	0.0	8.6
Prop In Lane	1.00		1.00	1.00		1.00	0.28		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	253	2058	1005	642	2263		289	0		249	0	333
V/C Ratio(X)	0.19	0.13	0.14	0.17	0.64		0.38	0.00		0.64	0.00	0.43
Avail Cap(c_a), veh/h	331	2058	1005	702	2263		661	0		544	0	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.99	0.99	0.99	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	9.0	9.1	7.1	13.3	0.0	42.7	0.0	0.0	48.2	0.0	42.6
Incr Delay (d2), s/veh	0.4	0.1	0.3	0.1	1.4	0.0	0.8	0.0	0.0	2.8	0.0	0.9
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	0.7	2.2	2.5	1.5	15.5	0.0	5.2	0.0	0.0	8.3	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	9.1	9.3	7.2	14.7	0.0	43.5	0.0	0.0	51.0	0.0	43.5
LnGrp LOS	B	A	A	A	B		D	A		D	A	D
Approach Vol, veh/h	448			1553			109			302		
Approach Delay, s/veh	9.4			14.2			43.5			47.5		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	81.9		28.6	10.4	81.0		28.6				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.2	31.8		21.7	5.0	6.3		12.9				
Green Ext Time (p_c), s	0.0	7.7		1.4	0.1	4.1		0.6				

Intersection Summary

HCM 6th Ctrl Delay 18.8

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection							
Int Delay, s/veh	43.6						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Vol, veh/h	31	64	517	642	1591	164	
Future Vol, veh/h	31	64	517	642	1591	164	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	Yield	-	None	-	Yield	
Storage Length	0	170	395	-	-	0	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	95	95	95	95	95	95	
Heavy Vehicles, %	4	2	4	1	3	2	
Mvmt Flow	33	67	544	676	1675	173	
Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	3101	838	1675	0	-	0	
Stage 1	1675	-	-	-	-	-	
Stage 2	1426	-	-	-	-	-	
Critical Hdwy	6.88	6.94	4.18	-	-	-	
Critical Hdwy Stg 1	5.88	-	-	-	-	-	
Critical Hdwy Stg 2	5.88	-	-	-	-	-	
Follow-up Hdwy	3.54	3.32	2.24	-	-	-	
Pot Cap-1 Maneuver	~ 9	309	~ 370	-	-	-	
Stage 1	135	-	-	-	-	-	
Stage 2	184	-	-	-	-	-	
Platoon blocked, %				-	-	-	
Mov Cap-1 Maneuver	0	309	~ 370	-	-	-	
Mov Cap-2 Maneuver	0	-	-	-	-	-	
Stage 1	0	-	-	-	-	-	
Stage 2	184	-	-	-	-	-	
Approach	EB		NB		SB		
HCM Control Delay, s			113.1		0		
HCM LOS	-						
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 370		-	-	309	-	-
HCM Lane V/C Ratio	1.471		-	-	0.218	-	-
HCM Control Delay (s)	253.6		-	-	19.9	-	-
HCM Lane LOS	F		-	-	C	-	-
HCM 95th %tile Q(veh)	28.9		-	-	0.8	-	-
Notes							
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon	

Intersection						
Int Delay, s/veh	258.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	898	39	634	858	147
Future Vol, veh/h	65	898	39	634	858	147
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	5	0	1	1	3
Mvmt Flow	69	955	41	674	913	156
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1410	535	1069	0	-	0
Stage 1	991	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.88	7	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.35	2.2	-	-	-
Pot Cap-1 Maneuver	127	~ 482	660	-	-	-
Stage 1	315	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	119	~ 482	660	-	-	-
Mov Cap-2 Maneuver	119	-	-	-	-	-
Stage 1	295	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	708.1	0.6		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	660	-	408	-	-	
HCM Lane V/C Ratio	0.063	-	2.511	-	-	
HCM Control Delay (s)	10.8	-\$ 708.1		-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.2	-	81.8	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	21	10	1	31
Future Vol, veh/h	8	0	21	10	1	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	23	11	1	34
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	59	23	0	0	34	0
Stage 1	23	-	-	-	-	-
Stage 2	36	-	-	-	-	-
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	948	1054	-	-	1578	-
Stage 1	1000	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	947	1054	-	-	1578	-
Mov Cap-2 Maneuver	947	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.8	0		0.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	947	1578	-	
HCM Lane V/C Ratio	-	-	0.009	0.001	-	
HCM Control Delay (s)	-	-	8.8	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	30	29	1	38
Future Vol, veh/h	23	1	30	29	1	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	33	32	1	41

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	76	33	0	0	65
Stage 1	33	-	-	-	-
Stage 2	43	-	-	-	-
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	927	1041	-	-	1537
Stage 1	989	-	-	-	-
Stage 2	979	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	926	1041	-	-	1537
Mov Cap-2 Maneuver	926	-	-	-	-
Stage 1	989	-	-	-	-
Stage 2	978	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	930	1537
HCM Lane V/C Ratio	-	-	0.028	0.001
HCM Control Delay (s)	-	-	9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	1	58	58	1	59
Future Vol, veh/h	45	1	58	58	1	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	49	1	63	63	1	64
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	129	63	0	0	126	0
Stage 1	63	-	-	-	-	-
Stage 2	66	-	-	-	-	-
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	865	1002	-	-	1460	-
Stage 1	960	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	864	1002	-	-	1460	-
Mov Cap-2 Maneuver	864	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.4	0		0.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	867	1460	-	
HCM Lane V/C Ratio	-	-	0.058	0.001	-	
HCM Control Delay (s)	-	-	9.4	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

**Future 2028 Phase 1 “Build” Intersections
Analysis with Improvements**

Timings
1: I-85 NB Ramps & Collinsworth Rd

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	427	527	522	758	345	421
Future Volume (vph)	427	527	522	758	345	421
Lane Group Flow (vph)	454	561	555	806	367	448
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	33.0	84.0	51.0	51.0	36.0	36.0
Total Split (%)	27.5%	70.0%	42.5%	42.5%	30.0%	30.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.87	0.24	0.75	0.80	0.91	0.70
Control Delay	37.1	6.7	39.1	13.2	70.9	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	6.7	39.1	13.2	70.9	15.3
Queue Length 50th (ft)	155	57	383	98	271	55
Queue Length 95th (ft)	#372	71	#548	316	#435	177
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	545	2348	739	1011	432	655
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.24	0.75	0.80	0.85	0.68

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 100 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

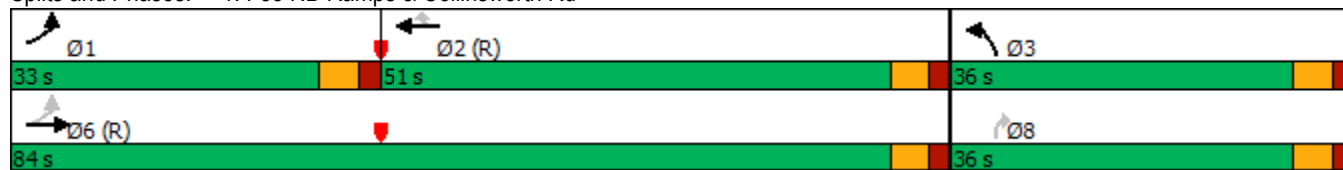
Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary
1: I-85 NB Ramps & Collinsworth Rd

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	427	527	0	0	522	758	345	0	421	0	0	0
Future Volume (veh/h)	427	527	0	0	522	758	345	0	421	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	454	561	0	0	555	0	367	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	544	2396	0	0	828		394	0				
Arrive On Green	0.35	1.00	0.00	0.00	0.46	0.00	0.23	0.00	0.00			
Sat Flow, veh/h	1725	3618	0	0	1811	1535	1725	0	1535			
Grp Volume(v), veh/h	454	561	0	0	555	0	367	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1763	0	0	1811	1535	1725	0	1535			
Q Serve(g_s), s	18.3	0.0	0.0	0.0	28.8	0.0	25.0	0.0	0.0			
Cycle Q Clear(g_c), s	18.3	0.0	0.0	0.0	28.8	0.0	25.0	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	544	2396	0	0	828		394	0				
V/C Ratio(X)	0.83	0.23	0.00	0.00	0.67		0.93	0.00				
Avail Cap(c_a), veh/h	635	2396	0	0	828		438	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.69	0.69	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	13.7	0.0	0.0	0.0	25.5	0.0	45.3	0.0	0.0			
Incr Delay (d2), s/veh	5.9	0.2	0.0	0.0	4.3	0.0	25.2	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	7.1	0.1	0.0	0.0	18.0	0.0	19.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	0.2	0.0	0.0	29.8	0.0	70.6	0.0	0.0			
LnGrp LOS	B	A	A	A	C		E	A				
Approach Vol, veh/h	1015			555			367					
Approach Delay, s/veh	8.9			29.8			70.6					
Approach LOS	A			C			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	26.7	60.4					87.1	32.9				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	27.5	45.5					78.5	30.5				
Max Q Clear Time (g_c+I1), s	20.3	30.8					2.0	27.0				
Green Ext Time (p_c), s	0.9	4.9					7.7	0.4				

Intersection Summary

HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

3c. Build 2028 AM (Phase 1) - Improved
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	819	250	234	679	170	196
Future Volume (vph)	819	250	234	679	170	196
Lane Group Flow (vph)	862	263	246	715	179	206
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	78.0	78.0	20.0	98.0	22.0	22.0
Total Split (%)	65.0%	65.0%	16.7%	81.7%	18.3%	18.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.69	0.24	0.59	0.49	0.55	0.63
Control Delay	13.4	1.3	11.3	6.0	57.7	15.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	13.4	1.3	11.3	6.2	57.7	15.7
Queue Length 50th (ft)	307	8	44	116	69	0
Queue Length 95th (ft)	556	m14	m106	m406	104	73
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	1251	1089	472	1451	454	375
Starvation Cap Reductn	0	0	0	172	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.24	0.52	0.56	0.39	0.55

Intersection Summary

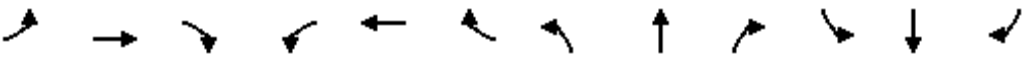
Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 70 (58%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

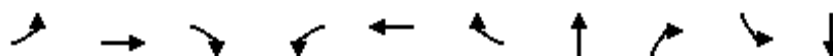
3c. Build 2028 AM (Phase 1) - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	819	250	234	679	0	0	0	0	170	0	196
Future Volume (veh/h)	0	819	250	234	679	0	0	0	0	170	0	196
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	862	0	246	715	0				179	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	1365		609	1515	0				240	0	
Arrive On Green	0.00	0.98	0.00	0.11	1.00	0.00				0.07	0.00	0.00
Sat Flow, veh/h	0	1856	1497	1767	1811	0				3346	0	1459
Grp Volume(v), veh/h	0	862	0	246	715	0				179	0	0
Grp Sat Flow(s),veh/h/ln	0	1856	1497	1767	1811	0				1673	0	1459
Q Serve(g_s), s	0.0	3.1	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.1	0.0	4.2	0.0	0.0				6.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1365		609	1515	0				240	0	
V/C Ratio(X)	0.00	0.63		0.40	0.47	0.00				0.75	0.00	
Avail Cap(c_a), veh/h	0	1365		725	1515	0				460	0	
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.63	0.00	0.48	0.48	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.4	0.0	2.6	0.0	0.0				54.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.2	0.5	0.0				4.6	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	0.0	1.6	0.0	1.2	0.4	0.0				5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.8	0.0	2.8	0.5	0.0				59.2	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		862			961						179	
Approach Delay, s/veh		1.8			1.1						59.2	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.9		14.1	12.1	93.8						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		92.5		16.5	14.5	72.5						
Max Q Clear Time (g_c+I1), s		2.0		8.3	6.2	5.1						
Green Ext Time (p_c), s		11.9		0.3	0.4	16.5						
Intersection Summary												
HCM 6th Ctrl Delay			6.6									
HCM 6th LOS			A									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
3: Weldon Rd & Collinsworth Rd

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↩	↩	↩	↩	↩	↩	↩	↩	↩
Traffic Volume (vph)	24	386	4	36	178	345	1	7	477	4
Future Volume (vph)	24	386	4	36	178	345	1	7	477	4
Lane Group Flow (vph)	0	427	4	38	185	359	1	7	497	12
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6		5	2		8			4
Permitted Phases	6		6	2		2		8	4	
Detector Phase	6	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	15.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	45.0	45.0	45.0	15.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	12.5%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
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
Total Lost Time (s)		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 Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio		0.53	0.01	0.10	0.19	0.36	0.00	0.01	0.89	0.02
Control Delay		30.5	0.0	12.7	12.4	3.3	18.0	0.0	52.4	11.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.5	0.0	12.7	12.4	3.3	18.0	0.0	52.4	11.9
Queue Length 50th (ft)		258	0	10	55	31	0	0	346	2
Queue Length 95th (ft)		405	0	m29	128	50	4	0	468	13
Internal Link Dist (ft)		914			947		293			729
Turn Bay Length (ft)			365	315		175			235	
Base Capacity (vph)		811	747	399	955	986	846	758	640	765
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.53	0.01	0.10	0.19	0.36	0.00	0.01	0.78	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

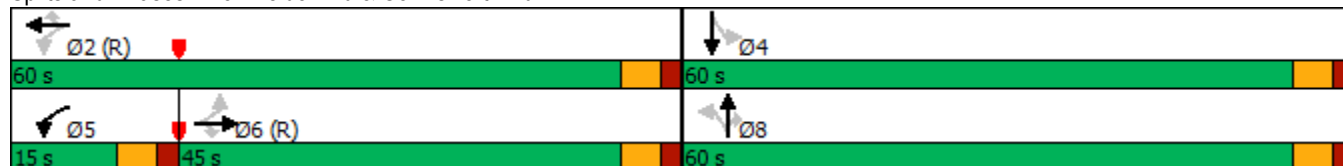
Offset: 44 (37%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

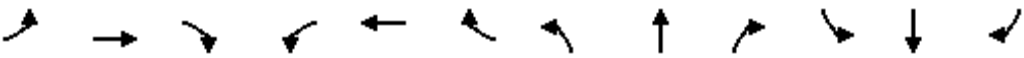
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary 3: Weldon Rd & Collinsworth Rd

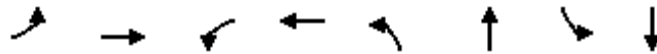
3c. Build 2028 AM (Phase 1) - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱	↰		↰	↱	↰	↱	
Traffic Volume (veh/h)	24	386	4	36	178	345	0	1	7	477	4	8
Future Volume (veh/h)	24	386	4	36	178	345	0	1	7	477	4	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	402	4	38	185	359	0	1	7	497	4	8
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	59	804	731	409	1005	852	0	694	588	582	207	413
Arrive On Green	0.46	0.46	0.46	0.05	0.90	0.90	0.00	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	59	1743	1585	1781	1870	1585	0	1870	1585	1407	557	1113
Grp Volume(v), veh/h	427	0	4	38	185	359	0	1	7	497	0	12
Grp Sat Flow(s),veh/h/ln	1801	0	1585	1781	1870	1585	0	1870	1585	1407	0	1670
Q Serve(g_s), s	0.0	0.0	0.2	1.3	1.5	4.5	0.0	0.0	0.3	41.2	0.0	0.5
Cycle Q Clear(g_c), s	19.1	0.0	0.2	1.3	1.5	4.5	0.0	0.0	0.3	41.3	0.0	0.5
Prop In Lane	0.06		1.00	1.00		1.00	0.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	863	0	731	409	1005	852	0	694	588	582	0	620
V/C Ratio(X)	0.49	0.00	0.01	0.09	0.18	0.42	0.00	0.00	0.01	0.85	0.00	0.02
Avail Cap(c_a), veh/h	863	0	731	497	1005	852	0	849	720	699	0	758
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.84	0.84	0.84	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	0.0	17.4	16.4	2.9	3.1	0.0	23.7	23.8	36.7	0.0	23.9
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.1	0.3	1.3	0.0	0.0	0.0	8.8	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.9	0.0	0.1	0.9	1.0	2.3	0.0	0.0	0.2	21.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	0.0	17.5	16.5	3.3	4.4	0.0	23.7	23.8	45.5	0.0	23.9
LnGrp LOS	C	A	B	B	A	A	A	C	C	D	A	C
Approach Vol, veh/h		431			582			8			509	
Approach Delay, s/veh		24.5			4.8			23.8			45.0	
Approach LOS		C			A			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		70.0		50.0	9.1	60.9		50.0				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		54.5		54.5	9.5	39.5		54.5				
Max Q Clear Time (g_c+I1), s		6.5		43.3	3.3	21.1		2.3				
Green Ext Time (p_c), s		5.4		1.3	0.0	4.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				23.8								
HCM 6th LOS				C								

Timings
4: SR 14/US 29 (Main St) & Toombs St

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	30	89	8	51	7	395	29	343
Future Volume (vph)	30	89	8	51	7	395	29	343
Lane Group Flow (vph)	0	145	0	95	0	458	0	421
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	36.0	36.0	36.0	36.0	84.0	84.0	84.0	84.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.69		0.40		0.34		0.34
Control Delay		64.7		42.5		5.2		5.3
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		64.7		42.5		5.2		5.3
Queue Length 50th (ft)		106		55		88		80
Queue Length 95th (ft)		168		104		161		151
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		417		457		1341		1231
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.35		0.21		0.34		0.34

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: 50

Control Type: Actuated-Coordinated

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	30	89	12	8	51	26	7	395	10	29	343	7
Future Volume (veh/h)	30	89	12	8	51	26	7	395	10	29	343	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	33	99	13	9	57	29	8	439	11	32	381	8
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	68	133	16	41	118	56	39	1360	34	104	1183	24
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.81	0.81	0.81	0.81	0.81	0.81
Sat Flow, veh/h	307	1323	161	86	1172	552	10	1684	42	89	1465	30
Grp Volume(v), veh/h	145	0	0	95	0	0	458	0	0	421	0	0
Grp Sat Flow(s),veh/h/ln	1790	0	0	1810	0	0	1735	0	0	1584	0	0
Q Serve(g_s), s	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.4	0.0	0.0	6.0	0.0	0.0	8.2	0.0	0.0	7.8	0.0	0.0
Prop In Lane	0.23		0.09	0.09		0.31	0.02		0.02	0.08		0.02
Lane Grp Cap(c), veh/h	217	0	0	215	0	0	1432	0	0	1312	0	0
V/C Ratio(X)	0.67	0.00	0.00	0.44	0.00	0.00	0.32	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	479	0	0	481	0	0	1432	0	0	1312	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.7	0.0	0.0	51.2	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.0	1.4	0.0	0.0	0.6	0.0	0.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	0.0	5.0	0.0	0.0	4.6	0.0	0.0	4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	0.0	52.7	0.0	0.0	3.6	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	E	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		145			95			458			421	
Approach Delay, s/veh		56.2			52.7			3.6			3.6	
Approach LOS		E			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		102.4		17.6		102.4		17.6				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		78.5		30.5		78.5		30.5				
Max Q Clear Time (g_c+I1), s		9.8		11.4		10.2		8.0				
Green Ext Time (p_c), s		6.9		0.7		7.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				14.6								
HCM 6th LOS				B								

Intersection

Intersection Delay, s/veh 9.8

Intersection LOS A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	60	31	174	264	20
Future Vol, veh/h	36	60	31	174	264	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	62	32	179	272	21
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.8	8.8	10.8
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	0%	93%
Vol Thru, %	62%	15%	0%
Vol Right, %	0%	85%	7%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	205	284
LT Vol	36	0	264
Through Vol	60	31	0
RT Vol	0	174	20
Lane Flow Rate	99	211	293
Geometry Grp	1	1	1
Degree of Util (X)	0.137	0.252	0.388
Departure Headway (Hd)	4.984	4.288	4.771
Convergence, Y/N	Yes	Yes	Yes
Cap	718	837	752
Service Time	3.027	2.322	2.815
HCM Lane V/C Ratio	0.138	0.252	0.39
HCM Control Delay	8.8	8.8	10.8
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1	1.8

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	205	133	35	56	13
Future Vol, veh/h	6	205	133	35	56	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	216	140	37	59	14
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	177	0	-	0	387	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1399	-	-	-	616	886
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1399	-	-	-	613	886
Mov Cap-2 Maneuver	-	-	-	-	613	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	810	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		11.2		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1399	-	-	-	651	
HCM Lane V/C Ratio	0.005	-	-	-	0.112	
HCM Control Delay (s)	7.6	0	-	-	11.2	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.4	

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	29	40	6	57	60
Future Vol, veh/h	8	29	40	6	57	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	37	51	8	73	77
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	278	55	0	0	59	0
Stage 1	55	-	-	-	-	-
Stage 2	223	-	-	-	-	-
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	712	1012	-	-	1545	-
Stage 1	968	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	677	1012	-	-	1545	-
Mov Cap-2 Maneuver	677	-	-	-	-	-
Stage 1	968	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		3.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	914	1545	-	
HCM Lane V/C Ratio	-	-	0.052	0.047	-	
HCM Control Delay (s)	-	-	9.2	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↔	↔		↔	
Traffic Vol, veh/h	2	473	73	11	132	32	37	15	17	62	31	4
Future Vol, veh/h	2	473	73	11	132	32	37	15	17	62	31	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	None
Storage Length	-	-	210	-	-	250	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	538	83	13	150	36	42	17	19	70	35	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	538	0	0	738	718	538	727	718	150
Stage 1	-	-	-	-	-	-	542	542	-	176	176	-
Stage 2	-	-	-	-	-	-	196	176	-	551	542	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1431	-	-	1030	-	-	334	355	543	339	355	896
Stage 1	-	-	-	-	-	-	525	520	-	826	753	-
Stage 2	-	-	-	-	-	-	806	753	-	519	520	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1431	-	-	1030	-	-	303	349	543	311	349	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	349	-	311	349	-
Stage 1	-	-	-	-	-	-	524	519	-	824	742	-
Stage 2	-	-	-	-	-	-	753	742	-	483	519	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			17.3			21.2		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1		
Capacity (veh/h)	315		543	1431	-	-	1030	-	-	-	331	
HCM Lane V/C Ratio	0.188		0.036	0.002	-	-	0.012	-	-	-	0.333	
HCM Control Delay (s)	19		11.9	7.5	0	-	8.5	0	-	-	21.2	
HCM Lane LOS	C		B	A	A	-	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.7		0.1	0	-	-	0	-	-	-	1.4	

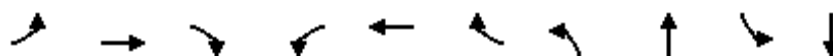
Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	473	63	4	138	6	34	5	0	18	23	0
Future Vol, veh/h	0	473	63	4	138	6	34	5	0	18	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	520	69	4	152	7	37	5	0	20	25	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	520	0	0	693	680	260	423	680	-
Stage 1	-	-	-	-	-	-	520	520	-	160	160	-
Stage 2	-	-	-	-	-	-	173	160	-	263	520	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	1428	-	-	1044	-	-	343	372	740	528	372	0
Stage 1	-	-	-	-	-	-	508	531	-	842	765	0
Stage 2	-	-	-	-	-	-	828	765	-	720	531	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1428	-	-	1044	-	-	324	371	740	521	371	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	324	371	-	521	371	-
Stage 1	-	-	-	-	-	-	508	531	-	842	762	-
Stage 2	-	-	-	-	-	-	797	762	-	713	531	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			17.6					
HCM LOS							C			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	329	1428	-	-	1044	-	-	521	-			
HCM Lane V/C Ratio	0.13	-	-	-	0.004	-	-	0.038	-			
HCM Control Delay (s)	17.6	0	-	-	8.5	-	-	12.2	-			
HCM Lane LOS	C	A	-	-	A	-	-	B	-			
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1	-			

Timings

3c. Build 2028 AM (Phase 1) - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←	↑↑	→	←	↑↑	→	←	↑	←	→
Traffic Volume (vph)	12	470	10	46	127	4	6	276	2	299
Future Volume (vph)	12	470	10	46	127	4	6	276	2	299
Lane Group Flow (vph)	13	500	11	49	135	4	6	365	2	327
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	45.0	45.0	19.0	47.0	47.0	56.0	56.0	56.0	56.0
Total Split (%)	14.2%	37.5%	37.5%	15.8%	39.2%	39.2%	46.7%	46.7%	46.7%	46.7%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.14	0.25	0.01	0.38	0.06	0.00	0.05	0.80	0.02	0.71
Control Delay	56.7	16.0	0.0	85.8	3.7	0.0	31.0	53.6	30.0	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	16.0	0.0	85.8	3.7	0.0	31.0	53.6	30.0	49.3
Queue Length 50th (ft)	10	104	0	38	4	0	4	258	1	232
Queue Length 95th (ft)	31	172	0	70	10	m0	14	333	8	301
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	1985	920	199	2186	1005	225	768	175	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.25	0.01	0.25	0.06	0.00	0.03	0.48	0.01	0.42

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

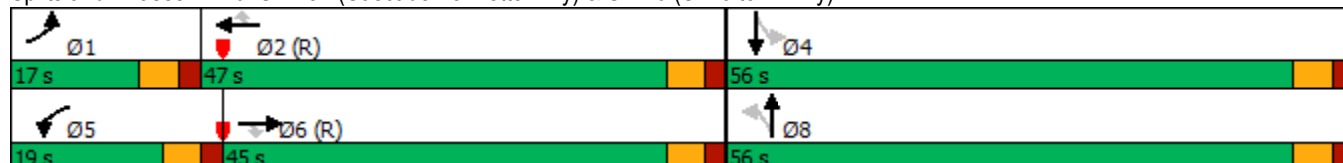
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3c. Build 2028 AM (Phase 1) - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	470	10	46	127	4	6	276	67	2	299	8
Future Volume (veh/h)	12	470	10	46	127	4	6	276	67	2	299	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	500	0	49	135	0	6	294	71	2	318	9
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	26	2128		63	2203		127	332	80	93	413	12
Arrive On Green	0.01	0.60	0.00	0.04	0.62	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1053	1456	352	1017	1810	51
Grp Volume(v), veh/h	13	500	0	49	135	0	6	0	365	2	0	327
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1053	0	1807	1017	0	1861
Q Serve(g_s), s	0.9	7.9	0.0	3.3	1.8	0.0	0.6	0.0	23.4	0.2	0.0	19.7
Cycle Q Clear(g_c), s	0.9	7.9	0.0	3.3	1.8	0.0	20.4	0.0	23.4	23.7	0.0	19.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		0.03
Lane Grp Cap(c), veh/h	26	2128		63	2203		127	0	412	93	0	424
V/C Ratio(X)	0.50	0.23		0.77	0.06		0.05	0.00	0.89	0.02	0.00	0.77
Avail Cap(c_a), veh/h	171	2128		200	2203		330	0	760	289	0	783
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	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	58.7	11.2	0.0	57.4	9.0	0.0	52.9	0.0	44.8	56.3	0.0	43.4
Incr Delay (d2), s/veh	13.9	0.3	0.0	17.7	0.1	0.0	0.2	0.0	6.5	0.1	0.0	3.0
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	0.9	5.1	0.0	3.1	1.1	0.0	0.3	0.0	16.0	0.1	0.0	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.6	11.5	0.0	75.1	9.1	0.0	53.1	0.0	51.3	56.4	0.0	46.4
LnGrp LOS	E	B		E	A		D	A	D	E	A	D
Approach Vol, veh/h		513			184			371			329	
Approach Delay, s/veh		13.0			26.7			51.3			46.4	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	79.9		32.9	9.8	77.4		32.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	41.5		50.5	13.5	39.5		50.5				
Max Q Clear Time (g_c+I1), s	2.9	3.8		25.7	5.3	9.9		25.4				
Green Ext Time (p_c), s	0.0	1.4		1.6	0.0	5.9		1.9				

Intersection Summary

HCM 6th Ctrl Delay 32.9

HCM 6th LOS C

Notes

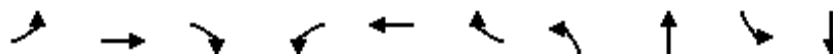
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3c. Build 2028 AM (Phase 1) - Improved

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	←	↑↑	→	←	↑↑	→	←	↑	←	→
Traffic Volume (vph)	32	848	44	150	431	96	34	124	182	184
Future Volume (vph)	32	848	44	150	431	96	34	124	182	184
Lane Group Flow (vph)	35	922	48	163	468	104	37	434	198	234
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	46.0	46.0	15.0	46.0	46.0	15.0	44.0	15.0	44.0
Total Split (%)	12.5%	38.3%	38.3%	12.5%	38.3%	38.3%	12.5%	36.7%	12.5%	36.7%
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	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
v/c Ratio	0.08	0.65	0.08	0.60	0.30	0.13	0.11	0.88	0.93	0.41
Control Delay	14.6	26.5	0.2	27.0	23.0	3.5	22.3	51.4	73.3	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	26.5	0.2	27.0	23.0	3.5	22.3	51.4	73.3	34.3
Queue Length 50th (ft)	11	214	0	63	124	0	18	256	105	146
Queue Length 95th (ft)	m27	266	0	#137	192	28	37	357	#221	209
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	489	1413	616	275	1578	813	351	607	214	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.65	0.08	0.59	0.30	0.13	0.11	0.71	0.93	0.39

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 92 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

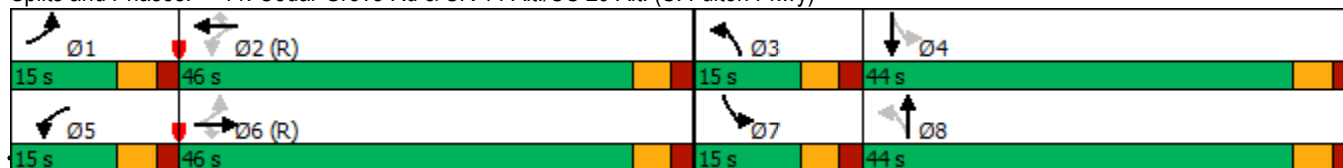
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3c. Build 2028 AM (Phase 1) - Improved

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	848	44	150	431	96	34	124	275	182	184	31
Future Volume (veh/h)	32	848	44	150	431	96	34	124	275	182	184	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	35	922	0	163	468	0	37	135	299	198	200	34
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	419	1378		290	1465		337	146	323	230	513	87
Arrive On Green	0.03	0.39	0.00	0.07	0.43	0.00	0.03	0.28	0.28	0.08	0.33	0.33
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	522	1155	1810	1558	265
Grp Volume(v), veh/h	35	922	0	163	468	0	37	0	434	198	0	234
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	0	1677	1810	0	1823
Q Serve(g_s), s	1.4	25.7	0.0	6.4	10.9	0.0	2.0	0.0	30.2	9.2	0.0	11.9
Cycle Q Clear(g_c), s	1.4	25.7	0.0	6.4	10.9	0.0	2.0	0.0	30.2	9.2	0.0	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.15
Lane Grp Cap(c), veh/h	419	1378		290	1465		337	0	469	230	0	600
V/C Ratio(X)	0.08	0.67		0.56	0.32		0.11	0.00	0.93	0.86	0.00	0.39
Avail Cap(c_a), veh/h	507	1378		306	1465		414	0	538	230	0	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	21.0	30.4	0.0	22.8	22.6	0.0	29.5	0.0	42.0	31.3	0.0	31.0
Incr Delay (d2), s/veh	0.1	2.6	0.0	2.1	0.6	0.0	0.1	0.0	20.6	26.3	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	1.0	16.1	0.0	4.7	7.5	0.0	1.4	0.0	20.9	9.4	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	32.9	0.0	24.9	23.2	0.0	29.6	0.0	62.6	57.6	0.0	31.4
LnGrp LOS	C	C		C	C		C	A	E	E	A	C
Approach Vol, veh/h	957				631				471			
Approach Delay, s/veh	32.5				23.6				60.0			
Approach LOS	C				C				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	57.0	9.0	45.0	13.9	52.0	15.0	39.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	40.5	9.5	38.5	9.5	40.5	9.5	38.5				
Max Q Clear Time (g_c+l1), s	3.4	12.9	4.0	13.9	8.4	27.7	11.2	32.2				
Green Ext Time (p_c), s	0.0	5.3	0.0	1.2	0.0	7.3	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay 37.4

HCM 6th LOS D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	807	208	85	489	476	182	754	148	594	836	230
Future Volume (vph)	295	807	208	85	489	476	182	754	148	594	836	230
Lane Group Flow (vph)	317	868	224	91	526	512	196	811	159	639	899	247
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	19.0	48.5	48.5	15.0	44.5	44.5	28.0	53.5	53.5	33.0	58.5	58.5
Total Split (%)	12.7%	32.3%	32.3%	10.0%	29.7%	29.7%	18.7%	35.7%	35.7%	22.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.85	0.75	0.39	0.47	0.58	0.80	0.84	0.84	0.30	1.04	0.78	0.38
Control Delay	55.0	50.5	24.7	36.6	51.5	28.6	91.0	59.5	11.9	104.2	51.3	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	50.5	24.7	36.6	51.5	28.6	91.0	59.5	11.9	104.2	51.3	9.6
Queue Length 50th (ft)	214	402	93	53	237	185	187	394	25	~345	427	31
Queue Length 95th (ft)	#399	511	182	99	301	345	#302	449	81	#471	481	97
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	373	1165	577	200	902	643	257	1110	601	617	1250	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.75	0.39	0.46	0.58	0.80	0.76	0.73	0.26	1.04	0.72	0.36

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: 150

Control Type: Actuated-Coordinated

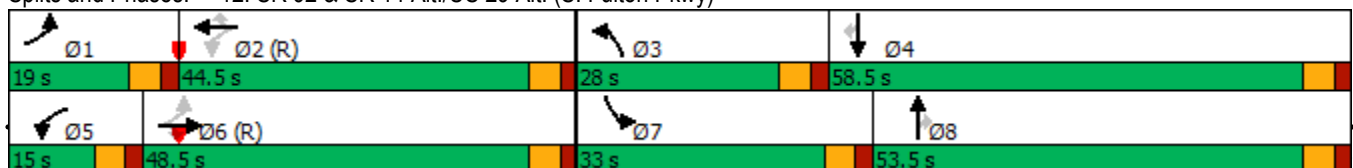
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	807	208	85	489	476	182	754	148	594	836	230
Future Volume (veh/h)	295	807	208	85	489	476	182	754	148	594	836	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1870	1841	1856	1841	1841	1826	1841	1900	1841	1870	1885
Adj Flow Rate, veh/h	317	868	224	91	526	512	196	811	0	639	899	247
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, %	1	2	4	3	4	4	5	4	0	4	2	1
Cap, veh/h	318	1283	563	210	1112	496	218	917		624	1137	511
Arrive On Green	0.09	0.36	0.36	0.05	0.32	0.32	0.13	0.26	0.00	0.18	0.32	0.32
Sat Flow, veh/h	1795	3554	1560	1767	3497	1560	1739	3497	1610	3401	3554	1598
Grp Volume(v), veh/h	317	868	224	91	526	512	196	811	0	639	899	247
Grp Sat Flow(s),veh/h/ln	1795	1777	1560	1767	1749	1560	1739	1749	1610	1700	1777	1598
Q Serve(g_s), s	13.5	31.0	16.1	5.2	18.1	47.7	16.7	33.4	0.0	27.5	34.5	18.7
Cycle Q Clear(g_c), s	13.5	31.0	16.1	5.2	18.1	47.7	16.7	33.4	0.0	27.5	34.5	18.7
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	318	1283	563	210	1112	496	218	917		624	1137	511
V/C Ratio(X)	1.00	0.68	0.40	0.43	0.47	1.03	0.90	0.88		1.02	0.79	0.48
Avail Cap(c_a), veh/h	318	1283	563	239	1112	496	261	1119		624	1256	564
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	40.5	35.8	34.3	41.1	51.2	64.6	53.2	0.0	61.2	46.4	41.0
Incr Delay (d2), s/veh	50.0	2.9	2.1	1.4	1.4	49.0	27.6	7.5	0.0	42.5	3.2	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	14.7	19.5	10.3	4.0	12.4	33.3	13.7	21.4	0.0	21.8	21.6	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.2	43.4	37.9	35.7	42.5	100.2	92.3	60.6	0.0	103.8	49.6	41.7
LnGrp LOS	F	D	D	D	D	F	F	E		F	D	D
Approach Vol, veh/h	1409			1129			1007			1785		
Approach Delay, s/veh	53.3			68.1			66.8			67.9		
Approach LOS	D			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	53.2	24.3	53.5	12.5	59.6	33.0	44.8				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	13.5	39.0	22.5	53.0	9.5	43.0	27.5	48.0				
Max Q Clear Time (g_c+I1), s	15.5	49.7	18.7	36.5	7.2	33.0	29.5	35.4				
Green Ext Time (p_c), s	0.0	0.0	0.2	5.8	0.0	6.5	0.0	3.9				

Intersection Summary

HCM 6th Ctrl Delay 63.9

HCM 6th LOS E

Notes

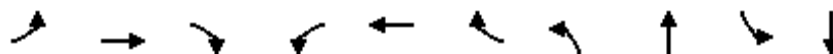
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3c. Build 2028 AM (Phase 1) - Improved

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗↗	↰	↰	↗↗	↰	↰	↗	↰	↗
Traffic Volume (vph)	108	1341	89	144	795	48	53	50	104	94
Future Volume (vph)	108	1341	89	144	795	48	53	50	104	94
Lane Group Flow (vph)	113	1397	93	150	828	50	55	158	108	278
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	67.5	67.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5
Total Split (%)	12.5%	56.3%	56.3%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.27	0.54	0.08	0.68	0.38	0.05	0.89	0.56	0.69	0.78
Control Delay	6.9	8.3	2.3	24.8	4.5	0.2	135.4	43.8	67.8	46.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	8.3	2.3	24.8	4.5	0.2	135.4	43.8	67.8	46.5
Queue Length 50th (ft)	21	207	4	21	48	0	42	93	80	142
Queue Length 95th (ft)	51	352	24	m#120	m111	m1	#103	149	132	218
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	432	2611	1185	222	2170	971	148	644	377	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.54	0.08	0.68	0.38	0.05	0.37	0.25	0.29	0.38

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

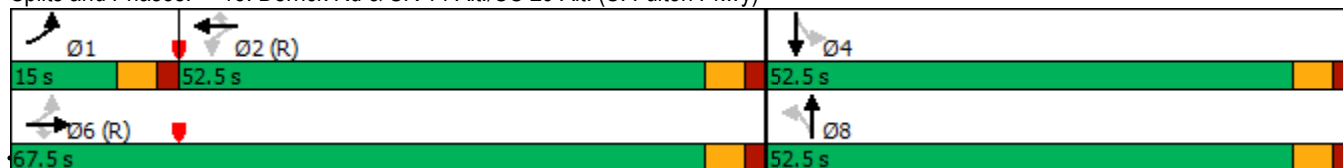
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3c. Build 2028 AM (Phase 1) - Improved

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	1341	89	144	795	48	53	50	102	104	94	173
Future Volume (veh/h)	108	1341	89	144	795	48	53	50	102	104	94	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	112	1397	93	150	828	50	55	52	106	108	98	180
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	390	2410	1075	229	2064	898	141	124	252	237	135	248
Arrive On Green	0.04	0.68	0.68	0.60	0.60	0.60	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1584	3526	1572	356	3469	1510	1101	549	1120	1228	600	1102
Grp Volume(v), veh/h	112	1397	93	150	828	50	55	0	158	108	0	278
Grp Sat Flow(s),veh/h/ln	1584	1763	1572	356	1735	1510	1101	0	1669	1228	0	1702
Q Serve(g_s), s	3.2	24.9	2.4	45.8	15.2	1.7	5.8	0.0	9.7	9.9	0.0	18.2
Cycle Q Clear(g_c), s	3.2	24.9	2.4	60.1	15.2	1.7	24.0	0.0	9.7	19.6	0.0	18.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.65
Lane Grp Cap(c), veh/h	390	2410	1075	229	2064	898	141	0	375	237	0	383
V/C Ratio(X)	0.29	0.58	0.09	0.65	0.40	0.06	0.39	0.00	0.42	0.46	0.00	0.73
Avail Cap(c_a), veh/h	448	2410	1075	229	2064	898	325	0	654	442	0	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	10.0	6.4	28.5	12.9	10.2	54.2	0.0	39.8	48.2	0.0	43.1
Incr Delay (d2), s/veh	0.4	1.0	0.2	13.6	0.6	0.1	1.8	0.0	0.8	1.4	0.0	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	1.7	12.5	1.2	7.8	9.1	0.9	3.0	0.0	7.1	5.5	0.0	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.7	11.0	6.5	42.1	13.5	10.3	56.0	0.0	40.6	49.6	0.0	45.7
LnGrp LOS	A	B	A	D	B	B	E	A	D	D	A	D
Approach Vol, veh/h	1602			1028			213			386		
Approach Delay, s/veh	10.6			17.5			44.5			46.8		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.6	76.9		32.5		87.5		32.5				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	47.0		47.0		62.0		47.0				
Max Q Clear Time (g_c+I1), s	5.2	62.1		21.6		26.9		26.0				
Green Ext Time (p_c), s	0.1	0.0		1.9		22.5		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				19.4								
HCM 6th LOS				B								

Timings

3c. Build 2028 AM (Phase 1) - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↗	↘	↰	↗	↘	↰	↗	↘	↰	↗
Traffic Volume (vph)	111	1212	215	58	372	98	482	263	24	70	186
Future Volume (vph)	111	1212	215	58	372	98	482	263	24	70	186
Lane Group Flow (vph)	114	1249	222	60	384	101	497	271	25	72	335
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		6			2			8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	57.0	57.0	57.0	15.0	72.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	47.5%	47.5%	47.5%	12.5%	60.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.38	1.00	0.37	0.92	0.33	0.17	1.03	0.32	0.03	0.13	0.34
Control Delay	28.0	57.0	14.0	127.1	22.5	6.5	82.4	23.2	0.1	13.1	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	57.0	14.0	127.1	22.5	6.5	82.4	23.2	0.1	13.1	13.4
Queue Length 50th (ft)	46	512	45	45	120	12	~434	138	0	25	114
Queue Length 95th (ft)	82	#650	91	#136	165	49	#645	205	0	47	175
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	302	1253	608	65	1162	609	484	849	740	558	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	1.00	0.37	0.92	0.33	0.17	1.03	0.32	0.03	0.13	0.34

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 48 (40%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

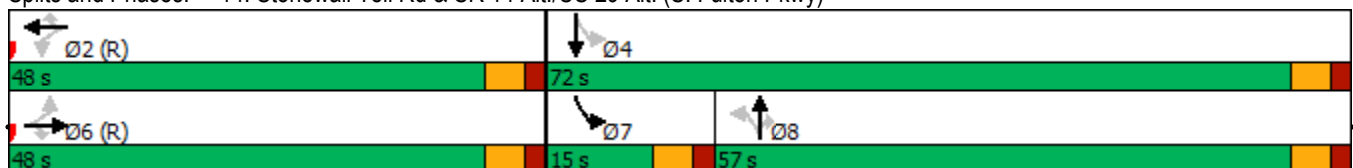
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3c. Build 2028 AM (Phase 1) - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1212	215	58	372	98	482	263	24	70	186	139
Future Volume (veh/h)	111	1212	215	58	372	98	482	263	24	70	186	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	114	1249	222	60	384	101	497	271	0	72	192	143
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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	344	1405	617	85	1316	612	482	803		492	515	383
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.43	0.43	0.00	0.04	0.51	0.51
Sat Flow, veh/h	896	3554	1560	366	3328	1547	1062	1870	1547	1767	1003	747
Grp Volume(v), veh/h	114	1249	222	60	384	101	497	271	0	72	0	335
Grp Sat Flow(s),veh/h/ln	896	1777	1560	366	1664	1547	1062	1870	1547	1767	0	1751
Q Serve(g_s), s	12.0	39.3	12.0	8.1	9.5	5.1	47.7	11.6	0.0	2.6	0.0	13.8
Cycle Q Clear(g_c), s	21.4	39.3	12.0	47.5	9.5	5.1	51.5	11.6	0.0	2.6	0.0	13.8
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	344	1405	617	85	1316	612	482	803		492	0	898
V/C Ratio(X)	0.33	0.89	0.36	0.71	0.29	0.17	1.03	0.34		0.15	0.00	0.37
Avail Cap(c_a), veh/h	344	1405	617	85	1316	612	482	803		565	0	970
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	0.98	0.98	0.98	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	33.8	25.6	58.3	24.8	23.5	39.1	22.9	0.0	17.5	0.0	17.6
Incr Delay (d2), s/veh	2.6	8.7	1.6	38.9	0.6	0.6	49.1	0.2	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	24.1	8.2	4.8	6.5	3.3	29.2	8.7	0.0	1.9	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	42.5	27.2	97.2	25.3	24.0	88.2	23.1	0.0	17.6	0.0	17.9
LnGrp LOS	C	D	C	F	C	C	F	C		B	A	B
Approach Vol, veh/h	1585			545			768			407		
Approach Delay, s/veh	39.8			33.0			65.2			17.8		
Approach LOS	D			C			E			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	53.0			67.0			53.0			10.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	42.5			66.5			42.5			9.5		
Max Q Clear Time (g_c+I1), s	49.5			15.8			41.3			4.6		
Green Ext Time (p_c), s	0.0			2.2			1.1			0.0		

Intersection Summary

HCM 6th Ctrl Delay 41.9

HCM 6th LOS D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3c. Build 2028 AM (Phase 1) - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	68	1166	115	107	443	48	22	55	42	191	53
Future Volume (vph)	68	1166	115	107	443	48	22	55	42	191	53
Lane Group Flow (vph)	74	1267	125	116	482	52	0	84	46	208	136
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.12	0.65	0.13	0.46	0.24	0.07		0.24	0.16	0.77	0.32
Control Delay	1.5	3.9	0.1	13.9	13.6	2.1		37.8	3.9	61.5	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	1.5	3.9	0.1	13.9	13.6	2.1		37.8	3.9	61.5	19.3
Queue Length 50th (ft)	2	33	0	27	90	0		54	0	152	41
Queue Length 95th (ft)	m4	m48	m0	63	155	13		89	13	216	86
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	643	1948	928	266	1972	787		705	504	545	776
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.12	0.65	0.13	0.44	0.24	0.07		0.12	0.09	0.38	0.18

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

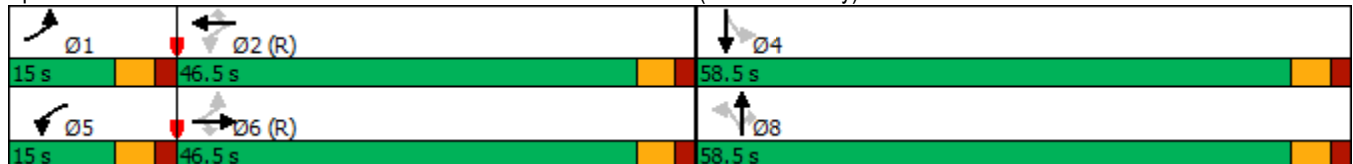
Offset: 115 (96%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3c. Build 2028 AM (Phase 1) - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1166	115	107	443	48	22	55	42	191	53	72
Future Volume (veh/h)	68	1166	115	107	443	48	22	55	42	191	53	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	74	1267	125	116	482	0	24	60	0	208	58	78
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	631	2120	969	266	2051		102	236		299	144	194
Arrive On Green	0.04	0.61	0.61	0.04	0.62	0.00	0.21	0.21	0.00	0.21	0.21	0.21
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	306	1134	932	1279	694	934
Grp Volume(v), veh/h	74	1267	125	116	482	0	84	0	0	208	0	136
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1441	0	932	1279	0	1628
Q Serve(g_s), s	1.8	26.8	4.0	3.2	7.8	0.0	0.2	0.0	0.0	12.7	0.0	8.7
Cycle Q Clear(g_c), s	1.8	26.8	4.0	3.2	7.8	0.0	8.9	0.0	0.0	21.5	0.0	8.7
Prop In Lane	1.00		1.00	1.00		1.00	0.29		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	631	2120	969	266	2051		338	0		299	0	339
V/C Ratio(X)	0.12	0.60	0.13	0.44	0.23		0.25	0.00		0.70	0.00	0.40
Avail Cap(c_a), veh/h	704	2120	969	324	2051		721	0		597	0	719
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)	0.25	0.25	0.25	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	14.3	9.8	12.2	10.3	0.0	39.5	0.0	0.0	47.0	0.0	41.1
Incr Delay (d2), s/veh	0.0	0.3	0.1	1.1	0.3	0.0	0.4	0.0	0.0	2.9	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	11.5	2.1	1.8	4.6	0.0	3.7	0.0	0.0	10.1	0.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	14.6	9.9	13.3	10.6	0.0	39.8	0.0	0.0	49.9	0.0	41.8
LnGrp LOS	A	B	A	B	B		D	A		D	A	D
Approach Vol, veh/h	1466			598			84			344		
Approach Delay, s/veh	13.9			11.1			39.8			46.7		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	79.5		30.5	10.7	78.8		30.5				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.8	9.8		23.5	5.2	28.8		10.9				
Green Ext Time (p_c), s	0.1	5.8		1.4	0.1	9.4		0.4				

Intersection Summary

HCM 6th Ctrl Delay 18.6

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

3c. Build 2028 AM (Phase 1) - Improved

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	49	854	918	802	187
Future Volume (vph)	30	49	854	918	802	187
Lane Group Flow (vph)	33	54	938	1009	881	205
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	38.0	75.0	37.0	37.0
Total Split (%)	16.7%	16.7%	42.2%	83.3%	41.1%	41.1%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.25	0.32	0.86	0.34	0.61	0.26
Control Delay	42.6	16.2	36.5	2.8	20.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	16.2	36.5	2.8	20.3	4.0
Queue Length 50th (ft)	18	0	247	62	174	8
Queue Length 95th (ft)	46	34	320	97	270	m36
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	174	206	1179	2948	1438	793
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.26	0.80	0.34	0.61	0.26

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

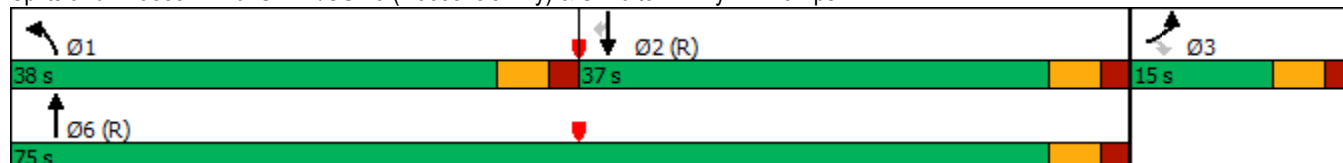
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

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

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary

3c. Build 2028 AM (Phase 1) - Improved

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	49	854	918	802	187
Future Volume (veh/h)	30	49	854	918	802	187
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1767	1781	1781	1870	1811	1885
Adj Flow Rate, veh/h	33	0	938	1009	881	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	8	8	2	6	1
Cap, veh/h	53		1044	3008	1611	
Arrive On Green	0.03	0.00	0.32	0.85	0.47	0.00
Sat Flow, veh/h	1682	1510	3291	3647	3532	1598
Grp Volume(v), veh/h	33	0	938	1009	881	0
Grp Sat Flow(s),veh/h/ln	1682	1510	1646	1777	1721	1598
Q Serve(g_s), s	1.7	0.0	24.5	5.5	16.5	0.0
Cycle Q Clear(g_c), s	1.7	0.0	24.5	5.5	16.5	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	53		1044	3008	1611	
V/C Ratio(X)	0.63		0.90	0.34	0.55	
Avail Cap(c_a), veh/h	178		1189	3008	1611	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.80	0.00
Uniform Delay (d), s/veh	43.1	0.0	29.3	1.5	17.1	0.0
Incr Delay (d2), s/veh	11.7	0.0	8.6	0.3	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	15.3	0.6	9.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.8	0.0	38.0	1.8	18.2	0.0
LnGrp LOS	D		D	A	B	
Approach Vol, veh/h	33			1947	881	
Approach Delay, s/veh	54.8			19.2	18.2	
Approach LOS	D			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	34.0	47.6			81.7	8.3
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	32.5	31.5			69.5	9.5
Max Q Clear Time (g_c+I1), s	26.5	18.5			7.5	3.7
Green Ext Time (p_c), s	2.0	7.3			18.4	0.0

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3c. Build 2028 AM (Phase 1) - Improved

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	162	475	21	910	532
Future Volume (vph)	162	475	21	910	532
Lane Group Flow (vph)	174	511	23	978	678
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	46.0	46.0	44.0	44.0	44.0
Total Split (%)	51.1%	51.1%	48.9%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.31	0.86	0.06	0.50	0.35
Control Delay	22.8	31.6	10.9	12.9	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	31.6	10.9	12.9	12.5
Queue Length 50th (ft)	74	177	3	173	98
Queue Length 95th (ft)	101	254	24	296	181
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	796	770	364	1974	1933
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.66	0.06	0.50	0.35

Intersection Summary

Cycle Length: 90

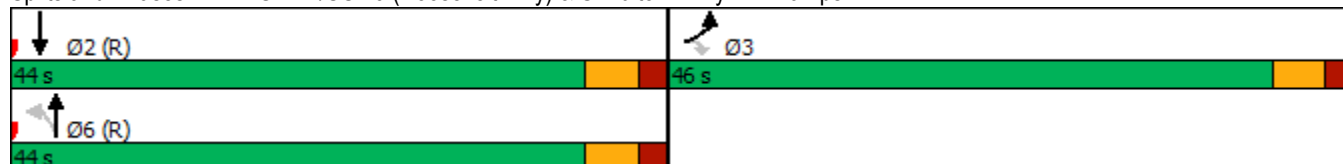
Actuated Cycle Length: 90

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

Natural Cycle: 50

Control Type: Actuated-Coordinated

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Summary

3c. Build 2028 AM (Phase 1) - Improved

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	475	21	910	532	99
Future Volume (veh/h)	162	475	21	910	532	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1767	1811	1856	1856	1811
Adj Flow Rate, veh/h	174	0	23	978	572	106
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	9	6	3	3	6
Cap, veh/h	216		595	2667	2247	415
Arrive On Green	0.12	0.00	0.76	0.76	0.76	0.76
Sat Flow, veh/h	1781	1497	737	3618	3063	549
Grp Volume(v), veh/h	174	0	23	978	339	339
Grp Sat Flow(s),veh/h/ln	1781	1497	737	1763	1763	1757
Q Serve(g_s), s	8.6	0.0	0.9	8.4	5.2	5.2
Cycle Q Clear(g_c), s	8.6	0.0	6.1	8.4	5.2	5.2
Prop In Lane	1.00	1.00	1.00			0.31
Lane Grp Cap(c), veh/h	216		595	2667	1334	1329
V/C Ratio(X)	0.81		0.04	0.37	0.25	0.26
Avail Cap(c_a), veh/h	802		595	2667	1334	1329
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	4.2	3.7	3.3	3.3
Incr Delay (d2), s/veh	6.9	0.0	0.1	0.4	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	0.0	0.2	3.3	2.2	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	0.0	4.3	4.1	3.8	3.8
LnGrp LOS	D		A	A	A	A
Approach Vol, veh/h	174			1001	678	
Approach Delay, s/veh	45.4			4.1	3.8	
Approach LOS	D			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	73.6		73.6		16.4	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	38.5		38.5		40.5	
Max Q Clear Time (g_c+I1), s	7.2		10.4		10.6	
Green Ext Time (p_c), s	8.4		13.5		0.5	

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	13	4	0	20
Future Vol, veh/h	8	0	13	4	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	14	4	0	22
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	36	14	0	0	18	0
Stage 1	14	-	-	-	-	-
Stage 2	22	-	-	-	-	-
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	977	1066	-	-	1599	-
Stage 1	1009	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	977	1066	-	-	1599	-
Mov Cap-2 Maneuver	977	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.7	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	977	1599	-	
HCM Lane V/C Ratio	-	-	0.009	-	-	
HCM Control Delay (s)	-	-	8.7	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	16	11	0	27
Future Vol, veh/h	23	1	16	11	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	17	12	0	29
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	46	17	0	0	29	0
Stage 1	17	-	-	-	-	-
Stage 2	29	-	-	-	-	-
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	964	1062	-	-	1584	-
Stage 1	1006	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	964	1062	-	-	1584	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.8	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	968	1584	-	
HCM Lane V/C Ratio	-	-	0.027	-	-	
HCM Control Delay (s)	-	-	8.8	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	1	26	23	0	50
Future Vol, veh/h	47	1	26	23	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	51	1	28	25	0	54
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	82	28	0	0	53	0
Stage 1	28	-	-	-	-	-
Stage 2	54	-	-	-	-	-
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	920	1047	-	-	1553	-
Stage 1	995	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	920	1047	-	-	1553	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	922	1553	-	
HCM Lane V/C Ratio	-	-	0.057	-	-	
HCM Control Delay (s)	-	-	9.1	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Timings
1: I-85 NB Ramps & Collinsworth Rd

3d. Build 2028 PM (Phase 1) - Improved

08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations		 				
Traffic Volume (vph)	236	968	689	182	292	251
Future Volume (vph)	236	968	689	182	292	251
Lane Group Flow (vph)	248	1019	725	192	307	264
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	19.0	86.0	67.0	67.0	34.0	34.0
Total Split (%)	15.8%	71.7%	55.8%	55.8%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.63	0.41	0.72	0.21	0.85	0.60
Control Delay	25.6	5.3	26.6	3.3	66.7	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	5.3	26.6	3.3	66.7	23.7
Queue Length 50th (ft)	66	121	423	5	226	78
Queue Length 95th (ft)	m103	108	602	42	#335	164
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	398	2476	1007	929	412	481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.41	0.72	0.21	0.75	0.55

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 77 (64%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

3d. Build 2028 PM (Phase 1) - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	968	0	0	689	182	292	0	251	0	0	0
Future Volume (veh/h)	236	968	0	0	689	182	292	0	251	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	248	1019	0	0	725	0	307	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	433	2545	0	0	1103		337	0				
Arrive On Green	0.15	1.00	0.00	0.00	0.59	0.00	0.19	0.00	0.00			
Sat Flow, veh/h	1753	3647	0	0	1856	1560	1753	0	1560			
Grp Volume(v), veh/h	248	1019	0	0	725	0	307	0	0			
Grp Sat Flow(s),veh/h/ln	1753	1777	0	0	1856	1560	1753	0	1560			
Q Serve(g_s), s	6.8	0.0	0.0	0.0	31.2	0.0	20.6	0.0	0.0			
Cycle Q Clear(g_c), s	6.8	0.0	0.0	0.0	31.2	0.0	20.6	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	433	2545	0	0	1103		337	0				
V/C Ratio(X)	0.57	0.40	0.00	0.00	0.66		0.91	0.00				
Avail Cap(c_a), veh/h	497	2545	0	0	1103		416	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.57	0.57	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	12.6	0.0	0.0	0.0	16.2	0.0	47.5	0.0	0.0			
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.0	3.1	0.0	21.1	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	3.3	0.2	0.0	0.0	18.0	0.0	16.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	0.3	0.0	0.0	19.3	0.0	68.5	0.0	0.0			
LnGrp LOS	B	A	A	A	B		E	A				
Approach Vol, veh/h	1267			725			307					
Approach Delay, s/veh	2.8			19.3			68.5					
Approach LOS	A			B			E					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	14.6	76.8					91.4	28.6				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	13.5	61.5					80.5	28.5				
Max Q Clear Time (g_c+I1), s	8.8	33.2					2.0	22.6				
Green Ext Time (p_c), s	0.3	9.6					18.4	0.5				

Intersection Summary

HCM 6th Ctrl Delay 16.8

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
2: I-85 SB Ramps & Collinsworth Rd

3d. Build 2028 PM (Phase 1) - Improved

08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	345	439	365	639	871	284
Future Volume (vph)	345	439	365	639	871	284
Lane Group Flow (vph)	367	467	388	680	927	302
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	42.0	42.0	32.0	74.0	46.0	46.0
Total Split (%)	35.0%	35.0%	26.7%	61.7%	38.3%	38.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.50	0.52	0.67	0.61	0.86	0.47
Control Delay	32.9	8.3	12.7	13.7	48.1	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	8.3	12.7	13.7	48.1	10.6
Queue Length 50th (ft)	226	61	152	341	344	40
Queue Length 95th (ft)	m287	m92	178	464	411	114
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	736	896	646	1109	1181	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.52	0.60	0.61	0.78	0.45

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

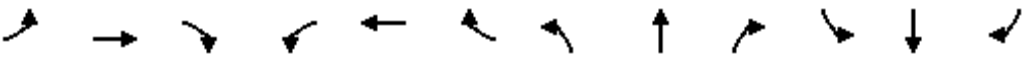
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

3d. Build 2028 PM (Phase 1) - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖	↗	↖
Traffic Volume (veh/h)	0	345	439	365	639	0	0	0	0	871	0	284
Future Volume (veh/h)	0	345	439	365	639	0	0	0	0	871	0	284
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	367	0	388	680	0				927	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	825		666	1144	0				1024	0	
Arrive On Green	0.00	0.74	0.00	0.04	0.20	0.00				0.29	0.00	0.00
Sat Flow, veh/h	0	1870	1560	1795	1856	0				3510	0	1560
Grp Volume(v), veh/h	0	367	0	388	680	0				927	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1560	1795	1856	0				1755	0	1560
Q Serve(g_s), s	0.0	9.2	0.0	12.7	39.8	0.0				30.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.2	0.0	12.7	39.8	0.0				30.5	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	825		666	1144	0				1024	0	
V/C Ratio(X)	0.00	0.44		0.58	0.59	0.00				0.91	0.00	
Avail Cap(c_a), veh/h	0	825		829	1144	0				1185	0	
HCM Platoon Ratio	1.00	1.67	1.67	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.55	0.00	0.57	0.57	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.0	0.0	15.1	34.2	0.0				40.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.5	1.3	0.0				9.1	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	0.0	5.1	0.0	8.4	25.5	0.0				20.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.0	0.0	15.6	35.5	0.0				50.0	0.0	0.0
LnGrp LOS	A	B		B	D	A				D	A	
Approach Vol, veh/h		367			1068						927	
Approach Delay, s/veh		11.0			28.3						50.0	
Approach LOS		B			C						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		79.5		40.5	21.1	58.4						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		68.5		40.5	26.5	36.5						
Max Q Clear Time (g_c+I1), s		41.8		32.5	14.7	11.2						
Green Ext Time (p_c), s		8.6		2.5	0.9	3.8						
Intersection Summary												
HCM 6th Ctrl Delay			34.1									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

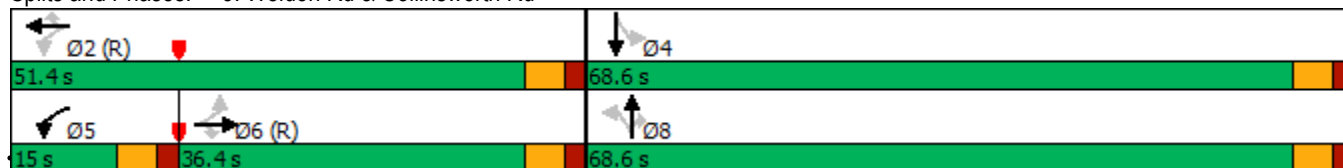
3d. Build 2028 PM (Phase 1) - Improved
08/31/2023

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	317	11	366	403	6	4	26	579	0
Future Volume (vph)	8	317	11	366	403	6	4	26	579	0
Lane Group Flow (vph)	0	365	12	411	453	0	11	29	651	11
Turn Type	Perm	NA	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases		6	5	2			8			4
Permitted Phases	6		2		2	8		8	4	
Detector Phase	6	6	5	2	2	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	36.4	36.4	15.0	51.4	51.4	68.6	68.6	68.6	68.6	68.6
Total Split (%)	30.3%	30.3%	12.5%	42.8%	42.8%	57.2%	57.2%	57.2%	57.2%	57.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio		0.54	0.04	0.54	0.51		0.01	0.03	0.93	0.01
Control Delay		36.4	19.0	22.9	2.9		13.7	0.1	49.0	0.0
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		36.4	19.0	22.9	2.9		13.7	0.1	49.0	0.0
Queue Length 50th (ft)		215	4	208	10		4	0	431	0
Queue Length 95th (ft)		361	m7	279	22		13	0	#672	0
Internal Link Dist (ft)		914		947			293			729
Turn Bay Length (ft)			315		175				235	
Base Capacity (vph)		674	326	758	897		904	867	734	959
Starvation Cap Reductn		0	0	0	0		0	0	0	0
Spillback Cap Reductn		0	0	0	0		0	0	0	0
Storage Cap Reductn		0	0	0	0		0	0	0	0
Reduced v/c Ratio		0.54	0.04	0.54	0.51		0.01	0.03	0.89	0.01

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 24 (20%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

3: Weldon Rd & Collinsworth Rd

3d. Build 2028 PM (Phase 1) - Improved

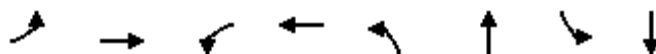
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	317	0	11	366	403	6	4	26	579	0	10
Future Volume (veh/h)	8	317	0	11	366	403	6	4	26	579	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	356	0	12	411	453	7	4	29	651	0	11
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	654	568	352	782	662	521	288	777	731	0	777
Arrive On Green	0.36	0.36	0.00	0.02	0.70	0.70	0.49	0.49	0.49	0.49	0.00	0.49
Sat Flow, veh/h	16	1824	1585	1781	1870	1585	963	587	1585	1376	0	1585
Grp Volume(v), veh/h	365	0	0	12	411	453	11	0	29	651	0	11
Grp Sat Flow(s),veh/h/ln	1840	0	1585	1781	1870	1585	1550	0	1585	1376	0	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.5	12.6	19.8	0.0	0.0	1.1	55.2	0.0	0.4
Cycle Q Clear(g_c), s	18.7	0.0	0.0	0.5	12.6	19.8	0.4	0.0	1.1	55.6	0.0	0.4
Prop In Lane	0.02		1.00	1.00		1.00	0.64		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	690	0	568	352	782	662	809	0	777	731	0	777
V/C Ratio(X)	0.53	0.00	0.00	0.03	0.53	0.68	0.01	0.00	0.04	0.89	0.00	0.01
Avail Cap(c_a), veh/h	690	0	568	468	782	662	864	0	833	779	0	833
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	0.0	22.4	12.4	13.5	15.7	0.0	15.9	29.9	0.0	15.7
Incr Delay (d2), s/veh	2.9	0.0	0.0	0.0	2.0	4.6	0.0	0.0	0.0	12.0	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.2	0.0	0.0	0.4	7.1	8.4	0.3	0.0	0.8	26.4	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	0.0	0.0	22.4	14.5	18.1	15.7	0.0	15.9	41.9	0.0	15.7
LnGrp LOS	C	A	A	C	B	B	B	A	B	D	A	B
Approach Vol, veh/h		365			876			40			662	
Approach Delay, s/veh		33.6			16.5			15.8			41.5	
Approach LOS		C			B			B			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		55.7		64.3	7.1	48.5		64.3				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		45.9		63.1	9.5	30.9		63.1				
Max Q Clear Time (g_c+I1), s		21.8		57.6	2.5	20.7		3.1				
Green Ext Time (p_c), s		8.4		1.2	0.0	2.4		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				28.2								
HCM 6th LOS				C								

Timings
4: SR 14/US 29 (Main St) & Toombs St

3d. Build 2028 PM (Phase 1) - Improved

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	17	81	25	116	9	383	54	570
Future Volume (vph)	17	81	25	116	9	383	54	570
Lane Group Flow (vph)	0	125	0	209	0	455	0	704
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	32.0	32.0	32.0	32.0	88.0	88.0	88.0	88.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.50		0.75		0.34		0.57
Control Delay		49.5		61.0		6.4		9.4
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		49.5		61.0		6.4		9.4
Queue Length 50th (ft)		85		147		101		203
Queue Length 95th (ft)		138		217		184		372
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		352		388		1322		1241
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.36		0.54		0.34		0.57

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: 60

Control Type: Actuated-Coordinated

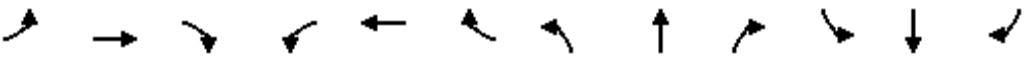
Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

3d. Build 2028 PM (Phase 1) - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	17	81	14	25	116	47	9	383	17	54	570	10
Future Volume (veh/h)	17	81	14	25	116	47	9	383	17	54	570	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	19	90	16	28	129	52	10	426	19	60	633	11
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	56	190	31	56	162	61	42	1301	57	116	1194	20
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.77	0.77	0.77	0.77	0.77	0.77
Sat Flow, veh/h	154	1382	225	160	1172	441	15	1689	74	109	1550	26
Grp Volume(v), veh/h	125	0	0	209	0	0	455	0	0	704	0	0
Grp Sat Flow(s),veh/h/ln	1761	0	0	1774	0	0	1778	0	0	1685	0	0
Q Serve(g_s), s	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	13.7	0.0	0.0	9.3	0.0	0.0	17.8	0.0	0.0
Prop In Lane	0.15		0.13	0.13		0.25	0.02		0.04	0.09		0.02
Lane Grp Cap(c), veh/h	277	0	0	278	0	0	1400	0	0	1331	0	0
V/C Ratio(X)	0.45	0.00	0.00	0.75	0.00	0.00	0.32	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	420	0	0	421	0	0	1400	0	0	1331	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	47.8	0.0	0.0	50.4	0.0	0.0	4.2	0.0	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	4.1	0.0	0.0	0.6	0.0	0.0	1.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.4	0.0	0.0	10.6	0.0	0.0	5.9	0.0	0.0	10.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	0.0	54.5	0.0	0.0	4.8	0.0	0.0	6.7	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		125			209			455			704	
Approach Delay, s/veh		49.0			54.5			4.8			6.7	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		98.0		22.0		98.0		22.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		82.5		26.5		82.5		26.5				
Max Q Clear Time (g_c+I1), s		19.8		9.6		11.3		15.7				
Green Ext Time (p_c), s		14.6		0.5		7.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				16.4								
HCM 6th LOS				B								

Intersection

Intersection Delay, s/veh 10.1

Intersection LOS B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	67	38	271	212	28
Future Vol, veh/h	29	67	38	271	212	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	71	40	288	226	30
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.9	9.9	10.8
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	0%	88%
Vol Thru, %	70%	12%	0%
Vol Right, %	0%	88%	12%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	309	240
LT Vol	29	0	212
Through Vol	67	38	0
RT Vol	0	271	28
Lane Flow Rate	102	329	255
Geometry Grp	1	1	1
Degree of Util (X)	0.142	0.384	0.353
Departure Headway (Hd)	5.013	4.201	4.972
Convergence, Y/N	Yes	Yes	Yes
Cap	712	855	720
Service Time	3.069	2.24	3.032
HCM Lane V/C Ratio	0.143	0.385	0.354
HCM Control Delay	8.9	9.9	10.8
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.5	1.8	1.6

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	143	194	73	44	17
Future Vol, veh/h	11	143	194	73	44	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	166	226	85	51	20
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	311	0	-	0	461	269
Stage 1	-	-	-	-	269	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1249	-	-	-	559	770
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	841	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1249	-	-	-	553	770
Mov Cap-2 Maneuver	-	-	-	-	553	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	841	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.6	0		11.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1249	-	-	-	600	
HCM Lane V/C Ratio	0.01	-	-	-	0.118	
HCM Control Delay (s)	7.9	0	-	-	11.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.4	

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	71	66	8	18	76
Future Vol, veh/h	8	71	66	8	18	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	84	78	9	21	89
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	214	83	0	0	87	0
Stage 1	83	-	-	-	-	-
Stage 2	131	-	-	-	-	-
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	774	976	-	-	1509	-
Stage 1	940	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	762	976	-	-	1509	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		1.4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 949		1509	-	
HCM Lane V/C Ratio	-	- 0.098		0.014	-	
HCM Control Delay (s)	-	- 9.2		7.4	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.3		0	-	

Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↔	↔		↔	
Traffic Vol, veh/h	6	157	43	16	682	78	88	31	17	65	32	7
Future Vol, veh/h	6	157	43	16	682	78	88	31	17	65	32	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	None
Storage Length	-	-	210	-	-	250	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	173	47	18	749	86	97	34	19	71	35	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	749	0	0	173	0	0	994	972	173	989	972	749
Stage 1	-	-	-	-	-	-	187	187	-	785	785	-
Stage 2	-	-	-	-	-	-	807	785	-	204	187	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	860	-	-	1404	-	-	224	252	871	226	252	412
Stage 1	-	-	-	-	-	-	815	745	-	386	404	-
Stage 2	-	-	-	-	-	-	375	404	-	798	745	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	860	-	-	1404	-	-	191	244	871	193	244	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	244	-	193	244	-
Stage 1	-	-	-	-	-	-	808	738	-	383	394	-
Stage 2	-	-	-	-	-	-	327	394	-	738	738	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			45.5			39.6		
HCM LOS							E			E		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	202	871	860	-	-	1404	-	-	214			
HCM Lane V/C Ratio	0.647	0.021	0.008	-	-	0.013	-	-	0.534			
HCM Control Delay (s)	50.7	9.2	9.2	0	-	7.6	0	-	39.6			
HCM Lane LOS	F	A	A	A	-	A	A	-	E			
HCM 95th %tile Q(veh)	3.8	0.1	0	-	-	0	-	-	2.8			

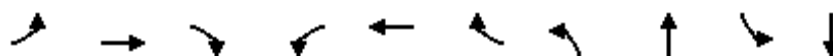
Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	165	36	11	653	20	113	20	0	6	6	0
Future Vol, veh/h	0	165	36	11	653	20	113	20	0	6	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	179	39	12	710	22	123	22	0	7	7	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	710	0	0	179	0	0	917	913	90	835	913	-
Stage 1	-	-	-	-	-	-	179	179	-	734	734	-
Stage 2	-	-	-	-	-	-	738	734	-	101	179	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	887	-	-	1395	-	-	239	273	950	273	273	0
Stage 1	-	-	-	-	-	-	806	751	-	411	425	0
Stage 2	-	-	-	-	-	-	409	425	-	895	751	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	887	-	-	1395	-	-	233	271	950	255	271	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	233	271	-	255	271	-
Stage 1	-	-	-	-	-	-	806	751	-	411	421	-
Stage 2	-	-	-	-	-	-	399	421	-	869	751	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			41.1					
HCM LOS							E			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	238	887	-	-	1395	-	-	255	-			
HCM Lane V/C Ratio	0.607	-	-	-	0.009	-	-	0.026	-			
HCM Control Delay (s)	41.1	0	-	-	7.6	-	-	19.5	-			
HCM Lane LOS	E	A	-	-	A	-	-	C	-			
HCM 95th %tile Q(veh)	3.6	0	-	-	0	-	-	0.1	-			

Timings

3d. Build 2028 PM (Phase 1) - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	17	161	13	73	611	6	7	370	5	391
Future Volume (vph)	17	161	13	73	611	6	7	370	5	391
Lane Group Flow (vph)	18	168	14	76	636	6	7	441	5	423
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	43.0	43.0	20.0	46.0	46.0	57.0	57.0	57.0	57.0
Total Split (%)	14.2%	35.8%	35.8%	16.7%	38.3%	38.3%	47.5%	47.5%	47.5%	47.5%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.18	0.09	0.02	0.49	0.31	0.01	0.06	0.82	0.05	0.78
Control Delay	57.5	19.1	0.0	96.2	1.6	0.0	27.9	50.9	27.4	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	19.1	0.0	96.2	1.6	0.0	27.9	50.9	27.4	48.6
Queue Length 50th (ft)	14	36	0	63	9	0	4	312	3	299
Queue Length 95th (ft)	38	71	0	116	13	m0	14	387	12	370
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	169	1780	832	213	2022	935	169	788	149	795
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.09	0.02	0.36	0.31	0.01	0.04	0.56	0.03	0.53

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

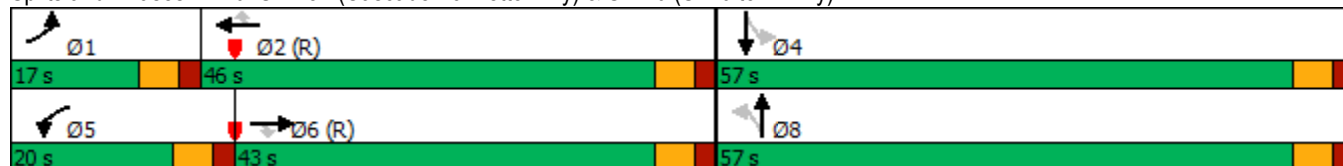
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

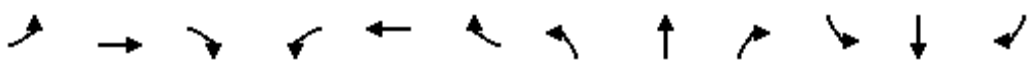


HCM 6th Signalized Intersection Summary

3d. Build 2028 PM (Phase 1) - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	161	13	73	611	6	7	370	54	5	391	15
Future Volume (veh/h)	17	161	13	73	611	6	7	370	54	5	391	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	168	0	76	636	0	7	385	56	5	407	16
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	33	1907		97	2034		114	433	63	98	485	19
Arrive On Green	0.02	0.54	0.00	0.05	0.57	0.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	964	1596	232	948	1787	70
Grp Volume(v), veh/h	18	168	0	76	636	0	7	0	441	5	0	423
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	964	0	1829	948	0	1858
Q Serve(g_s), s	1.2	2.8	0.0	5.1	11.2	0.0	0.8	0.0	27.8	0.6	0.0	25.8
Cycle Q Clear(g_c), s	1.2	2.8	0.0	5.1	11.2	0.0	26.6	0.0	27.8	28.4	0.0	25.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.04
Lane Grp Cap(c), veh/h	33	1907		97	2034		114	0	496	98	0	504
V/C Ratio(X)	0.54	0.09		0.78	0.31		0.06	0.00	0.89	0.05	0.00	0.84
Avail Cap(c_a), veh/h	171	1907		215	2034		267	0	785	247	0	797
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	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	58.4	13.5	0.0	56.0	13.4	0.0	53.8	0.0	42.0	55.6	0.0	41.3
Incr Delay (d2), s/veh	12.7	0.1	0.0	12.6	0.4	0.0	0.2	0.0	7.9	0.2	0.0	4.6
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	1.2	1.9	0.0	4.5	7.3	0.0	0.4	0.0	18.8	0.3	0.0	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.1	13.6	0.0	68.6	13.8	0.0	54.0	0.0	49.9	55.9	0.0	45.9
LnGrp LOS	E	B		E	B		D	A	D	E	A	D
Approach Vol, veh/h	186			712			448			428		
Approach Delay, s/veh	19.2			19.6			49.9			46.0		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	74.2		38.0	12.1	69.9		38.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	40.5		51.5	14.5	37.5		51.5				
Max Q Clear Time (g_c+I1), s	3.2	13.2		30.4	7.1	4.8		29.8				
Green Ext Time (p_c), s	0.0	7.5		2.1	0.1	1.8		2.3				

Intersection Summary

HCM 6th Ctrl Delay 33.6

HCM 6th LOS C

Notes

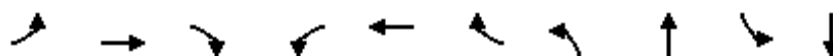
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3d. Build 2028 PM (Phase 1) - Improved

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	24	332	26	289	773	166	32	200	109	150
Future Volume (vph)	24	332	26	289	773	166	32	200	109	150
Lane Group Flow (vph)	26	361	28	314	840	180	35	457	118	183
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	34.0	34.0	25.0	44.0	44.0	15.0	46.0	15.0	46.0
Total Split (%)	12.5%	28.3%	28.3%	20.8%	36.7%	36.7%	12.5%	38.3%	12.5%	38.3%
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	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
v/c Ratio	0.09	0.33	0.04	0.58	0.53	0.23	0.08	0.88	0.52	0.29
Control Delay	16.4	28.8	0.1	23.9	28.3	9.0	20.1	54.8	30.3	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	28.8	0.1	23.9	28.3	9.0	20.1	54.8	30.3	29.8
Queue Length 50th (ft)	9	87	0	143	265	22	16	303	57	105
Queue Length 95th (ft)	m23	124	m0	235	370	78	34	408	88	158
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	320	1108	633	565	1589	792	482	621	228	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.33	0.04	0.56	0.53	0.23	0.07	0.74	0.52	0.28

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

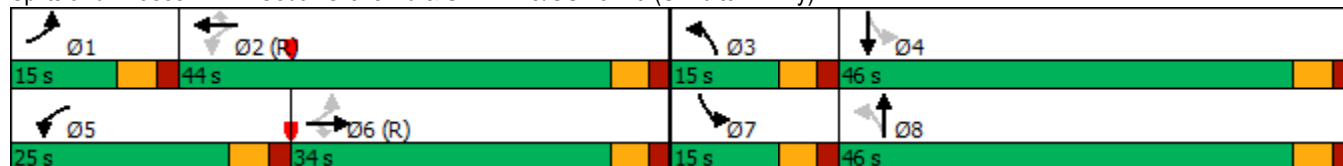
Offset: 112 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3d. Build 2028 PM (Phase 1) - Improved

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	332	26	289	773	166	32	200	221	109	150	18
Future Volume (veh/h)	24	332	26	289	773	166	32	200	221	109	150	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	26	361	0	314	840	0	35	217	240	118	163	20
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	285	1188		565	1589		412	235	260	199	531	65
Arrive On Green	0.02	0.34	0.00	0.13	0.44	0.00	0.03	0.29	0.29	0.06	0.32	0.32
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	818	905	1795	1660	204
Grp Volume(v), veh/h	26	361	0	314	840	0	35	0	457	118	0	183
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	0	1722	1795	0	1863
Q Serve(g_s), s	1.1	9.1	0.0	13.0	20.5	0.0	1.6	0.0	30.9	5.5	0.0	8.9
Cycle Q Clear(g_c), s	1.1	9.1	0.0	13.0	20.5	0.0	1.6	0.0	30.9	5.5	0.0	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		0.11
Lane Grp Cap(c), veh/h	285	1188		565	1589		412	0	495	199	0	597
V/C Ratio(X)	0.09	0.30		0.56	0.53		0.08	0.00	0.92	0.59	0.00	0.31
Avail Cap(c_a), veh/h	385	1188		627	1589		504	0	581	231	0	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	24.9	29.2	0.0	20.0	24.3	0.0	28.7	0.0	41.5	31.6	0.0	30.7
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.9	1.3	0.0	0.1	0.0	18.8	3.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	6.7	0.0	8.8	13.0	0.0	1.3	0.0	21.5	4.4	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	29.8	0.0	20.9	25.5	0.0	28.8	0.0	60.2	34.6	0.0	31.0
LnGrp LOS	C	C		C	C		C	A	E	C	A	C
Approach Vol, veh/h	387				1154				492			
Approach Delay, s/veh	29.5				24.3				58.0			
Approach LOS	C				C				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	58.7	8.9	43.9	20.9	46.3	12.9	40.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	38.5	9.5	40.5	19.5	28.5	9.5	40.5				
Max Q Clear Time (g_c+I1), s	3.1	22.5	3.6	10.9	15.0	11.1	7.5	32.9				
Green Ext Time (p_c), s	0.0	7.8	0.0	0.9	0.4	3.3	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay 33.3

HCM 6th LOS C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3d. Build 2028 PM (Phase 1) - Improved

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	302	161	193	830	702	94	931	40	457	646	145
Future Volume (vph)	261	302	161	193	830	702	94	931	40	457	646	145
Lane Group Flow (vph)	264	305	163	195	838	709	95	940	40	462	653	146
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	20.0	55.5	55.5	17.0	52.5	52.5	20.0	53.5	53.5	24.0	57.5	57.5
Total Split (%)	13.3%	37.0%	37.0%	11.3%	35.0%	35.0%	13.3%	35.7%	35.7%	16.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.92	0.26	0.25	0.42	0.75	1.08	0.65	0.89	0.08	1.16	0.58	0.23
Control Delay	69.6	36.1	5.7	29.1	51.2	90.8	86.5	61.8	0.3	151.4	42.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	36.1	5.7	29.1	51.2	90.8	86.5	61.8	0.3	151.4	42.9	5.8
Queue Length 50th (ft)	182	115	0	116	388	~603	91	456	0	~274	273	0
Queue Length 95th (ft)	#392	156	52	176	467	#855	155	539	0	#389	338	49
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	286	1194	661	464	1119	656	172	1121	554	399	1148	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.26	0.25	0.42	0.75	1.08	0.55	0.84	0.07	1.16	0.57	0.23

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: 150

Control Type: Actuated-Coordinated

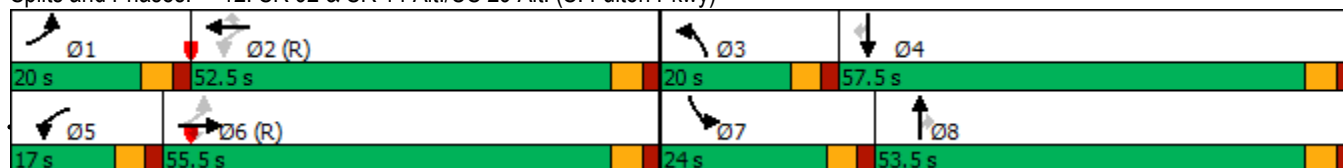
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

3d. Build 2028 PM (Phase 1) - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	302	161	193	830	702	94	931	40	457	646	145
Future Volume (veh/h)	261	302	161	193	830	702	94	931	40	457	646	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1811	1870	1841	1885	1856	1885	1856	1811	1781	1767	1856
Adj Flow Rate, veh/h	264	305	163	195	838	709	95	940	0	462	653	146
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, %	1	6	2	4	1	3	1	3	6	8	9	3
Cap, veh/h	269	1242	572	454	1221	536	116	1031		406	1178	552
Arrive On Green	0.10	0.36	0.36	0.08	0.34	0.34	0.06	0.29	0.00	0.12	0.35	0.35
Sat Flow, veh/h	1795	3441	1585	1753	3582	1572	1795	3526	1535	3291	3357	1572
Grp Volume(v), veh/h	264	305	163	195	838	709	95	940	0	462	653	146
Grp Sat Flow(s),veh/h/ln	1795	1721	1585	1753	1791	1572	1795	1763	1535	1646	1678	1572
Q Serve(g_s), s	14.5	9.3	11.0	10.9	30.2	51.1	7.8	38.6	0.0	18.5	23.5	10.0
Cycle Q Clear(g_c), s	14.5	9.3	11.0	10.9	30.2	51.1	7.8	38.6	0.0	18.5	23.5	10.0
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	269	1242	572	454	1221	536	116	1031		406	1178	552
V/C Ratio(X)	0.98	0.25	0.28	0.43	0.69	1.32	0.82	0.91		1.14	0.55	0.26
Avail Cap(c_a), veh/h	269	1242	572	454	1221	536	174	1128		406	1178	552
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	33.6	34.1	28.8	42.5	49.4	69.3	51.2	0.0	65.8	39.2	34.8
Incr Delay (d2), s/veh	50.0	0.5	1.2	0.6	3.2	157.9	16.7	10.5	0.0	88.0	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.8	7.0	7.7	8.0	19.4	62.9	7.3	24.8	0.0	19.3	14.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.7	34.1	35.4	29.4	45.7	207.3	85.9	61.7	0.0	153.7	39.8	35.1
LnGrp LOS	F	C	D	C	D	F	F	E		F	D	D
Approach Vol, veh/h	732			1742			1035			1261		
Approach Delay, s/veh	52.6			109.7			63.9			81.0		
Approach LOS	D			F			E			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	56.6	15.2	58.2	17.0	59.6	24.0	49.4				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	14.5	47.0	14.5	52.0	11.5	50.0	18.5	48.0				
Max Q Clear Time (g_c+I1), s	16.5	53.1	9.8	25.5	12.9	13.0	20.5	40.6				
Green Ext Time (p_c), s	0.0	0.0	0.1	4.5	0.0	5.0	0.0	3.3				

Intersection Summary

HCM 6th Ctrl Delay	83.4
HCM 6th LOS	F

Notes

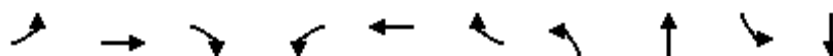
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3d. Build 2028 PM (Phase 1) - Improved

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	68	734	47	126	1638	120	63	47	65	97
Future Volume (vph)	68	734	47	126	1638	120	63	47	65	97
Lane Group Flow (vph)	69	749	48	129	1671	122	64	119	66	223
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	67.5	67.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5
Total Split (%)	12.5%	56.3%	56.3%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%	43.8%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.34	0.28	0.04	0.27	0.69	0.11	0.82	0.39	0.41	0.74
Control Delay	8.8	5.0	1.5	4.8	5.4	0.6	108.6	23.2	52.6	49.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	5.0	1.5	4.8	5.4	0.6	108.6	23.2	52.6	49.6
Queue Length 50th (ft)	11	76	0	16	141	1	49	33	47	121
Queue Length 95th (ft)	29	131	11	m28	m214	m4	#105	83	87	195
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	237	2659	1248	474	2410	1091	216	707	444	720
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.28	0.04	0.27	0.69	0.11	0.30	0.17	0.15	0.31

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 35 (29%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

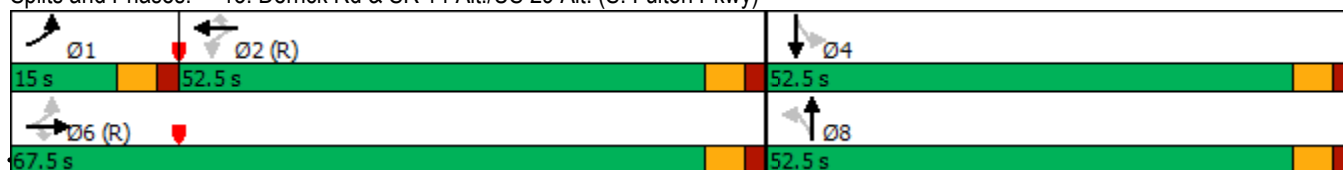
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3d. Build 2028 PM (Phase 1) - Improved

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	734	47	126	1638	120	63	47	70	65	97	122
Future Volume (veh/h)	68	734	47	126	1638	120	63	47	70	65	97	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	69	749	48	129	1671	122	64	48	71	66	99	124
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	202	2492	1147	496	2236	990	150	130	193	229	150	188
Arrive On Green	0.04	0.71	0.71	0.63	0.63	0.63	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1739	3497	1610	692	3554	1572	1176	665	984	1273	767	960
Grp Volume(v), veh/h	69	749	48	129	1671	122	64	0	119	66	0	223
Grp Sat Flow(s),veh/h/ln	1739	1749	1610	692	1777	1572	1176	0	1649	1273	0	1727
Q Serve(g_s), s	1.6	9.4	1.1	10.2	39.5	3.7	6.4	0.0	7.5	5.7	0.0	14.3
Cycle Q Clear(g_c), s	1.6	9.4	1.1	10.2	39.5	3.7	20.7	0.0	7.5	13.2	0.0	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.56
Lane Grp Cap(c), veh/h	202	2492	1147	496	2236	990	150	0	323	229	0	338
V/C Ratio(X)	0.34	0.30	0.04	0.26	0.75	0.12	0.43	0.00	0.37	0.29	0.00	0.66
Avail Cap(c_a), veh/h	275	2492	1147	496	2236	990	380	0	646	479	0	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.1	6.3	5.1	10.1	15.6	8.9	54.1	0.0	41.8	47.6	0.0	44.6
Incr Delay (d2), s/veh	1.0	0.3	0.1	1.3	2.3	0.3	1.9	0.0	0.7	0.7	0.0	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	1.4	4.9	0.5	2.7	20.0	2.1	3.5	0.0	5.5	3.2	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	6.6	5.2	11.4	17.9	9.2	56.0	0.0	42.5	48.2	0.0	46.8
LnGrp LOS	B	A	A	B	B	A	E	A	D	D	A	D
Approach Vol, veh/h	866			1922			183			289		
Approach Delay, s/veh	7.4			16.9			47.3			47.1		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.0	81.0		29.0		91.0		29.0				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	47.0		47.0		62.0		47.0				
Max Q Clear Time (g_c+I1), s	3.6	41.5		16.3		11.4		22.7				
Green Ext Time (p_c), s	0.1	5.2		1.5		11.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				18.8								
HCM 6th LOS				B								

Timings

3d. Build 2028 PM (Phase 1) - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	108	311	402	25	1382	58	318	234	54	44	154
Future Volume (vph)	108	311	402	25	1382	58	318	234	54	44	154
Lane Group Flow (vph)	111	321	414	26	1425	60	328	241	56	45	340
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	57.5	57.5	57.5	57.5	57.5	57.5	47.5	47.5	47.5	15.0	62.5
Total Split (%)	47.9%	47.9%	47.9%	47.9%	47.9%	47.9%	39.6%	39.6%	39.6%	12.5%	52.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	1.76	0.21	0.43	0.05	0.84	0.08	0.95	0.37	0.10	0.10	0.45
Control Delay	426.8	19.8	4.2	6.3	21.5	1.6	74.9	31.2	4.1	17.7	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	426.8	19.8	4.2	6.3	21.5	1.6	74.9	31.2	4.1	17.7	23.9
Queue Length 50th (ft)	~134	71	1	9	541	8	238	135	0	18	161
Queue Length 95th (ft)	#238	115	71	m5	#667	m4	#429	210	20	40	238
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	63	1530	971	487	1698	798	358	663	600	450	824
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.76	0.21	0.43	0.05	0.84	0.08	0.92	0.36	0.09	0.10	0.41

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 53 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

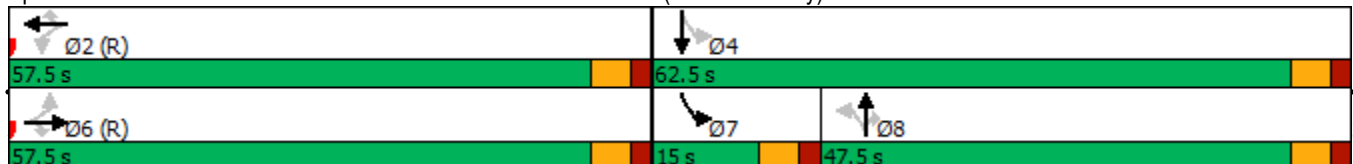
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3d. Build 2028 PM (Phase 1) - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	311	402	25	1382	58	318	234	54	44	154	176
Future Volume (veh/h)	108	311	402	25	1382	58	318	234	54	44	154	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	111	321	414	26	1425	60	328	241	0	45	159	181
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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	110	1585	767	371	1733	773	352	655		412	344	392
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.35	0.35	0.00	0.03	0.43	0.43
Sat Flow, veh/h	355	3300	1598	734	3610	1610	1016	1870	1560	1810	805	916
Grp Volume(v), veh/h	111	321	414	26	1425	60	328	241	0	45	0	340
Grp Sat Flow(s),veh/h/ln	355	1650	1598	734	1805	1610	1016	1870	1560	1810	0	1720
Q Serve(g_s), s	16.9	6.7	21.8	2.5	40.7	2.4	34.5	11.5	0.0	1.8	0.0	16.9
Cycle Q Clear(g_c), s	57.6	6.7	21.8	9.3	40.7	2.4	42.0	11.5	0.0	1.8	0.0	16.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	110	1585	767	371	1733	773	352	655		412	0	737
V/C Ratio(X)	1.01	0.20	0.54	0.07	0.82	0.08	0.93	0.37		0.11	0.00	0.46
Avail Cap(c_a), veh/h	110	1585	767	371	1733	773	352	655		497	0	817
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	0.72	0.72	0.72	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	18.0	21.9	20.6	26.8	16.8	44.7	29.1	0.0	23.0	0.0	24.4
Incr Delay (d2), s/veh	88.0	0.3	2.7	0.3	3.3	0.1	31.1	0.3	0.0	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	4.4	13.1	0.8	22.1	1.5	18.8	8.8	0.0	1.4	0.0	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.2	18.3	24.6	20.9	30.1	17.0	75.8	29.4	0.0	23.1	0.0	24.9
LnGrp LOS	F	B	C	C	C	B	E	C		C	A	C
Approach Vol, veh/h	846			1511			569			385		
Approach Delay, s/veh	37.9			29.4			56.1			24.7		
Approach LOS	D			C			E			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	63.1			56.9			63.1			9.4		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	52.0			57.0			52.0			9.5		
Max Q Clear Time (g_c+I1), s	42.7			18.9			59.6			3.8		
Green Ext Time (p_c), s	7.9			2.2			0.0			0.0		

Intersection Summary

HCM 6th Ctrl Delay 35.6

HCM 6th LOS D

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3d. Build 2028 PM (Phase 1) - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	45	244	132	103	1356	41	29	73	104	150	62
Future Volume (vph)	45	244	132	103	1356	41	29	73	104	150	62
Lane Group Flow (vph)	48	260	140	110	1443	44	0	109	111	160	142
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	46.5	46.5	15.0	46.5	46.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	12.5%	38.8%	38.8%	12.5%	38.8%	38.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.22	0.13	0.14	0.16	0.64	0.05		0.38	0.28	0.77	0.38
Control Delay	8.5	5.5	0.5	7.0	17.4	1.2		44.1	8.2	68.1	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	8.5	5.5	0.5	7.0	17.4	1.2		44.1	8.2	68.1	24.8
Queue Length 50th (ft)	4	15	0	23	353	0		74	0	119	53
Queue Length 95th (ft)	13	32	0	55	555	8		117	44	180	102
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	261	1941	1018	699	2247	853		668	761	484	786
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.18	0.13	0.14	0.16	0.64	0.05		0.16	0.15	0.33	0.18

Intersection Summary

Cycle Length: 120

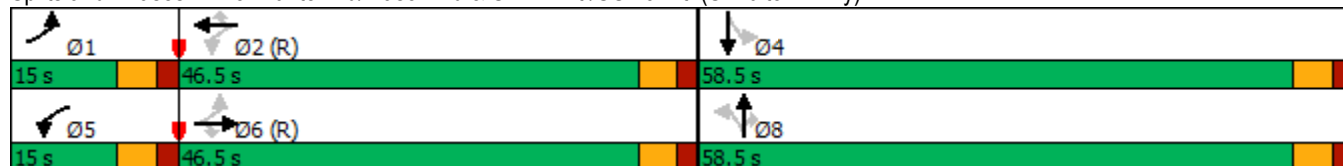
Actuated Cycle Length: 120

Offset: 7 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

3d. Build 2028 PM (Phase 1) - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	244	132	103	1356	41	29	73	104	150	62	71
Future Volume (veh/h)	45	244	132	103	1356	41	29	73	104	150	62	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	48	260	140	110	1443	0	31	78	0	160	66	76
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	253	2058	1005	642	2263		90	199		249	155	178
Arrive On Green	0.03	0.63	0.63	0.04	0.64	0.00	0.19	0.19	0.00	0.19	0.19	0.19
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	266	1034	1585	1185	805	928
Grp Volume(v), veh/h	48	260	140	110	1443	0	109	0	0	160	0	142
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1300	0	1585	1185	0	1733
Q Serve(g_s), s	1.2	3.8	4.3	3.0	29.8	0.0	2.2	0.0	0.0	8.9	0.0	8.6
Cycle Q Clear(g_c), s	1.2	3.8	4.3	3.0	29.8	0.0	10.9	0.0	0.0	19.7	0.0	8.6
Prop In Lane	1.00		1.00	1.00		1.00	0.28		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	253	2058	1005	642	2263		289	0		249	0	333
V/C Ratio(X)	0.19	0.13	0.14	0.17	0.64		0.38	0.00		0.64	0.00	0.43
Avail Cap(c_a), veh/h	331	2058	1005	702	2263		661	0		544	0	765
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	0.99	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	9.0	9.1	7.1	13.3	0.0	42.7	0.0	0.0	48.2	0.0	42.6
Incr Delay (d2), s/veh	0.4	0.1	0.3	0.1	1.4	0.0	0.8	0.0	0.0	2.8	0.0	0.9
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	0.7	2.2	2.5	1.5	15.5	0.0	5.2	0.0	0.0	8.3	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	9.1	9.3	7.2	14.7	0.0	43.5	0.0	0.0	51.0	0.0	43.5
LnGrp LOS	B	A	A	A	B		D	A		D	A	D
Approach Vol, veh/h	448			1553			109			302		
Approach Delay, s/veh	9.4			14.2			43.5			47.5		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	81.9		28.6	10.4	81.0		28.6				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0		53.0	9.5	41.0		53.0				
Max Q Clear Time (g_c+I1), s	3.2	31.8		21.7	5.0	6.3		12.9				
Green Ext Time (p_c), s	0.0	7.7		1.4	0.1	4.1		0.6				

Intersection Summary

HCM 6th Ctrl Delay 18.8

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

3d. Build 2028 PM (Phase 1) - Improved

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	64	517	642	1591	164
Future Volume (vph)	31	64	517	642	1591	164
Lane Group Flow (vph)	33	67	544	676	1675	173
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	21.0	75.0	54.0	54.0
Total Split (%)	16.7%	16.7%	23.3%	83.3%	60.0%	60.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.24	0.35	0.86	0.23	0.84	0.18
Control Delay	42.2	15.6	50.9	2.4	12.8	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	15.6	50.9	2.4	12.8	0.9
Queue Length 50th (ft)	18	0	153	36	296	1
Queue Length 95th (ft)	46	38	#257	59	m301	m0
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	183	227	632	2979	2005	979
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.30	0.86	0.23	0.84	0.18

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

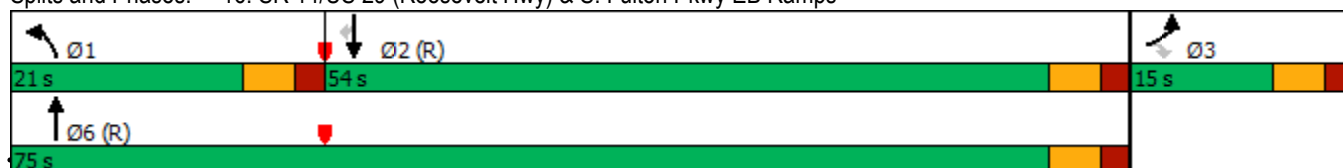
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary

3d. Build 2028 PM (Phase 1) - Improved

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	64	517	642	1591	164
Future Volume (veh/h)	31	64	517	642	1591	164
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1870	1841	1885	1856	1870
Adj Flow Rate, veh/h	33	0	544	676	1675	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	4	1	3	2
Cap, veh/h	55		586	3032	2162	
Arrive On Green	0.03	0.00	0.17	0.85	0.61	0.00
Sat Flow, veh/h	1753	1585	3401	3676	3618	1585
Grp Volume(v), veh/h	33	0	544	676	1675	0
Grp Sat Flow(s),veh/h/ln	1753	1585	1700	1791	1763	1585
Q Serve(g_s), s	1.7	0.0	14.2	3.2	31.5	0.0
Cycle Q Clear(g_c), s	1.7	0.0	14.2	3.2	31.5	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	55		586	3032	2162	
V/C Ratio(X)	0.60		0.93	0.22	0.77	
Avail Cap(c_a), veh/h	185		586	3032	2162	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.09	0.00
Uniform Delay (d), s/veh	43.0	0.0	36.7	1.3	12.8	0.0
Incr Delay (d2), s/veh	10.2	0.0	21.4	0.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	11.7	0.3	11.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	0.0	58.1	1.5	13.1	0.0
LnGrp LOS	D		E	A	B	
Approach Vol, veh/h	33			1220	1675	
Approach Delay, s/veh	53.3			26.7	13.1	
Approach LOS	D			C	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	60.7			81.7	8.3
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	15.5	48.5			69.5	9.5
Max Q Clear Time (g_c+I1), s	16.2	33.5			5.2	3.7
Green Ext Time (p_c), s	0.0	13.0			10.3	0.0

Intersection Summary

HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

3d. Build 2028 PM (Phase 1) - Improved

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	65	898	39	634	858
Future Volume (vph)	65	898	39	634	858
Lane Group Flow (vph)	69	955	41	674	1069
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	56.0	56.0	34.0	34.0	34.0
Total Split (%)	62.2%	62.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.07	1.10	0.49	0.60	0.96
Control Delay	9.3	81.5	45.4	26.3	48.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	81.5	45.4	26.3	48.9
Queue Length 50th (ft)	17	~616	19	172	305
Queue Length 95th (ft)	35	#853	#67	230	#443
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	974	872	84	1131	1118
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	1.10	0.49	0.60	0.96

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

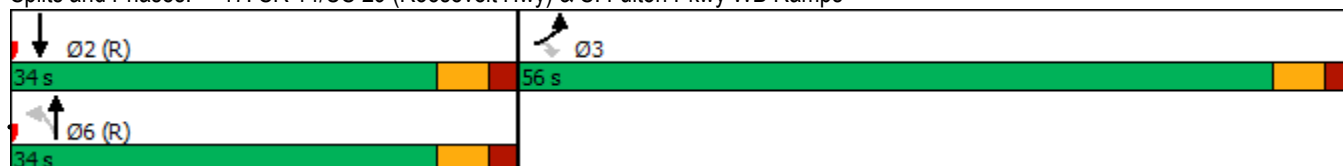
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	898	39	634	858	147
Future Volume (veh/h)	65	898	39	634	858	147
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1826	1900	1885	1885	1856
Adj Flow Rate, veh/h	69	0	41	674	913	156
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	5	0	1	1	3
Cap, veh/h	91		483	2958	2527	432
Arrive On Green	0.05	0.00	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1753	1547	536	3676	3154	523
Grp Volume(v), veh/h	69	0	41	674	534	535
Grp Sat Flow(s),veh/h/ln	1753	1547	536	1791	1791	1791
Q Serve(g_s), s	3.5	0.0	1.8	3.6	6.7	6.7
Cycle Q Clear(g_c), s	3.5	0.0	8.5	3.6	6.7	6.7
Prop In Lane	1.00	1.00	1.00			0.29
Lane Grp Cap(c), veh/h	91		483	2958	1479	1479
V/C Ratio(X)	0.76		0.08	0.23	0.36	0.36
Avail Cap(c_a), veh/h	984		483	2958	1479	1479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	3.0	1.7	1.9	1.9
Incr Delay (d2), s/veh	12.1	0.0	0.3	0.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	0.0	0.3	0.7	1.6	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.2	0.0	3.3	1.9	2.6	2.6
LnGrp LOS	D		A	A	A	A
Approach Vol, veh/h	69			715	1069	
Approach Delay, s/veh	54.2			1.9	2.6	
Approach LOS	D			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	79.8		79.8		10.2	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	28.5		28.5		50.5	
Max Q Clear Time (g_c+I1), s	8.7		10.5		5.5	
Green Ext Time (p_c), s	11.3		7.5		0.2	

Intersection Summary

HCM 6th Ctrl Delay	4.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↑		↔
Traffic Vol, veh/h	8	0	21	10	1	31
Future Vol, veh/h	8	0	21	10	1	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	23	11	1	34
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	59	23	0	0	34	0
Stage 1	23	-	-	-	-	-
Stage 2	36	-	-	-	-	-
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	948	1054	-	-	1578	-
Stage 1	1000	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	947	1054	-	-	1578	-
Mov Cap-2 Maneuver	947	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.8	0		0.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	947		1578	-	
HCM Lane V/C Ratio	-	0.009		0.001	-	
HCM Control Delay (s)	-	8.8		7.3	0	
HCM Lane LOS	-	A		A	A	
HCM 95th %tile Q(veh)	-	0		0	-	

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	30	29	1	38
Future Vol, veh/h	23	1	30	29	1	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	33	32	1	41
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	76	33	0	0	65	0
Stage 1	33	-	-	-	-	-
Stage 2	43	-	-	-	-	-
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	927	1041	-	-	1537	-
Stage 1	989	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	926	1041	-	-	1537	-
Mov Cap-2 Maneuver	926	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		0.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 930		1537	-	
HCM Lane V/C Ratio	-	- 0.028		0.001	-	
HCM Control Delay (s)	-	- 9		7.3	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.1		0	-	

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	1	58	58	1	59
Future Vol, veh/h	45	1	58	58	1	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	49	1	63	63	1	64
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	129	63	0	0	126	0
Stage 1	63	-	-	-	-	-
Stage 2	66	-	-	-	-	-
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	865	1002	-	-	1460	-
Stage 1	960	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	864	1002	-	-	1460	-
Mov Cap-2 Maneuver	864	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.4	0		0.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	867	1460	-	
HCM Lane V/C Ratio	-	-	0.058	0.001	-	
HCM Control Delay (s)	-	-	9.4	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

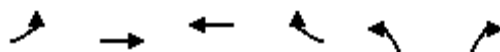
Future 2038 “No-Build” Intersection Analysis

Timings

1: I-85 NB Ramps & Collinsworth Rd

4a. No-Build 2038 AM

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	777	722	707	985	517	547
Future Volume (vph)	777	722	707	985	517	547
Lane Group Flow (vph)	827	768	752	1048	550	582
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	30.0	83.0	53.0	53.0	37.0	37.0
Total Split (%)	25.0%	69.2%	44.2%	44.2%	30.8%	30.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	2.04	0.34	1.06	1.07	1.23	1.02
Control Delay	488.5	16.2	86.8	66.5	160.4	70.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	488.5	16.2	86.8	66.5	160.4	70.1
Queue Length 50th (ft)	~958	216	~640	~593	~526	~337
Queue Length 95th (ft)	m#760	m170	#877	#852	#744	#561
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	406	2263	709	976	447	570
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.04	0.34	1.06	1.07	1.23	1.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 38 (32%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

4a. No-Build 2038 AM

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	777	722	0	0	707	985	517	0	547	0	0	0
Future Volume (veh/h)	777	722	0	0	707	985	517	0	547	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	827	768	0	0	752	0	550	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	412	2277	0	0	717		453	0				
Arrive On Green	0.34	1.00	0.00	0.00	0.40	0.00	0.26	0.00	0.00			
Sat Flow, veh/h	1725	3618	0	0	1811	1535	1725	0	1535			
Grp Volume(v), veh/h	827	768	0	0	752	0	550	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1763	0	0	1811	1535	1725	0	1535			
Q Serve(g_s), s	24.5	0.0	0.0	0.0	47.5	0.0	31.5	0.0	0.0			
Cycle Q Clear(g_c), s	24.5	0.0	0.0	0.0	47.5	0.0	31.5	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	412	2277	0	0	717		453	0				
V/C Ratio(X)	2.01	0.34	0.00	0.00	1.05		1.21	0.00				
Avail Cap(c_a), veh/h	412	2277	0	0	717		453	0				
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	31.1	0.0	0.0	0.0	36.2	0.0	44.2	0.0	0.0			
Incr Delay (d2), s/veh	453.7	0.0	0.0	0.0	47.2	0.0	115.5	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	79.8	0.0	0.0	0.0	38.6	0.0	40.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	484.8	0.0	0.0	0.0	83.4	0.0	159.7	0.0	0.0			
LnGrp LOS	F	A	A	A	F		F	A				
Approach Vol, veh/h	1595				752			550				
Approach Delay, s/veh	251.4				83.4			159.7				
Approach LOS	F				F			F				
Timer - Assigned Phs	1		2		6			8				
Phs Duration (G+Y+Rc), s	30.0		53.0		83.0			37.0				
Change Period (Y+Rc), s	5.5		5.5		5.5			5.5				
Max Green Setting (Gmax), s	24.5		47.5		77.5			31.5				
Max Q Clear Time (g_c+I1), s	26.5		49.5		2.0			33.5				
Green Ext Time (p_c), s	0.0		0.0		11.8			0.0				

Intersection Summary

HCM 6th Ctrl Delay 190.4

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

4a. No-Build 2038 AM
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	1325	417	304	980	221	421
Future Volume (vph)	1325	417	304	980	221	421
Lane Group Flow (vph)	1395	439	320	1032	233	443
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	77.0	77.0	20.0	97.0	23.0	23.0
Total Split (%)	64.2%	64.2%	16.7%	80.8%	19.2%	19.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	1.27	0.41	1.17	0.76	0.48	1.20
Control Delay	137.5	0.2	121.7	1.0	50.9	140.9
Queue Delay	0.0	0.0	0.0	2.2	0.0	0.0
Total Delay	137.5	0.2	121.7	3.2	50.9	140.9
Queue Length 50th (ft)	~1354	0	~242	6	86	~288
Queue Length 95th (ft)	m216	m0	m#193	m5	128	#496
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	1099	1060	273	1366	481	368
Starvation Cap Reductn	0	0	0	204	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.41	1.17	0.89	0.48	1.20

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 69 (58%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

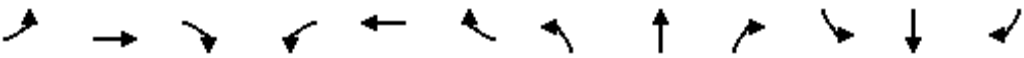
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

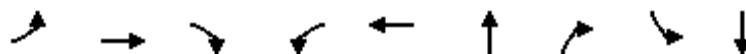
4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖	↗	↖
Traffic Volume (veh/h)	0	1325	417	304	980	0	0	0	0	221	0	421
Future Volume (veh/h)	0	1325	417	304	980	0	0	0	0	221	0	421
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	1395	0	320	1032	0				233	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	1212		274	1485	0				296	0	
Arrive On Green	0.00	0.87	0.00	0.16	1.00	0.00				0.09	0.00	0.00
Sat Flow, veh/h	0	1856	1497	1767	1811	0				3346	0	1459
Grp Volume(v), veh/h	0	1395	0	320	1032	0				233	0	0
Grp Sat Flow(s),veh/h/ln	0	1856	1497	1767	1811	0				1673	0	1459
Q Serve(g_s), s	0.0	78.4	0.0	14.5	0.0	0.0				8.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	78.4	0.0	14.5	0.0	0.0				8.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1212		274	1485	0				296	0	
V/C Ratio(X)	0.00	1.15		1.17	0.70	0.00				0.79	0.00	
Avail Cap(c_a), veh/h	0	1212		274	1485	0				488	0	
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.9	0.0	43.3	0.0	0.0				53.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	69.0	0.0	80.3	0.2	0.0				4.6	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	0.0	34.7	0.0	16.6	0.2	0.0				6.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	76.9	0.0	123.6	0.2	0.0				58.2	0.0	0.0
LnGrp LOS	A	F		F	A	A				E	A	
Approach Vol, veh/h		1395			1352						233	
Approach Delay, s/veh		76.9			29.4						58.2	
Approach LOS		E			C						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		103.9		16.1	20.0	83.9						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		91.5		17.5	14.5	71.5						
Max Q Clear Time (g_c+I1), s		2.0		10.2	16.5	80.4						
Green Ext Time (p_c), s		26.1		0.4	0.0	0.0						
Intersection Summary												
HCM 6th Ctrl Delay			53.9									
HCM 6th LOS			D									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

3: Weldon Rd & Collinsworth Rd

4a. No-Build 2038 AM
08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations		↰	↰	↰	↰	↰	↰		↰
Traffic Volume (vph)	31	502	5	47	231	1	9	972	5
Future Volume (vph)	31	502	5	47	231	1	9	972	5
Lane Group Flow (vph)	0	555	5	49	982	1	9	0	1028
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases		6		5	2	8			4
Permitted Phases	6		6	2			8	4	
Detector Phase	6	6	6	5	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	54.0	54.0	54.0	15.0	69.0	51.0	51.0	51.0	51.0
Total Split (%)	45.0%	45.0%	45.0%	12.5%	57.5%	42.5%	42.5%	42.5%	42.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None
v/c Ratio		2.09	0.01	0.17	1.02	0.00	0.01		2.00
Control Delay		527.0	0.0	16.0	48.7	23.0	0.0		481.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		5.0
Total Delay		527.0	0.0	16.0	48.7	23.0	0.0		486.2
Queue Length 50th (ft)		~690	0	19	~503	1	0		~1242
Queue Length 95th (ft)		#738	0	m23	m#607	4	0		#1495
Internal Link Dist (ft)		914			947	293			729
Turn Bay Length (ft)			365	315					
Base Capacity (vph)		265	741	321	966	706	645		514
Starvation Cap Reductn		0	0	0	0	0	0		0
Spillback Cap Reductn		0	0	0	0	0	0		206
Storage Cap Reductn		0	0	0	0	0	0		0
Reduced v/c Ratio		2.09	0.01	0.15	1.02	0.00	0.01		3.34

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 28 (23%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

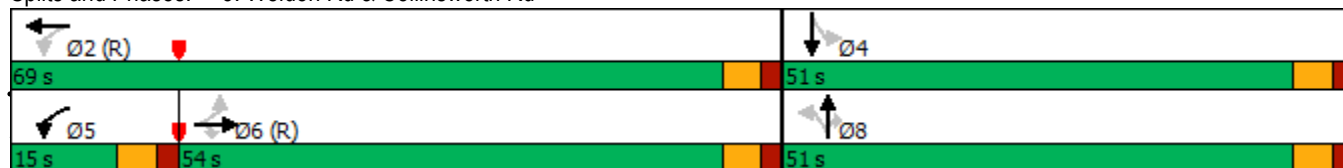
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

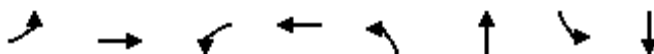
3: Weldon Rd & Collinsworth Rd

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	502	5	47	231	711	0	1	9	972	5	10
Future Volume (veh/h)	31	502	5	47	231	711	0	1	9	972	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	523	5	49	241	741	0	1	9	1012	5	10
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	32	303	713	120	214	658	0	709	601	585	3	5
Arrive On Green	0.45	0.45	0.45	0.01	0.17	0.17	0.00	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	0	673	1585	1781	404	1243	0	1870	1585	1386	7	14
Grp Volume(v), veh/h	555	0	5	49	0	982	0	1	9	1027	0	0
Grp Sat Flow(s),veh/h/ln	673	0	1585	1781	0	1647	0	1870	1585	1407	0	0
Q Serve(g_s), s	0.0	0.0	0.2	1.7	0.0	63.5	0.0	0.0	0.4	45.5	0.0	0.0
Cycle Q Clear(g_c), s	54.0	0.0	0.2	1.7	0.0	63.5	0.0	0.0	0.4	45.5	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.75	0.00		1.00	0.99		0.01
Lane Grp Cap(c), veh/h	335	0	713	120	0	871	0	709	601	593	0	0
V/C Ratio(X)	1.66	0.00	0.01	0.41	0.00	1.13	0.00	0.00	0.01	1.73	0.00	0.00
Avail Cap(c_a), veh/h	335	0	713	201	0	871	0	709	601	593	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.33	0.00	0.33	0.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.1	0.0	18.2	29.1	0.0	49.5	0.0	23.1	23.3	39.6	0.0	0.0
Incr Delay (d2), s/veh	309.5	0.0	0.0	0.7	0.0	62.6	0.0	0.0	0.0	336.4	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	61.4	0.0	0.1	1.2	0.0	54.2	0.0	0.0	0.3	114.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	352.6	0.0	18.2	29.9	0.0	112.2	0.0	23.1	23.3	375.9	0.0	0.0
LnGrp LOS	F	A	B	C	A	F	A	C	C	F	A	A
Approach Vol, veh/h	560		1031				10				1027	
Approach Delay, s/veh	349.6		108.3				23.3				375.9	
Approach LOS	F		F				C				F	
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	69.0		51.0		9.5	59.5	51.0					
Change Period (Y+Rc), s	5.5		5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	63.5		45.5		9.5	48.5	45.5					
Max Q Clear Time (g_c+I1), s	65.5		47.5		3.7	56.0	2.4					
Green Ext Time (p_c), s	0.0		0.0		0.0	0.0	0.0					
Intersection Summary												
HCM 6th Ctrl Delay	264.0											
HCM 6th LOS	F											

Timings
4: SR 14/US 29 (Main St) & Toombs St

4a. No-Build 2038 AM
08/31/2023

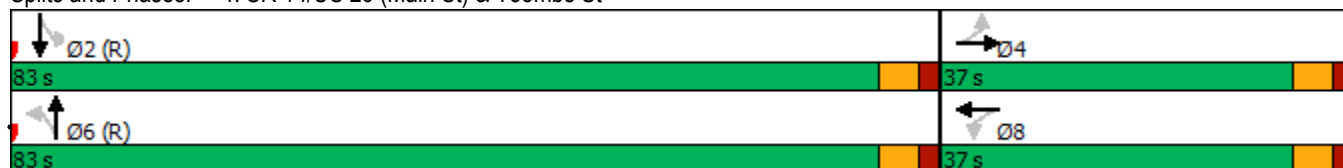


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	154	358	10	248	38	526	148	464
Future Volume (vph)	154	358	10	248	38	526	148	464
Lane Group Flow (vph)	0	628	0	415	0	640	0	784
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	37.0	37.0	37.0	37.0	83.0	83.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	69.2%	69.2%	69.2%	69.2%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		2.77		0.87		0.62		0.98
Control Delay		826.7		60.7		15.9		49.4
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		826.7		60.7		15.9		49.4
Queue Length 50th (ft)		~838		297		271		539
Queue Length 95th (ft)		#1069		#476		389		#859
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		227		475		1026		798
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		2.77		0.87		0.62		0.98

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: 90
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	358	53	10	248	115	38	526	13	148	464	94
Future Volume (veh/h)	154	358	53	10	248	115	38	526	13	148	464	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	171	398	59	11	276	128	42	584	14	164	516	104
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	100	149	22	36	323	147	73	922	22	189	532	105
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	235	568	83	21	1231	558	63	1427	33	236	823	162
Grp Volume(v), veh/h	628	0	0	415	0	0	640	0	0	784	0	0
Grp Sat Flow(s),veh/h/ln	886	0	0	1811	0	0	1524	0	0	1221	0	0
Q Serve(g_s), s	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.8	0.0	0.0
Cycle Q Clear(g_c), s	31.5	0.0	0.0	26.4	0.0	0.0	24.6	0.0	0.0	76.4	0.0	0.0
Prop In Lane	0.27		0.09	0.03		0.31	0.07		0.02	0.21		0.13
Lane Grp Cap(c), veh/h	271	0	0	506	0	0	1016	0	0	825	0	0
V/C Ratio(X)	2.32	0.00	0.00	0.82	0.00	0.00	0.63	0.00	0.00	0.95	0.00	0.00
Avail Cap(c_a), veh/h	271	0	0	506	0	0	1016	0	0	825	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	47.8	0.0	0.0	42.4	0.0	0.0	11.9	0.0	0.0	22.4	0.0	0.0
Incr Delay (d2), s/veh	604.8	0.0	0.0	10.3	0.0	0.0	3.0	0.0	0.0	21.3	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	87.4	0.0	0.0	19.1	0.0	0.0	15.3	0.0	0.0	33.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	652.6	0.0	0.0	52.7	0.0	0.0	14.8	0.0	0.0	43.7	0.0	0.0
LnGrp LOS	F	A	A	D	A	A	B	A	A	D	A	A
Approach Vol, veh/h	628			415			640			784		
Approach Delay, s/veh	652.6			52.7			14.8			43.7		
Approach LOS	F			D			B			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	83.0			37.0			83.0			37.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	77.5			31.5			77.5			31.5		
Max Q Clear Time (g_c+I1), s	78.4			33.5			26.6			28.4		
Green Ext Time (p_c), s	0.0			0.0			12.1			0.8		
Intersection Summary												
HCM 6th Ctrl Delay	192.7											
HCM 6th LOS	F											

Intersection

Intersection Delay, s/veh 108.2

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	47	78	40	476	738	26
Future Vol, veh/h	47	78	40	476	738	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	80	41	491	761	27
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	13.3	31.5	175.6
HCM LOS	B	D	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	0%	97%
Vol Thru, %	62%	8%	0%
Vol Right, %	0%	92%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	516	764
LT Vol	47	0	738
Through Vol	78	40	0
RT Vol	0	476	26
Lane Flow Rate	129	532	788
Geometry Grp	1	1	1
Degree of Util (X)	0.247	0.817	1.322
Departure Headway (Hd)	7.762	6.318	6.043
Convergence, Y/N	Yes	Yes	Yes
Cap	465	580	606
Service Time	5.762	4.318	4.05
HCM Lane V/C Ratio	0.277	0.917	1.3
HCM Control Delay	13.3	31.5	175.6
HCM Lane LOS	B	D	F
HCM 95th-tile Q	1	8.2	32.9

Intersection						
Int Delay, s/veh	340.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	369	217	466	579	85
Future Vol, veh/h	90	369	217	466	579	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	388	228	491	609	89
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	719	0	-	0	1052	474
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	578	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	882	-	-	-	~ 251	590
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	~ 561	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	882	-	-	-	~ 217	590
Mov Cap-2 Maneuver	-	-	-	-	~ 217	-
Stage 1	-	-	-	-	~ 540	-
Stage 2	-	-	-	-	~ 561	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.9	0		\$ 925.5		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	882	-	-	-	236	
HCM Lane V/C Ratio	0.107	-	-	-	2.962	
HCM Control Delay (s)	9.6	0	-	-	\$ 925.5	
HCM Lane LOS	A	A	-	-	F	
HCM 95th %tile Q(veh)	0.4	-	-	-	62.1	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	621.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	386	119	423	388	104	371
Future Vol, veh/h	386	119	423	388	104	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	495	153	542	497	133	476
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1533	791	0	0	1039	0
Stage 1	791	-	-	-	-	-
Stage 2	742	-	-	-	-	-
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	~ 128	390	-	-	669	-
Stage 1	~ 447	-	-	-	-	-
Stage 2	~ 471	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 93	390	-	-	669	-
Mov Cap-2 Maneuver	~ 93	-	-	-	-	-
Stage 1	~ 447	-	-	-	-	-
Stage 2	~ 344	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, \$	2203.1	0		2.6		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	113	669	-	
HCM Lane V/C Ratio	-	-	5.73	0.199	-	
HCM Control Delay (s)	-	\$ 2203.1		11.7	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q(veh)	-	-	70.3	0.7	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	628.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Vol, veh/h	0	615	166	269	172	3	144	29	367	1	36	1
Future Vol, veh/h	0	615	166	269	172	3	144	29	367	1	36	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	699	189	306	195	3	164	33	417	1	41	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	195	0	0	699	0	0	1527	1506	699	1523	1506	195
Stage 1	-	-	-	-	-	-	699	699	-	807	807	-
Stage 2	-	-	-	-	-	-	828	807	-	716	699	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1378	-	-	898	-	-	~ 96	121	440	97	121	846
Stage 1	-	-	-	-	-	-	430	442	-	375	394	-
Stage 2	-	-	-	-	-	-	365	394	-	421	442	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1378	-	-	898	-	-	~ 40	75	440	2	75	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 40	75	-	2	75	-
Stage 1	-	-	-	-	-	-	430	442	-	375	243	-
Stage 2	-	-	-	-	-	-	187	243	-	20	442	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			6.7			\$ 2068.9			\$ 337.2		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	113	1378	-	-	898	-	-	39				
HCM Lane V/C Ratio	5.43	-	-	-	0.34	-	-	1.107				
HCM Control Delay (s)	\$ 2068.9	0	-	-	11.1	0	-	\$ 337.2				
HCM Lane LOS	F	A	-	-	B	A	-	F				
HCM 95th %tile Q(veh)	66.1	0	-	-	1.5	-	-	4.3				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	863	100	5	383	8	58	7	0	23	30	0
Future Vol, veh/h	0	863	100	5	383	8	58	7	0	23	30	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	948	110	5	421	9	64	8	0	25	33	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	421	0	0	948	0	0	1396	1379	474	909	1379	-
Stage 1	-	-	-	-	-	-	948	948	-	431	431	-
Stage 2	-	-	-	-	-	-	448	431	-	478	948	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	1136	-	-	722	-	-	109	144	538	243	144	0
Stage 1	-	-	-	-	-	-	281	338	-	602	582	0
Stage 2	-	-	-	-	-	-	589	582	-	538	338	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1136	-	-	722	-	-	89	143	538	236	143	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	253	-	236	143	-
Stage 1	-	-	-	-	-	-	281	338	-	602	578	-
Stage 2	-	-	-	-	-	-	552	578	-	526	338	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			30.9					
HCM LOS							D			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	209	1136	-	-	722	-	-	236	-			
HCM Lane V/C Ratio	0.342	-	-	-	0.008	-	-	0.107	-			
HCM Control Delay (s)	30.9	0	-	-	10	-	-	22.1	-			
HCM Lane LOS	D	A	-	-	B	-	-	C	-			
HCM 95th %tile Q(veh)	1.4	0	-	-	0	-	-	0.4	-			

Timings
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗	↘	↰	↗	↘	↰	↗	↘	↘
Traffic Volume (vph)	48	828	10	201	343	5	7	378	3	403
Future Volume (vph)	48	828	10	201	343	5	7	378	3	403
Lane Group Flow (vph)	51	881	11	214	365	5	7	698	3	467
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	15.0	42.0	42.0	22.0	49.0	49.0	56.0	56.0	56.0	56.0
Total Split (%)	12.5%	35.0%	35.0%	18.3%	40.8%	40.8%	46.7%	46.7%	46.7%	46.7%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.42	0.78	0.02	0.89	0.25	0.01	0.03	0.95	0.05	0.62
Control Delay	64.1	43.3	0.1	87.3	25.7	0.0	21.1	56.6	23.3	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	43.3	0.1	87.3	25.7	0.0	21.1	56.6	23.3	31.9
Queue Length 50th (ft)	38	332	0	165	103	0	3	483	1	273
Queue Length 95th (ft)	80	413	0	#305	144	0	13	#732	8	385
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	140	1131	590	245	1436	686	233	755	64	777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.78	0.02	0.87	0.25	0.01	0.03	0.92	0.05	0.60

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

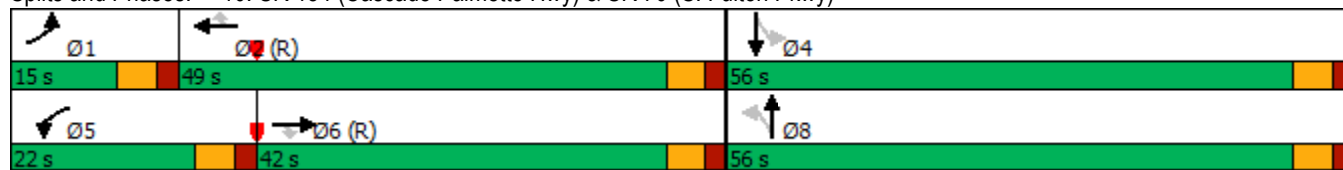
Natural Cycle: 90

Control Type: Actuated-Coordinated

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

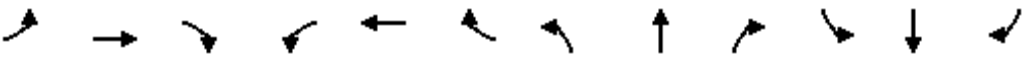
Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	828	10	201	343	5	7	378	278	3	403	36
Future Volume (veh/h)	48	828	10	201	343	5	7	378	278	3	403	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	881	0	214	365	0	7	402	296	3	429	38
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	66	1110		240	1458		261	416	306	77	703	62
Arrive On Green	0.04	0.31	0.00	0.13	0.41	0.00	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	926	1001	737	748	1693	150
Grp Volume(v), veh/h	51	881	0	214	365	0	7	0	698	3	0	467
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	926	0	1738	748	0	1843
Q Serve(g_s), s	3.4	27.2	0.0	14.2	8.1	0.0	0.7	0.0	47.1	0.5	0.0	23.8
Cycle Q Clear(g_c), s	3.4	27.2	0.0	14.2	8.1	0.0	24.5	0.0	47.1	47.6	0.0	23.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.08
Lane Grp Cap(c), veh/h	66	1110		240	1458		261	0	722	77	0	765
V/C Ratio(X)	0.77	0.79		0.89	0.25		0.03	0.00	0.97	0.04	0.00	0.61
Avail Cap(c_a), veh/h	141	1110		245	1458		266	0	731	81	0	776
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	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	57.3	37.7	0.0	51.0	23.3	0.0	37.1	0.0	34.3	57.5	0.0	27.5
Incr Delay (d2), s/veh	17.3	5.9	0.0	30.3	0.4	0.0	0.0	0.0	25.2	0.2	0.0	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	3.2	17.7	0.0	12.7	5.9	0.0	0.3	0.0	31.0	0.2	0.0	15.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.6	43.6	0.0	81.4	23.7	0.0	37.1	0.0	59.5	57.7	0.0	28.8
LnGrp LOS	E	D		F	C		D	A	E	E	A	C
Approach Vol, veh/h	932			579			705			470		
Approach Delay, s/veh	45.3			45.0			59.3			29.0		
Approach LOS	D			D			E			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	54.7		55.3	21.7	43.0		55.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	43.5		50.5	16.5	36.5		50.5				
Max Q Clear Time (g_c+I1), s	5.4	10.1		49.6	16.2	29.2		49.1				
Green Ext Time (p_c), s	0.0	4.2		0.3	0.0	4.5		0.6				

Intersection Summary

HCM 6th Ctrl Delay 46.1
HCM 6th LOS D

Notes

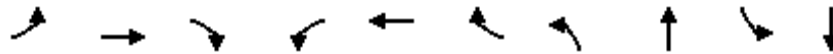
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	78	1440	94	195	825	125	72	161	237	239
Future Volume (vph)	78	1440	94	195	825	125	72	161	237	239
Lane Group Flow (vph)	85	1565	102	212	897	136	78	564	258	334
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	71.0	71.0	16.0	72.0	72.0	15.0	45.0	18.0	48.0
Total Split (%)	10.0%	47.3%	47.3%	10.7%	48.0%	48.0%	10.0%	30.0%	12.0%	32.0%
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	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
v/c Ratio	0.32	1.01	0.16	1.23	0.59	0.18	0.33	1.13	1.28	0.63
Control Delay	20.0	67.7	5.4	164.5	11.9	1.0	34.5	125.6	194.1	51.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	67.7	5.4	164.5	11.9	1.0	34.5	125.6	194.1	51.7
Queue Length 50th (ft)	39	~823	2	~196	230	8	49	~586	~269	280
Queue Length 95th (ft)	68	#985	38	m#223	m231	m8	88	#825	#454	391
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	278	1545	647	173	1518	773	242	497	201	527
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	1.01	0.16	1.23	0.59	0.18	0.32	1.13	1.28	0.63

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 144 (96%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

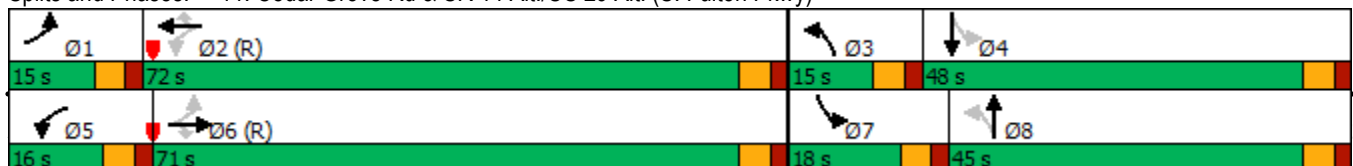
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1440	94	195	825	125	72	161	358	237	239	68
Future Volume (veh/h)	78	1440	94	195	825	125	72	161	358	237	239	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	85	1565	0	212	897	0	78	175	389	258	260	74
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	286	1552		173	1596		249	137	305	199	418	119
Arrive On Green	0.04	0.44	0.00	0.07	0.47	0.00	0.05	0.26	0.26	0.08	0.30	0.30
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	520	1157	1810	1400	398
Grp Volume(v), veh/h	85	1565	0	212	897	0	78	0	564	258	0	334
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	0	1677	1810	0	1799
Q Serve(g_s), s	4.0	65.5	0.0	10.5	28.5	0.0	5.5	0.0	39.5	12.5	0.0	24.0
Cycle Q Clear(g_c), s	4.0	65.5	0.0	10.5	28.5	0.0	5.5	0.0	39.5	12.5	0.0	24.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.22
Lane Grp Cap(c), veh/h	286	1552		173	1596		249	0	442	199	0	537
V/C Ratio(X)	0.30	1.01		1.23	0.56		0.31	0.00	1.28	1.30	0.00	0.62
Avail Cap(c_a), veh/h	329	1552		173	1596		273	0	442	199	0	537
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	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	23.9	42.3	0.0	48.0	28.8	0.0	38.7	0.0	55.3	44.0	0.0	45.3
Incr Delay (d2), s/veh	0.6	24.9	0.0	142.8	1.4	0.0	0.7	0.0	141.3	165.9	0.0	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	2.9	41.8	0.0	20.6	16.9	0.0	3.8	0.0	49.3	22.9	0.0	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	67.2	0.0	190.8	30.3	0.0	39.4	0.0	196.5	209.9	0.0	47.5
LnGrp LOS	C	F		F	C		D	A	F	F	A	D
Approach Vol, veh/h	1650			1109			642			592		
Approach Delay, s/veh	65.0			61.0			177.5			118.3		
Approach LOS	E			E			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	75.6	12.7	50.3	16.0	71.0	18.0	45.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	66.5	9.5	42.5	10.5	65.5	12.5	39.5				
Max Q Clear Time (g_c+I1), s	6.0	30.5	7.5	26.0	12.5	67.5	14.5	41.5				
Green Ext Time (p_c), s	0.0	12.7	0.0	1.6	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	89.9
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	419	1277	344	111	819	619	291	980	192	772	1087	326
Future Volume (vph)	419	1277	344	111	819	619	291	980	192	772	1087	326
Lane Group Flow (vph)	455	1388	374	121	890	673	316	1065	209	839	1182	354
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	23.0	55.5	55.5	15.0	47.5	47.5	21.0	53.5	53.5	26.0	58.5	58.5
Total Split (%)	15.3%	37.0%	37.0%	10.0%	31.7%	31.7%	14.0%	35.7%	35.7%	17.3%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.74	1.17	0.64	0.77	0.92	1.12	1.79	0.96	0.34	1.82	0.95	0.51
Control Delay	369.9	107.9	16.0	57.8	54.7	95.1	411.0	69.7	15.1	413.5	63.2	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	369.9	107.9	16.0	57.8	54.7	95.1	411.0	69.7	15.1	413.5	63.2	18.5
Queue Length 50th (ft)	~607	~845	145	71	399	~571	~461	539	50	~636	590	114
Queue Length 95th (ft)	m#554	m#762	m126	m#160	m#554	m#304	#658	#683	119	#768	#734	213
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	261	1188	587	159	971	602	177	1110	610	460	1250	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.74	1.17	0.64	0.76	0.92	1.12	1.79	0.96	0.34	1.82	0.95	0.51

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: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

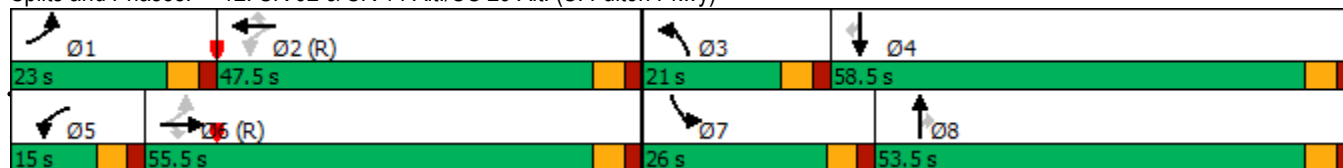
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	419	1277	344	111	819	619	291	980	192	772	1087	326
Future Volume (veh/h)	419	1277	344	111	819	619	291	980	192	772	1087	326
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1870	1841	1856	1841	1841	1826	1841	1900	1841	1870	1885
Adj Flow Rate, veh/h	455	1388	374	121	890	673	316	1065	0	839	1182	354
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, %	1	2	4	3	4	4	5	4	0	4	2	1
Cap, veh/h	270	1202	528	156	989	441	180	1109		465	1246	560
Arrive On Green	0.12	0.34	0.34	0.06	0.28	0.28	0.10	0.32	0.00	0.14	0.35	0.35
Sat Flow, veh/h	1795	3554	1560	1767	3497	1560	1739	3497	1610	3401	3554	1598
Grp Volume(v), veh/h	455	1388	374	121	890	673	316	1065	0	839	1182	354
Grp Sat Flow(s),veh/h/ln	1795	1777	1560	1767	1749	1560	1739	1749	1610	1700	1777	1598
Q Serve(g_s), s	17.5	50.7	31.3	7.2	36.7	42.4	15.5	44.8	0.0	20.5	48.6	27.7
Cycle Q Clear(g_c), s	17.5	50.7	31.3	7.2	36.7	42.4	15.5	44.8	0.0	20.5	48.6	27.7
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	270	1202	528	156	989	441	180	1109		465	1246	560
V/C Ratio(X)	1.68	1.15	0.71	0.77	0.90	1.53	1.76	0.96		1.81	0.95	0.63
Avail Cap(c_a), veh/h	270	1202	528	160	989	441	180	1119		465	1256	564
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	49.6	43.2	40.6	51.7	53.8	67.3	50.3	0.0	64.8	47.4	40.6
Incr Delay (d2), s/veh	323.7	79.4	7.8	20.4	12.7	247.8	363.2	18.0	0.0	370.8	14.8	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	48.8	48.7	18.6	7.0	24.0	70.8	39.2	29.1	0.0	51.0	30.8	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	368.1	129.0	51.0	61.1	64.5	301.6	430.4	68.3	0.0	435.5	62.2	42.9
LnGrp LOS	F	F	D	E	E	F	F	E		F	E	D
Approach Vol, veh/h	2217				1684				1381			
Approach Delay, s/veh	164.9				159.0				151.1			
Approach LOS	F				F				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.0	47.9	21.0	58.1	14.7	56.2	26.0	53.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	17.5	42.0	15.5	53.0	9.5	50.0	20.5	48.0				
Max Q Clear Time (g_c+I1), s	19.5	44.4	17.5	50.6	9.2	52.7	22.5	46.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay 169.3
HCM 6th LOS F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	158	1917	133	187	1176	62	83	65	135	122
Future Volume (vph)	158	1917	133	187	1176	62	83	65	135	122
Lane Group Flow (vph)	163	1976	137	193	1212	64	86	204	139	372
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	97.5	97.5	82.5	82.5	82.5	52.5	52.5	52.5	52.5
Total Split (%)	10.0%	65.0%	65.0%	55.0%	55.0%	55.0%	35.0%	35.0%	35.0%	35.0%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.60	0.80	0.12	2.88	0.60	0.07	1.48	0.56	0.74	0.86
Control Delay	14.8	5.4	0.1	880.3	11.8	1.9	327.9	52.7	75.7	63.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	5.4	0.1	880.3	11.8	1.9	327.9	52.7	75.7	63.4
Queue Length 50th (ft)	23	121	0	~275	212	2	~116	168	128	295
Queue Length 95th (ft)	m10	m89	m0	m#323	m314	m6	#215	230	194	384
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	272	2464	1123	67	2036	908	81	510	264	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.80	0.12	2.88	0.60	0.07	1.06	0.40	0.53	0.64

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 141 (94%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

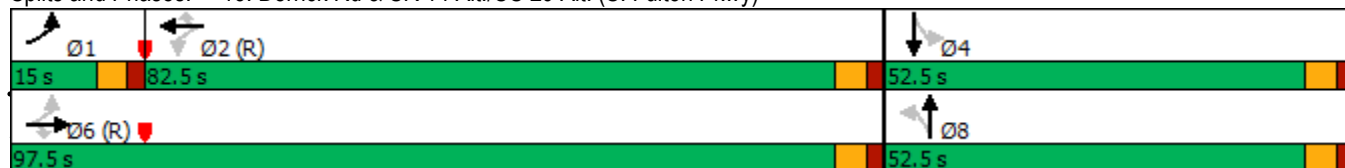
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	1917	133	187	1176	62	83	65	133	135	122	239
Future Volume (veh/h)	158	1917	133	187	1176	62	83	65	133	135	122	239
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	163	1976	137	193	1212	64	86	67	137	139	126	246
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	250	2220	990	79	1854	807	149	163	333	283	171	333
Arrive On Green	0.06	0.63	0.63	0.53	0.53	0.53	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1584	3526	1572	194	3469	1510	1010	548	1121	1178	575	1123
Grp Volume(v), veh/h	163	1976	137	193	1212	64	86	0	204	139	0	372
Grp Sat Flow(s),veh/h/ln	1584	1763	1572	194	1735	1510	1010	0	1669	1178	0	1698
Q Serve(g_s), s	6.8	70.8	5.3	23.6	37.5	3.1	12.6	0.0	14.7	16.1	0.0	29.6
Cycle Q Clear(g_c), s	6.8	70.8	5.3	80.2	37.5	3.1	42.2	0.0	14.7	30.8	0.0	29.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.66
Lane Grp Cap(c), veh/h	250	2220	990	79	1854	807	149	0	496	283	0	504
V/C Ratio(X)	0.65	0.89	0.14	2.46	0.65	0.08	0.58	0.00	0.41	0.49	0.00	0.74
Avail Cap(c_a), veh/h	258	2220	990	79	1854	807	165	0	523	302	0	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	23.4	11.3	70.4	25.0	17.0	66.4	0.0	42.2	54.5	0.0	47.5
Incr Delay (d2), s/veh	5.5	5.9	0.3	691.8	1.8	0.2	4.0	0.0	0.5	1.3	0.0	5.1
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	4.7	36.1	3.2	32.5	21.1	1.9	6.0	0.0	10.1	8.4	0.0	18.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	29.3	11.6	762.2	26.8	17.2	70.5	0.0	42.8	55.9	0.0	52.6
LnGrp LOS	C	C	B	F	C	B	E	A	D	E	A	D
Approach Vol, veh/h		2276			1469			290			511	
Approach Delay, s/veh		28.1			123.0			51.0			53.5	
Approach LOS		C			F			D			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	14.3	85.7		50.0		100.0		50.0				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	9.5	77.0		47.0		92.0		47.0				
Max Q Clear Time (g_c+I1), s	8.8	82.2		32.8		72.8		44.2				
Green Ext Time (p_c), s	0.0	0.0		2.3		17.6		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			63.1									
HCM 6th LOS			E									

Timings

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	180	1695	297	75	585	127	641	342	31	91	242
Future Volume (vph)	180	1695	297	75	585	127	641	342	31	91	242
Lane Group Flow (vph)	191	1803	316	80	622	135	682	364	33	97	477
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	78.0	78.0	78.0	15.0	93.0
Total Split (%)	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%	52.0%	52.0%	52.0%	10.0%	62.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	1.07	1.48	0.55	1.60	0.55	0.23	1.56	0.40	0.04	0.19	0.47
Control Delay	109.0	248.6	19.4	373.5	35.7	17.2	293.2	26.5	1.4	14.8	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.0	248.6	19.4	373.5	35.7	17.2	293.2	26.5	1.4	14.8	17.6
Queue Length 50th (ft)	~205	~1271	151	~111	263	59	~941	225	0	40	230
Queue Length 95th (ft)	m#311	#1413	m224	#228	338	120	#1187	309	7	68	318
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	178	1215	579	50	1126	583	437	903	776	502	1023
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	1.48	0.55	1.60	0.55	0.23	1.56	0.40	0.04	0.19	0.47

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 97 (65%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

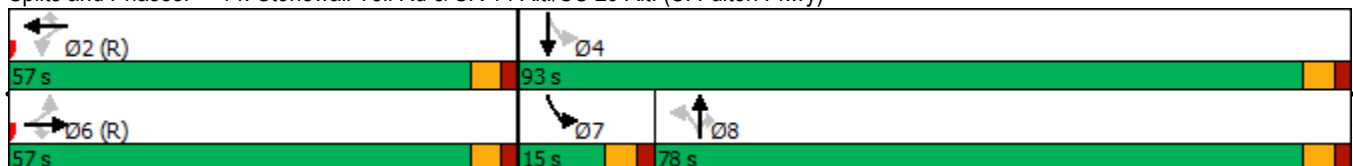
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

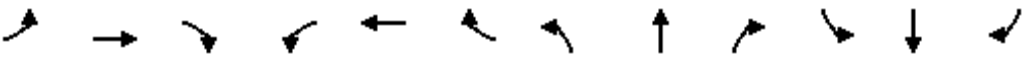
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1695	297	75	585	127	641	342	31	91	242	207
Future Volume (veh/h)	180	1695	297	75	585	127	641	342	31	91	242	207
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	191	1803	316	80	622	135	682	364	0	97	257	220
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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	202	1303	572	48	1221	568	415	904		481	525	450
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.48	0.48	0.00	0.04	0.56	0.56
Sat Flow, veh/h	696	3554	1560	195	3328	1547	932	1870	1547	1767	938	803
Grp Volume(v), veh/h	191	1803	316	80	622	135	682	364	0	97	0	477
Grp Sat Flow(s),veh/h/ln	696	1777	1560	195	1664	1547	932	1870	1547	1767	0	1741
Q Serve(g_s), s	33.2	55.0	24.1	0.0	21.8	9.1	59.1	18.7	0.0	4.0	0.0	24.9
Cycle Q Clear(g_c), s	55.0	55.0	24.1	55.0	21.8	9.1	72.5	18.7	0.0	4.0	0.0	24.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	202	1303	572	48	1221	568	415	904		481	0	975
V/C Ratio(X)	0.95	1.38	0.55	1.67	0.51	0.24	1.64	0.40		0.20	0.00	0.49
Avail Cap(c_a), veh/h	202	1303	572	48	1221	568	415	904		522	0	1015
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	0.94	0.94	0.94	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	61.6	47.5	37.7	75.0	37.0	32.9	48.9	24.9	0.0	18.6	0.0	20.0
Incr Delay (d2), s/veh	50.5	177.4	3.8	371.2	1.4	0.9	300.3	0.3	0.0	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.2	81.6	14.8	12.2	13.5	6.2	81.6	13.0	0.0	3.0	0.0	15.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.1	224.9	41.5	446.2	38.4	33.9	349.1	25.1	0.0	18.8	0.0	20.4
LnGrp LOS	F	F	D	F	D	C	F	C		B	A	C
Approach Vol, veh/h	2310			837			1046			574		
Approach Delay, s/veh	190.5			76.7			236.4			20.1		
Approach LOS	F			E			F			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	60.5			89.5			60.5			11.5		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	51.5			87.5			51.5			9.5		
Max Q Clear Time (g_c+I1), s	57.0			26.9			57.0			6.0		
Green Ext Time (p_c), s	0.0			3.4			0.0			0.1		

Intersection Summary

HCM 6th Ctrl Delay	160.0
HCM 6th LOS	F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4a. No-Build 2038 AM

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	106	1599	167	139	650	62	43	72	55	248	69
Future Volume (vph)	106	1599	167	139	650	62	43	72	55	248	69
Lane Group Flow (vph)	109	1648	172	143	670	64	0	118	57	256	182
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	76.5	76.5	15.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	51.0%	51.0%	10.0%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.23	0.90	0.20	0.70	0.36	0.09		0.33	0.18	0.88	0.39
Control Delay	0.8	11.4	0.0	54.1	19.5	5.7		45.4	9.2	81.9	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	0.8	11.4	0.0	54.1	19.5	5.7		45.4	9.2	81.9	31.2
Queue Length 50th (ft)	2	224	0	89	178	2		94	0	242	99
Queue Length 95th (ft)	m2	m22	m0	#242	277	30		137	32	323	153
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	491	1824	866	204	1881	748		497	408	397	624
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.22	0.90	0.20	0.70	0.36	0.09		0.24	0.14	0.64	0.29

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 3 (2%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

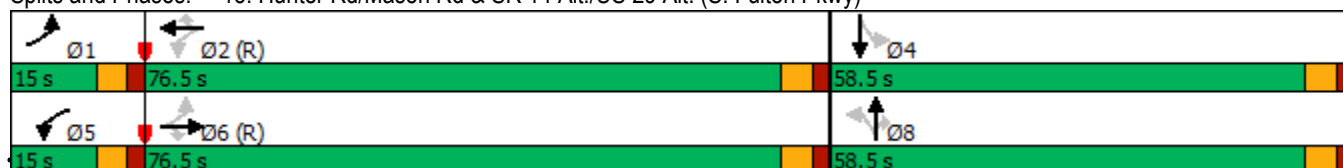
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4a. No-Build 2038 AM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	1599	167	139	650	62	43	72	55	248	69	108
Future Volume (veh/h)	106	1599	167	139	650	62	43	72	55	248	69	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	109	1648	172	143	670	0	44	74	0	256	71	111
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	476	1949	891	169	1910		140	222		328	175	273
Arrive On Green	0.04	0.56	0.56	0.05	0.57	0.00	0.28	0.28	0.00	0.28	0.28	0.28
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	386	801	932	1263	631	987
Grp Volume(v), veh/h	109	1648	172	143	670	0	118	0	0	256	0	182
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1188	0	932	1263	0	1619
Q Serve(g_s), s	3.9	59.5	8.0	5.6	16.1	0.0	5.7	0.0	0.0	18.6	0.0	13.7
Cycle Q Clear(g_c), s	3.9	59.5	8.0	5.6	16.1	0.0	19.4	0.0	0.0	38.0	0.0	13.7
Prop In Lane	1.00		1.00	1.00		1.00	0.37		1.00	1.00		0.61
Lane Grp Cap(c), veh/h	476	1949	891	169	1910		362	0		328	0	448
V/C Ratio(X)	0.23	0.85	0.19	0.85	0.35		0.33	0.00		0.78	0.00	0.41
Avail Cap(c_a), veh/h	519	1949	891	189	1910		480	0		424	0	572
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)	0.09	0.09	0.09	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	27.4	16.1	32.7	17.1	0.0	46.8	0.0	0.0	55.5	0.0	44.2
Incr Delay (d2), s/veh	0.0	0.5	0.0	26.3	0.5	0.0	0.5	0.0	0.0	6.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	24.8	3.6	7.2	9.9	0.0	6.8	0.0	0.0	15.1	0.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	27.9	16.2	59.0	17.6	0.0	47.3	0.0	0.0	62.4	0.0	44.8
LnGrp LOS	B	C	B	E	B		D	A		E	A	D
Approach Vol, veh/h	1929				813				118			
Approach Delay, s/veh	26.0				24.9				47.3			
Approach LOS	C				C				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	91.6		47.0	13.2	89.8		47.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	9.5	71.0		53.0				
Max Q Clear Time (g_c+I1), s	5.9	18.1		40.0	7.6	61.5		21.4				
Green Ext Time (p_c), s	0.1	9.5		1.5	0.1	8.6		0.6				

Intersection Summary

HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	160.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	61	1110	1193	1043	243
Future Vol, veh/h	36	61	1110	1193	1043	243
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	9	8	8	2	6	1
Mvmt Flow	40	67	1220	1311	1146	267
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	4242	573	1146	0	-	0
Stage 1	1146	-	-	-	-	-
Stage 2	3096	-	-	-	-	-
Critical Hdwy	6.98	7.06	4.26	-	-	-
Critical Hdwy Stg 1	5.98	-	-	-	-	-
Critical Hdwy Stg 2	5.98	-	-	-	-	-
Follow-up Hdwy	3.59	3.38	2.28	-	-	-
Pot Cap-1 Maneuver	~ 1	448	~ 572	-	-	-
Stage 1	251	-	-	-	-	-
Stage 2	~ 19	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	448	~ 572	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	~ 19	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s		256.7		0		
HCM LOS	-					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 572	-	-	448	-	-
HCM Lane V/C Ratio	2.132	-	-	0.15	-	-
HCM Control Delay (s)	\$ 532.5	-	-	14.4	-	-
HCM Lane LOS	F	-	-	B	-	-
HCM 95th %tile Q(veh)	86.3	-	-	0.5	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	261.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	211	618	26	1183	692	127
Future Vol, veh/h	211	618	26	1183	692	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	9	6	3	3	6
Mvmt Flow	227	665	28	1272	744	137
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1505	441	881	0	-	0
Stage 1	813	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Critical Hdwy	6.84	7.08	4.22	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.39	2.26	-	-	-
Pot Cap-1 Maneuver	~ 112	~ 545	738	-	-	-
Stage 1	396	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 108	~ 545	738	-	-	-
Mov Cap-2 Maneuver	~ 108	-	-	-	-	-
Stage 1	381	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s\$	899.6		0.2		0	
HCM LOS	F					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	738		-	305	-	-
HCM Lane V/C Ratio	0.038		-	2.923	-	-
HCM Control Delay (s)	10.1		-\$ 899.6		-	-
HCM Lane LOS	B		-	F	-	-
HCM 95th %tile Q(veh)	0.1		-	77.6	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings
1: I-85 NB Ramps & Collinsworth Rd

4b. No-Build 2038 PM
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	513	1292	934	237	473	326
Future Volume (vph)	513	1292	934	237	473	326
Lane Group Flow (vph)	540	1360	983	249	498	343
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	18.0	86.0	68.0	68.0	34.0	34.0
Total Split (%)	15.0%	71.7%	56.7%	56.7%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	2.23	0.57	1.02	0.28	1.21	0.81
Control Delay	578.4	5.2	64.5	5.8	154.6	49.8
Queue Delay	0.0	0.0	0.0	0.0	2.3	0.0
Total Delay	578.4	5.2	64.5	5.8	156.9	49.8
Queue Length 50th (ft)	~577	189	~810	28	~470	202
Queue Length 95th (ft)	m#525	m168	#1061	73	#682	#352
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	242	2374	960	892	412	424
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	83	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.23	0.57	1.02	0.28	1.51	0.81

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

4b. No-Build 2038 PM

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	513	1292	0	0	934	237	473	0	326	0	0	0
Future Volume (veh/h)	513	1292	0	0	934	237	473	0	326	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	540	1360	0	0	983	0	498	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	243	2384	0	0	966		416	0				
Arrive On Green	0.03	0.22	0.00	0.00	0.52	0.00	0.24	0.00	0.00			
Sat Flow, veh/h	1753	3647	0	0	1856	1560	1753	0	1560			
Grp Volume(v), veh/h	540	1360	0	0	983	0	498	0	0			
Grp Sat Flow(s),veh/h/ln	1753	1777	0	0	1856	1560	1753	0	1560			
Q Serve(g_s), s	12.5	40.9	0.0	0.0	62.5	0.0	28.5	0.0	0.0			
Cycle Q Clear(g_c), s	12.5	40.9	0.0	0.0	62.5	0.0	28.5	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	243	2384	0	0	966		416	0				
V/C Ratio(X)	2.23	0.57	0.00	0.00	1.02		1.20	0.00				
Avail Cap(c_a), veh/h	243	2384	0	0	966		416	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	45.8	31.3	0.0	0.0	28.7	0.0	45.8	0.0	0.0			
Incr Delay (d2), s/veh	552.8	0.1	0.0	0.0	33.3	0.0	109.5	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	56.0	21.3	0.0	0.0	43.1	0.0	36.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	598.6	31.4	0.0	0.0	62.1	0.0	155.2	0.0	0.0			
LnGrp LOS	F	C	A	A	F		F	A				
Approach Vol, veh/h	1900				983				498			
Approach Delay, s/veh	192.6				62.1				155.2			
Approach LOS	F				E				F			
Timer - Assigned Phs	1		2		6				8			
Phs Duration (G+Y+Rc), s	18.0		68.0		86.0				34.0			
Change Period (Y+Rc), s	5.5		5.5		5.5				5.5			
Max Green Setting (Gmax), s	12.5		62.5		80.5				28.5			
Max Q Clear Time (g_c+I1), s	14.5		64.5		42.9				30.5			
Green Ext Time (p_c), s	0.0		0.0		21.9				0.0			

Intersection Summary

HCM 6th Ctrl Delay 149.1

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

4b. No-Build 2038 PM
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	689	656	475	961	1132	595
Future Volume (vph)	689	656	475	961	1132	595
Lane Group Flow (vph)	733	698	505	1022	1204	633
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	44.0	44.0	29.0	73.0	47.0	47.0
Total Split (%)	36.7%	36.7%	24.2%	60.8%	39.2%	39.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	1.23	0.72	1.23	0.99	0.99	1.05
Control Delay	131.3	1.7	133.8	22.5	63.9	84.4
Queue Delay	0.0	0.0	0.0	13.9	0.0	0.0
Total Delay	131.3	1.7	133.8	36.4	63.9	84.4
Queue Length 50th (ft)	~695	27	~429	572	476	~483
Queue Length 95th (ft)	m268	m0	m#376	m532	#630	#714
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	597	972	412	1037	1211	601
Starvation Cap Reductn	0	0	0	51	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.23	0.72	1.23	1.04	0.99	1.05

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

4b. No-Build 2038 PM
08/31/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖		↗
Traffic Volume (veh/h)	0	689	656	475	961	0	0	0	0	1132	0	595
Future Volume (veh/h)	0	689	656	475	961	0	0	0	0	1132	0	595
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	733	0	505	1022	0				1204	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	600		412	1044	0				1214	0	
Arrive On Green	0.00	0.11	0.00	0.06	0.19	0.00				0.35	0.00	0.00
Sat Flow, veh/h	0	1870	1560	1795	1856	0				3510	0	1560
Grp Volume(v), veh/h	0	733	0	505	1022	0				1204	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1560	1795	1856	0				1755	0	1560
Q Serve(g_s), s	0.0	38.5	0.0	23.5	65.8	0.0				41.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	38.5	0.0	23.5	65.8	0.0				41.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	600		412	1044	0				1214	0	
V/C Ratio(X)	0.00	1.22		1.23	0.98	0.00				0.99	0.00	
Avail Cap(c_a), veh/h	0	600		412	1044	0				1214	0	
HCM Platoon Ratio	1.00	0.33	0.33	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	53.6	0.0	46.2	48.2	0.0				39.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	101.1	0.0	104.2	4.8	0.0				23.8	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	0.0	44.9	0.0	26.1	36.5	0.0				28.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	154.8	0.0	150.4	53.0	0.0				62.8	0.0	0.0
LnGrp LOS	A	F		F	D	A				E	A	
Approach Vol, veh/h		733			1527						1204	
Approach Delay, s/veh		154.8			85.2						62.8	
Approach LOS		F			F						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		73.0		47.0	29.0	44.0						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		67.5		41.5	23.5	38.5						
Max Q Clear Time (g_c+I1), s		67.8		43.0	25.5	40.5						
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0						
Intersection Summary												
HCM 6th Ctrl Delay				92.2								
HCM 6th LOS				F								
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

4b. No-Build 2038 PM
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↔	↔		↔	↔		↔
Traffic Volume (vph)	10	412	14	476	8	5	34	1079	0
Future Volume (vph)	10	412	14	476	8	5	34	1079	0
Lane Group Flow (vph)	0	474	16	1524	0	15	38	0	1227
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6	5	2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	44.0	44.0	17.0	61.0	59.0	59.0	59.0	59.0	59.0
Total Split (%)	36.7%	36.7%	14.2%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5		5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	None
v/c Ratio		1.17	0.06	1.83		0.02	0.05		1.93
Control Delay		132.5	17.3	397.0		18.8	0.9		448.2
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		132.5	17.3	397.0		18.8	0.9		448.2
Queue Length 50th (ft)		~405	7	~1797		6	0		~1448
Queue Length 95th (ft)		#683	m7	m#1773		20	5		#1687
Internal Link Dist (ft)		914		947		293			729
Turn Bay Length (ft)			315						
Base Capacity (vph)		406	340	833		676	746		635
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		1.17	0.05	1.83		0.02	0.05		1.93

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 109 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

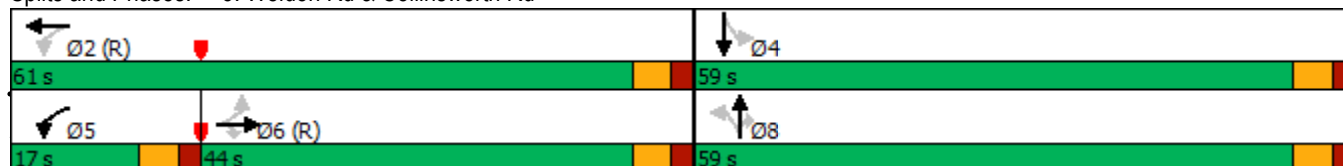
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

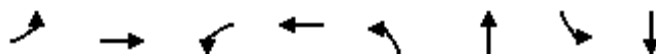
3: Weldon Rd & Collinsworth Rd

4b. No-Build 2038 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	412	0	14	476	880	8	5	34	1079	0	13
Future Volume (veh/h)	10	412	0	14	476	880	8	5	34	1079	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	463	0	16	535	989	9	6	38	1212	0	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	455	633	156	272	503	522	337	707	655	0	7
Arrive On Green	0.40	0.40	0.00	0.02	0.62	0.62	0.45	0.45	0.45	0.45	0.00	0.45
Sat Flow, veh/h	0	1139	1585	1781	588	1087	1062	755	1585	1334	0	17
Grp Volume(v), veh/h	474	0	0	16	0	1524	15	0	38	1227	0	0
Grp Sat Flow(s),veh/h/ln	1139	0	1585	1781	0	1675	1817	0	1585	1351	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	55.5	0.0	0.0	1.6	53.0	0.0	0.0
Cycle Q Clear(g_c), s	47.9	0.0	0.0	0.6	0.0	55.5	0.5	0.0	1.6	53.5	0.0	0.0
Prop In Lane	0.02		1.00	1.00		0.65	0.60		1.00	0.99		0.01
Lane Grp Cap(c), veh/h	486	0	633	156	0	775	858	0	707	662	0	0
V/C Ratio(X)	0.98	0.00	0.00	0.10	0.00	1.97	0.02	0.00	0.05	1.85	0.00	0.00
Avail Cap(c_a), veh/h	486	0	633	296	0	775	858	0	707	662	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	0.09	0.00	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.4	0.0	0.0	19.3	0.0	23.1	18.6	0.0	18.9	35.9	0.0	0.0
Incr Delay (d2), s/veh	35.3	0.0	0.0	0.0	0.0	435.8	0.0	0.0	0.0	390.0	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.6	0.0	0.0	0.4	0.0	162.8	0.4	0.0	1.1	145.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.7	0.0	0.0	19.4	0.0	458.9	18.6	0.0	18.9	425.9	0.0	0.0
LnGrp LOS	E	A	A	B	A	F	B	A	B	F	A	A
Approach Vol, veh/h		474			1540			53			1227	
Approach Delay, s/veh		74.7			454.4			18.8			425.9	
Approach LOS		E			F			B			F	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		61.0		59.0	7.6	53.4		59.0				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		55.5		53.5	11.5	38.5		53.5				
Max Q Clear Time (g_c+I1), s		57.5		55.5	2.6	49.9		3.6				
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				382.1								
HCM 6th LOS				F								

Timings 4: SR 14/US 29 (Main St) & Toombs St

4b. No-Build 2038 PM
08/31/2023

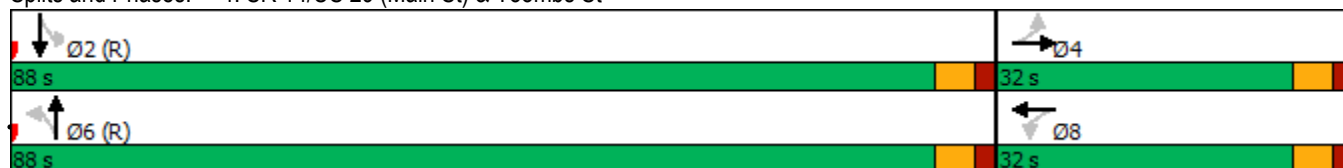


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	128	330	33	396	51	516	171	758
Future Volume (vph)	128	330	33	396	51	516	171	758
Lane Group Flow (vph)	0	568	0	669	0	654	0	1176
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	32.0	32.0	32.0	32.0	88.0	88.0	88.0	88.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		4.27		1.81		0.64		1.24
Control Delay		1502.5		404.9		14.1		138.1
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		1502.5		404.9		14.1		138.1
Queue Length 50th (ft)		~817		~779		255		~1133
Queue Length 95th (ft)		#950		#1014		376		#1397
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		133		369		1016		949
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		4.27		1.81		0.64		1.24

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: 150
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

4b. No-Build 2038 PM

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	330	53	33	396	173	51	516	22	171	758	130
Future Volume (veh/h)	128	330	53	33	396	173	51	516	22	171	758	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	142	367	59	37	440	192	57	573	24	190	842	144
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	83	126	20	46	258	110	90	871	35	183	699	118
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	204	572	90	66	1170	498	83	1266	51	216	1017	172
Grp Volume(v), veh/h	568	0	0	669	0	0	654	0	0	1176	0	0
Grp Sat Flow(s),veh/h/ln	866	0	0	1734	0	0	1401	0	0	1405	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.3	0.0	0.0
Cycle Q Clear(g_c), s	26.5	0.0	0.0	26.5	0.0	0.0	22.2	0.0	0.0	82.5	0.0	0.0
Prop In Lane	0.25		0.10	0.06		0.29	0.09		0.04	0.16		0.12
Lane Grp Cap(c), veh/h	229	0	0	415	0	0	996	0	0	1001	0	0
V/C Ratio(X)	2.48	0.00	0.00	1.61	0.00	0.00	0.66	0.00	0.00	1.17	0.00	0.00
Avail Cap(c_a), veh/h	229	0	0	415	0	0	996	0	0	1001	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.6	0.0	0.0	47.6	0.0	0.0	9.2	0.0	0.0	21.2	0.0	0.0
Incr Delay (d2), s/veh	680.3	0.0	0.0	287.1	0.0	0.0	3.4	0.0	0.0	89.4	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	81.3	0.0	0.0	70.0	0.0	0.0	13.8	0.0	0.0	73.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	728.9	0.0	0.0	334.8	0.0	0.0	12.6	0.0	0.0	110.6	0.0	0.0
LnGrp LOS	F	A	A	F	A	A	B	A	A	F	A	A
Approach Vol, veh/h	568		669				654		1176			
Approach Delay, s/veh	728.9		334.8				12.6		110.6			
Approach LOS	F		F				B		F			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	88.0		32.0		88.0		32.0					
Change Period (Y+Rc), s	5.5		5.5		5.5		5.5					
Max Green Setting (Gmax), s	82.5		26.5		82.5		26.5					
Max Q Clear Time (g_c+I1), s	84.5		28.5		24.2		28.5					
Green Ext Time (p_c), s	0.0		0.0		13.6		0.0					
Intersection Summary												
HCM 6th Ctrl Delay	253.1											
HCM 6th LOS	F											

Intersection

Intersection Delay, s/veh 124.6

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	38	87	49	674	641	36
Future Vol, veh/h	38	87	49	674	641	36
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	93	52	717	682	38
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	13.9	120.6	149.2
HCM LOS	B	F	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	0%	95%
Vol Thru, %	70%	7%	0%
Vol Right, %	0%	93%	5%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	723	677
LT Vol	38	0	641
Through Vol	87	49	0
RT Vol	0	674	36
Lane Flow Rate	133	769	720
Geometry Grp	1	1	1
Degree of Util (X)	0.262	1.182	1.25
Departure Headway (Hd)	8.079	6.183	6.704
Convergence, Y/N	Yes	Yes	Yes
Cap	448	592	547
Service Time	6.079	4.183	4.704
HCM Lane V/C Ratio	0.297	1.299	1.316
HCM Control Delay	13.9	120.6	149.2
HCM Lane LOS	B	F	F
HCM 95th-tile Q	1	24	26.3

Intersection						
Int Delay, s/veh	574.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	257	354	614	560	109
Future Vol, veh/h	87	257	354	614	560	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	299	412	714	651	127
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1126	0	-	0	1270	769
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	501	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	620	-	-	-	~ 186	401
Stage 1	-	-	-	-	~ 457	-
Stage 2	-	-	-	-	~ 609	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	620	-	-	-	~ 150	401
Mov Cap-2 Maneuver	-	-	-	-	~ 150	-
Stage 1	-	-	-	-	~ 368	-
Stage 2	-	-	-	-	~ 609	-
Approach	EB	WB		SB		
HCM Control Delay, s	3	0		\$ 1699.7		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	620	-	-	-	167	
HCM Lane V/C Ratio	0.163	-	-	-	4.658	
HCM Control Delay (s)	11.9	0	-	-	\$ 1699.7	
HCM Lane LOS	B	A	-	-	F	
HCM 95th %tile Q(veh)	0.6	-	-	-	80	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	609.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	408	144	440	436	102	475
Future Vol, veh/h	408	144	440	436	102	475
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	480	169	518	513	120	559
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1574	775	0	0	1031	0
Stage 1	775	-	-	-	-	-
Stage 2	799	-	-	-	-	-
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	~ 121	398	-	-	674	-
Stage 1	~ 454	-	-	-	-	-
Stage 2	~ 443	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 90	398	-	-	674	-
Mov Cap-2 Maneuver	~ 90	-	-	-	-	-
Stage 1	~ 454	-	-	-	-	-
Stage 2	~ 329	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, \$	2210.9	0		2		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	113	674	-	
HCM Lane V/C Ratio	-	-	5.747	0.178	-	
HCM Control Delay (s)	-	\$ 2210.9		11.5	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q(veh)	-	-	70.5	0.6	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Vol, veh/h	3	204	155	375	887	3	203	36	344	8	45	5
Future Vol, veh/h	3	204	155	375	887	3	203	36	344	8	45	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	210	-	-	250	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	224	170	412	975	3	223	40	378	9	49	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	975	0	0	224	0	0	2054	2029	224	2049	2029	975
Stage 1	-	-	-	-	-	-	230	230	-	1799	1799	-
Stage 2	-	-	-	-	-	-	1824	1799	-	250	230	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	707	-	-	1345	-	-	~ 41	57	815	41	57	305
Stage 1	-	-	-	-	-	-	773	714	-	102	132	-
Stage 2	-	-	-	-	-	-	~ 99	132	-	754	714	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	707	-	-	1345	-	-	-	~ 19	815	-	~ 19	305
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 19	-	-	~ 19	-
Stage 1	-	-	-	-	-	-	768	710	-	101	~ 43	-
Stage 2	-	-	-	-	-	-	-	43	-	379	710	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			2.6								
HCM LOS							-			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	707	-	-	1345	-	-	-				
HCM Lane V/C Ratio	-	0.005	-	-	0.306	-	-	-				
HCM Control Delay (s)	-	10.1	0	-	8.9	0	-	-				
HCM Lane LOS	-	B	A	-	A	A	-	-				
HCM 95th %tile Q(veh)	-	0	-	-	1.3	-	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	22.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	441	64	14	1085	26	166	26	0	8	8	0
Future Vol, veh/h	0	441	64	14	1085	26	166	26	0	8	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	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	0	479	70	15	1179	28	180	28	0	9	9	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1179	0	0	479	0	0	1693	1688	240	1463	1688	-
Stage 1	-	-	-	-	-	-	479	479	-	1209	1209	-
Stage 2	-	-	-	-	-	-	1214	1209	-	254	479	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	590	-	-	1082	-	-	~ 67	93	762	98	93	0
Stage 1	-	-	-	-	-	-	537	554	-	223	255	0
Stage 2	-	-	-	-	-	-	221	255	-	729	554	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	590	-	-	1082	-	-	~ 62	92	762	86	92	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 160	192	-	86	92	-
Stage 1	-	-	-	-	-	-	537	554	-	223	251	-
Stage 2	-	-	-	-	-	-	210	251	-	692	554	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	216.1	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	164	590	-	-	1082	-	-	86	-
HCM Lane V/C Ratio	1.273	-	-	-	0.014	-	-	0.101	-
HCM Control Delay (s)	216.1	0	-	-	8.4	-	-	51.5	-
HCM Lane LOS	F	A	-	-	A	-	-	F	-
HCM 95th %tile Q(veh)	12.1	0	-	-	0	-	-	0.3	-

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

Timings

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

4b. No-Build 2038 PM

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	52	410	14	292	1002	8	5	499	7	528
Future Volume (vph)	52	410	14	292	1002	8	5	499	7	528
Lane Group Flow (vph)	54	427	15	304	1044	8	5	779	7	605
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	15.0	29.0	29.0	31.0	45.0	45.0	60.0	60.0	60.0	60.0
Total Split (%)	12.5%	24.2%	24.2%	25.8%	37.5%	37.5%	50.0%	50.0%	50.0%	50.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.45	0.55	0.03	0.87	0.81	0.01	0.03	0.97	0.11	0.74
Control Delay	64.9	45.6	0.1	71.6	41.4	0.0	19.0	56.8	24.6	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	45.6	0.1	71.6	41.4	0.0	19.0	56.8	24.6	33.4
Queue Length 50th (ft)	41	160	0	226	400	0	2	553	3	369
Queue Length 95th (ft)	83	216	0	#366	#525	0	10	#825	15	513
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	140	777	443	376	1296	626	174	818	63	837
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.55	0.03	0.81	0.81	0.01	0.03	0.95	0.11	0.72

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

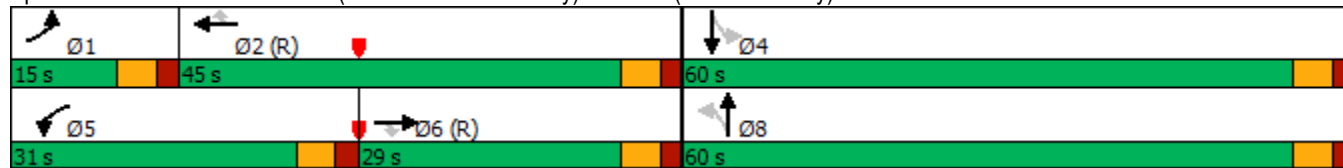
Natural Cycle: 100

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

4b. No-Build 2038 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	410	14	292	1002	8	5	499	249	7	528	53
Future Volume (veh/h)	52	410	14	292	1002	8	5	499	249	7	528	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	427	0	304	1044	0	5	520	259	7	550	55
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	70	788		332	1312		212	535	266	76	760	76
Arrive On Green	0.04	0.22	0.00	0.19	0.37	0.00	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	815	1178	587	693	1673	167
Grp Volume(v), veh/h	54	427	0	304	1044	0	5	0	779	7	0	605
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	815	0	1765	693	0	1840
Q Serve(g_s), s	3.6	12.8	0.0	20.1	31.5	0.0	0.6	0.0	51.8	1.2	0.0	32.1
Cycle Q Clear(g_c), s	3.6	12.8	0.0	20.1	31.5	0.0	32.7	0.0	51.8	53.0	0.0	32.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.09
Lane Grp Cap(c), veh/h	70	788		332	1312		212	0	801	76	0	836
V/C Ratio(X)	0.77	0.54		0.92	0.80		0.02	0.00	0.97	0.09	0.00	0.72
Avail Cap(c_a), veh/h	141	788		379	1312		212	0	801	76	0	836
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	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	57.1	41.3	0.0	47.9	33.8	0.0	39.9	0.0	32.0	57.9	0.0	26.6
Incr Delay (d2), s/veh	16.5	2.7	0.0	24.6	5.1	0.0	0.0	0.0	25.0	0.5	0.0	3.1
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	3.4	9.5	0.0	16.1	19.5	0.0	0.2	0.0	33.6	0.4	0.0	19.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.6	44.0	0.0	72.4	38.9	0.0	40.0	0.0	57.0	58.4	0.0	29.8
LnGrp LOS	E	D		E	D		D	A	E	E	A	C
Approach Vol, veh/h	481			1348			784			612		
Approach Delay, s/veh	47.3			46.4			56.9			30.1		
Approach LOS	D			D			E			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	49.8		60.0	27.9	32.1		60.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	39.5		54.5	25.5	23.5		54.5				
Max Q Clear Time (g_c+I1), s	5.6	33.5		55.0	22.1	14.8		53.8				
Green Ext Time (p_c), s	0.0	4.3		0.0	0.3	2.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

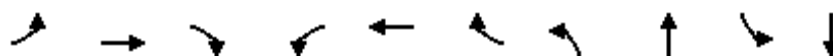
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	65	742	68	376	1336	216	80	260	142	195
Future Volume (vph)	65	742	68	376	1336	216	80	260	142	195
Lane Group Flow (vph)	71	807	74	409	1452	235	87	595	154	279
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	48.0	48.0	34.0	67.0	67.0	15.0	53.0	15.0	53.0
Total Split (%)	10.0%	32.0%	32.0%	22.7%	44.7%	44.7%	10.0%	35.3%	10.0%	35.3%
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	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
v/c Ratio	0.48	0.82	0.13	1.00	0.97	0.32	0.24	1.03	0.94	0.48
Control Delay	35.1	58.3	0.5	81.7	28.0	1.3	28.8	91.4	93.1	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	58.3	0.5	81.7	28.0	1.3	28.8	91.4	93.1	42.5
Queue Length 50th (ft)	35	390	0	~293	700	0	52	~593	101	212
Queue Length 95th (ft)	68	472	0	m276	m640	m3	90	#836	#250	305
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	165	983	556	407	1495	732	375	578	163	586
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.82	0.13	1.00	0.97	0.32	0.23	1.03	0.94	0.48

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 143 (95%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

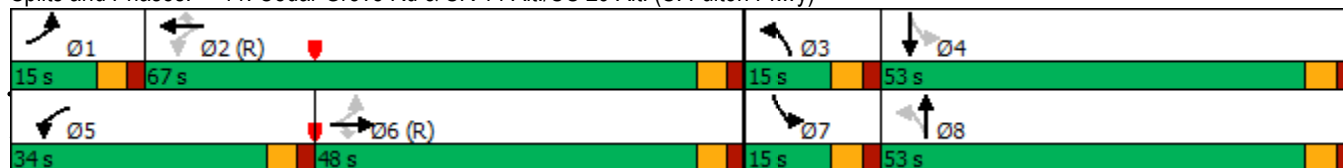
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	742	68	376	1336	216	80	260	287	142	195	62
Future Volume (veh/h)	65	742	68	376	1336	216	80	260	287	142	195	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	71	807	0	409	1452	0	87	283	312	154	212	67
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	136	1024		430	1557		369	259	286	162	464	147
Arrive On Green	0.04	0.29	0.00	0.18	0.43	0.00	0.04	0.32	0.32	0.06	0.34	0.34
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	819	903	1795	1384	437
Grp Volume(v), veh/h	71	807	0	409	1452	0	87	0	595	154	0	279
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	0	1723	1795	0	1821
Q Serve(g_s), s	4.1	31.8	0.0	24.8	57.8	0.0	4.8	0.0	47.5	8.8	0.0	18.0
Cycle Q Clear(g_c), s	4.1	31.8	0.0	24.8	57.8	0.0	4.8	0.0	47.5	8.8	0.0	18.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.52	1.00		0.24
Lane Grp Cap(c), veh/h	136	1024		430	1557		369	0	545	162	0	611
V/C Ratio(X)	0.52	0.79		0.95	0.93		0.24	0.00	1.09	0.95	0.00	0.46
Avail Cap(c_a), veh/h	181	1024		447	1557		403	0	545	162	0	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	40.4	48.7	0.0	37.1	40.3	0.0	33.0	0.0	51.3	39.6	0.0	39.1
Incr Delay (d2), s/veh	3.1	6.1	0.0	29.9	11.6	0.0	0.3	0.0	65.6	56.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	20.4	0.0	20.1	34.8	0.0	3.8	0.0	41.0	10.4	0.0	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.4	54.9	0.0	67.1	51.9	0.0	33.3	0.0	116.8	96.1	0.0	39.7
LnGrp LOS	D	D		E	D		C	A	F	F	A	D
Approach Vol, veh/h	878				1861				682			
Approach Delay, s/veh	53.9				55.2				106.2			
Approach LOS	D				E				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	70.7	12.2	55.8	32.6	49.4	15.0	53.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	61.5	9.5	47.5	28.5	42.5	9.5	47.5				
Max Q Clear Time (g_c+I1), s	6.1	59.8	6.8	20.0	26.8	33.8	10.8	49.5				
Green Ext Time (p_c), s	0.0	1.5	0.0	1.5	0.2	4.8	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	64.5
HCM 6th LOS	E

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	603	276	251	1300	913	196	1210	52	594	840	225
Future Volume (vph)	373	603	276	251	1300	913	196	1210	52	594	840	225
Lane Group Flow (vph)	385	622	285	259	1340	941	202	1247	54	612	866	232
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	19.0	51.5	51.5	24.0	56.5	56.5	17.0	53.5	53.5	21.0	57.5	57.5
Total Split (%)	12.7%	34.3%	34.3%	16.0%	37.7%	37.7%	11.3%	35.7%	35.7%	14.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.82	0.58	0.47	0.74	1.10	1.45	1.47	1.11	0.10	1.83	0.75	0.35
Control Delay	416.7	31.7	9.2	25.6	83.1	227.3	293.3	109.8	0.6	418.6	48.4	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	416.7	31.7	9.2	25.6	83.1	227.3	293.3	109.8	0.6	418.6	48.4	8.8
Queue Length 50th (ft)	~505	297	63	0	~777	~1127	~271	~732	0	~464	394	25
Queue Length 95th (ft)	m#615	m290	m61	m74	m#712	m#1046	#439	#873	3	#588	476	91
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	211	1074	602	366	1215	649	137	1121	554	335	1148	670
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.82	0.58	0.47	0.71	1.10	1.45	1.47	1.11	0.10	1.83	0.75	0.35

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 140 (93%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

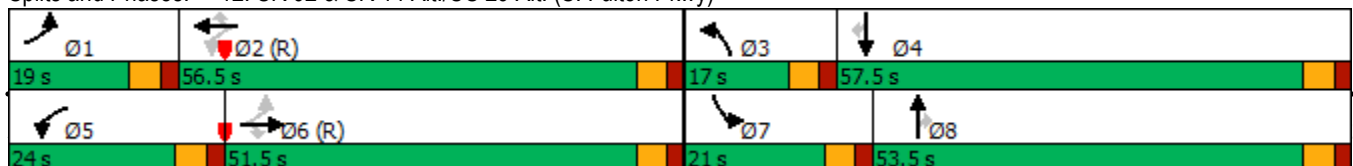
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	373	603	276	251	1300	913	196	1210	52	594	840	225
Future Volume (veh/h)	373	603	276	251	1300	913	196	1210	52	594	840	225
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1811	1870	1841	1885	1856	1885	1856	1811	1781	1767	1856
Adj Flow Rate, veh/h	385	622	285	259	1340	941	202	1247	0	612	866	232
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, %	1	6	2	4	1	3	1	3	6	8	9	3
Cap, veh/h	210	1091	502	347	1218	535	138	1128		340	1164	545
Arrive On Green	0.09	0.32	0.32	0.11	0.34	0.34	0.08	0.32	0.00	0.10	0.35	0.35
Sat Flow, veh/h	1795	3441	1585	1753	3582	1572	1795	3526	1535	3291	3357	1572
Grp Volume(v), veh/h	385	622	285	259	1340	941	202	1247	0	612	866	232
Grp Sat Flow(s),veh/h/ln	1795	1721	1585	1753	1791	1572	1795	1763	1535	1646	1678	1572
Q Serve(g_s), s	13.5	22.6	22.5	14.8	51.0	51.0	11.5	48.0	0.0	15.5	34.1	17.0
Cycle Q Clear(g_c), s	13.5	22.6	22.5	14.8	51.0	51.0	11.5	48.0	0.0	15.5	34.1	17.0
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	210	1091	502	347	1218	535	138	1128		340	1164	545
V/C Ratio(X)	1.84	0.57	0.57	0.75	1.10	1.76	1.47	1.11		1.80	0.74	0.43
Avail Cap(c_a), veh/h	210	1091	502	365	1218	535	138	1128		340	1164	545
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	42.7	42.7	31.6	49.5	49.5	69.3	51.0	0.0	67.3	43.1	37.6
Incr Delay (d2), s/veh	394.6	2.2	4.6	7.8	57.8	349.6	245.5	60.5	0.0	371.3	2.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	44.7	14.7	14.1	11.0	43.3	111.0	23.3	41.2	0.0	38.0	20.1	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	440.9	44.9	47.2	39.4	107.3	399.1	314.8	111.5	0.0	438.5	45.8	38.1
LnGrp LOS	F	D	D	D	F	F	F	F		F	D	D
Approach Vol, veh/h	1292				2540				1449			
Approach Delay, s/veh	163.4				208.5				139.9			
Approach LOS	F				F				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	56.5	17.0	57.5	22.4	53.1	21.0	53.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	13.5	51.0	11.5	52.0	18.5	46.0	15.5	48.0				
Max Q Clear Time (g_c+I1), s	15.5	53.0	13.5	36.1	16.8	24.6	17.5	50.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	5.5	0.1	8.9	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 180.3

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	105	1114	78	164	2295	156	101	61	85	126
Future Volume (vph)	105	1114	78	164	2295	156	101	61	85	126
Lane Group Flow (vph)	107	1137	80	167	2342	159	103	155	87	310
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	97.5	97.5	82.5	82.5	82.5	52.5	52.5	52.5	52.5
Total Split (%)	10.0%	65.0%	65.0%	55.0%	55.0%	55.0%	35.0%	35.0%	35.0%	35.0%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.63	0.45	0.07	0.56	1.06	0.16	1.51	0.42	0.46	0.82
Control Delay	42.6	3.8	0.3	9.6	42.4	2.2	330.6	36.4	59.4	65.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	3.8	0.3	9.6	42.4	2.2	330.6	36.4	59.4	65.9
Queue Length 50th (ft)	52	97	1	38	~1295	10	~140	88	76	252
Queue Length 95th (ft)	m52	m135	m6	m40	m#1021	m9	#243	146	124	335
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	179	2542	1201	296	2210	1002	110	566	306	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.45	0.07	0.56	1.06	0.16	0.94	0.27	0.28	0.54

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 149 (99%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1114	78	164	2295	156	101	61	91	85	126	177
Future Volume (veh/h)	105	1114	78	164	2295	156	101	61	91	85	126	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	107	1137	80	167	2342	159	103	62	93	87	129	181
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	128	2293	1056	276	2035	900	168	179	268	289	194	272
Arrive On Green	0.05	0.66	0.66	0.57	0.57	0.57	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1739	3497	1610	466	3554	1572	1086	659	989	1232	715	1004
Grp Volume(v), veh/h	107	1137	80	167	2342	159	103	0	155	87	0	310
Grp Sat Flow(s),veh/h/ln	1739	1749	1610	466	1777	1572	1086	0	1648	1232	0	1719
Q Serve(g_s), s	5.0	24.9	2.7	42.8	85.9	7.2	14.0	0.0	11.4	9.2	0.0	24.0
Cycle Q Clear(g_c), s	5.0	24.9	2.7	55.2	85.9	7.2	38.0	0.0	11.4	20.5	0.0	24.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.58
Lane Grp Cap(c), veh/h	128	2293	1056	276	2035	900	168	0	447	289	0	466
V/C Ratio(X)	0.83	0.50	0.08	0.60	1.15	0.18	0.61	0.00	0.35	0.30	0.00	0.66
Avail Cap(c_a), veh/h	158	2293	1056	276	2035	900	214	0	516	341	0	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.7	13.2	9.4	30.5	32.1	15.2	65.5	0.0	44.0	52.2	0.0	48.6
Incr Delay (d2), s/veh	25.7	0.8	0.1	9.5	74.1	0.4	3.6	0.0	0.5	0.6	0.0	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	8.5	13.9	1.6	9.0	73.8	4.6	7.2	0.0	8.2	5.1	0.0	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.5	14.0	9.5	39.9	106.1	15.7	69.1	0.0	44.4	52.8	0.0	51.1
LnGrp LOS	E	B	A	D	F	B	E	A	D	D	A	D
Approach Vol, veh/h	1324		2668			258			397			
Approach Delay, s/veh	18.3		96.6			54.3			51.5			
Approach LOS	B		F			D			D			
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	12.4	91.4	46.2		103.8		46.2					
Change Period (Y+Rc), s	5.5	5.5	5.5		5.5		5.5					
Max Green Setting (Gmax), s	9.5	77.0	47.0		92.0		47.0					
Max Q Clear Time (g_c+l1), s	7.0	87.9	26.0		26.9		40.0					
Green Ext Time (p_c), s	0.0	0.0	2.0		22.8		0.7					
Intersection Summary												
HCM 6th Ctrl Delay	68.1											
HCM 6th LOS	E											

Timings

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	174	513	539	33	1907	75	432	304	70	57	200
Future Volume (vph)	174	513	539	33	1907	75	432	304	70	57	200
Lane Group Flow (vph)	183	540	567	35	2007	79	455	320	74	60	490
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	73.0	73.0	73.0	73.0	73.0	73.0	62.0	62.0	62.0	15.0	77.0
Total Split (%)	48.7%	48.7%	48.7%	48.7%	48.7%	48.7%	41.3%	41.3%	41.3%	10.0%	51.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	3.66	0.37	0.57	0.11	1.24	0.10	1.59	0.43	0.11	0.14	0.60
Control Delay	1255.5	19.7	4.7	7.0	131.9	1.0	311.6	36.0	8.5	22.2	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1255.5	19.7	4.7	7.0	131.9	1.0	311.6	36.0	8.5	22.2	32.5
Queue Length 50th (ft)	~316	93	69	10	~1286	9	~647	234	5	31	344
Queue Length 95th (ft)	#480	125	103	m3	#1396	m0	#869	328	40	59	465
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	50	1463	997	326	1624	758	287	743	659	425	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	3.66	0.37	0.57	0.11	1.24	0.10	1.59	0.43	0.11	0.14	0.60

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 61 (41%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

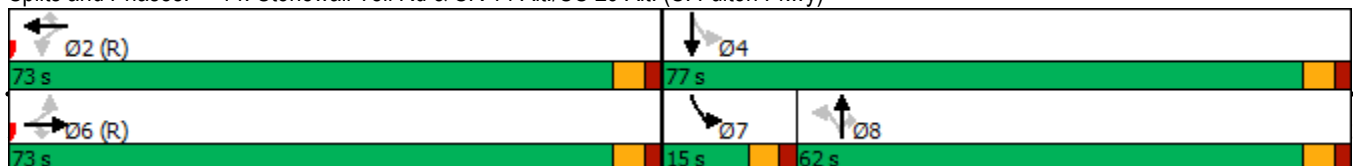
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	513	539	33	1907	75	432	304	70	57	200	265
Future Volume (veh/h)	174	513	539	33	1907	75	432	304	70	57	200	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	183	540	567	35	2007	79	455	320	0	60	211	279
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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	48	1593	771	245	1742	777	243	705		370	327	432
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.38	0.38	0.00	0.03	0.44	0.44
Sat Flow, veh/h	198	3300	1598	517	3610	1610	885	1870	1560	1810	736	974
Grp Volume(v), veh/h	183	540	567	35	2007	79	455	320	0	60	0	490
Grp Sat Flow(s),veh/h/ln	198	1650	1598	517	1805	1610	885	1870	1560	1810	0	1710
Q Serve(g_s), s	0.0	15.2	42.7	6.7	72.4	4.0	33.1	19.3	0.0	3.0	0.0	33.5
Cycle Q Clear(g_c), s	72.4	15.2	42.7	21.9	72.4	4.0	56.5	19.3	0.0	3.0	0.0	33.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	48	1593	771	245	1742	777	243	705		370	0	759
V/C Ratio(X)	3.81	0.34	0.74	0.14	1.15	0.10	1.87	0.45		0.16	0.00	0.65
Avail Cap(c_a), veh/h	48	1593	771	245	1742	777	243	705		430	0	815
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	0.25	0.25	0.25	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	75.0	24.0	31.1	30.8	38.8	21.1	61.7	35.2	0.0	27.6	0.0	32.5
Incr Delay (d2), s/veh	1314.6	0.6	6.2	0.3	70.2	0.1	406.9	0.5	0.0	0.2	0.0	1.6
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	34.8	9.7	24.1	1.5	58.7	2.5	61.6	13.7	0.0	2.4	0.0	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1389.6	24.6	37.3	31.1	109.0	21.2	468.6	35.6	0.0	27.8	0.0	34.1
LnGrp LOS	F	C	D	C	F	C	F	D		C	A	C
Approach Vol, veh/h	1290				2121				775			
Approach Delay, s/veh	223.8				104.5				289.8			
Approach LOS	F				F				F			
Timer - Assigned Phs	2			4			6		7		8	
Phs Duration (G+Y+Rc), s	77.9			72.1			77.9		10.1		62.0	
Change Period (Y+Rc), s	5.5			5.5			5.5		5.5		5.5	
Max Green Setting (Gmax), s	67.5			71.5			67.5		9.5		56.5	
Max Q Clear Time (g_c+I1), s	74.4			35.5			74.4		5.0		58.5	
Green Ext Time (p_c), s	0.0			3.4			0.0		0.0		0.0	

Intersection Summary

HCM 6th Ctrl Delay	159.1
HCM 6th LOS	F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4b. No-Build 2038 PM

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	75	393	188	134	1836	53	56	95	135	195	81
Future Volume (vph)	75	393	188	134	1836	53	56	95	135	195	81
Lane Group Flow (vph)	79	414	198	141	1933	56	0	159	142	205	202
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	76.5	76.5	15.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	51.0%	51.0%	10.0%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.55	0.22	0.20	0.25	0.93	0.07		0.56	0.30	0.92	0.45
Control Delay	38.9	11.5	6.0	11.1	38.1	4.6		55.8	11.0	96.0	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	38.9	11.5	6.0	11.1	38.1	4.6		55.8	11.0	96.0	36.9
Queue Length 50th (ft)	15	126	66	45	861	0		137	17	197	126
Queue Length 95th (ft)	82	197	118	95	#1303	24		192	66	274	181
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	160	1867	1009	571	2082	789		410	636	325	628
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.49	0.22	0.20	0.25	0.93	0.07		0.39	0.22	0.63	0.32

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

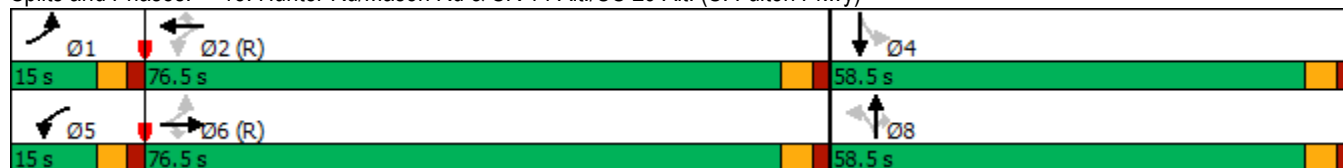
Natural Cycle: 150

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4b. No-Build 2038 PM
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	393	188	134	1836	53	56	95	135	195	81	111
Future Volume (veh/h)	75	393	188	134	1836	53	56	95	135	195	81	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	79	414	198	141	1933	0	59	100	0	205	85	117
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	123	1854	905	488	2082		124	193		276	197	271
Arrive On Green	0.03	0.57	0.57	0.05	0.59	0.00	0.27	0.27	0.00	0.27	0.27	0.27
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	335	710	1585	1162	724	997
Grp Volume(v), veh/h	79	414	198	141	1933	0	159	0	0	205	0	202
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1045	0	1585	1162	0	1721
Q Serve(g_s), s	2.9	9.4	9.2	5.7	74.1	0.0	11.2	0.0	0.0	11.6	0.0	14.5
Cycle Q Clear(g_c), s	2.9	9.4	9.2	5.7	74.1	0.0	25.7	0.0	0.0	37.2	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	0.37		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	123	1854	905	488	2082		317	0		276	0	468
V/C Ratio(X)	0.64	0.22	0.22	0.29	0.93		0.50	0.00		0.74	0.00	0.43
Avail Cap(c_a), veh/h	176	1854	905	507	2082		431	0		370	0	608
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)	0.96	0.96	0.96	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.0	16.1	16.1	12.4	28.2	0.0	51.2	0.0	0.0	55.8	0.0	45.0
Incr Delay (d2), s/veh	5.3	0.3	0.5	0.3	8.8	0.0	1.2	0.0	0.0	5.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	6.1	6.0	3.4	39.8	0.0	9.2	0.0	0.0	12.5	0.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	16.4	16.6	12.7	37.0	0.0	52.4	0.0	0.0	61.2	0.0	45.7
LnGrp LOS	D	B	B	B	D		D	A		E	A	D
Approach Vol, veh/h	691				2074				159			
Approach Delay, s/veh	19.2				35.4				52.4			
Approach LOS	B				D				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	93.4		46.3	13.2	90.5		46.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	9.5	71.0		53.0				
Max Q Clear Time (g_c+I1), s	4.9	76.1		39.2	7.7	11.4		27.7				
Green Ext Time (p_c), s	0.1	0.0		1.6	0.1	7.3		0.8				

Intersection Summary

HCM 6th Ctrl Delay	35.0
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	163.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	81	672	835	2068	213
Future Vol, veh/h	38	81	672	835	2068	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	2	4	1	3	2
Mvmt Flow	40	85	707	879	2177	224
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	4031	1089	2177	0	-	0
Stage 1	2177	-	-	-	-	-
Stage 2	1854	-	-	-	-	-
Critical Hdwy	6.88	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 2	211	~ 234	-	-	-
Stage 1	70	-	-	-	-	-
Stage 2	107	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	211	~ 234	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	107	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s		\$ 425		0		
HCM LOS	-					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 234	-	-	211	-	-
HCM Lane V/C Ratio	3.023	-	-	0.404	-	-
HCM Control Delay (s)	\$ 953.1	-	-	33.2	-	-
HCM Lane LOS	F	-	-	D	-	-
HCM 95th %tile Q(veh)	63.4	-	-	1.8	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	627.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	1167	48	824	1115	189
Future Vol, veh/h	85	1167	48	824	1115	189
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	5	0	1	1	3
Mvmt Flow	90	1241	51	877	1186	201
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1828	694	1387	0	-	0
Stage 1	1287	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Critical Hdwy	6.88	7	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.35	2.2	-	-	-
Pot Cap-1 Maneuver	~ 67	~ 378	500	-	-	-
Stage 1	219	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 60	~ 378	500	-	-	-
Mov Cap-2 Maneuver	~ 60	-	-	-	-	-
Stage 1	197	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, \$	1716.9		0.7		0	
HCM LOS	F					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	500		-	281	-	-
HCM Lane V/C Ratio	0.102		-	4.74	-	-
HCM Control Delay (s)	13		\$ 1716.9		-	-
HCM Lane LOS	B		-	F	-	-
HCM 95th %tile Q(veh)	0.3		-	135.1	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

**Future 2038 “No-Build” Intersection Analysis
with Improvements**

Timings 1: I-85 NB Ramps & Collinsworth Rd

4c. No-Build 2038 AM - Improved
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	777	722	707	985	517	547
Future Volume (vph)	777	722	707	985	517	547
Lane Group Flow (vph)	827	768	752	1048	550	582
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	29.0	58.0	29.0	29.0	32.0	32.0
Total Split (%)	32.2%	64.4%	32.2%	32.2%	35.6%	35.6%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.96	0.38	0.85	0.72	0.57	0.99
Control Delay	57.7	16.2	42.0	5.4	29.6	59.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	16.2	42.0	5.4	29.6	59.1
Queue Length 50th (ft)	266	172	213	4	135	238
Queue Length 95th (ft)	#375	230	#307	56	188	#465
Internal Link Dist (ft)		760	934			
Turn Bay Length (ft)	300			250	500	
Base Capacity (vph)	862	2044	889	1460	972	585
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.38	0.85	0.72	0.57	0.99

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

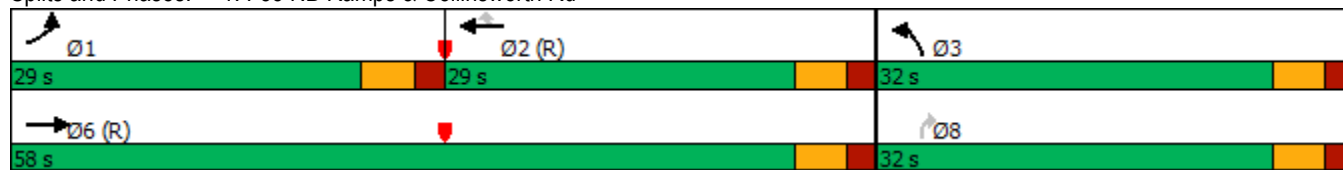
Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

4c. No-Build 2038 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 	 	 					
Traffic Volume (veh/h)	777	722	0	0	707	985	517	0	547	0	0	0
Future Volume (veh/h)	777	722	0	0	707	985	517	0	547	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	827	768	0	0	752	0	550	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	872	2398	0	0	1234		661	0				
Arrive On Green	0.43	1.00	0.00	0.00	0.36	0.00	0.20	0.00	0.00			
Sat Flow, veh/h	3346	3618	0	0	3532	2701	3346	0	1535			
Grp Volume(v), veh/h	827	768	0	0	752	0	550	0	0			
Grp Sat Flow(s),veh/h/ln	1673	1763	0	0	1721	1351	1673	0	1535			
Q Serve(g_s), s	21.4	0.0	0.0	0.0	16.1	0.0	14.2	0.0	0.0			
Cycle Q Clear(g_c), s	21.4	0.0	0.0	0.0	16.1	0.0	14.2	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	872	2398	0	0	1234		661	0				
V/C Ratio(X)	0.95	0.32	0.00	0.00	0.61		0.83	0.00				
Avail Cap(c_a), veh/h	874	2398	0	0	1234		985	0				
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.65	0.65	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	24.8	0.0	0.0	0.0	23.7	0.0	34.7	0.0	0.0			
Incr Delay (d2), s/veh	14.1	0.2	0.0	0.0	2.2	0.0	3.9	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	10.9	0.1	0.0	0.0	10.3	0.0	10.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	0.2	0.0	0.0	25.9	0.0	38.6	0.0	0.0			
LnGrp LOS	D	A	A	A	C		D	A				
Approach Vol, veh/h	1595			752			550					
Approach Delay, s/veh	20.3			25.9			38.6					
Approach LOS	C			C			D					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	28.9	37.8					66.7	23.3				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	23.5	23.5					52.5	26.5				
Max Q Clear Time (g_c+I1), s	23.4	18.1					2.0	16.2				
Green Ext Time (p_c), s	0.0	3.1					11.3	1.6				

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

4c. No-Build 2038 AM - Improved
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↘↙	↑↑	↘↙	↘↙
Traffic Volume (vph)	1325	417	304	980	221	421
Future Volume (vph)	1325	417	304	980	221	421
Lane Group Flow (vph)	1395	439	320	1032	233	443
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6				4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	51.5	51.5	17.0	68.5	21.5	21.5
Total Split (%)	57.2%	57.2%	18.9%	76.1%	23.9%	23.9%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.73	0.44	0.70	0.41	0.52	0.76
Control Delay	11.0	1.3	48.6	5.3	39.8	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	1.3	48.6	5.3	39.8	22.6
Queue Length 50th (ft)	148	1	102	80	64	51
Queue Length 95th (ft)	186	m8	m132	m115	96	103
Internal Link Dist (ft)	965			760		
Turn Bay Length (ft)		500	95		520	500
Base Capacity (vph)	1914	1008	468	2527	587	678
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.44	0.68	0.41	0.40	0.65

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

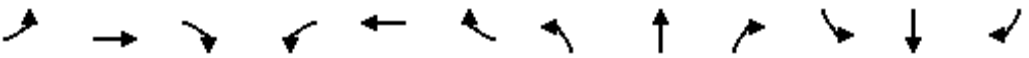
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

4c. No-Build 2038 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘↗	↑↑					↘↗		↘↗
Traffic Volume (veh/h)	0	1325	417	304	980	0	0	0	0	221	0	421
Future Volume (veh/h)	0	1325	417	304	980	0	0	0	0	221	0	421
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	1395	0	320	1032	0				233	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	2146		387	2694	0				318	0	
Arrive On Green	0.00	0.61	0.00	0.23	1.00	0.00				0.09	0.00	0.00
Sat Flow, veh/h	0	3618	1497	3428	3532	0				3346	0	2569
Grp Volume(v), veh/h	0	1395	0	320	1032	0				233	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	1497	1714	1721	0				1673	0	1284
Q Serve(g_s), s	0.0	23.1	0.0	8.0	0.0	0.0				6.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.1	0.0	8.0	0.0	0.0				6.1	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2146		387	2694	0				318	0	
V/C Ratio(X)	0.00	0.65		0.83	0.38	0.00				0.73	0.00	
Avail Cap(c_a), veh/h	0	2146		438	2694	0				595	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.60	0.00	0.61	0.61	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	11.4	0.0	34.0	0.0	0.0				39.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	7.1	0.3	0.0				3.3	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	0.0	10.3	0.0	5.4	0.2	0.0				4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.3	0.0	41.1	0.3	0.0				42.9	0.0	0.0
LnGrp LOS	A	B		D	A	A				D	A	
Approach Vol, veh/h		1395			1352						233	
Approach Delay, s/veh		12.3			9.9						42.9	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		76.0		14.0	15.7	60.3						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		63.0		16.0	11.5	46.0						
Max Q Clear Time (g_c+I1), s		2.0		8.1	10.0	25.1						
Green Ext Time (p_c), s		18.1		0.5	0.2	15.0						
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Collinsworth Rd & Weldon Rd

4c. No-Build 2038 AM - Improved
08/31/2023

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	32	511	278	711	972
Future Volume (vph)	32	511	278	711	972
Lane Group Flow (vph)	33	532	290	741	1029
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	3		1	6	2
Permitted Phases		3			
Detector Phase	3	3	1	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5
Total Split (s)	34.0	34.0	15.0	56.0	41.0
Total Split (%)	37.8%	37.8%	16.7%	62.2%	45.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min
v/c Ratio	0.07	0.90	0.71	0.63	0.65
Control Delay	23.1	35.9	49.0	16.6	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	35.9	49.0	16.6	23.2
Queue Length 50th (ft)	14	155	85	314	255
Queue Length 95th (ft)	34	#317	#153	437	332
Internal Link Dist (ft)	719			965	1393
Turn Bay Length (ft)		365	315		
Base Capacity (vph)	560	676	409	1167	1577
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.79	0.71	0.63	0.65

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Collinsworth Rd & Weldon Rd



HCM 6th Signalized Intersection Summary

3: Collinsworth Rd & Weldon Rd

4c. No-Build 2038 AM - Improved
08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	511	278	711	972	15
Future Volume (veh/h)	32	511	278	711	972	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	290	741	1012	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	56		355	1583	2445	39
Arrive On Green	0.03	0.00	0.21	1.00	0.68	0.68
Sat Flow, veh/h	1781	1585	3456	1870	3674	57
Grp Volume(v), veh/h	33	0	290	741	502	526
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1870	1777	1860
Q Serve(g_s), s	1.6	0.0	7.2	0.0	11.2	11.2
Cycle Q Clear(g_c), s	1.6	0.0	7.2	0.0	11.2	11.2
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	56		355	1583	1213	1270
V/C Ratio(X)	0.59		0.82	0.47	0.41	0.41
Avail Cap(c_a), veh/h	564		365	1583	1213	1270
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.85	0.85	1.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	35.0	0.0	6.3	6.3
Incr Delay (d2), s/veh	9.7	0.0	11.5	0.8	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.0	5.6	0.7	6.1	6.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	0.0	46.5	0.8	7.4	7.3
LnGrp LOS	D		D	A	A	A
Approach Vol, veh/h	33			1031	1028	
Approach Delay, s/veh	52.7			13.7	7.3	
Approach LOS	D			B	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.7	67.0			81.7	8.3
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	9.5	35.5			50.5	28.5
Max Q Clear Time (g_c+I1), s	9.2	13.2			2.0	3.6
Green Ext Time (p_c), s	0.0	11.6			11.7	0.0

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

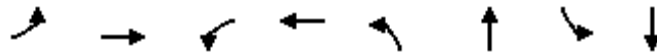
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4: SR 14/US 29 (Main St) & Toombs St

4c. No-Build 2038 AM - Improved

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	154	358	10	248	38	526	148	464
Future Volume (vph)	154	358	10	248	38	526	148	464
Lane Group Flow (vph)	0	628	0	415	0	640	0	784
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	53.0	53.0	53.0	53.0	67.0	67.0	67.0	67.0
Total Split (%)	44.2%	44.2%	44.2%	44.2%	55.8%	55.8%	55.8%	55.8%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		1.34		0.58		0.79		1.37
Control Delay		203.0		30.7		32.4		202.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		203.0		30.7		32.4		202.8
Queue Length 50th (ft)		~648		236		391		~803
Queue Length 95th (ft)		#880		341		560		#1046
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		468		719		814		574
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		1.34		0.58		0.79		1.37

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: 90

Control Type: Actuated-Coordinated

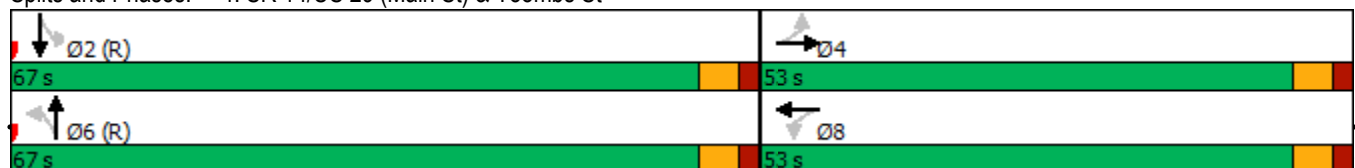
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



23-060 Merrill Park Chattahoochee Hills (DRI #4004)

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HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

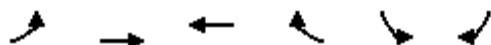
4c. No-Build 2038 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	358	53	10	248	115	38	526	13	148	464	94
Future Volume (veh/h)	154	358	53	10	248	115	38	526	13	148	464	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	171	398	59	11	276	128	42	584	14	164	516	104
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	166	321	47	39	485	220	65	732	17	130	332	65
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	324	811	118	20	1226	556	64	1428	33	184	648	127
Grp Volume(v), veh/h	628	0	0	415	0	0	640	0	0	784	0	0
Grp Sat Flow(s),veh/h/ln	1253	0	0	1802	0	0	1526	0	0	959	0	0
Q Serve(g_s), s	25.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.7	0.0	0.0
Cycle Q Clear(g_c), s	47.5	0.0	0.0	21.7	0.0	0.0	39.8	0.0	0.0	61.5	0.0	0.0
Prop In Lane	0.27		0.09	0.03		0.31	0.07		0.02	0.21		0.13
Lane Grp Cap(c), veh/h	534	0	0	744	0	0	814	0	0	528	0	0
V/C Ratio(X)	1.18	0.00	0.00	0.56	0.00	0.00	0.79	0.00	0.00	1.48	0.00	0.00
Avail Cap(c_a), veh/h	534	0	0	744	0	0	814	0	0	528	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.1	0.0	0.0	28.5	0.0	0.0	23.1	0.0	0.0	34.1	0.0	0.0
Incr Delay (d2), s/veh	97.5	0.0	0.0	0.9	0.0	0.0	7.5	0.0	0.0	228.2	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	44.1	0.0	0.0	14.5	0.0	0.0	22.6	0.0	0.0	77.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	137.6	0.0	0.0	29.4	0.0	0.0	30.7	0.0	0.0	262.3	0.0	0.0
LnGrp LOS	F	A	A	C	A	A	C	A	A	F	A	A
Approach Vol, veh/h		628			415			640			784	
Approach Delay, s/veh		137.6			29.4			30.7			262.3	
Approach LOS		F			C			C			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.0		53.0		67.0		53.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		61.5		47.5		61.5		47.5				
Max Q Clear Time (g_c+I1), s		63.5		49.5		41.8		23.7				
Green Ext Time (p_c), s		0.0		0.0		8.2		2.8				
Intersection Summary												
HCM 6th Ctrl Delay				131.3								
HCM 6th LOS				F								

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	47	78	40	476	738	26
Future Vol, veh/h	47	78	40	476	738	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	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	48	80	41	491	761	27
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1348	775	761	0	-	0
Stage 1	775	-	-	-	-	-
Stage 2	573	-	-	-	-	-
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	166	398	851	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	398	851	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	424	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17.7	0.7		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	851	-	412	-	-	
HCM Lane V/C Ratio	0.048	-	0.313	-	-	
HCM Control Delay (s)	9.4	0	17.7	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-	

Timings 6: Hutchesons Ferry Rd & Cochran Mill Rd

4c. No-Build 2038 AM - Improved
08/31/2023

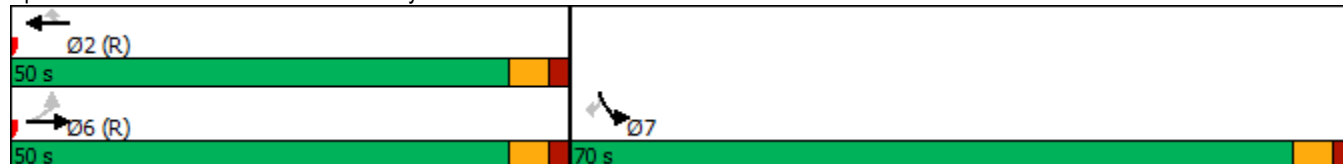


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	369	217	466	579	85
Future Volume (vph)	90	369	217	466	579	85
Lane Group Flow (vph)	95	388	228	491	609	89
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		6	2		7	
Permitted Phases	6			2		7
Detector Phase	6	6	2	2	7	7
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	5.0	5.0
Minimum Split (s)	28.5	28.5	28.5	28.5	15.0	15.0
Total Split (s)	50.0	50.0	50.0	50.0	70.0	70.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.18	0.43	0.25	0.48	0.82	0.13
Control Delay	21.3	23.8	16.3	1.8	52.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	23.8	16.3	1.8	52.2	11.6
Queue Length 50th (ft)	40	190	80	0	485	24
Queue Length 95th (ft)	90	326	m127	m0	525	m29
Internal Link Dist (ft)		2663	3004		3074	
Turn Bay Length (ft)	235			175		175
Base Capacity (vph)	527	909	909	1023	951	886
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.43	0.25	0.48	0.64	0.10

Intersection Summary

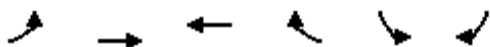
Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hutchesons Ferry Rd & Cochran Mill Rd



HCM 6th Signalized Intersection Summary 6: Hutchesons Ferry Rd & Cochran Mill Rd

4c. No-Build 2038 AM - Improved
08/31/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	369	217	466	579	85
Future Volume (veh/h)	90	369	217	466	579	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	388	228	0	609	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	613	1016	1016		651	579
Arrive On Green	0.54	0.54	0.54	0.00	0.37	0.37
Sat Flow, veh/h	1153	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	95	388	228	0	609	89
Grp Sat Flow(s),veh/h/ln	1153	1870	1870	1585	1781	1585
Q Serve(g_s), s	5.6	14.4	7.6	0.0	39.6	4.5
Cycle Q Clear(g_c), s	13.2	14.4	7.6	0.0	39.6	4.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	613	1016	1016		651	579
V/C Ratio(X)	0.16	0.38	0.22		0.94	0.15
Avail Cap(c_a), veh/h	613	1016	1016		957	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	15.8	14.3	0.0	36.7	25.6
Incr Delay (d2), s/veh	0.5	1.1	0.5	0.0	12.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	10.0	5.7	0.0	25.5	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	16.9	14.8	0.0	48.9	25.7
LnGrp LOS	B	B	B		D	C
Approach Vol, veh/h		483	228		698	
Approach Delay, s/veh		17.2	14.8		46.0	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		70.7		49.3		70.7
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		44.5		64.5		44.5
Max Q Clear Time (g_c+I1), s		9.6		41.6		16.4
Green Ext Time (p_c), s		2.5		2.3		5.3
Intersection Summary						
HCM 6th Ctrl Delay			31.0			
HCM 6th LOS			C			

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
7: Cochran Mill Rd & Wilkerson Mill Rd

4c. No-Build 2038 AM - Improved
08/31/2023

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	386	119	423	388	104	371
Future Volume (vph)	386	119	423	388	104	371
Lane Group Flow (vph)	495	153	542	497	133	476
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		6			2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5	28.5
Total Split (s)	57.0	57.0	63.0	63.0	63.0	63.0
Total Split (%)	47.5%	47.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.84	0.25	0.51	0.46	0.35	0.44
Control Delay	50.0	6.9	16.7	3.7	26.8	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	6.9	16.7	3.7	26.8	25.7
Queue Length 50th (ft)	352	12	198	7	73	287
Queue Length 95th (ft)	348	36	274	29	m106	m344
Internal Link Dist (ft)	2842		3597			3678
Turn Bay Length (ft)		175		175	235	
Base Capacity (vph)	759	753	1072	1091	378	1072
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.20	0.51	0.46	0.35	0.44

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

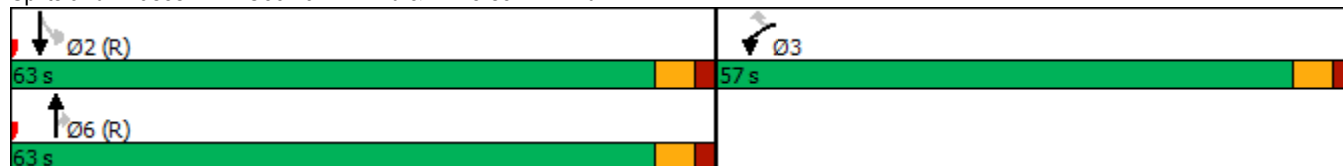
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

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

Splits and Phases: 7: Cochran Mill Rd & Wilkerson Mill Rd



HCM 6th Signalized Intersection Summary
7: Cochran Mill Rd & Wilkerson Mill Rd

4c. No-Build 2038 AM - Improved
08/31/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	386	119	423	388	104	371
Future Volume (veh/h)	386	119	423	388	104	371
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	495	153	542	497	133	476
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	537	478	1135	962	302	1135
Arrive On Green	0.30	0.30	0.61	0.61	0.61	0.61
Sat Flow, veh/h	1781	1585	1870	1585	543	1870
Grp Volume(v), veh/h	495	153	542	497	133	476
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	543	1870
Q Serve(g_s), s	32.3	9.0	19.2	21.5	21.5	16.1
Cycle Q Clear(g_c), s	32.3	9.0	19.2	21.5	40.8	16.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	537	478	1135	962	302	1135
V/C Ratio(X)	0.92	0.32	0.48	0.52	0.44	0.42
Avail Cap(c_a), veh/h	764	680	1135	962	302	1135
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	0.64	0.64
Uniform Delay (d), s/veh	40.5	32.4	13.1	13.5	24.3	12.4
Incr Delay (d2), s/veh	12.9	0.4	1.4	2.0	3.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	21.9	6.1	12.3	11.9	5.1	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.5	32.8	14.5	15.5	27.3	13.2
LnGrp LOS	D	C	B	B	C	B
Approach Vol, veh/h	648		1039			609
Approach Delay, s/veh	48.6		15.0			16.3
Approach LOS	D		B			B
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	78.3		78.3		41.7	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	57.5		57.5		51.5	
Max Q Clear Time (g_c+I1), s	42.8		23.5		34.3	
Green Ext Time (p_c), s	6.0		12.9		1.9	
Intersection Summary						
HCM 6th Ctrl Delay			24.8			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

8: Cochran Mill Rd & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	615	166	269	172	3	144	29	367	1	36	1
Future Volume (veh/h)	0	615	166	269	172	3	144	29	367	1	36	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	699	0	306	195	0	164	33	0	1	41	1
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	60	2682		579	2682		244	38		32	278	7
Arrive On Green	0.00	0.75	0.00	0.75	0.75	0.00	0.15	0.15	0.00	0.15	0.15	0.15
Sat Flow, veh/h	1188	3554	1585	747	3554	1585	1230	247	0	9	1808	43
Grp Volume(v), veh/h	0	699	0	306	195	0	197	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	1188	1777	1585	747	1777	1585	1477	0	0	1860	0	0
Q Serve(g_s), s	0.0	7.2	0.0	25.4	1.7	0.0	13.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.2	0.0	32.6	1.7	0.0	15.5	0.0	0.0	2.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.83		0.00	0.02		0.02
Lane Grp Cap(c), veh/h	60	2682		579	2682		282	0		317	0	0
V/C Ratio(X)	0.00	0.26		0.53	0.07		0.70	0.00		0.14	0.00	0.00
Avail Cap(c_a), veh/h	60	2682		579	2682		521	0		625	0	0
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)	0.00	1.00	0.00	1.00	1.00	0.00	0.89	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.5	0.0	9.5	3.8	0.0	49.3	0.0	0.0	44.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	3.4	0.1	0.0	2.8	0.0	0.0	0.2	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.4	0.0	6.8	0.8	0.0	9.5	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.7	0.0	12.9	3.9	0.0	52.1	0.0	0.0	44.2	0.0	0.0
LnGrp LOS	A	A		B	A		D	A		D	A	A
Approach Vol, veh/h	699			501			197			43		
Approach Delay, s/veh	4.7			9.4			52.1			44.2		
Approach LOS	A			A			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	96.1			23.9			96.1			23.9		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	70.5			38.5			70.5			38.5		
Max Q Clear Time (g_c+l1), s	34.6			4.4			9.2			17.5		
Green Ext Time (p_c), s	7.1			0.2			10.2			0.9		

Intersection Summary

HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
9: Rivertown Rd & SR 70 (S. Fulton Pkwy)

4c. No-Build 2038 AM - Improved
08/31/2023

	→	↘	↙	←	↗	↖	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↑↑	↑	↘	↑	↑	↘	↑	↘	↑
Traffic Volume (vph)	863	100	5	383	8	58	7	23	30
Future Volume (vph)	863	100	5	383	8	58	7	23	30
Lane Group Flow (vph)	948	110	5	421	9	64	8	25	33
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	6			2			8		4
Permitted Phases		6	2		2	8		4	
Detector Phase	6	6	2	2	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	28.5	28.5	28.5	28.5	28.5	30.5	30.5	30.5	30.5
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.32	0.08	0.01	0.27	0.01	0.51	0.05	0.20	0.19
Control Delay	1.7	0.1	1.0	3.9	0.0	65.2	47.7	52.1	51.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	0.1	1.0	3.9	0.0	65.2	47.7	52.1	51.2
Queue Length 50th (ft)	42	0	0	101	0	48	6	18	24
Queue Length 95th (ft)	m53	m0	m1	140	m0	91	21	45	55
Internal Link Dist (ft)	501			2203			1197		1391
Turn Bay Length (ft)		150	285			235		150	
Base Capacity (vph)	2991	1355	463	1574	1342	371	504	379	504
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.08	0.01	0.27	0.01	0.17	0.02	0.07	0.07

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 9: Rivertown Rd & SR 70 (S. Fulton Pkwy)

↙ Ø2 (R)	↘ Ø4
82 s	38 s
↗ Ø6 (R)	↖ Ø8
82 s	38 s

HCM 6th Signalized Intersection Summary
9: Rivertown Rd & SR 70 (S. Fulton Pkwy)

4c. No-Build 2038 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	863	100	5	383	8	58	7	0	23	30	0
Future Volume (veh/h)	0	863	100	5	383	8	58	7	0	23	30	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	948	0	5	421	0	64	8	0	25	33	0
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	60	2947		514	1551		146	148		166	148	
Arrive On Green	0.00	0.83	0.00	1.00	1.00	0.00	0.08	0.08	0.00	0.08	0.08	0.00
Sat Flow, veh/h	966	3554	1585	592	1870	1585	1376	1870	0	1407	1870	0
Grp Volume(v), veh/h	0	948	0	5	421	0	64	8	0	25	33	0
Grp Sat Flow(s),veh/h/ln	966	1777	1585	592	1870	1585	1376	1870	0	1407	1870	0
Q Serve(g_s), s	0.0	7.5	0.0	0.1	0.0	0.0	5.5	0.5	0.0	2.0	2.0	0.0
Cycle Q Clear(g_c), s	0.0	7.5	0.0	7.5	0.0	0.0	7.5	0.5	0.0	2.5	2.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	60	2947		514	1551		146	148		166	148	
V/C Ratio(X)	0.00	0.32		0.01	0.27		0.44	0.05		0.15	0.22	
Avail Cap(c_a), veh/h	60	2947		514	1551		410	507		436	507	
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)	0.00	1.00	0.00	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	2.4	0.0	0.3	0.0	0.0	55.3	51.1	0.0	52.2	51.8	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.4	0.0	2.1	0.1	0.0	0.4	0.8	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	0.0	2.2	0.0	0.0	0.3	0.0	3.5	0.4	0.0	1.3	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.7	0.0	0.3	0.4	0.0	57.3	51.2	0.0	52.7	52.5	0.0
LnGrp LOS	A	A		A	A		E	D		D	D	
Approach Vol, veh/h	948			426			72			58		
Approach Delay, s/veh	2.7			0.4			56.7			52.6		
Approach LOS	A			A			E			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	105.0			15.0			105.0			15.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	76.5			32.5			76.5			32.5		
Max Q Clear Time (g_c+I1), s	9.5			4.5			9.5			9.5		
Green Ext Time (p_c), s	5.4			0.2			16.0			0.2		
Intersection Summary												
HCM 6th Ctrl Delay	6.5											
HCM 6th LOS	A											

Notes

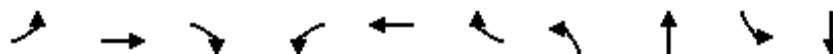
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4c. No-Build 2038 AM - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	48	828	10	201	343	5	7	378	3	403
Future Volume (vph)	48	828	10	201	343	5	7	378	3	403
Lane Group Flow (vph)	51	881	11	214	365	5	7	698	3	467
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	15.0	42.0	42.0	22.0	49.0	49.0	56.0	56.0	56.0	56.0
Total Split (%)	12.5%	35.0%	35.0%	18.3%	40.8%	40.8%	46.7%	46.7%	46.7%	46.7%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.42	0.78	0.02	0.89	0.25	0.01	0.03	0.95	0.05	0.62
Control Delay	60.8	45.2	0.1	87.3	25.7	0.0	21.1	56.6	23.3	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	45.2	0.1	87.3	25.7	0.0	21.1	56.6	23.3	31.9
Queue Length 50th (ft)	40	332	0	165	103	0	3	483	1	273
Queue Length 95th (ft)	84	413	m0	#305	144	0	13	#732	8	385
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	140	1131	590	245	1436	686	233	755	64	777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.78	0.02	0.87	0.25	0.01	0.03	0.92	0.05	0.60

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 90

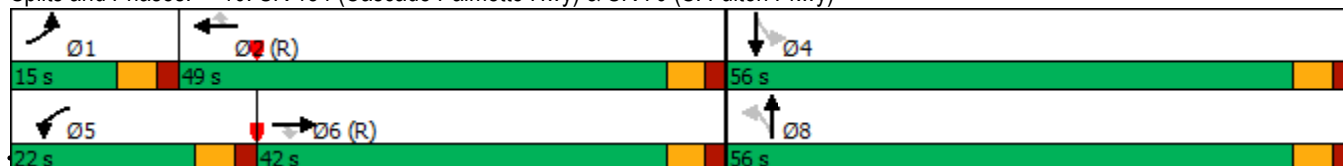
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

4c. No-Build 2038 AM - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	828	10	201	343	5	7	378	278	3	403	36
Future Volume (veh/h)	48	828	10	201	343	5	7	378	278	3	403	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	881	0	214	365	0	7	402	296	3	429	38
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	66	1110		240	1458		261	416	306	77	703	62
Arrive On Green	0.04	0.31	0.00	0.13	0.41	0.00	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	926	1001	737	748	1693	150
Grp Volume(v), veh/h	51	881	0	214	365	0	7	0	698	3	0	467
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	926	0	1738	748	0	1843
Q Serve(g_s), s	3.4	27.2	0.0	14.2	8.1	0.0	0.7	0.0	47.1	0.5	0.0	23.8
Cycle Q Clear(g_c), s	3.4	27.2	0.0	14.2	8.1	0.0	24.5	0.0	47.1	47.6	0.0	23.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.08
Lane Grp Cap(c), veh/h	66	1110		240	1458		261	0	722	77	0	765
V/C Ratio(X)	0.77	0.79		0.89	0.25		0.03	0.00	0.97	0.04	0.00	0.61
Avail Cap(c_a), veh/h	141	1110		245	1458		266	0	731	81	0	776
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)	0.96	0.96	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	57.3	37.7	0.0	51.0	23.3	0.0	37.1	0.0	34.3	57.5	0.0	27.5
Incr Delay (d2), s/veh	16.7	5.6	0.0	30.3	0.4	0.0	0.0	0.0	25.2	0.2	0.0	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	3.2	17.5	0.0	12.7	5.9	0.0	0.3	0.0	31.0	0.2	0.0	15.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.0	43.4	0.0	81.4	23.7	0.0	37.1	0.0	59.5	57.7	0.0	28.8
LnGrp LOS	E	D		F	C		D	A	E	E	A	C
Approach Vol, veh/h	932			579			705			470		
Approach Delay, s/veh	45.0			45.0			59.3			29.0		
Approach LOS	D			D			E			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	54.7		55.3	21.7	43.0		55.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	43.5		50.5	16.5	36.5		50.5				
Max Q Clear Time (g_c+I1), s	5.4	10.1		49.6	16.2	29.2		49.1				
Green Ext Time (p_c), s	0.0	4.2		0.3	0.0	4.5		0.6				

Intersection Summary

HCM 6th Ctrl Delay 46.0

HCM 6th LOS D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4c. No-Build 2038 AM - Improved

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	78	1440	94	195	825	125	72	161	358	237	239
Future Volume (vph)	78	1440	94	195	825	125	72	161	358	237	239
Lane Group Flow (vph)	85	1565	102	212	897	136	78	175	389	258	334
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		3	8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	43.5	15.0	39.5
Total Split (s)	15.0	73.5	73.5	18.0	76.5	76.5	15.0	43.5	43.5	15.0	43.5
Total Split (%)	10.0%	49.0%	49.0%	12.0%	51.0%	51.0%	10.0%	29.0%	29.0%	10.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
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
v/c Ratio	0.26	0.96	0.15	0.80	0.50	0.15	0.51	0.45	0.87	0.84	0.86
Control Delay	15.5	53.6	5.1	51.4	29.2	9.8	48.2	54.6	54.9	68.7	76.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	53.6	5.1	51.4	29.2	9.8	48.2	54.6	54.9	68.7	76.7
Queue Length 50th (ft)	32	780	2	158	354	46	55	150	240	202	309
Queue Length 95th (ft)	63	#954	37	m#342	m441	m85	93	216	359	273	410
Internal Link Dist (ft)		1551			5221			1155			1231
Turn Bay Length (ft)	295		155	325		160	65			135	
Base Capacity (vph)	340	1633	678	264	1780	890	157	476	514	308	465
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.96	0.15	0.80	0.50	0.15	0.50	0.37	0.76	0.84	0.72

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 144 (96%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

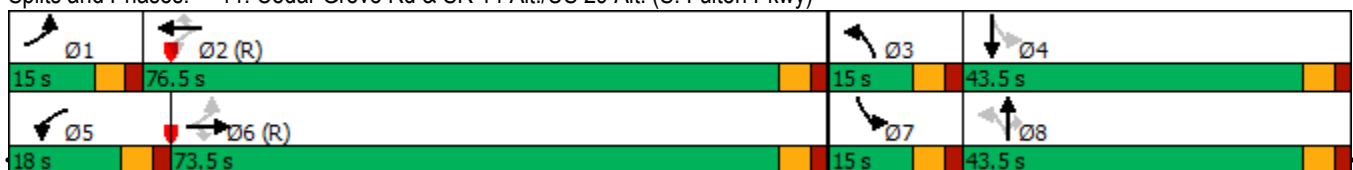
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4c. No-Build 2038 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1440	94	195	825	125	72	161	358	237	239	68
Future Volume (veh/h)	78	1440	94	195	825	125	72	161	358	237	239	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	85	1565	0	212	897	0	78	175	0	258	260	74
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	359	1855		233	1925		147	360		295	284	81
Arrive On Green	0.04	0.52	0.00	0.08	0.56	0.00	0.05	0.19	0.00	0.06	0.20	0.20
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	1885	1598	1810	1400	398
Grp Volume(v), veh/h	85	1565	0	212	897	0	78	175	0	258	0	334
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	1885	1598	1810	0	1799
Q Serve(g_s), s	3.4	56.4	0.0	9.5	23.3	0.0	6.0	12.4	0.0	9.5	0.0	27.3
Cycle Q Clear(g_c), s	3.4	56.4	0.0	9.5	23.3	0.0	6.0	12.4	0.0	9.5	0.0	27.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	359	1855		233	1925		147	360		295	0	365
V/C Ratio(X)	0.24	0.84		0.91	0.47		0.53	0.49		0.87	0.00	0.92
Avail Cap(c_a), veh/h	409	1855		244	1925		166	478		295	0	456
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	30.6	0.0	37.4	19.3	0.0	47.7	54.1	0.0	56.0	0.0	58.5
Incr Delay (d2), s/veh	0.3	4.9	0.0	33.4	0.8	0.0	2.9	1.0	0.0	23.8	0.0	20.3
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	2.4	31.5	0.0	10.1	13.7	0.0	4.4	9.9	0.0	11.2	0.0	20.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	35.5	0.0	70.7	20.2	0.0	50.6	55.1	0.0	79.8	0.0	78.8
LnGrp LOS	B	D		E	C		D	E		E	A	E
Approach Vol, veh/h	1650				1109				253			
Approach Delay, s/veh	34.6				29.8				53.8			
Approach LOS	C				C				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	90.1	13.2	35.9	17.1	83.8	15.0	34.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	71.0	9.5	38.0	12.5	68.0	9.5	38.0				
Max Q Clear Time (g_c+I1), s	5.4	25.3	8.0	29.3	11.5	58.4	11.5	14.4				
Green Ext Time (p_c), s	0.1	13.7	0.0	1.2	0.1	8.3	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4c. No-Build 2038 AM - Improved

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  			 		
Traffic Volume (vph)	158	1917	133	187	1176	62	83	65	135	122
Future Volume (vph)	158	1917	133	187	1176	62	83	65	135	122
Lane Group Flow (vph)	163	1976	137	193	1212	64	86	204	139	372
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	15.0	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	22.0	82.5	82.5	15.0	75.5	75.5	52.5	52.5	52.5	52.5
Total Split (%)	14.7%	55.0%	55.0%	10.0%	50.3%	50.3%	35.0%	35.0%	35.0%	35.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.55	0.73	0.16	0.68	0.42	0.07	1.48	0.50	0.74	0.86
Control Delay	14.6	27.7	6.3	63.1	25.5	7.2	327.9	35.2	75.7	63.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	27.7	6.3	63.1	25.5	7.2	327.9	35.2	75.7	63.4
Queue Length 50th (ft)	33	578	28	148	289	10	~116	114	128	295
Queue Length 95th (ft)	m75	m639	m49	m#266	m466	m20	#215	178	194	384
Internal Link Dist (ft)		1612			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	349	2694	875	284	2919	923	81	550	264	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.73	0.16	0.68	0.42	0.07	1.06	0.37	0.53	0.64

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: 120

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4c. No-Build 2038 AM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	1917	133	187	1176	62	83	65	133	135	122	239
Future Volume (veh/h)	158	1917	133	187	1176	62	83	65	133	135	122	239
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	163	1976	137	193	1212	64	86	67	137	139	126	246
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	292	2683	833	206	2649	802	149	163	333	283	171	333
Arrive On Green	0.06	0.53	0.53	0.06	0.53	0.53	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1584	5066	1572	1795	4985	1510	1010	548	1121	1178	575	1123
Grp Volume(v), veh/h	163	1976	137	193	1212	64	86	0	204	139	0	372
Grp Sat Flow(s),veh/h/ln	1584	1689	1572	1795	1662	1510	1010	0	1669	1178	0	1698
Q Serve(g_s), s	7.0	45.1	6.7	8.3	22.6	3.1	12.6	0.0	14.7	16.1	0.0	29.6
Cycle Q Clear(g_c), s	7.0	45.1	6.7	8.3	22.6	3.1	42.2	0.0	14.7	30.8	0.0	29.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.66
Lane Grp Cap(c), veh/h	292	2683	833	206	2649	802	149	0	496	283	0	504
V/C Ratio(X)	0.56	0.74	0.16	0.94	0.46	0.08	0.58	0.00	0.41	0.49	0.00	0.74
Avail Cap(c_a), veh/h	369	2683	833	206	2649	802	165	0	523	302	0	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.8	27.2	18.2	34.5	21.8	17.2	66.4	0.0	42.2	54.5	0.0	47.5
Incr Delay (d2), s/veh	1.7	1.8	0.4	44.9	0.6	0.2	4.0	0.0	0.5	1.3	0.0	5.1
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	4.5	24.1	4.4	10.1	13.2	1.9	6.0	0.0	10.1	8.4	0.0	18.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	29.0	18.6	79.4	22.3	17.4	70.5	0.0	42.8	55.9	0.0	52.6
LnGrp LOS	B	C	B	E	C	B	E	A	D	E	A	D
Approach Vol, veh/h	2276			1469			290			511		
Approach Delay, s/veh	27.7			29.6			51.0			53.5		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	85.2		50.0	15.0	85.0		50.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	16.5	70.0		47.0	9.5	77.0		47.0				
Max Q Clear Time (g_c+I1), s	9.0	24.6		32.8	10.3	47.1		44.2				
Green Ext Time (p_c), s	0.2	20.7		2.3	0.0	25.7		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	32.7											
HCM 6th LOS	C											

Timings

4c. No-Build 2038 AM - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1695	297	75	585	127	641	342	31	91	242	207
Future Volume (vph)	180	1695	297	75	585	127	641	342	31	91	242	207
Lane Group Flow (vph)	191	1803	316	80	622	135	682	364	33	97	257	220
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	28.5	28.5	15.0	30.5	30.5	15.0	47.5	47.5	15.0	54.5	54.5
Total Split (s)	21.0	45.0	45.0	15.0	39.0	39.0	35.5	68.5	68.5	21.5	54.5	54.5
Total Split (%)	14.0%	30.0%	30.0%	10.0%	26.0%	26.0%	23.7%	45.7%	45.7%	14.3%	36.3%	36.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.47	0.85	0.43	0.51	0.35	0.20	0.97	0.64	0.06	0.33	0.78	0.53
Control Delay	11.2	33.5	13.2	42.0	51.5	19.4	87.3	50.1	0.2	31.4	74.4	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	33.5	13.2	42.0	51.5	19.4	87.3	50.1	0.2	31.4	74.4	16.6
Queue Length 50th (ft)	59	636	170	57	199	34	345	310	0	59	244	35
Queue Length 95th (ft)	m123	#805	304	108	273	93	#473	398	0	89	322	112
Internal Link Dist (ft)		2942			1425			1090			834	
Turn Bay Length (ft)	255		120	240		115	105		160	80		
Base Capacity (vph)	427	2120	728	172	1783	692	700	782	726	354	614	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.85	0.43	0.47	0.35	0.20	0.97	0.47	0.05	0.27	0.42	0.35

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: 145

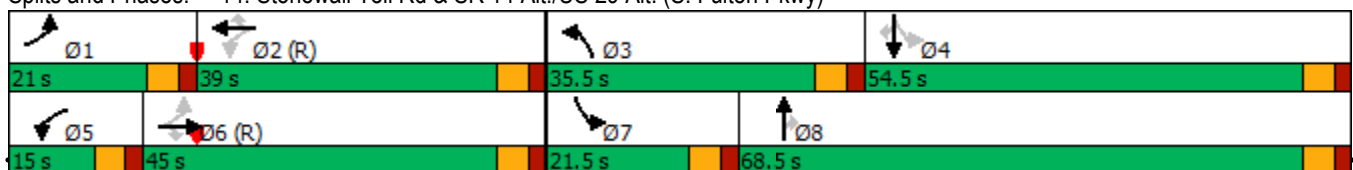
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

4c. No-Build 2038 AM - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (veh/h)	180	1695	297	75	585	127	641	342	31	91	242	207
Future Volume (veh/h)	180	1695	297	75	585	127	641	342	31	91	242	207
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	191	1803	316	80	622	135	682	364	0	97	257	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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	413	2351	718	148	2024	655	702	556		280	294	
Arrive On Green	0.07	0.46	0.46	0.04	0.42	0.42	0.20	0.30	0.00	0.06	0.16	0.00
Sat Flow, veh/h	1753	5106	1560	1810	4782	1547	3510	1870	1547	1767	1885	1547
Grp Volume(v), veh/h	191	1803	316	80	622	135	682	364	0	97	257	0
Grp Sat Flow(s),veh/h/ln	1753	1702	1560	1810	1594	1547	1755	1870	1547	1767	1885	1547
Q Serve(g_s), s	9.0	44.2	20.6	3.7	12.9	8.3	28.9	25.5	0.0	6.8	20.0	0.0
Cycle Q Clear(g_c), s	9.0	44.2	20.6	3.7	12.9	8.3	28.9	25.5	0.0	6.8	20.0	0.0
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	413	2351	718	148	2024	655	702	556		280	294	
V/C Ratio(X)	0.46	0.77	0.44	0.54	0.31	0.21	0.97	0.65		0.35	0.88	
Avail Cap(c_a), veh/h	464	2351	718	195	2024	655	702	786		365	616	
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	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.2	33.8	27.4	31.3	28.7	27.3	59.6	46.0	0.0	49.0	61.9	0.0
Incr Delay (d2), s/veh	0.8	2.5	2.0	3.1	0.4	0.7	26.9	1.3	0.0	0.7	8.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.5	24.6	12.6	3.0	8.5	5.7	21.7	17.6	0.0	5.5	15.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	36.2	29.3	34.3	29.1	28.1	86.5	47.3	0.0	49.8	70.0	0.0
LnGrp LOS	C	D	C	C	C	C	F	D		D	E	
Approach Vol, veh/h	2310			837			1046			354		
Approach Delay, s/veh	34.1			29.4			72.8			64.5		
Approach LOS	C			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	69.0	35.5	28.9	11.1	74.6	14.3	50.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	15.5	33.5	30.0	49.0	9.5	39.5	16.0	63.0				
Max Q Clear Time (g_c+I1), s	11.0	14.9	30.9	22.0	5.7	46.2	8.8	27.5				
Green Ext Time (p_c), s	0.2	7.1	0.0	1.4	0.0	0.0	0.1	2.2				

Intersection Summary

HCM 6th Ctrl Delay 44.5

HCM 6th LOS D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4c. No-Build 2038 AM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	106	1599	167	139	650	62	43	72	55	248	69
Future Volume (vph)	106	1599	167	139	650	62	43	72	55	248	69
Lane Group Flow (vph)	109	1648	172	143	670	64	0	118	57	256	182
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	76.5	76.5	15.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	51.0%	51.0%	10.0%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.23	0.90	0.20	0.70	0.36	0.09		0.33	0.18	0.88	0.39
Control Delay	12.0	35.8	10.5	54.1	19.5	5.7		45.4	9.2	81.9	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	12.0	35.8	10.5	54.1	19.5	5.7		45.4	9.2	81.9	31.2
Queue Length 50th (ft)	17	317	6	89	178	2		94	0	242	99
Queue Length 95th (ft)	m47	#625	m56	#242	277	30		137	32	323	153
Internal Link Dist (ft)		3008			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	491	1824	866	204	1881	748		497	408	397	624
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.22	0.90	0.20	0.70	0.36	0.09		0.24	0.14	0.64	0.29

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 3 (2%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

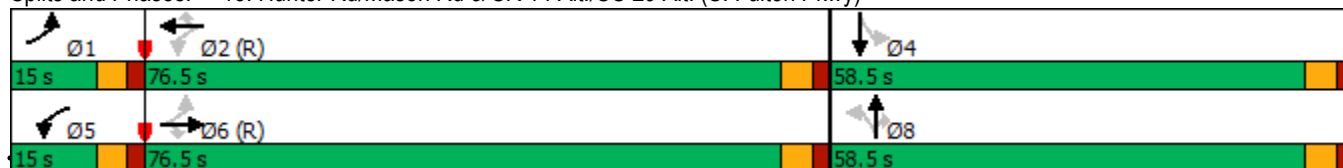
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

4c. No-Build 2038 AM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	1599	167	139	650	62	43	72	55	248	69	108
Future Volume (veh/h)	106	1599	167	139	650	62	43	72	55	248	69	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	109	1648	172	143	670	0	44	74	0	256	71	111
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	476	1949	891	169	1910		140	222		328	175	273
Arrive On Green	0.04	0.56	0.56	0.05	0.57	0.00	0.28	0.28	0.00	0.28	0.28	0.28
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	386	801	932	1263	631	987
Grp Volume(v), veh/h	109	1648	172	143	670	0	118	0	0	256	0	182
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1188	0	932	1263	0	1619
Q Serve(g_s), s	3.9	59.5	8.0	5.6	16.1	0.0	5.7	0.0	0.0	18.6	0.0	13.7
Cycle Q Clear(g_c), s	3.9	59.5	8.0	5.6	16.1	0.0	19.4	0.0	0.0	38.0	0.0	13.7
Prop In Lane	1.00		1.00	1.00		1.00	0.37		1.00	1.00		0.61
Lane Grp Cap(c), veh/h	476	1949	891	169	1910		362	0		328	0	448
V/C Ratio(X)	0.23	0.85	0.19	0.85	0.35		0.33	0.00		0.78	0.00	0.41
Avail Cap(c_a), veh/h	519	1949	891	189	1910		480	0		424	0	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	27.4	16.1	32.7	17.1	0.0	46.8	0.0	0.0	55.5	0.0	44.2
Incr Delay (d2), s/veh	0.2	4.7	0.5	26.3	0.5	0.0	0.5	0.0	0.0	6.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	31.6	5.2	7.2	9.9	0.0	6.8	0.0	0.0	15.1	0.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	32.2	16.6	59.0	17.6	0.0	47.3	0.0	0.0	62.4	0.0	44.8
LnGrp LOS	B	C	B	E	B		D	A		E	A	D
Approach Vol, veh/h	1929				813			118			438	
Approach Delay, s/veh	29.7				24.9			47.3			55.1	
Approach LOS	C				C			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	91.6		47.0	13.2	89.8		47.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	9.5	71.0		53.0				
Max Q Clear Time (g_c+I1), s	5.9	18.1		40.0	7.6	61.5		21.4				
Green Ext Time (p_c), s	0.1	9.5		1.5	0.1	8.6		0.6				

Intersection Summary

HCM 6th Ctrl Delay 32.5

HCM 6th LOS C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

4c. No-Build 2038 AM - Improved

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	61	1110	1193	1043	243
Future Volume (vph)	36	61	1110	1193	1043	243
Lane Group Flow (vph)	40	67	1220	1311	1146	267
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	38.0	75.0	37.0	37.0
Total Split (%)	16.7%	16.7%	42.2%	83.3%	41.1%	41.1%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.29	0.36	1.01	0.45	0.88	0.35
Control Delay	43.5	15.8	56.9	3.4	33.5	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	15.8	56.9	3.4	33.5	5.7
Queue Length 50th (ft)	22	0	347	96	296	7
Queue Length 95th (ft)	52	38	#517	141	m#435	m30
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	174	217	1212	2939	1305	770
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.31	1.01	0.45	0.88	0.35

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

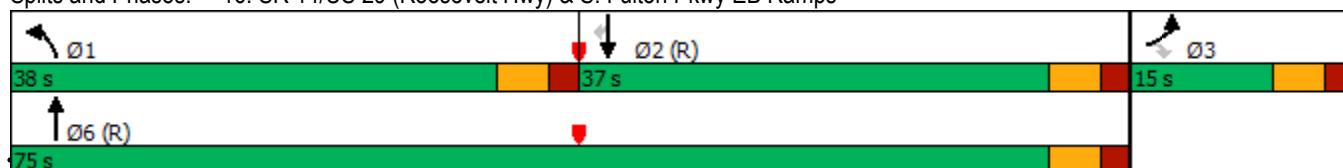
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary
 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

4c. No-Build 2038 AM - Improved
 08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	61	1110	1193	1043	243
Future Volume (veh/h)	36	61	1110	1193	1043	243
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1767	1781	1781	1870	1811	1885
Adj Flow Rate, veh/h	40	0	1220	1311	1146	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	8	8	2	6	1
Cap, veh/h	59		1189	2995	1447	
Arrive On Green	0.04	0.00	0.36	0.84	0.42	0.00
Sat Flow, veh/h	1682	1510	3291	3647	3532	1598
Grp Volume(v), veh/h	40	0	1220	1311	1146	0
Grp Sat Flow(s),veh/h/ln	1682	1510	1646	1777	1721	1598
Q Serve(g_s), s	2.1	0.0	32.5	8.3	26.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	32.5	8.3	26.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	59		1189	2995	1447	
V/C Ratio(X)	0.68		1.03	0.44	0.79	
Avail Cap(c_a), veh/h	178		1189	2995	1447	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.60	0.00
Uniform Delay (d), s/veh	42.9	0.0	28.7	1.8	22.7	0.0
Incr Delay (d2), s/veh	12.7	0.0	33.1	0.5	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	24.2	1.1	14.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.6	0.0	61.8	2.2	25.4	0.0
LnGrp LOS	E		F	A	C	
Approach Vol, veh/h	40			2531	1146	
Approach Delay, s/veh	55.6			30.9	25.4	
Approach LOS	E			C	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	38.0	43.3			81.3	8.7
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	32.5	31.5			69.5	9.5
Max Q Clear Time (g_c+I1), s	34.5	28.0			10.3	4.1
Green Ext Time (p_c), s	0.0	2.8			27.5	0.0

Intersection Summary

HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4c. No-Build 2038 AM - Improved

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	211	618	26	1183	692
Future Volume (vph)	211	618	26	1183	692
Lane Group Flow (vph)	227	665	28	1272	881
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	46.0	46.0	44.0	44.0	44.0
Total Split (%)	51.1%	51.1%	48.9%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.30	0.95	0.15	0.81	0.57
Control Delay	17.5	45.7	15.5	24.8	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	45.7	15.5	24.8	20.1
Queue Length 50th (ft)	79	296	10	336	190
Queue Length 95th (ft)	130	#535	m24	429	252
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	796	726	183	1567	1540
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.29	0.92	0.15	0.81	0.57

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 70

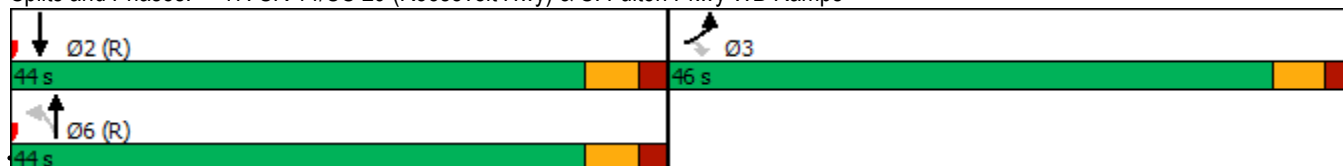
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Summary
 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

4c. No-Build 2038 AM - Improved

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	211	618	26	1183	692	127
Future Volume (veh/h)	211	618	26	1183	692	127
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1767	1811	1856	1856	1811
Adj Flow Rate, veh/h	227	0	28	1272	744	137
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	9	6	3	3	6
Cap, veh/h	272		466	2556	2155	397
Arrive On Green	0.15	0.00	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1781	1497	610	3618	3065	547
Grp Volume(v), veh/h	227	0	28	1272	441	440
Grp Sat Flow(s),veh/h/ln	1781	1497	610	1763	1763	1757
Q Serve(g_s), s	11.1	0.0	1.6	14.0	8.3	8.3
Cycle Q Clear(g_c), s	11.1	0.0	9.9	14.0	8.3	8.3
Prop In Lane	1.00	1.00	1.00			0.31
Lane Grp Cap(c), veh/h	272		466	2556	1278	1274
V/C Ratio(X)	0.83		0.06	0.50	0.35	0.35
Avail Cap(c_a), veh/h	802		466	2556	1278	1274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	6.3	5.3	4.5	4.5
Incr Delay (d2), s/veh	6.6	0.0	0.2	0.6	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.0	0.0	0.3	6.3	4.0	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	0.0	6.6	5.9	5.3	5.3
LnGrp LOS	D		A	A	A	A
Approach Vol, veh/h	227			1300	881	
Approach Delay, s/veh	43.6			6.0	5.3	
Approach LOS	D			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	70.8		70.8		19.2	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	38.5		38.5		40.5	
Max Q Clear Time (g_c+I1), s	10.3		16.0		13.1	
Green Ext Time (p_c), s	11.1		15.3		0.7	

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings
29: SR 92 & S. Fulton Pkwy EB Ramps

4c. No-Build 2038 AM - Improved

08/31/2023



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	419	344	1271	192	772	1199
Future Volume (vph)	419	344	1271	192	772	1199
Lane Group Flow (vph)	455	374	1382	209	839	1303
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	7		6		5	2
Permitted Phases		4		6		
Detector Phase	7	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	31.5	28.5	28.5	15.0	28.5
Total Split (s)	31.5	31.5	42.5	42.5	26.0	68.5
Total Split (%)	31.5%	31.5%	42.5%	42.5%	26.0%	68.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.72	0.61	1.06	0.33	0.87	0.52
Control Delay	44.8	28.9	72.7	14.4	51.4	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9
Total Delay	44.8	28.9	72.7	14.4	51.4	9.2
Queue Length 50th (ft)	141	83	~510	52	300	143
Queue Length 95th (ft)	184	129	#645	109	m236	m113
Internal Link Dist (ft)			1460			343
Turn Bay Length (ft)	100	100		100	175	
Base Capacity (vph)	892	814	1309	640	962	2495
Starvation Cap Reductn	0	0	0	0	0	813
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.46	1.06	0.33	0.87	0.77

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

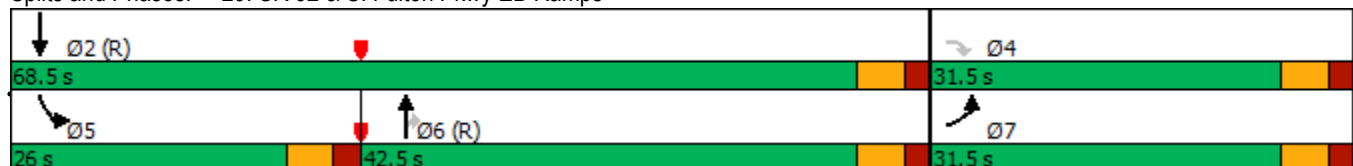
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 29: SR 92 & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary
29: SR 92 & S. Fulton Pkwy EB Ramps

4c. No-Build 2038 AM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	419	0	344	0	0	0	0	1271	192	772	1199	0
Future Volume (veh/h)	419	0	344	0	0	0	0	1271	192	772	1199	0
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
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	0	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	455	0	0				0	1382	0	839	1303	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	2	2	0
Cap, veh/h	554	0					0	1669		708	2593	0
Arrive On Green	0.16	0.00	0.00				0.00	0.47	0.00	0.41	1.00	0.00
Sat Flow, veh/h	3456	0	2790				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	455	0	0				0	1382	0	839	1303	0
Grp Sat Flow(s),veh/h/ln	1728	0	1395				0	1777	1585	1728	1777	0
Q Serve(g_s), s	12.7	0.0	0.0				0.0	33.8	0.0	20.5	0.0	0.0
Cycle Q Clear(g_c), s	12.7	0.0	0.0				0.0	33.8	0.0	20.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	554	0					0	1669		708	2593	0
V/C Ratio(X)	0.82	0.00					0.00	0.83		1.18	0.50	0.00
Avail Cap(c_a), veh/h	898	0					0	1669		708	2593	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	40.6	0.0	0.0				0.0	23.0	0.0	29.5	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0				0.0	4.9	0.0	84.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.5	0.0	0.0				0.0	19.2	0.0	17.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	0.0	0.0				0.0	27.9	0.0	113.9	0.1	0.0
LnGrp LOS	D	A					A	C		F	A	A
Approach Vol, veh/h	455						1382			2142		
Approach Delay, s/veh	43.8						27.9			44.6		
Approach LOS	D						C			D		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	78.5			21.5			26.0			52.5		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	63.0			26.0			20.5			37.0		
Max Q Clear Time (g_c+I1), s	2.0			14.7			22.5			35.8		
Green Ext Time (p_c), s	26.2			1.3			0.0			1.1		

Intersection Summary

HCM 6th Ctrl Delay	38.7
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Timings
30: SR 92 & S. Fulton Pkwy WB Ramps

4c. No-Build 2038 AM - Improved

08/31/2023

						
Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	111	619	291	1398	1859	326
Future Volume (vph)	111	619	291	1398	1859	326
Lane Group Flow (vph)	121	673	316	1520	2021	354
Turn Type	pm+pt	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases	8	8				2
Detector Phase	3	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	30.5	15.0	28.5	28.5	28.5
Total Split (s)	36.0	36.0	15.0	64.0	49.0	49.0
Total Split (%)	36.0%	36.0%	15.0%	64.0%	49.0%	49.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.22	1.24	0.97	0.73	1.31	0.43
Control Delay	27.3	151.3	82.5	10.0	172.9	8.3
Queue Delay	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	27.3	151.3	82.5	10.7	172.9	8.3
Queue Length 50th (ft)	57	~497	113	137	~878	46
Queue Length 95th (ft)	103	#719	m#122	m136	#1017	114
Internal Link Dist (ft)				343	535	
Turn Bay Length (ft)		250	100			250
Base Capacity (vph)	539	543	326	2070	1539	820
Starvation Cap Reductn	0	0	0	237	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	1.24	0.97	0.83	1.31	0.43

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

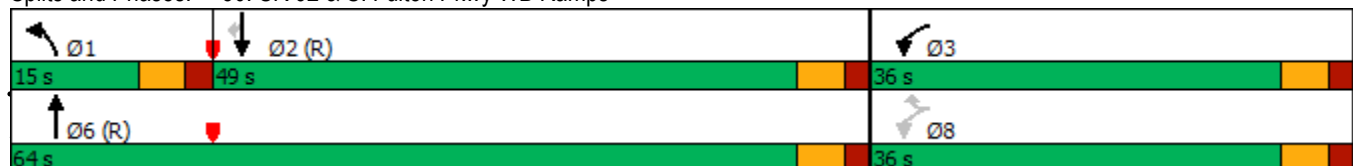
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 30: SR 92 & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Summary
30: SR 92 & S. Fulton Pkwy WB Ramps

4c. No-Build 2038 AM - Improved

08/31/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	111	0	619	291	1398	0	0	1859	326
Future Volume (veh/h)	0	0	0	111	0	619	291	1398	0	0	1859	326
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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				121	0	0	316	1520	0	0	2021	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	2	2	0	0	2	2
Cap, veh/h				154	0		328	2856	0	0	2323	
Arrive On Green				0.09	0.00	0.00	0.19	1.00	0.00	0.00	0.65	0.00
Sat Flow, veh/h				1781	0	1585	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				121	0	0	316	1520	0	0	2021	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1585
Q Serve(g_s), s				6.7	0.0	0.0	9.1	0.0	0.0	0.0	45.7	0.0
Cycle Q Clear(g_c), s				6.7	0.0	0.0	9.1	0.0	0.0	0.0	45.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				154	0		328	2856	0	0	2323	
V/C Ratio(X)				0.79	0.00		0.96	0.53	0.00	0.00	0.87	
Avail Cap(c_a), veh/h				543	0		328	2856	0	0	2323	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	0.16	0.16	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.8	0.0	0.0	40.3	0.0	0.0	0.0	13.9	0.0
Incr Delay (d2), s/veh				8.5	0.0	0.0	12.3	0.1	0.0	0.0	4.8	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				5.9	0.0	0.0	5.1	0.1	0.0	0.0	21.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.3	0.0	0.0	52.6	0.1	0.0	0.0	18.7	0.0
LnGrp LOS				D	A		D	A	A	A	B	
Approach Vol, veh/h					121			1836			2021	
Approach Delay, s/veh					53.3			9.1			18.7	
Approach LOS					D			A			B	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.0	70.9				85.9		14.1				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	43.5				58.5		30.5				
Max Q Clear Time (g_c+I1), s	11.1	47.7				2.0		8.7				
Green Ext Time (p_c), s	0.0	0.0				32.1		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				15.3								
HCM 6th LOS				B								
Notes												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 1: I-85 NB Ramps & Collinsworth Rd

4d. No-Build 2038 PM - Improved
08/31/2023

						
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations	 	 	 	 	 	
Traffic Volume (vph)	513	1292	934	237	473	326
Future Volume (vph)	513	1292	934	237	473	326
Lane Group Flow (vph)	540	1360	983	249	498	343
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	23.0	63.0	40.0	40.0	27.0	27.0
Total Split (%)	25.6%	70.0%	44.4%	44.4%	30.0%	30.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.84	0.58	0.68	0.19	0.70	0.85
Control Delay	36.8	13.0	25.1	2.9	38.3	44.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.8	13.0	25.1	2.9	38.3	44.2
Queue Length 50th (ft)	174	284	247	0	131	133
Queue Length 95th (ft)	m202	m314	321	25	182	#265
Internal Link Dist (ft)		760	934			
Turn Bay Length (ft)	300			250	500	
Base Capacity (vph)	662	2359	1451	1278	804	444
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.58	0.68	0.19	0.62	0.77

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary
1: I-85 NB Ramps & Collinsworth Rd

4d. No-Build 2038 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 	 	 					
Traffic Volume (veh/h)	513	1292	0	0	934	237	473	0	326	0	0	0
Future Volume (veh/h)	513	1292	0	0	934	237	473	0	326	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	540	1360	0	0	983	0	498	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	603	2494	0	0	1634		598	0				
Arrive On Green	0.35	1.00	0.00	0.00	0.46	0.00	0.18	0.00	0.00			
Sat Flow, veh/h	3401	3647	0	0	3618	2745	3401	0	1560			
Grp Volume(v), veh/h	540	1360	0	0	983	0	498	0	0			
Grp Sat Flow(s),veh/h/ln	1700	1777	0	0	1763	1373	1700	0	1560			
Q Serve(g_s), s	13.5	0.0	0.0	0.0	18.7	0.0	12.7	0.0	0.0			
Cycle Q Clear(g_c), s	13.5	0.0	0.0	0.0	18.7	0.0	12.7	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	603	2494	0	0	1634		598	0				
V/C Ratio(X)	0.90	0.55	0.00	0.00	0.60		0.83	0.00				
Avail Cap(c_a), veh/h	661	2494	0	0	1634		812	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.40	0.40	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	28.3	0.0	0.0	0.0	18.0	0.0	35.8	0.0	0.0			
Incr Delay (d2), s/veh	6.4	0.3	0.0	0.0	1.6	0.0	5.5	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	6.7	0.2	0.0	0.0	11.1	0.0	9.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.3	0.0	0.0	19.6	0.0	41.3	0.0	0.0			
LnGrp LOS	C	A	A	A	B		D	A				
Approach Vol, veh/h	1900			983			498					
Approach Delay, s/veh	10.1			19.6			41.3					
Approach LOS	B			B			D					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	21.5	47.2					68.7	21.3				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	17.5	34.5					57.5	21.5				
Max Q Clear Time (g_c+I1), s	15.5	20.7					2.0	14.7				
Green Ext Time (p_c), s	0.4	8.1					26.9	1.1				

Intersection Summary

HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

4d. No-Build 2038 PM - Improved
08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↘↙	↑↑	↘↙	↘↙
Traffic Volume (vph)	689	656	475	961	1132	595
Future Volume (vph)	689	656	475	961	1132	595
Lane Group Flow (vph)	733	698	505	1022	1204	633
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6				4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	31.0	31.0	20.0	51.0	39.0	39.0
Total Split (%)	34.4%	34.4%	22.2%	56.7%	43.3%	43.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.72	0.74	0.90	0.57	0.94	0.58
Control Delay	34.1	11.7	59.0	19.3	42.2	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	11.7	59.0	19.3	42.2	20.3
Queue Length 50th (ft)	162	117	162	202	331	126
Queue Length 95th (ft)	m220	m209	#248	274	#466	186
Internal Link Dist (ft)	965			760		
Turn Bay Length (ft)		500	95		520	500
Base Capacity (vph)	1017	944	561	1789	1303	1098
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.74	0.90	0.57	0.92	0.58

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 80

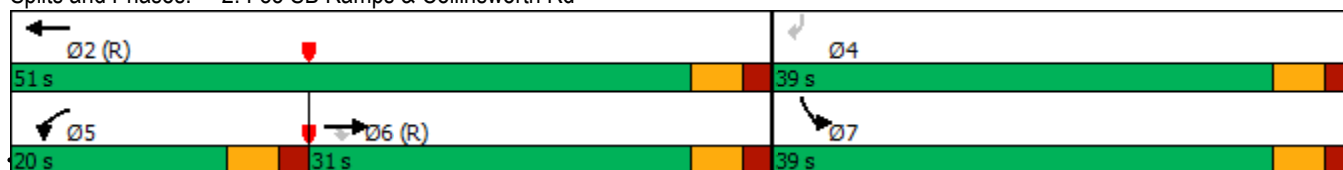
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

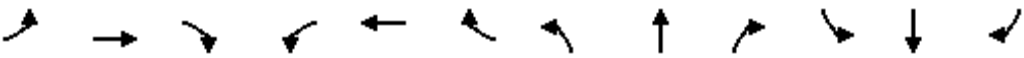
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

4d. No-Build 2038 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖↗	↑↑					↖↗		↖↗
Traffic Volume (veh/h)	0	689	656	475	961	0	0	0	0	1132	0	595
Future Volume (veh/h)	0	689	656	475	961	0	0	0	0	1132	0	595
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	733	0	505	1022	0				1204	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	1036		560	1810	0				1279	0	
Arrive On Green	0.00	0.29	0.00	0.32	1.00	0.00				0.36	0.00	0.00
Sat Flow, veh/h	0	3647	1560	3483	3618	0				3510	0	2745
Grp Volume(v), veh/h	0	733	0	505	1022	0				1204	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1560	1742	1763	0				1755	0	1373
Q Serve(g_s), s	0.0	16.6	0.0	12.5	0.0	0.0				29.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	16.6	0.0	12.5	0.0	0.0				29.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1036		560	1810	0				1279	0	
V/C Ratio(X)	0.00	0.71		0.90	0.56	0.00				0.94	0.00	
Avail Cap(c_a), veh/h	0	1036		561	1810	0				1307	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.51	0.00	0.67	0.67	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	28.5	0.0	29.8	0.0	0.0				27.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	0.0	12.9	0.9	0.0				13.2	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	0.0	9.6	0.0	7.9	0.4	0.0				20.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.6	0.0	42.7	0.9	0.0				40.9	0.0	0.0
LnGrp LOS	A	C		D	A	A				D	A	
Approach Vol, veh/h		733			1527						1204	
Approach Delay, s/veh		30.6			14.7						40.9	
Approach LOS		C			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		51.7		38.3	20.0	31.7						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		45.5		33.5	14.5	25.5						
Max Q Clear Time (g_c+I1), s		2.0		31.9	14.5	18.6						
Green Ext Time (p_c), s		16.1		0.9	0.0	3.7						
Intersection Summary												
HCM 6th Ctrl Delay				27.2								
HCM 6th LOS				C								
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

3: Collinsworth Rd & Weldon Rd

4d. No-Build 2038 PM - Improved

08/31/2023

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	15	446	490	880	1079
Future Volume (vph)	15	446	490	880	1079
Lane Group Flow (vph)	17	501	551	989	1227
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	3		1	6	2
Permitted Phases		3			
Detector Phase	3	3	1	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5
Total Split (s)	24.0	24.0	23.0	66.0	43.0
Total Split (%)	26.7%	26.7%	25.6%	73.3%	47.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min
v/c Ratio	0.06	0.90	0.83	0.74	0.75
Control Delay	29.8	31.3	52.4	11.0	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	31.3	52.4	11.0	24.7
Queue Length 50th (ft)	8	74	166	215	318
Queue Length 95th (ft)	25	#237	#234	589	401
Internal Link Dist (ft)	719			965	1393
Turn Bay Length (ft)		365	315		
Base Capacity (vph)	363	612	684	1337	1635
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.82	0.81	0.74	0.75

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Collinsworth Rd & Weldon Rd



HCM 6th Signalized Intersection Summary

3: Collinsworth Rd & Weldon Rd

4d. No-Build 2038 PM - Improved
08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	446	490	880	1079	13
Future Volume (veh/h)	15	446	490	880	1079	13
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	0	551	989	1212	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	34		615	1606	2227	28
Arrive On Green	0.02	0.00	0.36	1.00	0.62	0.62
Sat Flow, veh/h	1781	1585	3456	1870	3688	44
Grp Volume(v), veh/h	17	0	551	989	599	628
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1870	1777	1862
Q Serve(g_s), s	0.9	0.0	13.6	0.0	17.4	17.4
Cycle Q Clear(g_c), s	0.9	0.0	13.6	0.0	17.4	17.4
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	34		615	1606	1101	1154
V/C Ratio(X)	0.50		0.90	0.62	0.54	0.54
Avail Cap(c_a), veh/h	366		672	1606	1101	1154
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.79	0.79	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	28.2	0.0	9.8	9.8
Incr Delay (d2), s/veh	10.7	0.0	11.5	1.4	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	8.3	1.1	10.0	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.4	0.0	39.7	1.4	11.8	11.7
LnGrp LOS	D		D	A	B	B
Approach Vol, veh/h	17			1540	1227	
Approach Delay, s/veh	54.4			15.1	11.7	
Approach LOS	D			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.5	61.3			82.8	7.2
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	17.5	37.5			60.5	18.5
Max Q Clear Time (g_c+I1), s	15.6	19.4			2.0	2.9
Green Ext Time (p_c), s	0.4	12.0			21.2	0.0

Intersection Summary

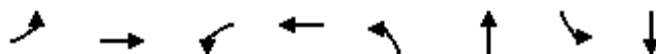
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings
4: SR 14/US 29 (Main St) & Toombs St

4d. No-Build 2038 PM - Improved
08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	128	330	33	396	51	516	171	758
Future Volume (vph)	128	330	33	396	51	516	171	758
Lane Group Flow (vph)	0	568	0	669	0	654	0	1176
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	51.0	51.0	51.0	51.0	69.0	69.0	69.0	69.0
Total Split (%)	42.5%	42.5%	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		1.67		1.02		0.85		1.73
Control Delay		341.7		75.4		37.0		360.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		341.7		75.4		37.0		360.6
Queue Length 50th (ft)		~605		~520		418		~1358
Queue Length 95th (ft)		#881		#771		#666		#1622
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		341		659		766		678
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		1.67		1.02		0.85		1.73

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: 150

Control Type: Actuated-Coordinated

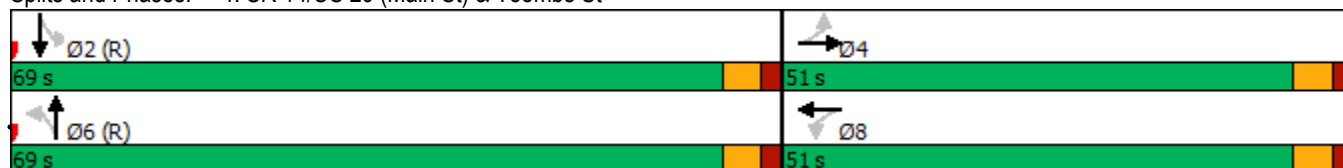
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

4d. No-Build 2038 PM - Improved
08/31/2023

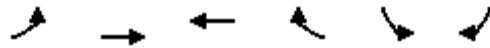
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	330	53	33	396	173	51	516	22	171	758	130
Future Volume (veh/h)	128	330	53	33	396	173	51	516	22	171	758	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	142	367	59	37	440	192	57	573	24	190	842	144
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	95	184	28	55	438	186	78	677	28	121	408	69
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	150	485	74	61	1156	490	85	1280	52	163	771	130
Grp Volume(v), veh/h	568	0	0	669	0	0	654	0	0	1176	0	0
Grp Sat Flow(s),veh/h/ln	709	0	0	1707	0	0	1417	0	0	1063	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	0.0
Cycle Q Clear(g_c), s	45.5	0.0	0.0	45.5	0.0	0.0	45.5	0.0	0.0	63.5	0.0	0.0
Prop In Lane	0.25		0.10	0.06		0.29	0.09		0.04	0.16		0.12
Lane Grp Cap(c), veh/h	306	0	0	679	0	0	782	0	0	598	0	0
V/C Ratio(X)	1.85	0.00	0.00	0.99	0.00	0.00	0.84	0.00	0.00	1.97	0.00	0.00
Avail Cap(c_a), veh/h	306	0	0	679	0	0	782	0	0	598	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	38.2	0.0	0.0	37.6	0.0	0.0	22.5	0.0	0.0	32.7	0.0	0.0
Incr Delay (d2), s/veh	396.3	0.0	0.0	30.8	0.0	0.0	10.3	0.0	0.0	441.7	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	71.1	0.0	0.0	33.6	0.0	0.0	24.0	0.0	0.0	149.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	434.5	0.0	0.0	68.4	0.0	0.0	32.8	0.0	0.0	474.4	0.0	0.0
LnGrp LOS	F	A	A	E	A	A	C	A	A	F	A	A
Approach Vol, veh/h		568			669			654			1176	
Approach Delay, s/veh		434.5			68.4			32.8			474.4	
Approach LOS		F			E			C			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		51.0		69.0		51.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		63.5		45.5		63.5		45.5				
Max Q Clear Time (g_c+I1), s		65.5		47.5		47.5		47.5				
Green Ext Time (p_c), s		0.0		0.0		7.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				284.3								
HCM 6th LOS				F								

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	87	49	674	641	36
Future Vol, veh/h	38	87	49	674	641	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	93	52	717	682	38
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1522	701	682	0	-	0
Stage 1	701	-	-	-	-	-
Stage 2	821	-	-	-	-	-
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	130	439	911	-	-	-
Stage 1	492	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	439	911	-	-	-
Mov Cap-2 Maneuver	118	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	19	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	911	-	388	-	-	
HCM Lane V/C Ratio	0.057	-	0.343	-	-	
HCM Control Delay (s)	9.2	0	19	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.2	-	1.5	-	-	

Timings
6: Hutchesons Ferry Rd & Cochran Mill Rd

4d. No-Build 2038 PM - Improved

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	257	354	614	560	109
Future Volume (vph)	87	257	354	614	560	109
Lane Group Flow (vph)	101	299	412	714	651	127
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		6	2		7	
Permitted Phases	6			2		7
Detector Phase	6	6	2	2	7	7
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	5.0	5.0
Minimum Split (s)	28.5	28.5	28.5	28.5	15.0	15.0
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.28	0.34	0.46	0.64	0.86	0.17
Control Delay	24.2	22.5	18.0	2.3	52.0	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	22.5	18.0	2.3	52.0	11.3
Queue Length 50th (ft)	47	144	154	0	477	37
Queue Length 95th (ft)	96	225	m196	m0	524	43
Internal Link Dist (ft)		2663	3004		3074	
Turn Bay Length (ft)	235			175		175
Base Capacity (vph)	358	891	891	1121	892	844
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.34	0.46	0.64	0.73	0.15

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

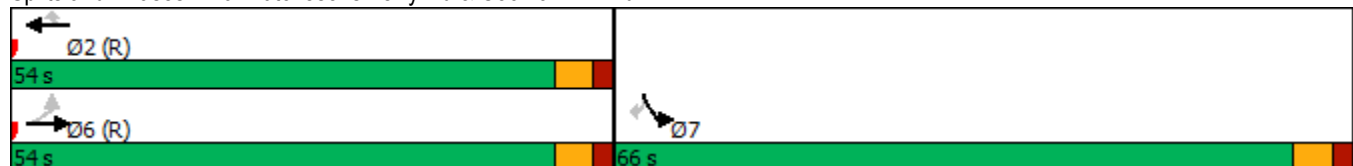
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

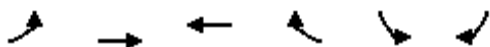
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hutchesons Ferry Rd & Cochran Mill Rd



HCM 6th Signalized Intersection Summary 6: Hutchesons Ferry Rd & Cochran Mill Rd

4d. No-Build 2038 PM - Improved
08/31/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	257	354	614	560	109
Future Volume (veh/h)	87	257	354	614	560	109
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	299	412	0	651	127
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	434	972	972		693	616
Arrive On Green	0.52	0.52	0.52	0.00	0.39	0.39
Sat Flow, veh/h	974	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	101	299	412	0	651	127
Grp Sat Flow(s),veh/h/ln	974	1870	1870	1585	1781	1585
Q Serve(g_s), s	8.6	11.0	16.3	0.0	42.2	6.4
Cycle Q Clear(g_c), s	24.8	11.0	16.3	0.0	42.2	6.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	434	972	972		693	616
V/C Ratio(X)	0.23	0.31	0.42		0.94	0.21
Avail Cap(c_a), veh/h	434	972	972		898	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	16.5	17.8	0.0	35.3	24.4
Incr Delay (d2), s/veh	1.3	0.8	1.4	0.0	14.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.7	8.2	11.3	0.0	27.5	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.7	17.3	19.1	0.0	50.2	24.5
LnGrp LOS	C	B	B		D	C
Approach Vol, veh/h		400	412		778	
Approach Delay, s/veh		19.7	19.1		46.0	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		67.8		52.2		67.8
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		48.5		60.5		48.5
Max Q Clear Time (g_c+I1), s		18.3		44.2		26.8
Green Ext Time (p_c), s		4.9		2.4		4.0
Intersection Summary						
HCM 6th Ctrl Delay			32.4			
HCM 6th LOS			C			

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
7: Cochran Mill Rd & Wilkerson Mill Rd

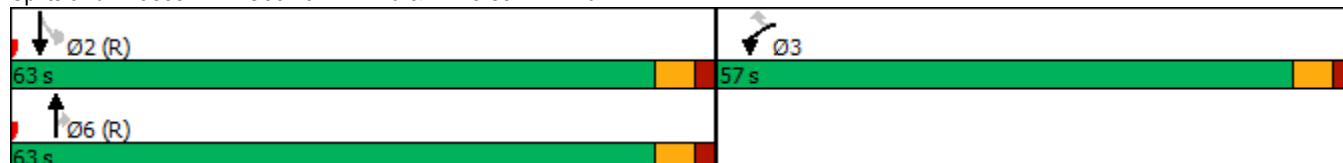
4d. No-Build 2038 PM - Improved
08/31/2023

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	408	144	440	436	102	475
Future Volume (vph)	408	144	440	436	102	475
Lane Group Flow (vph)	480	169	518	513	120	559
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		6			2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5	28.5
Total Split (s)	57.0	57.0	63.0	63.0	63.0	63.0
Total Split (%)	47.5%	47.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.84	0.28	0.48	0.46	0.30	0.51
Control Delay	50.3	6.6	18.8	5.1	30.0	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	6.6	18.8	5.1	30.0	32.9
Queue Length 50th (ft)	342	11	217	35	73	396
Queue Length 95th (ft)	384	46	310	64	m132	505
Internal Link Dist (ft)	2842		3597			3678
Turn Bay Length (ft)		175		175	235	
Base Capacity (vph)	759	763	1087	1113	405	1087
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.22	0.48	0.46	0.30	0.51

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Cochran Mill Rd & Wilkerson Mill Rd



HCM 6th Signalized Intersection Summary
7: Cochran Mill Rd & Wilkerson Mill Rd

4d. No-Build 2038 PM - Improved
08/31/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	408	144	440	436	102	475
Future Volume (veh/h)	408	144	440	436	102	475
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	480	169	518	513	120	559
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	523	465	1150	975	316	1150
Arrive On Green	0.29	0.29	0.61	0.61	0.61	0.61
Sat Flow, veh/h	1781	1585	1870	1585	547	1870
Grp Volume(v), veh/h	480	169	518	513	120	559
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	547	1870
Q Serve(g_s), s	31.3	10.1	17.7	22.1	18.0	19.7
Cycle Q Clear(g_c), s	31.3	10.1	17.7	22.1	35.7	19.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	523	465	1150	975	316	1150
V/C Ratio(X)	0.92	0.36	0.45	0.53	0.38	0.49
Avail Cap(c_a), veh/h	764	680	1150	975	316	1150
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	0.85	0.85
Uniform Delay (d), s/veh	41.0	33.5	12.3	13.2	21.8	12.7
Incr Delay (d2), s/veh	12.1	0.5	1.3	2.0	2.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	21.2	6.9	11.4	12.1	4.4	12.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.1	34.0	13.6	15.2	24.7	13.9
LnGrp LOS	D	C	B	B	C	B
Approach Vol, veh/h	649		1031			679
Approach Delay, s/veh	48.1		14.4			15.9
Approach LOS	D		B			B
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	79.3		79.3		40.7	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	57.5		57.5		51.5	
Max Q Clear Time (g_c+I1), s	37.7		24.1		33.3	
Green Ext Time (p_c), s	8.0		12.6		1.9	
Intersection Summary						
HCM 6th Ctrl Delay			24.1			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

8: Cochran Mill Rd & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	204	155	375	887	3	203	36	344	8	45	5
Future Volume (veh/h)	3	204	155	375	887	3	203	36	344	8	45	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	224	0	412	975	0	223	40	0	9	49	5
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	404	2511		855	2511		306	45		65	308	29
Arrive On Green	0.71	0.71	0.00	0.71	0.71	0.00	0.20	0.20	0.00	0.20	0.20	0.20
Sat Flow, veh/h	577	3554	1585	1157	3554	1585	1241	223	0	150	1528	145
Grp Volume(v), veh/h	3	224	0	412	975	0	263	0	0	63	0	0
Grp Sat Flow(s),veh/h/ln	577	1777	1585	1157	1777	1585	1464	0	0	1823	0	0
Q Serve(g_s), s	0.3	2.4	0.0	20.8	13.3	0.0	17.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.6	2.4	0.0	23.1	13.3	0.0	20.8	0.0	0.0	3.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.85		0.00	0.14		0.08
Lane Grp Cap(c), veh/h	404	2511		855	2511		351	0		402	0	0
V/C Ratio(X)	0.01	0.09		0.48	0.39		0.75	0.00		0.16	0.00	0.00
Avail Cap(c_a), veh/h	404	2511		855	2511		601	0		713	0	0
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	0.00	1.00	1.00	0.00	0.91	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.9	5.5	0.0	9.1	7.1	0.0	46.2	0.0	0.0	39.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	1.9	0.5	0.0	3.0	0.0	0.0	0.2	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	1.3	0.0	8.1	7.2	0.0	12.0	0.0	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	5.6	0.0	11.1	7.6	0.0	49.2	0.0	0.0	39.8	0.0	0.0
LnGrp LOS	A	A		B	A		D	A		D	A	A
Approach Vol, veh/h	227			1387			263			63		
Approach Delay, s/veh	5.6			8.6			49.2			39.8		
Approach LOS	A			A			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	90.3			29.7			90.3			29.7		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	63.5			45.5			63.5			45.5		
Max Q Clear Time (g_c+I1), s	25.1			5.4			15.6			22.8		
Green Ext Time (p_c), s	20.1			0.3			2.7			1.4		

Intersection Summary

HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
9: Rivertown Rd & SR 70 (S. Fulton Pkwy)

4d. No-Build 2038 PM - Improved
08/31/2023

	→	↘	↙	←	↗	↖	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↑↑	↑	↘	↑	↑	↘	↑	↘	↑
Traffic Volume (vph)	441	64	14	1085	26	166	26	8	8
Future Volume (vph)	441	64	14	1085	26	166	26	8	8
Lane Group Flow (vph)	479	70	15	1179	28	180	28	9	9
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	6			2			8		4
Permitted Phases		6	2		2	8		4	
Detector Phase	6	6	2	2	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	28.5	28.5	28.5	28.5	28.5	30.5	30.5	30.5	30.5
Total Split (s)	89.5	89.5	89.5	89.5	89.5	30.5	30.5	30.5	30.5
Total Split (%)	74.6%	74.6%	74.6%	74.6%	74.6%	25.4%	25.4%	25.4%	25.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.18	0.06	0.02	0.85	0.02	0.78	0.09	0.04	0.03
Control Delay	5.6	2.4	1.0	21.7	0.0	69.6	40.7	39.4	39.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	2.4	1.0	21.7	0.0	69.6	40.7	39.4	39.1
Queue Length 50th (ft)	63	5	1	483	0	134	19	6	6
Queue Length 95th (ft)	m84	m11	m1	#579	m0	208	44	20	20
Internal Link Dist (ft)	501			2203			1197		1391
Turn Bay Length (ft)		150	285			235		150	
Base Capacity (vph)	2628	1193	661	1383	1182	291	388	286	388
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.06	0.02	0.85	0.02	0.62	0.07	0.03	0.02

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

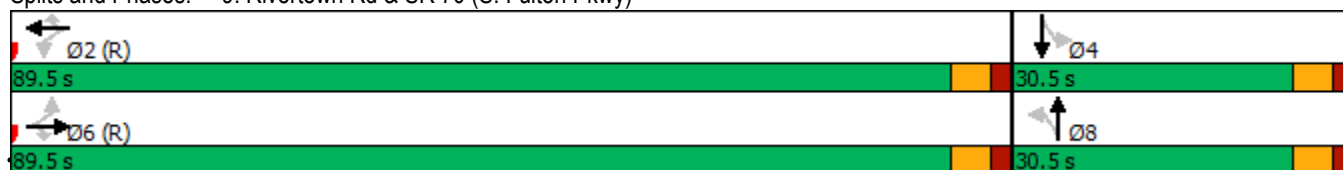
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Rivertown Rd & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
9: Rivertown Rd & SR 70 (S. Fulton Pkwy)

4d. No-Build 2038 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	441	64	14	1085	26	166	26	0	8	8	0
Future Volume (veh/h)	0	441	64	14	1085	26	166	26	0	8	8	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	479	0	15	1179	0	180	28	0	9	9	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	60	2698		721	1420		264	279		248	279	
Arrive On Green	0.00	0.76	0.00	1.00	1.00	0.00	0.15	0.15	0.00	0.15	0.15	0.00
Sat Flow, veh/h	476	3554	1585	916	1870	1585	1406	1870	0	1382	1870	0
Grp Volume(v), veh/h	0	479	0	15	1179	0	180	28	0	9	9	0
Grp Sat Flow(s),veh/h/ln	476	1777	1585	916	1870	1585	1406	1870	0	1382	1870	0
Q Serve(g_s), s	0.0	4.5	0.0	0.1	0.0	0.0	15.1	1.6	0.0	0.7	0.5	0.0
Cycle Q Clear(g_c), s	0.0	4.5	0.0	4.6	0.0	0.0	15.6	1.6	0.0	2.2	0.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	60	2698		721	1420		264	279		248	279	
V/C Ratio(X)	0.00	0.18		0.02	0.83		0.68	0.10		0.04	0.03	
Avail Cap(c_a), veh/h	60	2698		721	1420		347	390		330	390	
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(l)	0.00	1.00	0.00	0.50	0.50	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	4.0	0.0	0.1	0.0	0.0	50.3	44.1	0.0	45.1	43.7	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	3.0	0.0	3.5	0.2	0.0	0.1	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.1	0.0	0.0	2.1	0.0	9.2	1.3	0.0	0.4	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.2	0.0	0.1	3.0	0.0	53.8	44.3	0.0	45.1	43.7	0.0
LnGrp LOS	A	A		A	A		D	D		D	D	
Approach Vol, veh/h	479			1194			208			18		
Approach Delay, s/veh	4.2			2.9			52.5			44.4		
Approach LOS	A			A			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	96.6			23.4			96.6			23.4		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	84.0			25.0			84.0			25.0		
Max Q Clear Time (g_c+I1), s	6.6			4.2			6.5			17.6		
Green Ext Time (p_c), s	35.7			0.0			6.4			0.3		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

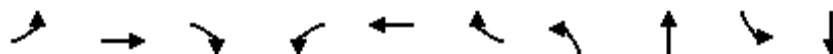
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4d. No-Build 2038 PM - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	52	410	14	292	1002	8	5	499	7	528
Future Volume (vph)	52	410	14	292	1002	8	5	499	7	528
Lane Group Flow (vph)	54	427	15	304	1044	8	5	779	7	605
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	15.0	29.0	29.0	31.0	45.0	45.0	60.0	60.0	60.0	60.0
Total Split (%)	12.5%	24.2%	24.2%	25.8%	37.5%	37.5%	50.0%	50.0%	50.0%	50.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.45	0.55	0.03	0.87	0.81	0.01	0.03	0.97	0.11	0.74
Control Delay	62.3	71.1	1.9	71.6	41.4	0.0	19.0	56.8	24.6	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	71.1	1.9	71.6	41.4	0.0	19.0	56.8	24.6	33.4
Queue Length 50th (ft)	43	187	0	226	400	0	2	553	3	369
Queue Length 95th (ft)	88	241	5	#366	#525	0	10	#825	15	513
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	140	777	443	376	1296	626	174	818	63	837
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.55	0.03	0.81	0.81	0.01	0.03	0.95	0.11	0.72

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

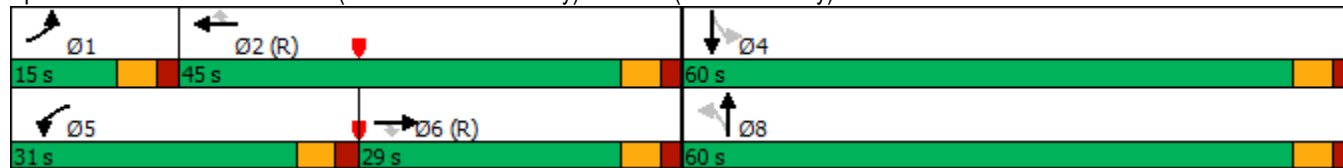
Natural Cycle: 100

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

4d. No-Build 2038 PM - Improved

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	410	14	292	1002	8	5	499	249	7	528	53
Future Volume (veh/h)	52	410	14	292	1002	8	5	499	249	7	528	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	427	0	304	1044	0	5	520	259	7	550	55
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	70	788		332	1312		212	535	266	76	760	76
Arrive On Green	0.04	0.22	0.00	0.19	0.37	0.00	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	815	1178	587	693	1673	167
Grp Volume(v), veh/h	54	427	0	304	1044	0	5	0	779	7	0	605
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	815	0	1765	693	0	1840
Q Serve(g_s), s	3.6	12.8	0.0	20.1	31.5	0.0	0.6	0.0	51.8	1.2	0.0	32.1
Cycle Q Clear(g_c), s	3.6	12.8	0.0	20.1	31.5	0.0	32.7	0.0	51.8	53.0	0.0	32.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.09
Lane Grp Cap(c), veh/h	70	788		332	1312		212	0	801	76	0	836
V/C Ratio(X)	0.77	0.54		0.92	0.80		0.02	0.00	0.97	0.09	0.00	0.72
Avail Cap(c_a), veh/h	141	788		379	1312		212	0	801	76	0	836
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	57.1	41.3	0.0	47.9	33.8	0.0	39.9	0.0	32.0	57.9	0.0	26.6
Incr Delay (d2), s/veh	16.3	2.6	0.0	24.6	5.1	0.0	0.0	0.0	25.0	0.5	0.0	3.1
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	3.4	9.5	0.0	16.1	19.5	0.0	0.2	0.0	33.6	0.4	0.0	19.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.5	43.9	0.0	72.4	38.9	0.0	40.0	0.0	57.0	58.4	0.0	29.8
LnGrp LOS	E	D		E	D		D	A	E	E	A	C
Approach Vol, veh/h	481				1348				784			
Approach Delay, s/veh	47.2				46.4				56.9			
Approach LOS	D				D				E			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	49.8		60.0	27.9	32.1		60.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	39.5		54.5	25.5	23.5		54.5				
Max Q Clear Time (g_c+I1), s	5.6	33.5		55.0	22.1	14.8		53.8				
Green Ext Time (p_c), s	0.0	4.3		0.0	0.3	2.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay 46.0

HCM 6th LOS D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4d. No-Build 2038 PM - Improved

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	65	742	68	376	1336	216	80	260	287	142	195
Future Volume (vph)	65	742	68	376	1336	216	80	260	287	142	195
Lane Group Flow (vph)	71	807	74	409	1452	235	87	283	312	154	279
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		3	8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	43.5	15.0	39.5
Total Split (s)	15.0	52.5	52.5	39.0	76.5	76.5	15.0	43.5	43.5	15.0	43.5
Total Split (%)	10.0%	35.0%	35.0%	26.0%	51.0%	51.0%	10.0%	29.0%	29.0%	10.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
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
v/c Ratio	0.39	0.56	0.10	0.80	0.74	0.25	0.44	0.79	0.56	0.79	0.79
Control Delay	23.2	38.0	0.3	41.9	36.6	19.0	45.0	73.7	8.7	69.2	70.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	38.0	0.3	41.9	36.6	19.0	45.0	73.7	8.7	69.2	70.9
Queue Length 50th (ft)	25	323	0	271	513	78	64	267	0	117	254
Queue Length 95th (ft)	54	452	0	m431	m749	m189	101	349	79	#175	338
Internal Link Dist (ft)		1551			5221			1155			1231
Turn Bay Length (ft)	295		155	325		160	65			135	
Base Capacity (vph)	201	1436	749	570	1957	931	205	476	642	196	463
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.56	0.10	0.72	0.74	0.25	0.42	0.59	0.49	0.79	0.60

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 143 (95%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 125

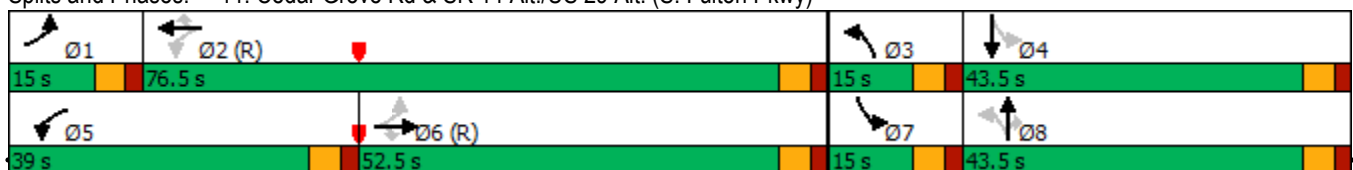
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



A&R Engineering

23-060 Merrill Park Chattahoochee Hills (DRI #4004)

Synchro 11 Report

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HCM 6th Signalized Intersection Summary
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4d. No-Build 2038 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	742	68	376	1336	216	80	260	287	142	195	62
Future Volume (veh/h)	65	742	68	376	1336	216	80	260	287	142	195	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	71	807	0	409	1452	0	87	283	0	154	212	67
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	221	1731		513	2114		177	317		185	249	79
Arrive On Green	0.03	0.50	0.00	0.13	0.59	0.00	0.05	0.17	0.00	0.06	0.18	0.18
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	1885	1610	1795	1384	437
Grp Volume(v), veh/h	71	807	0	409	1452	0	87	283	0	154	0	279
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	1885	1610	1795	0	1821
Q Serve(g_s), s	2.9	22.7	0.0	16.0	41.9	0.0	5.9	22.0	0.0	9.5	0.0	22.3
Cycle Q Clear(g_c), s	2.9	22.7	0.0	16.0	41.9	0.0	5.9	22.0	0.0	9.5	0.0	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	221	1731		513	2114		177	317		185	0	328
V/C Ratio(X)	0.32	0.47		0.80	0.69		0.49	0.89		0.83	0.00	0.85
Avail Cap(c_a), veh/h	278	1731		688	2114		198	478		185	0	461
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.6	24.9	0.0	17.9	21.2	0.0	49.5	61.1	0.0	52.6	0.0	59.6
Incr Delay (d2), s/veh	0.8	0.9	0.0	4.8	1.8	0.0	2.1	13.4	0.0	26.3	0.0	10.3
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	2.2	14.1	0.0	10.8	23.2	0.0	4.9	17.1	0.0	4.5	0.0	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	25.8	0.0	22.7	23.0	0.0	51.6	74.5	0.0	78.9	0.0	69.9
LnGrp LOS	C	C		C	C		D	E		E	A	E
Approach Vol, veh/h	878			1861			370			433		
Approach Delay, s/veh	25.4			22.9			69.1			73.1		
Approach LOS	C			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	94.0	13.2	32.5	24.5	79.8	15.0	30.7				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	71.0	9.5	38.0	33.5	47.0	9.5	38.0				
Max Q Clear Time (g_c+I1), s	4.9	43.9	7.9	24.3	18.0	24.7	11.5	24.0				
Green Ext Time (p_c), s	0.0	18.9	0.0	1.2	1.0	9.0	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4d. No-Build 2038 PM - Improved

08/31/2023

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		  			  					
Traffic Volume (vph)	105	1114	78	164	2295	156	101	61	85	126
Future Volume (vph)	105	1114	78	164	2295	156	101	61	85	126
Lane Group Flow (vph)	107	1137	80	167	2342	159	103	155	87	310
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	15.0	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	78.5	78.5	19.0	82.5	82.5	52.5	52.5	52.5	52.5
Total Split (%)	10.0%	52.3%	52.3%	12.7%	55.0%	55.0%	35.0%	35.0%	35.0%	35.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.62	0.36	0.08	0.45	0.74	0.16	1.51	0.42	0.46	0.82
Control Delay	41.8	15.6	5.2	10.9	41.2	14.5	330.6	36.4	59.4	65.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	15.6	5.2	10.9	41.2	14.5	330.6	36.4	59.4	65.9
Queue Length 50th (ft)	55	159	1	66	879	72	~140	88	76	252
Queue Length 95th (ft)	m124	281	m33	m91	m923	m105	#243	146	124	335
Internal Link Dist (ft)		1612			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	181	3142	1046	412	3168	1011	110	566	306	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.36	0.08	0.41	0.74	0.16	0.94	0.27	0.28	0.54

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: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4d. No-Build 2038 PM - Improved
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1114	78	164	2295	156	101	61	91	85	126	177
Future Volume (veh/h)	105	1114	78	164	2295	156	101	61	91	85	126	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	107	1137	80	167	2342	159	103	62	93	87	129	181
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	145	2842	911	349	2960	911	168	179	268	289	194	272
Arrive On Green	0.04	0.57	0.57	0.05	0.58	0.58	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1739	5025	1610	1810	5106	1572	1086	659	989	1232	715	1004
Grp Volume(v), veh/h	107	1137	80	167	2342	159	103	0	155	87	0	310
Grp Sat Flow(s),veh/h/ln	1739	1675	1610	1810	1702	1572	1086	0	1648	1232	0	1719
Q Serve(g_s), s	3.9	19.1	3.4	5.8	53.4	7.1	14.0	0.0	11.4	9.2	0.0	24.0
Cycle Q Clear(g_c), s	3.9	19.1	3.4	5.8	53.4	7.1	38.0	0.0	11.4	20.5	0.0	24.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.58
Lane Grp Cap(c), veh/h	145	2842	911	349	2960	911	168	0	447	289	0	466
V/C Ratio(X)	0.74	0.40	0.09	0.48	0.79	0.17	0.61	0.00	0.35	0.30	0.00	0.66
Avail Cap(c_a), veh/h	187	2842	911	415	2960	911	214	0	516	341	0	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	18.3	14.9	13.9	24.5	14.7	65.5	0.0	44.0	52.2	0.0	48.6
Incr Delay (d2), s/veh	10.7	0.4	0.2	1.0	2.3	0.4	3.6	0.0	0.5	0.6	0.0	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	4.5	11.3	2.2	4.1	27.4	4.5	7.2	0.0	8.2	5.1	0.0	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	18.7	15.1	14.9	26.7	15.2	69.1	0.0	44.4	52.8	0.0	51.1
LnGrp LOS	D	B	B	B	C	B	E	A	D	D	A	D
Approach Vol, veh/h	1324			2668			258			397		
Approach Delay, s/veh	20.4			25.3			54.3			51.5		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	92.4		46.2	13.5	90.3		46.2				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	77.0		47.0	13.5	73.0		47.0				
Max Q Clear Time (g_c+I1), s	5.9	55.4		26.0	7.8	21.1		40.0				
Green Ext Time (p_c), s	0.1	20.5		2.0	0.2	20.3		0.7				
Intersection Summary												
HCM 6th Ctrl Delay				27.8								
HCM 6th LOS				C								

Timings

4d. No-Build 2038 PM - Improved

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	513	539	33	1907	75	432	304	70	57	200	265
Future Volume (vph)	174	513	539	33	1907	75	432	304	70	57	200	265
Lane Group Flow (vph)	183	540	567	35	2007	79	455	320	74	60	211	279
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	28.5	28.5	15.0	30.5	30.5	15.0	47.5	47.5	15.0	54.5	54.5
Total Split (s)	15.0	51.0	51.0	15.0	51.0	51.0	29.5	62.5	62.5	21.5	54.5	54.5
Total Split (%)	10.0%	34.0%	34.0%	10.0%	34.0%	34.0%	19.7%	41.7%	41.7%	14.3%	36.3%	36.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.59	0.22	0.52	0.08	0.97	0.11	0.88	0.65	0.15	0.24	0.74	0.76
Control Delay	39.8	18.3	13.2	10.5	56.0	5.0	81.2	55.8	3.8	34.9	75.4	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	18.3	13.2	10.5	56.0	5.0	81.2	55.8	3.8	34.9	75.4	41.6
Queue Length 50th (ft)	125	101	176	13	761	0	226	286	0	40	201	128
Queue Length 95th (ft)	219	160	352	m13	#971	m14	#310	374	22	68	274	223
Internal Link Dist (ft)		2942			1425			1090			834	
Turn Bay Length (ft)	255		120	240		115	105		160	80		
Base Capacity (vph)	311	2408	1099	447	2068	726	533	707	650	338	614	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.22	0.52	0.08	0.97	0.11	0.85	0.45	0.11	0.18	0.34	0.45

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: 145

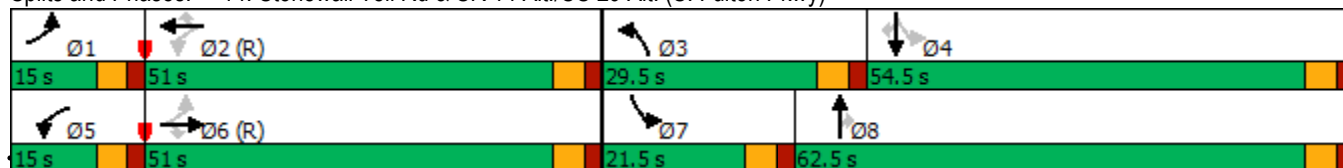
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

4d. No-Build 2038 PM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	513	539	33	1907	75	432	304	70	57	200	265
Future Volume (veh/h)	174	513	539	33	1907	75	432	304	70	57	200	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	183	540	567	35	2007	79	455	320	0	60	211	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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	201	2602	877	348	2650	823	501	449		208	246	
Arrive On Green	0.06	0.55	0.55	0.03	0.51	0.51	0.15	0.24	0.00	0.04	0.13	0.00
Sat Flow, veh/h	1781	4742	1598	1810	5187	1610	3374	1870	1560	1810	1885	1585
Grp Volume(v), veh/h	183	540	567	35	2007	79	455	320	0	60	211	0
Grp Sat Flow(s),veh/h/ln	1781	1581	1598	1810	1729	1610	1687	1870	1560	1810	1885	1585
Q Serve(g_s), s	7.8	8.7	37.2	1.4	46.3	3.8	19.9	23.5	0.0	4.3	16.4	0.0
Cycle Q Clear(g_c), s	7.8	8.7	37.2	1.4	46.3	3.8	19.9	23.5	0.0	4.3	16.4	0.0
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	201	2602	877	348	2650	823	501	449		208	246	
V/C Ratio(X)	0.91	0.21	0.65	0.10	0.76	0.10	0.91	0.71		0.29	0.86	
Avail Cap(c_a), veh/h	201	2602	877	416	2650	823	540	711		331	616	
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	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.5	17.2	23.7	16.5	29.3	18.9	62.8	52.2	0.0	53.7	63.9	0.0
Incr Delay (d2), s/veh	39.7	0.2	3.7	0.1	2.1	0.2	18.4	2.1	0.0	0.8	8.4	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	9.3	5.5	20.7	1.0	25.4	2.6	14.8	16.7	0.0	3.6	13.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.2	17.4	27.4	16.6	31.3	19.1	81.2	54.3	0.0	54.5	72.3	0.0
LnGrp LOS	E	B	C	B	C	B	F	D		D	E	
Approach Vol, veh/h	1290			2121			775			271		
Approach Delay, s/veh	29.8			30.6			70.1			68.4		
Approach LOS	C			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	82.1	27.8	25.1	9.3	87.8	11.3	41.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	45.5	24.0	49.0	9.5	45.5	16.0	57.0				
Max Q Clear Time (g_c+I1), s	9.8	48.3	21.9	18.4	3.4	39.2	6.3	25.5				
Green Ext Time (p_c), s	0.0	0.0	0.4	1.1	0.0	4.3	0.1	1.8				

Intersection Summary

HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4d. No-Build 2038 PM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	75	393	188	134	1836	53	56	95	135	195	81
Future Volume (vph)	75	393	188	134	1836	53	56	95	135	195	81
Lane Group Flow (vph)	79	414	198	141	1933	56	0	159	142	205	202
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	76.5	76.5	15.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	51.0%	51.0%	10.0%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.55	0.22	0.20	0.25	0.93	0.07		0.56	0.30	0.92	0.45
Control Delay	53.7	15.2	2.7	11.1	38.1	4.6		55.8	11.0	96.0	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	53.7	15.2	2.7	11.1	38.1	4.6		55.8	11.0	96.0	36.9
Queue Length 50th (ft)	54	83	5	45	861	0		137	17	197	126
Queue Length 95th (ft)	117	111	19	95	#1303	24		192	66	274	181
Internal Link Dist (ft)		3008			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	160	1867	1009	571	2082	789		410	636	325	628
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.49	0.22	0.20	0.25	0.93	0.07		0.39	0.22	0.63	0.32

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: 150

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

4d. No-Build 2038 PM - Improved

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	393	188	134	1836	53	56	95	135	195	81	111
Future Volume (veh/h)	75	393	188	134	1836	53	56	95	135	195	81	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	79	414	198	141	1933	0	59	100	0	205	85	117
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	123	1854	905	488	2082		124	193		276	197	271
Arrive On Green	0.03	0.57	0.57	0.05	0.59	0.00	0.27	0.27	0.00	0.27	0.27	0.27
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	335	710	1585	1162	724	997
Grp Volume(v), veh/h	79	414	198	141	1933	0	159	0	0	205	0	202
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1045	0	1585	1162	0	1721
Q Serve(g_s), s	2.9	9.4	9.2	5.7	74.1	0.0	11.2	0.0	0.0	11.6	0.0	14.5
Cycle Q Clear(g_c), s	2.9	9.4	9.2	5.7	74.1	0.0	25.7	0.0	0.0	37.2	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	0.37		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	123	1854	905	488	2082		317	0		276	0	468
V/C Ratio(X)	0.64	0.22	0.22	0.29	0.93		0.50	0.00		0.74	0.00	0.43
Avail Cap(c_a), veh/h	176	1854	905	507	2082		431	0		370	0	608
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	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.0	16.1	16.1	12.4	28.2	0.0	51.2	0.0	0.0	55.8	0.0	45.0
Incr Delay (d2), s/veh	5.6	0.3	0.6	0.3	8.8	0.0	1.2	0.0	0.0	5.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	6.1	6.0	3.4	39.8	0.0	9.2	0.0	0.0	12.5	0.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	16.4	16.6	12.7	37.0	0.0	52.4	0.0	0.0	61.2	0.0	45.7
LnGrp LOS	D	B	B	B	D		D	A		E	A	D
Approach Vol, veh/h	691				2074				159			
Approach Delay, s/veh	19.2				35.4				52.4			
Approach LOS	B				D				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	93.4		46.3	13.2	90.5		46.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	9.5	71.0		53.0				
Max Q Clear Time (g_c+I1), s	4.9	76.1		39.2	7.7	11.4		27.7				
Green Ext Time (p_c), s	0.1	0.0		1.6	0.1	7.3		0.8				

Intersection Summary

HCM 6th Ctrl Delay 35.0

HCM 6th LOS D

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

4d. No-Build 2038 PM - Improved

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	81	672	835	2068	213
Future Volume (vph)	38	81	672	835	2068	213
Lane Group Flow (vph)	40	85	707	879	2177	224
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	21.0	75.0	54.0	54.0
Total Split (%)	16.7%	16.7%	23.3%	83.3%	60.0%	60.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.28	0.41	1.13	0.30	1.09	0.23
Control Delay	43.1	15.2	113.4	2.6	70.1	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	15.2	113.4	2.6	70.1	3.2
Queue Length 50th (ft)	22	0	~234	53	~775	9
Queue Length 95th (ft)	52	42	#367	81	#913	42
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	183	243	625	2971	2005	985
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.35	1.13	0.30	1.09	0.23

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 140

Control Type: Actuated-Coordinated

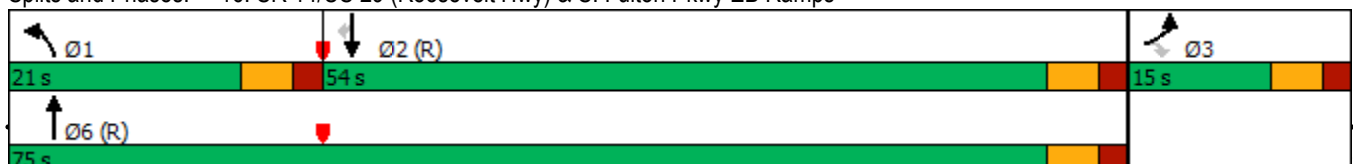
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary
 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

4d. No-Build 2038 PM - Improved

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	81	672	835	2068	213
Future Volume (veh/h)	38	81	672	835	2068	213
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1870	1841	1885	1856	1870
Adj Flow Rate, veh/h	40	0	707	879	2177	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	4	1	3	2
Cap, veh/h	62		586	3018	2148	
Arrive On Green	0.04	0.00	0.17	0.84	0.61	0.00
Sat Flow, veh/h	1753	1585	3401	3676	3618	1585
Grp Volume(v), veh/h	40	0	707	879	2177	0
Grp Sat Flow(s),veh/h/ln	1753	1585	1700	1791	1763	1585
Q Serve(g_s), s	2.0	0.0	15.5	4.6	54.8	0.0
Cycle Q Clear(g_c), s	2.0	0.0	15.5	4.6	54.8	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	62		586	3018	2148	
V/C Ratio(X)	0.65		1.21	0.29	1.01	
Avail Cap(c_a), veh/h	185		586	3018	2148	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.09	0.00
Uniform Delay (d), s/veh	42.9	0.0	37.3	1.5	17.6	0.0
Incr Delay (d2), s/veh	11.0	0.0	108.6	0.2	9.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	23.1	0.6	22.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.8	0.0	145.8	1.7	27.2	0.0
LnGrp LOS	D		F	A	F	
Approach Vol, veh/h	40			1586	2177	
Approach Delay, s/veh	53.8			66.0	27.2	
Approach LOS	D			E	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	60.3			81.3	8.7
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	15.5	48.5			69.5	9.5
Max Q Clear Time (g_c+l1), s	17.5	56.8			6.6	4.0
Green Ext Time (p_c), s	0.0	0.0			15.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	43.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

4d. No-Build 2038 PM - Improved

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	85	1167	48	824	1115
Future Volume (vph)	85	1167	48	824	1115
Lane Group Flow (vph)	90	1241	51	877	1387
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	74.0	74.0	46.0	46.0	46.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.09	1.41	0.81	0.73	1.17
Control Delay	12.0	215.9	109.4	39.1	121.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	215.9	109.4	39.1	121.3
Queue Length 50th (ft)	30	~1296	36	312	~670
Queue Length 95th (ft)	55	#1560	#116	388	#812
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	990	881	63	1206	1187
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	1.41	0.81	0.73	1.17

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 105 (88%), Referenced to phase 2:SBT and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

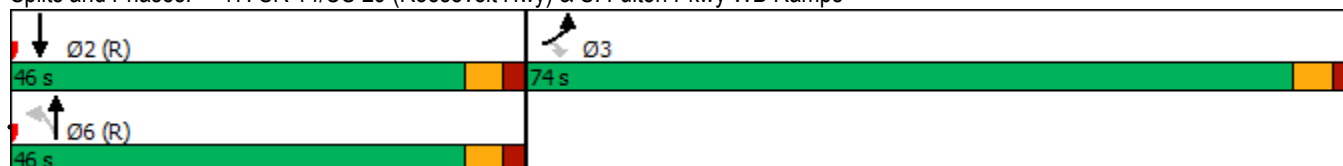
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Summary
 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

4d. No-Build 2038 PM - Improved

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	1167	48	824	1115	189
Future Volume (veh/h)	85	1167	48	824	1115	189
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1826	1900	1885	1885	1856
Adj Flow Rate, veh/h	90	0	51	877	1186	201
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	5	0	1	1	3
Cap, veh/h	116		354	3017	2583	435
Arrive On Green	0.07	0.00	0.84	0.84	0.84	0.84
Sat Flow, veh/h	1753	1547	396	3676	3160	517
Grp Volume(v), veh/h	90	0	51	877	690	697
Grp Sat Flow(s),veh/h/ln	1753	1547	396	1791	1791	1792
Q Serve(g_s), s	6.1	0.0	4.6	6.1	11.9	12.0
Cycle Q Clear(g_c), s	6.1	0.0	16.6	6.1	11.9	12.0
Prop In Lane	1.00	1.00	1.00			0.29
Lane Grp Cap(c), veh/h	116		354	3017	1509	1510
V/C Ratio(X)	0.78		0.14	0.29	0.46	0.46
Avail Cap(c_a), veh/h	1001		354	3017	1509	1510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	55.2	0.0	4.6	2.0	2.4	2.4
Incr Delay (d2), s/veh	10.7	0.0	0.8	0.2	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	0.0	0.7	2.0	4.2	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	65.9	0.0	5.4	2.2	3.4	3.5
LnGrp LOS	E		A	A	A	A
Approach Vol, veh/h	90			928	1387	
Approach Delay, s/veh	65.9			2.4	3.4	
Approach LOS	E			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	106.6		106.6		13.4	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	40.5		40.5		68.5	
Max Q Clear Time (g_c+I1), s	14.0		18.6		8.1	
Green Ext Time (p_c), s	18.0		11.2		0.3	

Intersection Summary

HCM 6th Ctrl Delay	5.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings
29: SR 92 & S. Fulton Pkwy EB Ramps

4d. No-Build 2038 PM - Improved

08/31/2023



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	373	276	1406	52	594	1091
Future Volume (vph)	373	276	1406	52	594	1091
Lane Group Flow (vph)	405	300	1528	57	646	1186
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	7		6		5	2
Permitted Phases		4		6		
Detector Phase	7	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	31.5	28.5	28.5	15.0	28.5
Total Split (s)	31.5	31.5	45.5	45.5	23.0	68.5
Total Split (%)	31.5%	31.5%	45.5%	45.5%	23.0%	68.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.69	0.50	1.06	0.08	0.73	0.47
Control Delay	45.1	19.8	72.9	2.0	51.4	2.4
Queue Delay	0.0	0.0	14.8	0.0	0.0	0.4
Total Delay	45.1	19.8	87.8	2.0	51.4	2.8
Queue Length 50th (ft)	126	46	~575	0	230	52
Queue Length 95th (ft)	167	85	#712	12	m197	m46
Internal Link Dist (ft)			1460			343
Turn Bay Length (ft)	100	100		100	175	
Base Capacity (vph)	892	840	1436	694	886	2545
Starvation Cap Reductn	0	0	0	0	0	761
Spillback Cap Reductn	0	0	50	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.36	1.10	0.08	0.73	0.66

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

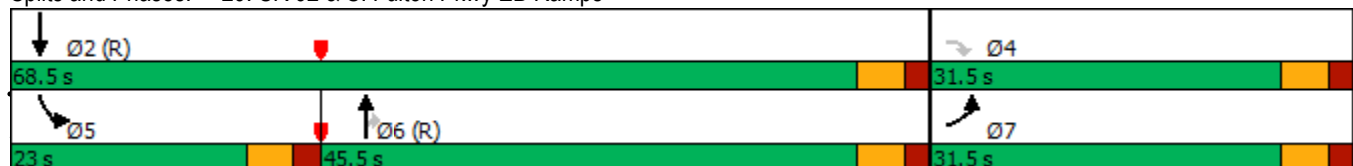
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 29: SR 92 & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Summary
29: SR 92 & S. Fulton Pkwy EB Ramps

4d. No-Build 2038 PM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 					 		 	 	
Traffic Volume (veh/h)	373	0	276	0	0	0	0	1406	52	594	1091	0
Future Volume (veh/h)	373	0	276	0	0	0	0	1406	52	594	1091	0
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
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	0	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	405	0	0				0	1528	0	646	1186	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	2	2	0
Cap, veh/h	503	0					0	1829		605	2646	0
Arrive On Green	0.15	0.00	0.00				0.00	0.51	0.00	0.35	1.00	0.00
Sat Flow, veh/h	3456	0	2790				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	405	0	0				0	1528	0	646	1186	0
Grp Sat Flow(s),veh/h/ln	1728	0	1395				0	1777	1585	1728	1777	0
Q Serve(g_s), s	11.3	0.0	0.0				0.0	36.6	0.0	17.5	0.0	0.0
Cycle Q Clear(g_c), s	11.3	0.0	0.0				0.0	36.6	0.0	17.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	503	0					0	1829		605	2646	0
V/C Ratio(X)	0.81	0.00					0.00	0.84		1.07	0.45	0.00
Avail Cap(c_a), veh/h	898	0					0	1829		605	2646	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	41.4	0.0	0.0				0.0	20.7	0.0	32.5	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0				0.0	4.7	0.0	34.4	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	8.7	0.0	0.0				0.0	20.0	0.0	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	0.0				0.0	25.4	0.0	66.9	0.0	0.0
LnGrp LOS	D	A					A	C		F	A	A
Approach Vol, veh/h	405						1528			1832		
Approach Delay, s/veh	44.5						25.4			23.6		
Approach LOS	D						C			C		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	80.0			20.0			23.0			57.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	63.0			26.0			17.5			40.0		
Max Q Clear Time (g_c+I1), s	2.0			13.3			19.5			38.6		
Green Ext Time (p_c), s	22.5			1.2			0.0			1.3		
Intersection Summary												
HCM 6th Ctrl Delay	26.6											
HCM 6th LOS	C											

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Timings
30: SR 92 & S. Fulton Pkwy WB Ramps

4d. No-Build 2038 PM - Improved
08/31/2023

						
Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	251	913	196	1583	1434	225
Future Volume (vph)	251	913	196	1583	1434	225
Lane Group Flow (vph)	273	992	213	1721	1559	245
Turn Type	pm+pt	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases	8	8				2
Detector Phase	3	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	30.5	15.0	28.5	28.5	28.5
Total Split (s)	45.0	45.0	15.0	55.0	40.0	40.0
Total Split (%)	45.0%	45.0%	15.0%	55.0%	40.0%	40.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.39	1.47	0.67	0.98	1.27	0.37
Control Delay	23.7	242.7	61.1	29.4	157.8	8.9
Queue Delay	0.0	0.0	0.0	14.9	0.0	0.0
Total Delay	23.7	242.7	61.1	44.2	157.8	8.9
Queue Length 50th (ft)	122	~843	76	265	~665	28
Queue Length 95th (ft)	191	#1090	m80	m258	#803	86
Internal Link Dist (ft)				343	535	
Turn Bay Length (ft)		250	100			250
Base Capacity (vph)	699	677	326	1751	1229	667
Starvation Cap Reductn	0	0	0	92	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	1.47	0.65	1.04	1.27	0.37

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

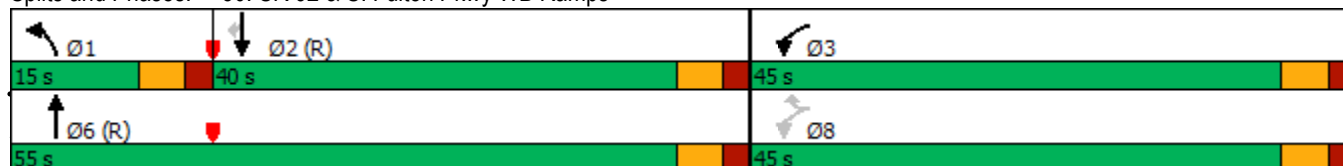
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 30: SR 92 & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Summary
30: SR 92 & S. Fulton Pkwy WB Ramps

4d. No-Build 2038 PM - Improved

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	251	0	913	196	1583	0	0	1434	225
Future Volume (veh/h)	0	0	0	251	0	913	196	1583	0	0	1434	225
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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				273	0	0	213	1721	0	0	1559	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	2	2	0	0	2	2
Cap, veh/h				315	0		276	2535	0	0	2055	
Arrive On Green				0.18	0.00	0.00	0.16	1.00	0.00	0.00	0.58	0.00
Sat Flow, veh/h				1781	0	1585	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				273	0	0	213	1721	0	0	1559	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1585
Q Serve(g_s), s				14.9	0.0	0.0	5.9	0.0	0.0	0.0	33.0	0.0
Cycle Q Clear(g_c), s				14.9	0.0	0.0	5.9	0.0	0.0	0.0	33.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				315	0		276	2535	0	0	2055	
V/C Ratio(X)				0.87	0.00		0.77	0.68	0.00	0.00	0.76	
Avail Cap(c_a), veh/h				704	0		328	2535	0	0	2055	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.12	0.12	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				40.0	0.0	0.0	41.1	0.0	0.0	0.0	15.8	0.0
Incr Delay (d2), s/veh				7.2	0.0	0.0	1.2	0.2	0.0	0.0	2.7	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				11.4	0.0	0.0	3.1	0.1	0.0	0.0	17.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				47.2	0.0	0.0	42.3	0.2	0.0	0.0	18.5	0.0
LnGrp LOS				D	A		D	A	A	A	B	
Approach Vol, veh/h					273			1934			1559	
Approach Delay, s/veh					47.2			4.8			18.5	
Approach LOS					D			A			B	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	13.5	63.3				76.8		23.2				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	34.5				49.5		39.5				
Max Q Clear Time (g_c+I1), s	7.9	35.0				2.0		16.9				
Green Ext Time (p_c), s	0.1	0.0				33.7		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				13.6								
HCM 6th LOS				B								
Notes												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

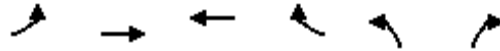
Future 2038 “Build” Intersections Analysis (Full Build-Out)

Timings

1: I-85 NB Ramps & Collinsworth Rd

5a. Build 2038 AM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	826	728	718	985	564	547
Future Volume (vph)	826	728	718	985	564	547
Lane Group Flow (vph)	879	774	764	1048	600	582
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	42.0	86.0	44.0	44.0	34.0	34.0
Total Split (%)	35.0%	71.7%	36.7%	36.7%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	1.52	0.33	1.33	1.27	1.49	1.07
Control Delay	263.6	15.5	194.8	150.6	265.1	83.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	263.6	15.5	194.8	150.6	265.1	83.5
Queue Length 50th (ft)	~931	224	~768	~748	~641	~345
Queue Length 95th (ft)	m#591	m155	#1007	#1007	#865	#570
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	577	2351	574	826	404	546
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.52	0.33	1.33	1.27	1.49	1.07

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 39 (33%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

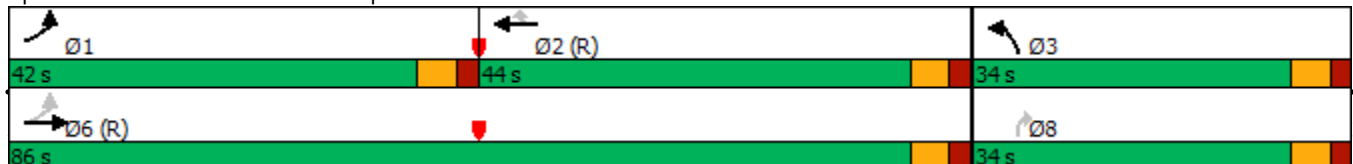
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary

1: I-85 NB Ramps & Collinsworth Rd

5a. Build 2038 AM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	826	728	0	0	718	985	564	0	547	0	0	0
Future Volume (veh/h)	826	728	0	0	718	985	564	0	547	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	879	774	0	0	764	0	600	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	585	2365	0	0	581		410	0				
Arrive On Green	0.51	1.00	0.00	0.00	0.32	0.00	0.24	0.00	0.00			
Sat Flow, veh/h	1725	3618	0	0	1811	1535	1725	0	1535			
Grp Volume(v), veh/h	879	774	0	0	764	0	600	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1763	0	0	1811	1535	1725	0	1535			
Q Serve(g_s), s	36.5	0.0	0.0	0.0	38.5	0.0	28.5	0.0	0.0			
Cycle Q Clear(g_c), s	36.5	0.0	0.0	0.0	38.5	0.0	28.5	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	585	2365	0	0	581		410	0				
V/C Ratio(X)	1.50	0.33	0.00	0.00	1.31		1.46	0.00				
Avail Cap(c_a), veh/h	585	2365	0	0	581		410	0				
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	23.2	0.0	0.0	0.0	40.8	0.0	45.8	0.0	0.0			
Incr Delay (d2), s/veh	227.4	0.0	0.0	0.0	153.6	0.0	222.1	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	57.5	0.0	0.0	0.0	60.0	0.0	56.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	250.6	0.0	0.0	0.0	194.4	0.0	267.9	0.0	0.0			
LnGrp LOS	F	A	A	A	F		F	A				
Approach Vol, veh/h	1653			764			600					
Approach Delay, s/veh	133.3			194.4			267.9					
Approach LOS	F			F			F					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	42.0	44.0					86.0	34.0				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	36.5	38.5					80.5	28.5				
Max Q Clear Time (g_c+l1), s	38.5	40.5					2.0	30.5				
Green Ext Time (p_c), s	0.0	0.0					12.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 175.5

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

5a. Build 2038 AM (Full Build-Out)

08/31/2023



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	1380	441	304	1038	221	514
Future Volume (vph)	1380	441	304	1038	221	514
Lane Group Flow (vph)	1453	464	320	1093	233	541
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	72.0	72.0	18.0	90.0	30.0	30.0
Total Split (%)	60.0%	60.0%	15.0%	75.0%	25.0%	25.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	1.42	0.45	1.31	0.87	0.35	1.33
Control Delay	207.4	0.2	186.1	6.5	42.6	194.5
Queue Delay	0.0	0.0	0.0	2.9	0.0	0.0
Total Delay	207.4	0.2	186.1	9.4	42.6	194.5
Queue Length 50th (ft)	~1509	0	~278	66	80	~455
Queue Length 95th (ft)	m213	m0	m145	m19	119	#676
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	1022	1022	244	1261	674	406
Starvation Cap Reductn	0	0	0	92	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.42	0.45	1.31	0.93	0.35	1.33

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 54 (45%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

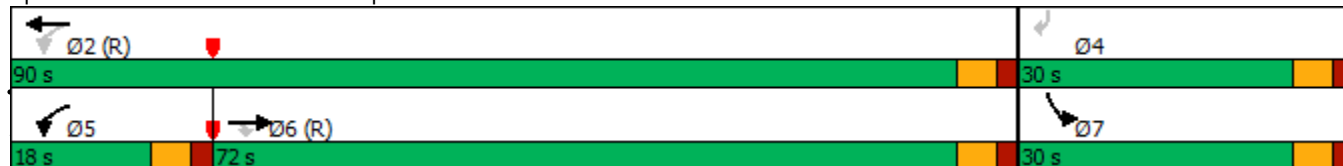
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

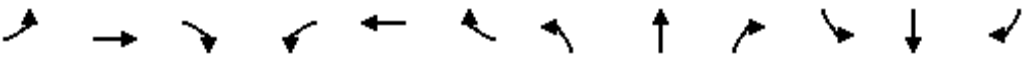
Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

5a. Build 2038 AM (Full Build-Out)

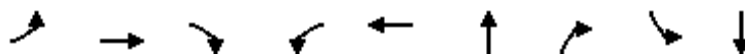
08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖	↓	↗
Traffic Volume (veh/h)	0	1380	441	304	1038	0	0	0	0	221	0	514
Future Volume (veh/h)	0	1380	441	304	1038	0	0	0	0	221	0	514
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	1453	0	320	1093	0				233	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	1240		244	1482	0				302	0	
Arrive On Green	0.00	0.22	0.00	0.10	0.82	0.00				0.09	0.00	0.00
Sat Flow, veh/h	0	1856	1497	1767	1811	0				3346	0	1459
Grp Volume(v), veh/h	0	1453	0	320	1093	0				233	0	0
Grp Sat Flow(s),veh/h/ln	0	1856	1497	1767	1811	0				1673	0	1459
Q Serve(g_s), s	0.0	80.2	0.0	12.5	33.2	0.0				8.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	80.2	0.0	12.5	33.2	0.0				8.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1240		244	1482	0				302	0	
V/C Ratio(X)	0.00	1.17		1.31	0.74	0.00				0.77	0.00	
Avail Cap(c_a), veh/h	0	1240		244	1482	0				683	0	
HCM Platoon Ratio	1.00	0.33	0.33	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	46.8	0.0	46.0	5.0	0.0				53.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	78.3	0.0	142.7	0.3	0.0				4.2	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	0.0	81.7	0.0	21.2	7.1	0.0				6.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	125.0	0.0	188.7	5.3	0.0				57.6	0.0	0.0
LnGrp LOS	A	F		F	A	A				E	A	
Approach Vol, veh/h		1453			1413						233	
Approach Delay, s/veh		125.0			46.8						57.6	
Approach LOS		F			D						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		103.7		16.3	18.0	85.7						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		84.5		24.5	12.5	66.5						
Max Q Clear Time (g_c+I1), s		35.2		10.2	14.5	82.2						
Green Ext Time (p_c), s		24.4		0.7	0.0	0.0						
Intersection Summary												
HCM 6th Ctrl Delay			84.3									
HCM 6th LOS			F									
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 3: Weldon Rd & Collinsworth Rd

5a. Build 2038 AM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations		↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	31	502	5	47	231	1	9	1051	5
Future Volume (vph)	31	502	5	47	231	1	9	1051	5
Lane Group Flow (vph)	0	555	5	49	1140	1	9	0	1110
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases		6		5	2	8			4
Permitted Phases	6		6	2			8	4	
Detector Phase	6	6	6	5	2	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	57.0	57.0	57.0	15.0	72.0	48.0	48.0	48.0	48.0
Total Split (%)	47.5%	47.5%	47.5%	12.5%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None
v/c Ratio		2.06	0.01	0.15	1.12	0.00	0.01		2.31
Control Delay		512.1	0.0	13.5	78.8	25.0	0.0		619.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		512.1	0.0	13.5	78.8	25.0	0.0		619.1
Queue Length 50th (ft)		~686	0	18	~970	1	0		~1402
Queue Length 95th (ft)		#728	0	m18	m#947	5	0		#1658
Internal Link Dist (ft)		914			947	293			729
Turn Bay Length (ft)			365	315					
Base Capacity (vph)		269	780	350	1022	659	607		480
Starvation Cap Reductn		0	0	0	0	0	0		0
Spillback Cap Reductn		0	0	0	0	0	0		0
Storage Cap Reductn		0	0	0	0	0	0		0
Reduced v/c Ratio		2.06	0.01	0.14	1.12	0.00	0.01		2.31

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

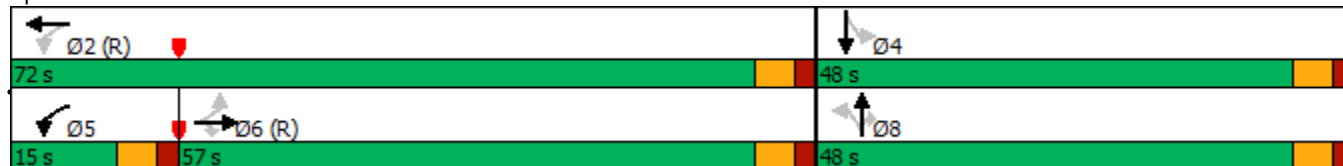
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary 3: Weldon Rd & Collinsworth Rd

5a. Build 2038 AM (Full Build-Out)

08/31/2023

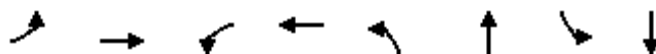
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	502	5	47	231	863	0	1	9	1051	5	10
Future Volume (veh/h)	31	502	5	47	231	863	0	1	9	1051	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	523	5	49	241	899	0	1	9	1095	5	10
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	32	321	753	120	192	716	0	662	561	551	2	4
Arrive On Green	0.47	0.47	0.47	0.01	0.18	0.18	0.00	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	0	677	1585	1781	346	1292	0	1870	1585	1387	6	13
Grp Volume(v), veh/h	555	0	5	49	0	1140	0	1	9	1110	0	0
Grp Sat Flow(s),veh/h/ln	677	0	1585	1781	0	1638	0	1870	1585	1406	0	0
Q Serve(g_s), s	0.0	0.0	0.2	1.6	0.0	66.5	0.0	0.0	0.4	42.5	0.0	0.0
Cycle Q Clear(g_c), s	57.0	0.0	0.2	1.6	0.0	66.5	0.0	0.0	0.4	42.5	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.79	0.00		1.00	0.99		0.01
Lane Grp Cap(c), veh/h	353	0	753	120	0	908	0	662	561	558	0	0
V/C Ratio(X)	1.57	0.00	0.01	0.41	0.00	1.26	0.00	0.00	0.02	1.99	0.00	0.00
Avail Cap(c_a), veh/h	353	0	753	201	0	908	0	662	561	558	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.09	0.00	0.09	0.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.1	0.0	16.6	29.1	0.0	49.0	0.0	25.0	25.2	41.0	0.0	0.0
Incr Delay (d2), s/veh	270.6	0.0	0.0	0.2	0.0	116.1	0.0	0.0	0.0	452.0	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	58.1	0.0	0.1	1.0	0.0	74.7	0.0	0.0	0.3	137.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	313.7	0.0	16.6	29.3	0.0	165.1	0.0	25.0	25.2	493.1	0.0	0.0
LnGrp LOS	F	A	B	C	A	F	A	C	C	F	A	A
Approach Vol, veh/h	560		1189				10		1110			
Approach Delay, s/veh	311.0		159.5				25.2		493.1			
Approach LOS	F		F				C		F			
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	72.0		48.0		9.5	62.5	48.0					
Change Period (Y+Rc), s	5.5		5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	66.5		42.5		9.5	51.5	42.5					
Max Q Clear Time (g_c+I1), s	68.5		44.5		3.6	59.0	2.4					
Green Ext Time (p_c), s	0.0		0.0		0.0	0.0	0.0					
Intersection Summary												
HCM 6th Ctrl Delay	317.7											
HCM 6th LOS	F											

Timings

4: SR 14/US 29 (Main St) & Toombs St

5a. Build 2038 AM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	154	437	10	400	62	526	148	464
Future Volume (vph)	154	437	10	400	62	526	148	464
Lane Group Flow (vph)	0	730	0	583	0	667	0	784
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	58.0	58.0	58.0	58.0	62.0	62.0	62.0	62.0
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.7%	51.7%	51.7%	51.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		1.53		0.73		0.98		1.54
Control Delay		276.9		33.5		62.1		279.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		276.9		33.5		62.1		279.6
Queue Length 50th (ft)		~796		357		494		~856
Queue Length 95th (ft)		#1035		500		#760		#1099
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		477		802		680		509
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		1.53		0.73		0.98		1.54

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: 130

Control Type: Actuated-Coordinated

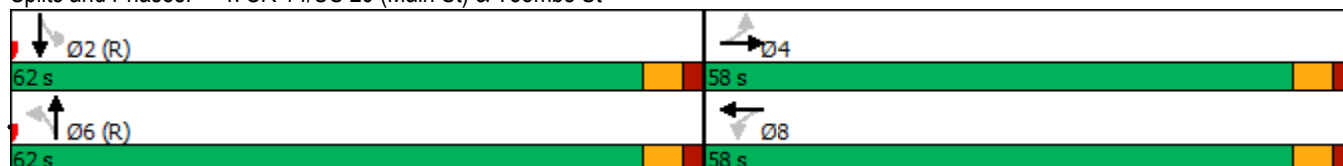
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

5a. Build 2038 AM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	437	66	10	400	115	62	526	13	148	464	94
Future Volume (veh/h)	154	437	66	10	400	115	62	526	13	148	464	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	171	486	73	11	444	128	69	584	14	164	516	104
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	139	319	47	37	617	175	83	584	14	101	236	46
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	233	728	107	14	1410	400	106	1240	29	138	501	98
Grp Volume(v), veh/h	730	0	0	583	0	0	667	0	0	784	0	0
Grp Sat Flow(s),veh/h/ln	1068	0	0	1824	0	0	1375	0	0	738	0	0
Q Serve(g_s), s	20.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	52.5	0.0	0.0	31.6	0.0	0.0	56.5	0.0	0.0	56.5	0.0	0.0
Prop In Lane	0.23		0.10	0.02		0.22	0.10		0.02	0.21		0.13
Lane Grp Cap(c), veh/h	504	0	0	829	0	0	680	0	0	384	0	0
V/C Ratio(X)	1.45	0.00	0.00	0.70	0.00	0.00	0.98	0.00	0.00	2.04	0.00	0.00
Avail Cap(c_a), veh/h	504	0	0	829	0	0	680	0	0	384	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	38.6	0.0	0.0	27.9	0.0	0.0	31.1	0.0	0.0	33.0	0.0	0.0
Incr Delay (d2), s/veh	212.2	0.0	0.0	2.7	0.0	0.0	30.0	0.0	0.0	478.9	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	69.7	0.0	0.0	20.4	0.0	0.0	33.1	0.0	0.0	104.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	250.8	0.0	0.0	30.6	0.0	0.0	61.1	0.0	0.0	511.8	0.0	0.0
LnGrp LOS	F	A	A	C	A	A	E	A	A	F	A	A
Approach Vol, veh/h	730		583			667			784			
Approach Delay, s/veh	250.8		30.6			61.1			511.8			
Approach LOS	F		C			E			F			
Timer - Assigned Phs	2		4			6			8			
Phs Duration (G+Y+Rc), s	62.0		58.0			62.0			58.0			
Change Period (Y+Rc), s	5.5		5.5			5.5			5.5			
Max Green Setting (Gmax), s	56.5		52.5			56.5			52.5			
Max Q Clear Time (g_c+I1), s	58.5		54.5			58.5			33.6			
Green Ext Time (p_c), s	0.0		0.0			0.0			3.9			
Intersection Summary												
HCM 6th Ctrl Delay	232.6											
HCM 6th LOS	F											

Intersection

Intersection Delay, s/veh 181.1

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	47	78	40	651	830	26
Future Vol, veh/h	47	78	40	651	830	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	80	41	671	856	27
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	14.7	92.6	276.9
HCM LOS	B	F	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	0%	97%
Vol Thru, %	62%	6%	0%
Vol Right, %	0%	94%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	691	856
LT Vol	47	0	830
Through Vol	78	40	0
RT Vol	0	651	26
Lane Flow Rate	129	712	882
Geometry Grp	1	1	1
Degree of Util (X)	0.254	1.094	1.556
Departure Headway (Hd)	8.721	6.8	6.557
Convergence, Y/N	Yes	Yes	Yes
Cap	415	541	565
Service Time	6.721	4.8	4.557
HCM Lane V/C Ratio	0.311	1.316	1.561
HCM Control Delay	14.7	92.6	276.9
HCM Lane LOS	B	F	F
HCM 95th-tile Q	1	18.2	45.2

Intersection						
Int Delay, s/veh	546.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	101	369	217	641	671	91
Future Vol, veh/h	101	369	217	641	671	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	388	228	675	706	96
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	903	0	-	0	1166	566
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	600	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	753	-	-	-	~ 214	524
Stage 1	-	-	-	-	~ 568	-
Stage 2	-	-	-	-	~ 548	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	753	-	-	-	~ 175	524
Mov Cap-2 Maneuver	-	-	-	-	~ 175	-
Stage 1	-	-	-	-	~ 466	-
Stage 2	-	-	-	-	~ 548	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		\$ 1498.1		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	753	-	-	-	190	
HCM Lane V/C Ratio	0.141	-	-	-	4.222	
HCM Control Delay (s)	10.6	0	-	-	\$ 1498.1	
HCM Lane LOS	B	A	-	-	F	
HCM 95th %tile Q(veh)	0.5	-	-	-	80.3	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	1247					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	390	129	600	397	116	465
Future Vol, veh/h	390	129	600	397	116	465
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	165	769	509	149	596
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1918	1024	0	0	1278	0
Stage 1	1024	-	-	-	-	-
Stage 2	894	-	-	-	-	-
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	~ 74	286	-	-	543	-
Stage 1	~ 347	-	-	-	-	-
Stage 2	~ 399	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 44	286	-	-	543	-
Mov Cap-2 Maneuver	~ 44	-	-	-	-	-
Stage 1	~ 347	-	-	-	-	-
Stage 2	~ 235	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, \$	5035.3	0		2.8		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	56	543	-	
HCM Lane V/C Ratio	-	-11.882	0.274	-		
HCM Control Delay (s)	-	\$ 5035.3	14.1	0		
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q(veh)	-	-	79.3	1.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	52.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕	↗		↕↗	
Traffic Vol, veh/h	7	615	207	1041	172	119	163	68	732	103	89	6
Future Vol, veh/h	7	615	207	1041	172	119	163	68	732	103	89	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	None
Storage Length	-	-	210	-	-	250	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	699	235	1183	195	135	185	77	832	117	101	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	195	0	0	699	0	0	3330	3276	699	3315	3276	195
Stage 1	-	-	-	-	-	-	715	715	-	2561	2561	-
Stage 2	-	-	-	-	-	-	2615	2561	-	754	715	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1378	-	-	~ 898	-	-	~ 5	~ 9	~ 440	~ 5	~ 9	846
Stage 1	-	-	-	-	-	-	422	434	-	~ 36	~ 54	-
Stage 2	-	-	-	-	-	-	~ 33	~ 54	-	401	434	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1378	-	-	~ 898	-	-	-	0	~ 440	-	0	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-	-	0	-
Stage 1	-	-	-	-	-	-	417	428	-	~ 36	0	-
Stage 2	-	-	-	-	-	-	-	0	-	-	428	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			130.4								
HCM LOS							-			-		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	-		440	1378	-	-	~ 898	-	-	-		
HCM Lane V/C Ratio	-		1.89	0.006	-	-	1.317	-	-	-		
HCM Control Delay (s)	-\$		430.6	7.6	0	-	166.9	0	-	-		
HCM Lane LOS	-		F	A	A	-	F	A	-	-		
HCM 95th %tile Q(veh)	-		54.7	0	-	-	45.4	-	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1324	106	5	1258	8	69	7	0	23	30	0
Future Vol, veh/h	0	1324	106	5	1258	8	69	7	0	23	30	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1455	116	5	1382	9	76	8	0	25	33	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1382	0	0	1455	0	0	2864	2847	728	2124	2847	-
Stage 1	-	-	-	-	-	-	1455	1455	-	1392	1392	-
Stage 2	-	-	-	-	-	-	1409	1392	-	732	1455	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	494	-	-	463	-	-	~ 9	17	367	32	~ 17	0
Stage 1	-	-	-	-	-	-	137	194	-	175	208	0
Stage 2	-	-	-	-	-	-	171	208	-	380	194	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	494	-	-	463	-	-	-	17	367	30	~ 17	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 63	99	-	30	~ 17	-
Stage 1	-	-	-	-	-	-	137	194	-	175	206	-
Stage 2	-	-	-	-	-	-	142	206	-	365	194	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	494	-	-	463	-	-	30	-
HCM Lane V/C Ratio	-	-	-	-	0.012	-	-	0.842	-
HCM Control Delay (s)	-	0	-	-	12.9	-	-	\$ 305.8	-
HCM Lane LOS	-	A	-	-	B	-	-	F	-
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	2.8	-

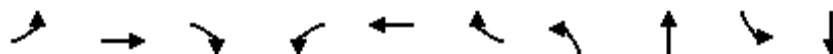
Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Timings

5a. Build 2038 AM (Full Build-Out)

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗↗	↰	↰	↗↗	↰	↰	↗	↰	↗
Traffic Volume (vph)	79	1240	28	201	1125	5	42	378	3	403
Future Volume (vph)	79	1240	28	201	1125	5	42	378	3	403
Lane Group Flow (vph)	84	1319	30	214	1197	5	45	698	3	529
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	15.0	50.2	50.2	20.0	55.2	55.2	49.8	49.8	49.8	49.8
Total Split (%)	12.5%	41.8%	41.8%	16.7%	46.0%	46.0%	41.5%	41.5%	41.5%	41.5%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.64	1.00	0.05	1.00	0.81	0.01	0.34	1.05	0.05	0.78
Control Delay	75.5	62.9	0.1	115.8	36.1	0.0	36.4	84.2	27.0	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	62.9	0.1	115.8	36.1	0.0	36.4	84.2	27.0	42.5
Queue Length 50th (ft)	64	~533	0	~168	425	0	25	~571	2	353
Queue Length 95th (ft)	#129	#697	0	#329	517	0	63	#807	9	496
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	140	1318	635	213	1481	705	132	665	62	675
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	1.00	0.05	1.00	0.81	0.01	0.34	1.05	0.05	0.78

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

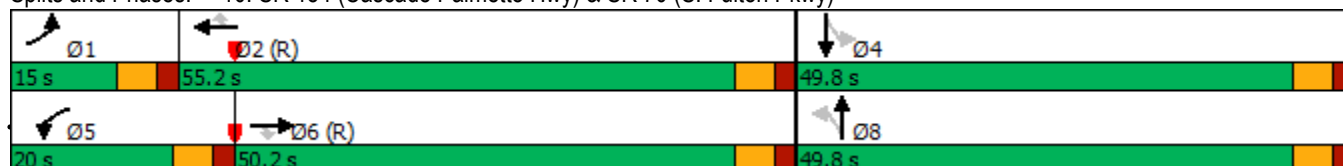
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5a. Build 2038 AM (Full Build-Out)

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	1240	28	201	1125	5	42	378	278	3	403	94
Future Volume (veh/h)	79	1240	28	201	1125	5	42	378	278	3	403	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	1319	0	214	1197	0	45	402	296	3	429	100
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	106	1324		215	1541		155	369	272	60	542	126
Arrive On Green	0.06	0.37	0.00	0.12	0.43	0.00	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	874	1001	737	748	1467	342
Grp Volume(v), veh/h	84	1319	0	214	1197	0	45	0	698	3	0	529
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	874	0	1738	748	0	1809
Q Serve(g_s), s	5.6	44.4	0.0	14.4	34.5	0.0	5.8	0.0	44.3	0.0	0.0	31.3
Cycle Q Clear(g_c), s	5.6	44.4	0.0	14.4	34.5	0.0	37.1	0.0	44.3	44.3	0.0	31.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.19
Lane Grp Cap(c), veh/h	106	1324		215	1541		155	0	642	60	0	668
V/C Ratio(X)	0.79	1.00		0.99	0.78		0.29	0.00	1.09	0.05	0.00	0.79
Avail Cap(c_a), veh/h	141	1324		215	1541		155	0	642	60	0	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	55.7	37.6	0.0	52.7	29.0	0.0	50.3	0.0	37.9	60.0	0.0	33.7
Incr Delay (d2), s/veh	19.5	23.9	0.0	59.6	3.9	0.0	1.0	0.0	61.8	0.3	0.0	6.5
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	5.4	29.8	0.0	14.8	20.5	0.0	2.3	0.0	39.3	0.2	0.0	20.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	61.5	0.0	112.3	32.9	0.0	51.3	0.0	99.7	60.3	0.0	40.2
LnGrp LOS	E	E		F	C		D	A	F	E	A	D
Approach Vol, veh/h	1403			1411			743			532		
Approach Delay, s/veh	62.3			45.0			96.8			40.3		
Approach LOS	E			D			F			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	57.6		49.8	20.0	50.2		49.8				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.7		44.3	14.5	44.7		44.3				
Max Q Clear Time (g_c+I1), s	7.6	36.5		46.3	16.4	46.4		46.3				
Green Ext Time (p_c), s	0.0	9.2		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 59.7

HCM 6th LOS E

Notes

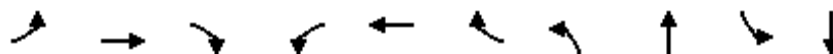
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5a. Build 2038 AM (Full Build-Out)

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	84	1826	100	195	1561	125	83	161	237	239
Future Volume (vph)	84	1826	100	195	1561	125	83	161	237	239
Lane Group Flow (vph)	91	1985	109	212	1697	136	90	564	258	346
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	73.0	73.0	15.0	73.0	73.0	15.0	45.0	17.0	47.0
Total Split (%)	10.0%	48.7%	48.7%	10.0%	48.7%	48.7%	10.0%	30.0%	11.3%	31.3%
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	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
v/c Ratio	0.61	1.25	0.16	1.32	1.10	0.17	0.41	1.13	1.37	0.68
Control Delay	42.7	152.6	6.0	197.9	65.5	0.1	37.3	125.6	228.0	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	152.6	6.0	197.9	65.5	0.1	37.3	125.6	228.0	54.3
Queue Length 50th (ft)	41	~1268	6	~223	~990	0	58	~586	~283	295
Queue Length 95th (ft)	99	#1402	43	m#126	m258	m0	100	#825	#468	411
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	158	1592	664	161	1538	782	225	497	188	511
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	1.25	0.16	1.32	1.10	0.17	0.40	1.13	1.37	0.68

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 4 (3%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

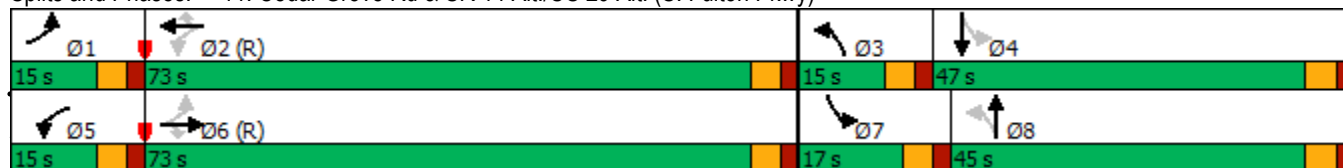
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5a. Build 2038 AM (Full Build-Out)

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	1826	100	195	1561	125	83	161	358	237	239	79
Future Volume (veh/h)	84	1826	100	195	1561	125	83	161	358	237	239	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	91	1985	0	212	1697	0	90	175	389	258	260	86
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	119	1599		161	1613		236	137	305	187	385	127
Arrive On Green	0.04	0.45	0.00	0.06	0.47	0.00	0.05	0.26	0.26	0.08	0.29	0.29
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	520	1157	1810	1345	445
Grp Volume(v), veh/h	91	1985	0	212	1697	0	90	0	564	258	0	346
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	0	1677	1810	0	1790
Q Serve(g_s), s	4.2	67.5	0.0	9.5	70.9	0.0	6.3	0.0	39.5	11.5	0.0	25.7
Cycle Q Clear(g_c), s	4.2	67.5	0.0	9.5	70.9	0.0	6.3	0.0	39.5	11.5	0.0	25.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.25
Lane Grp Cap(c), veh/h	119	1599		161	1613		236	0	442	187	0	512
V/C Ratio(X)	0.76	1.24		1.32	1.05		0.38	0.00	1.28	1.38	0.00	0.68
Avail Cap(c_a), veh/h	159	1599		161	1613		250	0	442	187	0	512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	35.7	41.3	0.0	47.0	39.5	0.0	38.9	0.0	55.3	42.3	0.0	47.4
Incr Delay (d2), s/veh	14.2	114.1	0.0	180.1	37.4	0.0	1.0	0.0	141.3	201.5	0.0	3.5
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	3.8	75.3	0.0	17.7	47.5	0.0	4.4	0.0	49.3	24.2	0.0	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	155.3	0.0	227.1	77.0	0.0	39.9	0.0	196.5	243.8	0.0	50.9
LnGrp LOS	D	F		F	F		D	A	F	F	A	D
Approach Vol, veh/h	2076				1909				654			
Approach Delay, s/veh	150.7				93.7				175.0			
Approach LOS	F				F				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	76.4	13.6	48.4	15.0	73.0	17.0	45.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	67.5	9.5	41.5	9.5	67.5	11.5	39.5				
Max Q Clear Time (g_c+I1), s	6.2	72.9	8.3	27.7	11.5	69.5	13.5	41.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 131.0

HCM 6th LOS F

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5a. Build 2038 AM (Full Build-Out)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	1627	368	111	1484	619	338	980	192	772	1087	350
Future Volume (vph)	432	1627	368	111	1484	619	338	980	192	772	1087	350
Lane Group Flow (vph)	465	1749	396	119	1596	666	363	1054	206	830	1169	376
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	20.0	58.5	58.5	15.0	53.5	53.5	21.0	53.5	53.5	23.0	55.5	55.5
Total Split (%)	13.3%	39.0%	39.0%	10.0%	35.7%	35.7%	14.0%	35.7%	35.7%	15.3%	37.0%	37.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	2.09	1.39	0.64	0.76	1.44	1.11	2.05	0.95	0.34	2.12	0.99	0.60
Control Delay	519.0	206.5	15.1	51.1	226.3	79.4	522.9	67.0	17.1	541.1	73.6	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	519.0	206.5	15.1	51.1	226.3	79.4	522.9	67.0	17.1	541.1	73.6	29.3
Queue Length 50th (ft)	~664	~1208	201	59	~1105	~628	~556	531	58	~662	600	190
Queue Length 95th (ft)	m#481	m#844	m122	m65	m#1057	m#613	#763	#671	129	#794	#759	304
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	222	1255	614	159	1110	599	177	1110	600	392	1179	629
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.09	1.39	0.64	0.75	1.44	1.11	2.05	0.95	0.34	2.12	0.99	0.60

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 20 (13%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

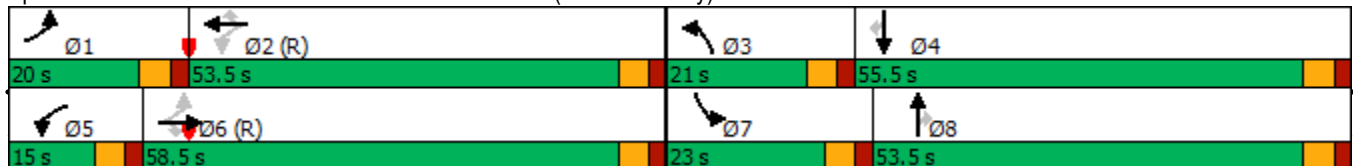
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5a. Build 2038 AM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	432	1627	368	111	1484	619	338	980	192	772	1087	350
Future Volume (veh/h)	432	1627	368	111	1484	619	338	980	192	772	1087	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1870	1841	1856	1841	1841	1826	1841	1900	1841	1870	1885
Adj Flow Rate, veh/h	465	1749	396	119	1596	666	363	1054	0	830	1169	376
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, %	1	2	4	3	4	4	5	4	0	4	2	1
Cap, veh/h	222	1275	560	150	1119	499	180	1119		397	1185	533
Arrive On Green	0.10	0.36	0.36	0.06	0.32	0.32	0.10	0.32	0.00	0.12	0.33	0.33
Sat Flow, veh/h	1795	3554	1560	1767	3497	1560	1739	3497	1610	3401	3554	1598
Grp Volume(v), veh/h	465	1749	396	119	1596	666	363	1054	0	830	1169	376
Grp Sat Flow(s),veh/h/ln	1795	1777	1560	1767	1749	1560	1739	1749	1610	1700	1777	1598
Q Serve(g_s), s	14.5	53.8	32.7	6.7	48.0	48.0	15.5	44.0	0.0	17.5	49.0	30.8
Cycle Q Clear(g_c), s	14.5	53.8	32.7	6.7	48.0	48.0	15.5	44.0	0.0	17.5	49.0	30.8
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	222	1275	560	150	1119	499	180	1119		397	1185	533
V/C Ratio(X)	2.10	1.37	0.71	0.79	1.43	1.33	2.02	0.94		2.09	0.99	0.71
Avail Cap(c_a), veh/h	222	1275	560	160	1119	499	180	1119		397	1185	533
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	48.1	41.3	38.8	51.0	51.0	67.3	49.6	0.0	66.3	49.7	43.6
Incr Delay (d2), s/veh	509.5	172.5	7.4	22.0	197.0	163.6	478.1	15.0	0.0	499.9	22.9	4.2
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	56.3	78.5	19.2	6.7	75.8	60.2	48.1	28.1	0.0	54.9	32.6	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	557.2	220.6	48.7	60.8	248.0	214.6	545.4	64.7	0.0	566.1	72.6	47.8
LnGrp LOS	F	F	D	E	F	F	F	E		F	E	D
Approach Vol, veh/h	2610			2381			1417			2375		
Approach Delay, s/veh	254.5			229.3			187.8			241.2		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	53.5	21.0	55.5	14.2	59.3	23.0	53.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	14.5	48.0	15.5	50.0	9.5	53.0	17.5	48.0				
Max Q Clear Time (g_c+I1), s	16.5	50.0	17.5	51.0	8.7	55.8	19.5	46.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay 233.3

HCM 6th LOS F

Notes

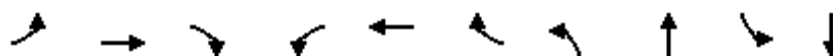
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5a. Build 2038 AM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	164	2248	139	187	1806	62	94	65	135	122
Future Volume (vph)	164	2248	139	187	1806	62	94	65	135	122
Lane Group Flow (vph)	171	2342	145	195	1881	65	98	207	141	387
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	97.5	97.5	82.5	82.5	82.5	52.5	52.5	52.5	52.5
Total Split (%)	10.0%	65.0%	65.0%	55.0%	55.0%	55.0%	35.0%	35.0%	35.0%	35.0%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.69	0.97	0.13	3.90	1.05	0.08	1.63	0.55	0.70	0.85
Control Delay	53.9	14.2	0.3	1322.2	44.7	2.7	381.3	53.2	70.2	61.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	14.2	0.3	1322.2	44.7	2.7	381.3	53.2	70.2	61.2
Queue Length 50th (ft)	95	1278	0	~334	~1055	1	~138	176	128	306
Queue Length 95th (ft)	m65	m339	m4	m#321	m665	m2	#242	235	191	392
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	249	2426	1105	50	1799	810	81	505	267	584
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.97	0.13	3.90	1.05	0.08	1.21	0.41	0.53	0.66

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 16 (11%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

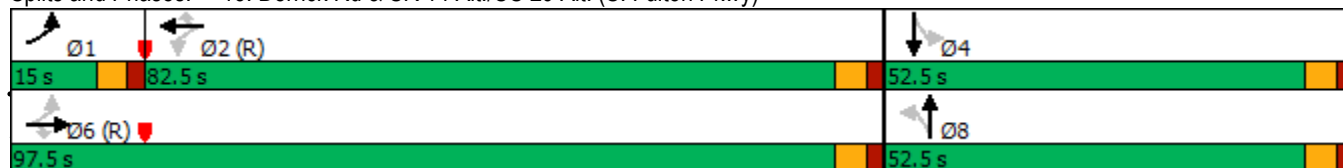
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5a. Build 2038 AM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	2248	139	187	1806	62	94	65	133	135	122	250
Future Volume (veh/h)	164	2248	139	187	1806	62	94	65	133	135	122	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	171	2342	145	195	1881	65	98	68	139	141	127	260
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	148	2162	964	48	1781	775	158	172	351	302	174	357
Arrive On Green	0.06	0.61	0.61	0.51	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1584	3526	1572	134	3469	1510	997	548	1121	1175	556	1139
Grp Volume(v), veh/h	171	2342	145	195	1881	65	98	0	207	141	0	387
Grp Sat Flow(s),veh/h/ln	1584	1763	1572	134	1735	1510	997	0	1669	1175	0	1695
Q Serve(g_s), s	9.5	92.0	5.9	0.0	77.0	3.3	14.6	0.0	14.6	16.0	0.0	30.5
Cycle Q Clear(g_c), s	9.5	92.0	5.9	77.0	77.0	3.3	45.0	0.0	14.6	30.6	0.0	30.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.67
Lane Grp Cap(c), veh/h	148	2162	964	48	1781	775	158	0	523	302	0	531
V/C Ratio(X)	1.15	1.08	0.15	4.06	1.06	0.08	0.62	0.00	0.40	0.47	0.00	0.73
Avail Cap(c_a), veh/h	148	2162	964	48	1781	775	158	0	523	302	0	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.8	29.0	12.4	75.0	36.5	18.6	65.9	0.0	40.4	52.4	0.0	45.8
Incr Delay (d2), s/veh	120.9	46.2	0.3	1426.2	38.0	0.2	7.3	0.0	0.5	1.1	0.0	5.0
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	12.7	63.2	3.6	37.5	51.7	2.1	7.1	0.0	10.0	8.3	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	169.8	75.2	12.7	1501.2	74.5	18.8	73.1	0.0	40.9	53.5	0.0	50.8
LnGrp LOS	F	F	B	F	F	B	E	A	D	D	A	D
Approach Vol, veh/h	2658		2141				305		528			
Approach Delay, s/veh	77.9		202.7				51.2		51.6			
Approach LOS	E		F				D		D			
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	15.0	82.5	52.5		97.5		52.5					
Change Period (Y+Rc), s	5.5	5.5	5.5		5.5		5.5					
Max Green Setting (Gmax), s	9.5	77.0	47.0		92.0		47.0					
Max Q Clear Time (g_c+I1), s	11.5	79.0	32.6		94.0		47.0					
Green Ext Time (p_c), s	0.0	0.0	2.4		0.0		0.0					
Intersection Summary												
HCM 6th Ctrl Delay	121.4											
HCM 6th LOS	F											

Timings

5a. Build 2038 AM (Full Build-Out)

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↗	↘	↰	↗	↘	↰	↗	↘	↰	↗
Traffic Volume (vph)	193	2008	303	75	1180	127	652	342	31	91	242
Future Volume (vph)	193	2008	303	75	1180	127	652	342	31	91	242
Lane Group Flow (vph)	199	2070	312	77	1216	131	672	353	32	94	487
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		6			2			8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	67.0	67.0	67.0	67.0	67.0	67.0	68.0	68.0	68.0	15.0	83.0
Total Split (%)	44.7%	44.7%	44.7%	44.7%	44.7%	44.7%	45.3%	45.3%	45.3%	10.0%	55.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	3.98	1.43	0.46	1.54	0.90	0.20	1.95	0.45	0.05	0.22	0.55
Control Delay	1373.4	225.4	23.4	332.6	44.1	12.6	463.9	33.7	1.7	19.9	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1373.4	225.4	23.4	332.6	44.1	12.6	463.9	33.7	1.7	19.9	26.2
Queue Length 50th (ft)	~305	~1436	120	~107	641	75	~1014	247	0	46	301
Queue Length 95th (ft)	m#385	m#1517	m126	m#141	#725	m72	#1260	340	7	79	411
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	50	1450	676	50	1345	664	345	780	677	426	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	3.98	1.43	0.46	1.54	0.90	0.20	1.95	0.45	0.05	0.22	0.55

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 92 (61%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

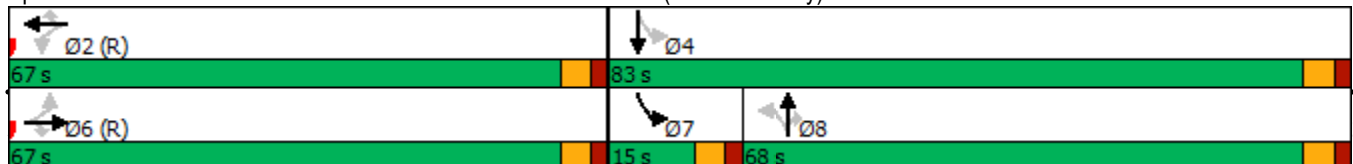
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5a. Build 2038 AM (Full Build-Out)

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	2008	303	75	1180	127	652	342	31	91	242	231
Future Volume (veh/h)	193	2008	303	75	1180	127	652	342	31	91	242	231
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	199	2070	312	77	1216	131	672	353	0	94	249	238
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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	89	1531	672	48	1434	667	324	779		410	439	420
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.42	0.42	0.00	0.04	0.50	0.50
Sat Flow, veh/h	399	3554	1560	150	3328	1547	923	1870	1547	1767	886	847
Grp Volume(v), veh/h	199	2070	312	77	1216	131	672	353	0	94	0	487
Grp Sat Flow(s),veh/h/ln	399	1777	1560	150	1664	1547	923	1870	1547	1767	0	1733
Q Serve(g_s), s	15.5	64.6	21.3	0.0	49.1	7.9	44.8	20.4	0.0	4.4	0.0	29.6
Cycle Q Clear(g_c), s	64.6	64.6	21.3	64.6	49.1	7.9	62.5	20.4	0.0	4.4	0.0	29.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	89	1531	672	48	1434	667	324	779		410	0	859
V/C Ratio(X)	2.23	1.35	0.46	1.60	0.85	0.20	2.08	0.45		0.23	0.00	0.57
Avail Cap(c_a), veh/h	89	1531	672	48	1434	667	324	779		446	0	895
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	0.60	0.60	0.60	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	71.4	42.7	30.4	75.0	38.3	26.5	55.9	31.5	0.0	23.9	0.0	26.5
Incr Delay (d2), s/veh	588.4	162.7	2.3	322.3	4.0	0.4	494.6	0.4	0.0	0.3	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	32.3	89.7	13.1	11.0	25.3	5.0	94.7	14.2	0.0	3.4	0.0	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	659.8	205.4	32.7	397.3	42.2	26.9	550.5	31.9	0.0	24.2	0.0	27.3
LnGrp LOS	F	F	C	F	D	C	F	C		C	A	C
Approach Vol, veh/h	2581				1424				1025			
Approach Delay, s/veh	219.5				60.0				371.9			
Approach LOS	F				E				F			
Timer - Assigned Phs	2			4		6		7	8			
Phs Duration (G+Y+Rc), s	70.1			79.9		70.1		11.9	68.0			
Change Period (Y+Rc), s	5.5			5.5		5.5		5.5	5.5			
Max Green Setting (Gmax), s	61.5			77.5		61.5		9.5	62.5			
Max Q Clear Time (g_c+I1), s	66.6			31.6		66.6		6.4	64.5			
Green Ext Time (p_c), s	0.0			3.4		0.0		0.0	0.0			

Intersection Summary

HCM 6th Ctrl Delay 186.9

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5a. Build 2038 AM (Full Build-Out)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	112	1900	173	139	1222	62	54	72	55	248	69
Future Volume (vph)	112	1900	173	139	1222	62	54	72	55	248	69
Lane Group Flow (vph)	122	2065	188	151	1328	67	0	137	60	270	204
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	76.5	76.5	15.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	51.0%	51.0%	10.0%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.54	1.18	0.23	0.73	0.74	0.09		0.40	0.18	0.91	0.40
Control Delay	23.4	96.6	0.1	56.5	30.6	6.4		45.9	9.3	83.9	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	23.4	96.6	0.1	56.5	30.6	6.4		45.9	9.3	83.9	30.4
Queue Length 50th (ft)	17	~1327	0	96	511	4		109	1	255	110
Queue Length 95th (ft)	m6	m63	m0	#277	702	33		158	34	344	167
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	235	1750	834	208	1805	720		433	408	381	626
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.52	1.18	0.23	0.73	0.74	0.09		0.32	0.15	0.71	0.33

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 149 (99%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

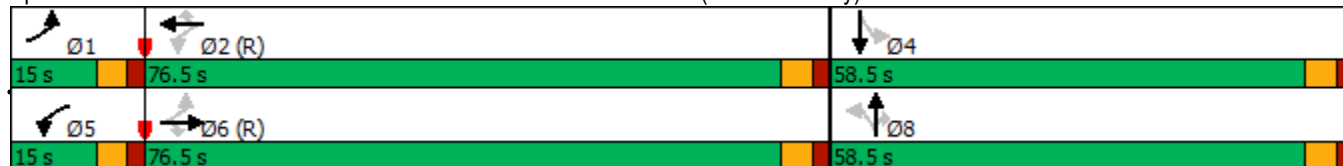
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5a. Build 2038 AM (Full Build-Out)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	1900	173	139	1222	62	54	72	55	248	69	119
Future Volume (veh/h)	112	1900	173	139	1222	62	54	72	55	248	69	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	122	2065	188	151	1328	0	59	78	0	270	75	129
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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	233	1851	846	150	1838		157	195		341	174	299
Arrive On Green	0.04	0.53	0.53	0.06	0.55	0.00	0.29	0.29	0.00	0.29	0.29	0.29
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	418	666	932	1258	593	1020
Grp Volume(v), veh/h	122	2065	188	151	1328	0	137	0	0	270	0	204
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1084	0	932	1258	0	1613
Q Serve(g_s), s	4.7	80.0	9.4	9.5	44.6	0.0	8.6	0.0	0.0	16.5	0.0	15.4
Cycle Q Clear(g_c), s	4.7	80.0	9.4	9.5	44.6	0.0	24.0	0.0	0.0	40.4	0.0	15.4
Prop In Lane	1.00		1.00	1.00		1.00	0.43		1.00	1.00		0.63
Lane Grp Cap(c), veh/h	233	1851	846	150	1838		352	0		341	0	473
V/C Ratio(X)	0.52	1.12	0.22	1.01	0.72		0.39	0.00		0.79	0.00	0.43
Avail Cap(c_a), veh/h	266	1851	846	150	1838		442	0		417	0	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	35.0	18.5	49.4	25.0	0.0	48.2	0.0	0.0	54.1	0.0	42.9
Incr Delay (d2), s/veh	0.2	52.9	0.1	75.1	2.5	0.0	0.7	0.0	0.0	8.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	52.5	4.2	13.6	23.5	0.0	8.0	0.0	0.0	15.9	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	87.9	18.6	124.5	27.5	0.0	48.9	0.0	0.0	62.3	0.0	43.5
LnGrp LOS	C	F	B	F	C		D	A		E	A	D
Approach Vol, veh/h	2375				1479				137			
Approach Delay, s/veh	79.1				37.4				48.9			
Approach LOS	E				D				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	88.3		49.5	15.0	85.5		49.5				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	9.5	71.0		53.0				
Max Q Clear Time (g_c+I1), s	6.7	46.6		42.4	11.5	82.0		26.0				
Green Ext Time (p_c), s	0.1	16.2		1.5	0.0	0.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay 61.7

HCM 6th LOS E

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 159.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	49	74	1110	1193	1043	243
Future Vol, veh/h	49	74	1110	1193	1043	243
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	9	8	8	2	6	1
Mvmt Flow	54	81	1220	1311	1146	267

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	4242	573	1146
Stage 1	1146	-	-
Stage 2	3096	-	-
Critical Hdwy	6.98	7.06	4.26
Critical Hdwy Stg 1	5.98	-	-
Critical Hdwy Stg 2	5.98	-	-
Follow-up Hdwy	3.59	3.38	2.28
Pot Cap-1 Maneuver	~ 1	448	~ 572
Stage 1	251	-	-
Stage 2	~ 19	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	0	448	~ 572
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	~ 19	-	-

Approach	EB	NB	SB
HCM Control Delay, s		256.7	0
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 572	-	-	448	-	-
HCM Lane V/C Ratio	2.132	-	-	0.182	-	-
HCM Control Delay (s)	\$ 532.5	-	-	14.8	-	-
HCM Lane LOS	F	-	-	B	-	-
HCM 95th %tile Q(veh)	86.3	-	-	0.7	-	-

Notes

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

Intersection

Int Delay, s/veh 314.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	211	618	50	1183	692	151
Future Vol, veh/h	211	618	50	1183	692	151
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	9	6	3	3	6
Mvmt Flow	227	665	54	1272	744	162

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1569	453	906	0	-	0
Stage 1	825	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Critical Hdwy	6.84	7.08	4.22	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.39	2.26	-	-	-
Pot Cap-1 Maneuver	~ 101	~ 535	722	-	-	-
Stage 1	391	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 93	~ 535	722	-	-	-
Mov Cap-2 Maneuver	~ 93	-	-	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	431	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	1101.3	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	722	-	265	-	-
HCM Lane V/C Ratio	0.074	-	3.364	-	-
HCM Control Delay (s)	10.4		1101.3	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.2	-	82.4	-	-

Notes

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

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	51	4	0	74
Future Vol, veh/h	8	0	51	4	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	55	4	0	80

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	135	55	0
Stage 1	55	-	-
Stage 2	80	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	859	1012	-
Stage 1	968	-	-
Stage 2	943	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	859	1012	-
Mov Cap-2 Maneuver	859	-	-
Stage 1	968	-	-
Stage 2	943	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	859	1545
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	9.2	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	51	108	53	78	3
Future Vol, veh/h	2	51	108	53	78	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	2	55	117	58	85	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	379	87	88	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	292	-	-	-	-	-
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	623	971	1508	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	573	971	1508	-	-	-
Mov Cap-2 Maneuver	573	-	-	-	-	-
Stage 1	861	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	5.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1508	-	946	-	-	
HCM Lane V/C Ratio	0.078	-	0.061	-	-	
HCM Control Delay (s)	7.6	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	161	11	0	129
Future Vol, veh/h	23	1	161	11	0	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	175	12	0	140
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	315	175	0	0	187	0
Stage 1	175	-	-	-	-	-
Stage 2	140	-	-	-	-	-
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	678	868	-	-	1387	-
Stage 1	855	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	678	868	-	-	1387	-
Mov Cap-2 Maneuver	678	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.5	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	684	1387	-	
HCM Lane V/C Ratio	-	-	0.038	-	-	
HCM Control Delay (s)	-	-	10.5	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	1	171	23	0	152
Future Vol, veh/h	47	1	171	23	0	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	51	1	186	25	0	165
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	351	186	0	0	211	0
Stage 1	186	-	-	-	-	-
Stage 2	165	-	-	-	-	-
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	646	856	-	-	1360	-
Stage 1	846	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	646	856	-	-	1360	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	649	1360	-	
HCM Lane V/C Ratio	-	-	0.08	-	-	
HCM Control Delay (s)	-	-	11	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	4	0	965	1293	47
Future Vol, veh/h	0	4	0	965	1293	47
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	-	-	-	-
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	4	0	1049	1405	51
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	703	-	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	380	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	380	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	14.6	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT			
Capacity (veh/h)	-	380	-			
HCM Lane V/C Ratio	-	0.011	-			
HCM Control Delay (s)	-	14.6	-			
HCM Lane LOS	-	B	-			
HCM 95th %tile Q(veh)	-	0	-			

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	22	2	4	4	2	22	9	921	9	47	1204	47
Future Vol, veh/h	22	2	4	4	2	22	9	921	9	47	1204	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	50	-	-	50	-	-
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	24	2	4	4	2	24	10	1001	10	51	1309	51

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1959	2468	680	1784	2488	506	1360	0	0	1011	0	0
Stage 1	1437	1437	-	1026	1026	-	-	-	-	-	-	-
Stage 2	522	1031	-	758	1462	-	-	-	-	-	-	-
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	38	30	393	52	29	512	501	-	-	681	-	-
Stage 1	140	197	-	251	310	-	-	-	-	-	-	-
Stage 2	506	309	-	365	192	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	32	27	393	45	26	512	501	-	-	681	-	-
Mov Cap-2 Maneuver	32	27	-	45	26	-	-	-	-	-	-	-
Stage 1	137	182	-	246	304	-	-	-	-	-	-	-
Stage 2	469	303	-	330	178	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	244.9		36.7		0.1		0.4	
HCM LOS	F		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	501	-	-	32	393	36	512	681	-	-
HCM Lane V/C Ratio	0.02	-	-	0.815	0.011	0.181	0.047	0.075	-	-
HCM Control Delay (s)	12.3	-	-	283.3	14.3	125.9	12.4	10.7	-	-
HCM Lane LOS	B	-	-	F	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.8	0	0.6	0.1	0.2	-	-

Timings

24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a

5a. Build 2038 AM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	←	→	←	→	←	→	←	→	←
Traffic Volume (vph)	89	2	9	2	18	784	140	932	140
Future Volume (vph)	89	2	9	2	18	784	140	932	140
Lane Group Flow (vph)	97	12	10	74	20	881	152	1013	152
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4		8		6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	15.0	28.5	28.5
Total Split (s)	37.0	37.0	37.0	37.0	62.0	62.0	21.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	51.7%	51.7%	17.5%	69.2%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lag	Lag	Lead		
Lead-Lag Optimize?					Yes	Yes			
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.63	0.06	0.06	0.29	0.06	0.37	0.31	0.36	0.12
Control Delay	66.8	24.5	44.7	13.8	7.8	8.1	2.8	1.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	24.5	44.7	13.8	7.8	8.1	2.8	1.6	0.2
Queue Length 50th (ft)	73	1	7	1	5	107	8	30	0
Queue Length 95th (ft)	124	19	23	44	m11	176	m16	50	m0
Internal Link Dist (ft)		352		361		553		242	
Turn Bay Length (ft)	150		150		100		100		150
Base Capacity (vph)	346	435	366	470	356	2387	565	2796	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.03	0.03	0.16	0.06	0.37	0.27	0.36	0.12

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

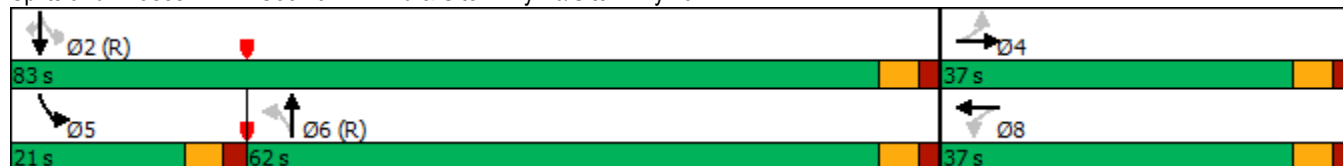
Offset: 35 (29%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Splits and Phases: 24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a



HCM 6th Signalized Intersection Summary
24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a

5a. Build 2038 AM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	2	9	9	2	66	18	784	27	140	932	140
Future Volume (veh/h)	89	2	9	9	2	66	18	784	27	140	932	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	2	10	10	2	72	20	852	29	152	1013	152
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	180	36	180	237	6	206	391	2411	82	568	2756	1229
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	1.00	1.00	1.00	0.04	0.78	0.78
Sat Flow, veh/h	1326	271	1355	1402	43	1549	482	3506	119	1781	3554	1585
Grp Volume(v), veh/h	97	0	12	10	0	74	20	432	449	152	1013	152
Grp Sat Flow(s),veh/h/ln	1326	0	1626	1402	0	1592	482	1777	1849	1781	1777	1585
Q Serve(g_s), s	8.6	0.0	0.8	0.8	0.0	5.1	0.0	0.0	0.0	2.8	10.7	2.9
Cycle Q Clear(g_c), s	13.7	0.0	0.8	1.5	0.0	5.1	0.2	0.0	0.0	2.8	10.7	2.9
Prop In Lane	1.00		0.83	1.00		0.97	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	180	0	216	237	0	211	391	1222	1271	568	2756	1229
V/C Ratio(X)	0.54	0.00	0.06	0.04	0.00	0.35	0.05	0.35	0.35	0.27	0.37	0.12
Avail Cap(c_a), veh/h	352	0	427	419	0	418	391	1222	1271	723	2756	1229
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	0.0	45.5	46.1	0.0	47.3	0.0	0.0	0.0	4.2	4.2	3.3
Incr Delay (d2), s/veh	2.5	0.0	0.1	0.1	0.0	1.0	0.2	0.8	0.8	0.2	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	0.0	0.6	0.5	0.0	3.8	0.0	0.5	0.5	1.5	5.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	0.0	45.6	46.2	0.0	48.3	0.2	0.8	0.8	4.5	4.6	3.5
LnGrp LOS	E	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	109			84			901			1317		
Approach Delay, s/veh	54.9			48.1			0.8			4.5		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4		5		6		8		
Phs Duration (G+Y+Rc), s	98.6			21.4		10.6		88.0		21.4		
Change Period (Y+Rc), s	5.5			5.5		5.5		5.5		5.5		
Max Green Setting (Gmax), s	77.5			31.5		15.5		56.5		31.5		
Max Q Clear Time (g_c+I1), s	12.7			15.7		4.8		2.2		7.1		
Green Ext Time (p_c), s	21.3			0.3		0.3		14.2		0.4		
Intersection Summary												
HCM 6th Ctrl Delay	6.9											
HCM 6th LOS	A											

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	22	2	4	4	2	22	9	784	9	47	855	47
Future Vol, veh/h	22	2	4	4	2	22	9	784	9	47	855	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	2	4	4	2	24	10	852	10	51	929	51

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1504	1939	490	1445	1959	431	980	0	0	862	0	0
Stage 1	1057	1057	-	877	877	-	-	-	-	-	-	-
Stage 2	447	882	-	568	1082	-	-	-	-	-	-	-
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	84	65	524	93	63	573	700	-	-	776	-	-
Stage 1	240	300	-	310	364	-	-	-	-	-	-	-
Stage 2	560	362	-	475	292	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	74	60	524	84	58	573	700	-	-	776	-	-
Mov Cap-2 Maneuver	74	60	-	84	58	-	-	-	-	-	-	-
Stage 1	237	280	-	306	359	-	-	-	-	-	-	-
Stage 2	526	357	-	437	273	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	69.8		21.8		0.1		0.5	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	700	-	-	73	524	73	573	776	-	-
HCM Lane V/C Ratio	0.014	-	-	0.357	0.008	0.089	0.042	0.066	-	-
HCM Control Delay (s)	10.2	-	-	79.5	11.9	59.1	11.6	10	-	-
HCM Lane LOS	B	-	-	F	B	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.4	0	0.3	0.1	0.2	-	-

Timings

26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a

5a. Build 2038 AM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	66	2	13	2	33	669	140	583	140
Future Volume (vph)	66	2	13	2	33	669	140	583	140
Lane Group Flow (vph)	72	18	14	74	36	756	152	634	152
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		6		2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	33.0	33.0	33.0	33.0	87.0	87.0	87.0	87.0	87.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	72.5%	72.5%	72.5%	72.5%	72.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.55	0.10	0.10	0.34	0.06	0.49	0.29	0.21	0.11
Control Delay	66.3	22.7	48.3	15.5	3.2	5.1	1.4	0.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	22.7	48.3	15.5	3.2	5.1	1.4	0.2	0.2
Queue Length 50th (ft)	54	1	10	1	4	149	0	1	0
Queue Length 95th (ft)	99	23	30	45	14	273	1	1	0
Internal Link Dist (ft)		425		370		140		453	
Turn Bay Length (ft)	150		150		50		50		150
Base Capacity (vph)	302	382	318	420	642	1553	530	2967	1351
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.05	0.04	0.18	0.06	0.49	0.29	0.21	0.11

Intersection Summary

Cycle Length: 120

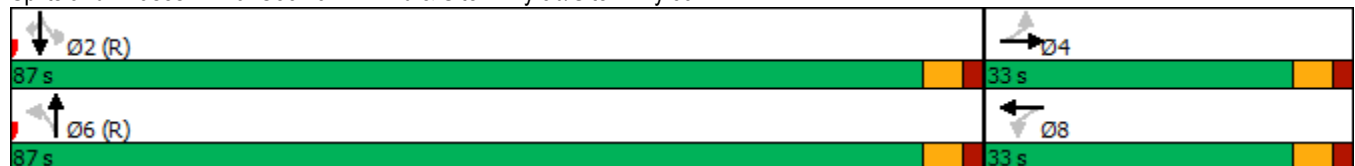
Actuated Cycle Length: 120

Offset: 28 (23%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a



HCM 6th Signalized Intersection Summary
26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a

5a. Build 2038 AM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	2	15	13	2	66	33	669	27	140	583	140
Future Volume (veh/h)	66	2	15	13	2	66	33	669	27	140	583	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	2	16	14	2	72	36	727	29	152	634	152
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	155	21	164	206	5	177	607	1418	57	522	2821	1258
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.79	0.79	0.79	1.00	1.00	1.00
Sat Flow, veh/h	1326	179	1433	1395	43	1549	689	1786	71	708	3554	1585
Grp Volume(v), veh/h	72	0	18	14	0	74	36	0	756	152	634	152
Grp Sat Flow(s),veh/h/ln	1326	0	1612	1395	0	1592	689	0	1858	708	1777	1585
Q Serve(g_s), s	6.4	0.0	1.2	1.1	0.0	5.2	1.4	0.0	17.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	11.6	0.0	1.2	2.3	0.0	5.2	1.4	0.0	17.0	23.3	0.0	0.0
Prop In Lane	1.00		0.89	1.00		0.97	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	155	0	185	206	0	182	607	0	1475	522	2821	1258
V/C Ratio(X)	0.47	0.00	0.10	0.07	0.00	0.41	0.06	0.00	0.51	0.29	0.22	0.12
Avail Cap(c_a), veh/h	307	0	370	366	0	365	607	0	1475	522	2821	1258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	47.6	48.6	0.0	49.3	2.7	0.0	4.3	2.1	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.2	0.1	0.0	1.5	0.2	0.0	1.3	1.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	0.0	0.9	0.7	0.0	3.9	0.3	0.0	8.3	0.9	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.9	0.0	47.8	48.7	0.0	50.8	2.9	0.0	5.6	3.5	0.2	0.2
LnGrp LOS	E	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	90			88			792			938		
Approach Delay, s/veh	55.1			50.5			5.5			0.7		
Approach LOS	E			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	100.8			19.2			100.8			19.2		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	81.5			27.5			81.5			27.5		
Max Q Clear Time (g_c+I1), s	25.3			13.6			19.0			7.2		
Green Ext Time (p_c), s	14.8			0.2			14.5			0.4		
Intersection Summary												
HCM 6th Ctrl Delay	7.5											
HCM 6th LOS	A											

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	9	2	4	4	2	9	9	711	9	19	573	19
Future Vol, veh/h	9	2	4	4	2	9	9	711	9	19	573	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	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	10	2	4	4	2	10	10	773	10	21	623	21
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1480	1479	634	1477	1484	778	644	0	0	783	0	0
Stage 1	676	676	-	798	798	-	-	-	-	-	-	-
Stage 2	804	803	-	679	686	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	104	126	479	104	125	396	941	-	-	835	-	-
Stage 1	443	453	-	380	398	-	-	-	-	-	-	-
Stage 2	377	396	-	441	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	121	479	99	121	396	941	-	-	835	-	-
Mov Cap-2 Maneuver	97	121	-	99	121	-	-	-	-	-	-	-
Stage 1	438	442	-	376	394	-	-	-	-	-	-	-
Stage 2	362	392	-	424	437	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	37.5		26		0.1		0.3					
HCM LOS	E		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	941	-	-	127	188	835	-	-				
HCM Lane V/C Ratio	0.01	-	-	0.128	0.087	0.025	-	-				
HCM Control Delay (s)	8.9	-	-	37.5	26	9.4	-	-				
HCM Lane LOS	A	-	-	E	D	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.4	0.3	0.1	-	-				

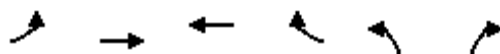
Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	496	511	6	3	8
Future Vol, veh/h	18	496	511	6	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	20	539	555	7	3	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	562	0	-	0	1138	559
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	579	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1009	-	-	-	223	529
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	560	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1009	-	-	-	217	529
Mov Cap-2 Maneuver	-	-	-	-	217	-
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	560	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		14.8		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1009	-	-	-	380	
HCM Lane V/C Ratio	0.019	-	-	-	0.031	
HCM Control Delay (s)	8.6	0	-	-	14.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	

Timings

1: I-85 NB Ramps & Collinsworth Rd

5b. Build 2038 PM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	623	1306	943	237	508	326
Future Volume (vph)	623	1306	943	237	508	326
Lane Group Flow (vph)	656	1375	993	249	535	343
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	33.0	88.0	55.0	55.0	32.0	32.0
Total Split (%)	27.5%	73.3%	45.8%	45.8%	26.7%	26.7%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	1.43	0.57	1.30	0.34	1.40	0.85
Control Delay	228.1	8.0	178.1	11.5	230.0	55.5
Queue Delay	0.0	0.0	0.0	0.0	1.3	0.0
Total Delay	228.1	8.0	178.1	11.5	231.3	55.5
Queue Length 50th (ft)	~626	238	~987	52	~553	204
Queue Length 95th (ft)	m#483	m188	#1239	115	#769	#368
Internal Link Dist (ft)		760	160			
Turn Bay Length (ft)	300				500	
Base Capacity (vph)	458	2433	761	723	383	402
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	45	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.43	0.57	1.30	0.34	1.58	0.85

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary
1: I-85 NB Ramps & Collinsworth Rd

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	623	1306	0	0	943	237	508	0	326	0	0	0
Future Volume (veh/h)	623	1306	0	0	943	237	508	0	326	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	656	1375	0	0	993	0	535	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	462	2443	0	0	765		387	0				
Arrive On Green	0.15	0.46	0.00	0.00	0.41	0.00	0.22	0.00	0.00			
Sat Flow, veh/h	1753	3647	0	0	1856	1560	1753	0	1560			
Grp Volume(v), veh/h	656	1375	0	0	993	0	535	0	0			
Grp Sat Flow(s),veh/h/ln	1753	1777	0	0	1856	1560	1753	0	1560			
Q Serve(g_s), s	27.5	33.8	0.0	0.0	49.5	0.0	26.5	0.0	0.0			
Cycle Q Clear(g_c), s	27.5	33.8	0.0	0.0	49.5	0.0	26.5	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	462	2443	0	0	765		387	0				
V/C Ratio(X)	1.42	0.56	0.00	0.00	1.30		1.38	0.00				
Avail Cap(c_a), veh/h	462	2443	0	0	765		387	0				
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	43.7	19.2	0.0	0.0	35.3	0.0	46.7	0.0	0.0			
Incr Delay (d2), s/veh	190.5	0.1	0.0	0.0	143.4	0.0	187.3	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	49.9	16.0	0.0	0.0	73.9	0.0	47.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	234.2	19.3	0.0	0.0	178.6	0.0	234.1	0.0	0.0			
LnGrp LOS	F	B	A	A	F		F	A				
Approach Vol, veh/h	2031			993			535					
Approach Delay, s/veh	88.7			178.6			234.1					
Approach LOS	F			F			F					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	33.0	55.0					88.0	32.0				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	27.5	49.5					82.5	26.5				
Max Q Clear Time (g_c+I1), s	29.5	51.5					35.8	28.5				
Green Ext Time (p_c), s	0.0	0.0					25.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay 135.6

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 2: I-85 SB Ramps & Collinsworth Rd

5b. Build 2038 PM (Full Build-Out)

08/31/2023

	→	↘	↙	←	↘	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑↑	↑
Traffic Volume (vph)	813	711	475	1004	1132	665
Future Volume (vph)	813	711	475	1004	1132	665
Lane Group Flow (vph)	865	756	505	1068	1204	707
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	52.0	52.0	26.0	78.0	42.0	42.0
Total Split (%)	43.3%	43.3%	21.7%	65.0%	35.0%	35.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	1.20	0.73	1.37	0.96	1.13	1.30
Control Delay	115.3	1.2	201.5	10.0	109.7	177.5
Queue Delay	0.0	0.0	0.0	15.8	0.0	0.0
Total Delay	115.3	1.2	201.5	25.8	109.7	177.5
Queue Length 50th (ft)	~805	10	~461	447	~557	~644
Queue Length 95th (ft)	m224	m0	m#266	m103	#691	#881
Internal Link Dist (ft)	947			760		
Turn Bay Length (ft)		500	95		520	
Base Capacity (vph)	721	1038	368	1114	1065	545
Starvation Cap Reductn	0	0	0	77	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.73	1.37	1.03	1.13	1.30

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 60 (50%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

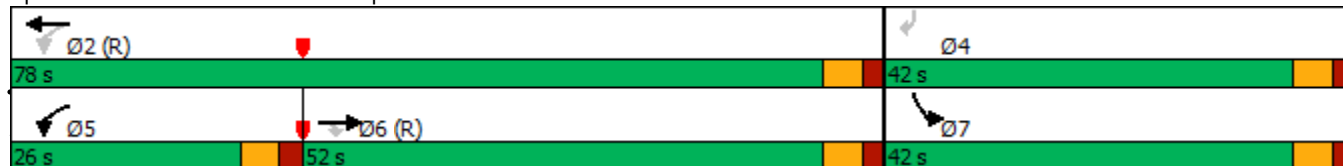
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

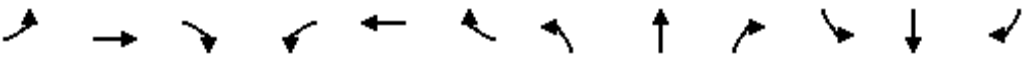
Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Summary 2: I-85 SB Ramps & Collinsworth Rd

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑					↖	↓	↗
Traffic Volume (veh/h)	0	813	711	475	1004	0	0	0	0	1132	0	665
Future Volume (veh/h)	0	813	711	475	1004	0	0	0	0	1132	0	665
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	865	0	505	1068	0				1204	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	725		367	1121	0				1068	0	
Arrive On Green	0.00	0.13	0.00	0.11	0.40	0.00				0.30	0.00	0.00
Sat Flow, veh/h	0	1870	1560	1795	1856	0				3510	0	1560
Grp Volume(v), veh/h	0	865	0	505	1068	0				1204	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1560	1795	1856	0				1755	0	1560
Q Serve(g_s), s	0.0	46.5	0.0	20.5	66.9	0.0				36.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	46.5	0.0	20.5	66.9	0.0				36.5	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	725		367	1121	0				1068	0	
V/C Ratio(X)	0.00	1.19		1.38	0.95	0.00				1.13	0.00	
Avail Cap(c_a), veh/h	0	725		367	1121	0				1068	0	
HCM Platoon Ratio	1.00	0.33	0.33	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	52.3	0.0	43.1	34.1	0.0				41.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	88.4	0.0	171.3	2.6	0.0				69.7	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	0.0	50.4	0.0	31.4	33.3	0.0				36.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	140.8	0.0	214.4	36.6	0.0				111.4	0.0	0.0
LnGrp LOS	A	F		F	D	A				F	A	
Approach Vol, veh/h		865			1573						1204	
Approach Delay, s/veh		140.8			93.7						111.4	
Approach LOS		F			F						F	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		78.0		42.0	26.0	52.0						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		72.5		36.5	20.5	46.5						
Max Q Clear Time (g_c+I1), s		68.9		38.5	22.5	48.5						
Green Ext Time (p_c), s		3.0		0.0	0.0	0.0						
Intersection Summary												
HCM 6th Ctrl Delay				110.7								
HCM 6th LOS				F								
Notes												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
3: Weldon Rd & Collinsworth Rd

5b. Build 2038 PM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↰	↰	↰		↰	↰		↰
Traffic Volume (vph)	10	412	14	476	8	5	34	1258	0
Future Volume (vph)	10	412	14	476	8	5	34	1258	0
Lane Group Flow (vph)	0	474	16	1651	0	15	38	0	1428
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6	5	2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	41.0	41.0	18.0	59.0	61.0	61.0	61.0	61.0	61.0
Total Split (%)	34.2%	34.2%	15.0%	49.2%	50.8%	50.8%	50.8%	50.8%	50.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5	5.5	5.5		5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead						
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	None
v/c Ratio		1.23	0.06	2.04		0.02	0.05		2.17
Control Delay		157.6	18.3	490.4		17.7	0.8		554.1
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		157.6	18.3	490.4		17.7	0.8		554.1
Queue Length 50th (ft)		~422	7	~1976		6	0		~1761
Queue Length 95th (ft)		#699	m6	m#1801		19	5		#2000
Internal Link Dist (ft)		914		947		293			729
Turn Bay Length (ft)			315						
Base Capacity (vph)		385	332	809		718	771		657
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		1.23	0.05	2.04		0.02	0.05		2.17

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

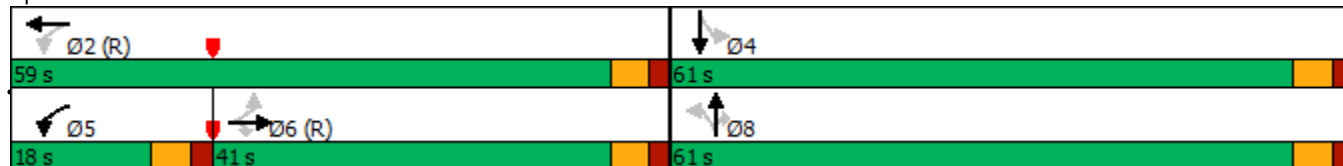
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Weldon Rd & Collinsworth Rd



HCM 6th Signalized Intersection Summary

3: Weldon Rd & Collinsworth Rd

5b. Build 2038 PM (Full Build-Out)

08/31/2023

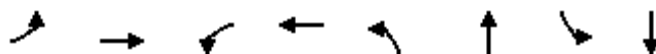
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	412	0	14	476	993	8	5	34	1258	0	13
Future Volume (veh/h)	10	412	0	14	476	993	8	5	34	1258	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	463	0	16	535	1116	9	6	38	1413	0	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	435	607	155	241	503	540	349	733	678	0	7
Arrive On Green	0.38	0.38	0.00	0.01	0.30	0.30	0.46	0.46	0.46	0.46	0.00	0.46
Sat Flow, veh/h	0	1136	1585	1781	540	1127	1063	754	1585	1337	0	14
Grp Volume(v), veh/h	474	0	0	16	0	1651	15	0	38	1428	0	0
Grp Sat Flow(s),veh/h/ln	1136	0	1585	1781	0	1667	1817	0	1585	1351	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	53.5	0.0	0.0	1.6	55.0	0.0	0.0
Cycle Q Clear(g_c), s	45.9	0.0	0.0	0.6	0.0	53.5	0.5	0.0	1.6	55.5	0.0	0.0
Prop In Lane	0.02		1.00	1.00		0.68	0.60		1.00	0.99		0.01
Lane Grp Cap(c), veh/h	465	0	607	155	0	743	888	0	733	685	0	0
V/C Ratio(X)	1.02	0.00	0.00	0.10	0.00	2.22	0.02	0.00	0.05	2.09	0.00	0.00
Avail Cap(c_a), veh/h	465	0	607	310	0	743	888	0	733	685	0	0
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(l)	1.00	0.00	0.00	0.09	0.00	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.2	0.0	0.0	20.7	0.0	42.1	17.5	0.0	17.8	34.9	0.0	0.0
Incr Delay (d2), s/veh	46.4	0.0	0.0	0.0	0.0	549.8	0.0	0.0	0.0	493.5	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	25.3	0.0	0.0	0.5	0.0	205.2	0.4	0.0	1.1	184.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.7	0.0	0.0	20.7	0.0	591.8	17.5	0.0	17.8	528.4	0.0	0.0
LnGrp LOS	F	A	A	C	A	F	B	A	B	F	A	A
Approach Vol, veh/h		474			1667			53			1428	
Approach Delay, s/veh		86.7			586.4			17.7			528.4	
Approach LOS		F			F			B			F	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		59.0		61.0	7.6	51.4		61.0				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		53.5		55.5	12.5	35.5		55.5				
Max Q Clear Time (g_c+I1), s		55.5		57.5	2.6	47.9		3.6				
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			489.8									
HCM 6th LOS			F									

Timings

4: SR 14/US 29 (Main St) & Toombs St

5b. Build 2038 PM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	128	509	33	509	68	516	171	758
Future Volume (vph)	128	509	33	509	68	516	171	758
Lane Group Flow (vph)	0	798	0	795	0	673	0	1176
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	57.0	57.0	57.0	57.0	63.0	63.0	63.0	63.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		1.85		1.08		1.08		1.98
Control Delay		414.9		89.0		90.8		469.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		414.9		89.0		90.8		469.8
Queue Length 50th (ft)		~944		~680		~583		~1428
Queue Length 95th (ft)		#1190		#924		#817		#1692
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		432		738		623		594
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		1.85		1.08		1.08		1.98

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: 150

Control Type: Actuated-Coordinated

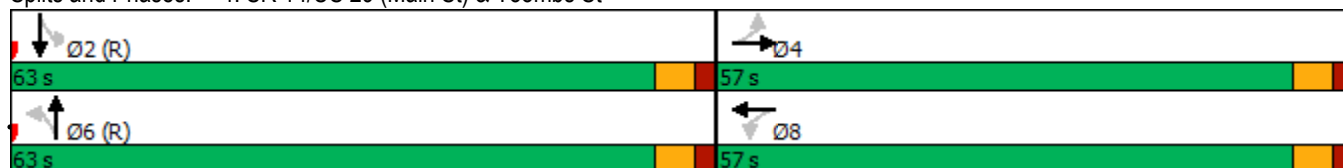
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

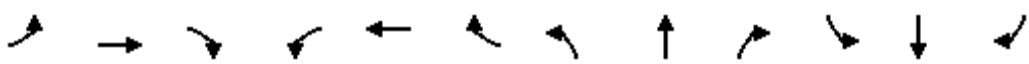
Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary
4: SR 14/US 29 (Main St) & Toombs St

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	128	509	81	33	509	173	68	516	22	171	758	130
Future Volume (veh/h)	128	509	81	33	509	173	68	516	22	171	758	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	142	566	90	37	566	192	76	573	24	190	842	144
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	87	251	38	53	527	175	86	549	22	101	314	53
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	121	584	90	50	1229	407	111	1145	46	138	655	111
Grp Volume(v), veh/h	798	0	0	795	0	0	673	0	0	1176	0	0
Grp Sat Flow(s),veh/h/ln	795	0	0	1686	0	0	1302	0	0	904	0	0
Q Serve(g_s), 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
Cycle Q Clear(g_c), s	51.5	0.0	0.0	51.5	0.0	0.0	57.5	0.0	0.0	57.5	0.0	0.0
Prop In Lane	0.18		0.11	0.05		0.24	0.11		0.04	0.16		0.12
Lane Grp Cap(c), veh/h	376	0	0	755	0	0	657	0	0	468	0	0
V/C Ratio(X)	2.12	0.00	0.00	1.05	0.00	0.00	1.02	0.00	0.00	2.51	0.00	0.00
Avail Cap(c_a), veh/h	376	0	0	755	0	0	657	0	0	468	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.7	0.0	0.0	34.7	0.0	0.0	30.8	0.0	0.0	32.7	0.0	0.0
Incr Delay (d2), s/veh	513.0	0.0	0.0	47.6	0.0	0.0	41.2	0.0	0.0	687.3	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	108.0	0.0	0.0	42.9	0.0	0.0	36.1	0.0	0.0	172.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	547.7	0.0	0.0	82.2	0.0	0.0	72.1	0.0	0.0	719.9	0.0	0.0
LnGrp LOS	F	A	A	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		798			795			673			1176	
Approach Delay, s/veh		547.7			82.2			72.1			719.9	
Approach LOS		F			F			E			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		57.0		63.0		57.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		57.5		51.5		57.5		51.5				
Max Q Clear Time (g_c+I1), s		59.5		53.5		59.5		53.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				406.0								
HCM 6th LOS				F								

Intersection

Intersection Delay, s/veh 48.2

Intersection LOS F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	38	87	49	804	848	36
Future Vol, veh/h	38	87	49	804	848	36
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	93	52	855	902	38
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left SB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	15.7	211.8	316.1
HCM LOS	C	F	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	0%	96%
Vol Thru, %	70%	6%	0%
Vol Right, %	0%	94%	4%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	853	884
LT Vol	38	0	848
Through Vol	87	49	0
RT Vol	0	804	36
Lane Flow Rate	133	907	940
Geometry Grp	1	1	1
Degree of Util (X)	0.262	1.4	1.642
Departure Headway (Hd)	9.386	6.99	7.102
Convergence, Y/N	Yes	Yes	Yes
Cap	386	526	517
Service Time	7.386	4.99	5.102
HCM Lane V/C Ratio	0.345	1.724	1.818
HCM Control Delay	15.7	211.8	316.1
HCM Lane LOS	C	F	F
HCM 95th-tile Q	1	33.8	47.3

Intersection						
Int Delay, s/veh	1174.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	96	257	354	744	767	123
Future Vol, veh/h	96	257	354	744	767	123
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	112	299	412	865	892	143
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1277	0	-	0	1368	845
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	523	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	544	-	-	-	~ 162	363
Stage 1	-	-	-	-	~ 421	-
Stage 2	-	-	-	-	~ 595	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	544	-	-	-	~ 122	363
Mov Cap-2 Maneuver	-	-	-	-	~ 122	-
Stage 1	-	-	-	-	~ 317	-
Stage 2	-	-	-	-	~ 595	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.6	0		\$ 3087.8		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	544	-	-	-	134	
HCM Lane V/C Ratio	0.205	-	-	-	7.723	
HCM Control Delay (s)	13.3	0	-	-	\$ 3087.8	
HCM Lane LOS	B	A	-	-	F	
HCM 95th %tile Q(veh)	0.8	-	-	-	116	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	1402.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	418	159	573	442	115	685
Future Vol, veh/h	418	159	573	442	115	685
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	492	187	674	520	135	806
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2010	934	0	0	1194	0
Stage 1	934	-	-	-	-	-
Stage 2	1076	-	-	-	-	-
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	~ 65	322	-	-	585	-
Stage 1	~ 382	-	-	-	-	-
Stage 2	~ 327	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 38	322	-	-	585	-
Mov Cap-2 Maneuver	~ 38	-	-	-	-	-
Stage 1	~ 382	-	-	-	-	-
Stage 2	~ 190	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, \$	5813.1	0		1.9		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	50	585	-	
HCM Lane V/C Ratio	-	-	13.576	0.231	-	
HCM Control Delay (s)	-	\$	5813.1	13	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q(veh)	-	-	81.7	0.9	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕	↗		↕↗	
Traffic Vol, veh/h	10	204	183	901	887	137	250	100	1233	166	100	13
Future Vol, veh/h	10	204	183	901	887	137	250	100	1233	166	100	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	None
Storage Length	-	-	210	-	-	250	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	224	201	990	975	151	275	110	1355	182	110	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	975	0	0	224	0	0	3263	3201	224	3256	3201	975
Stage 1	-	-	-	-	-	-	246	246	-	2955	2955	-
Stage 2	-	-	-	-	-	-	3017	2955	-	301	246	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	707	-	-	1345	-	-	~ 5	~ 10	~ 815	~ 5	~ 10	305
Stage 1	-	-	-	-	-	-	758	703	-	~ 21	~ 33	-
Stage 2	-	-	-	-	-	-	~ 19	~ 33	-	708	703	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	707	-	-	1345	-	-	-	0 ~ 815	-	-	0	305
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-	-	0	-
Stage 1	-	-	-	-	-	-	742	688	-	~ 21	0	-
Stage 2	-	-	-	-	-	-	-	0	-	-	688	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			6.9								
HCM LOS							-			-		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	-	815	707	-	-	1345	-	-	-			
HCM Lane V/C Ratio	-	1.663	0.016	-	-	0.736	-	-	-			
HCM Control Delay (s)	-	\$ 318.2	10.2	0	-	14.7	0	-	-			
HCM Lane LOS	-	F	B	A	-	B	A	-	-			
HCM 95th %tile Q(veh)	-	74.3	0	-	-	7.2	-	-	-			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined					*: All major volume in platoon			

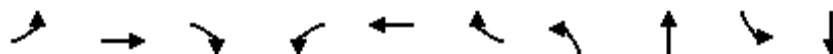
Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1475	78	14	1737	26	175	26	0	8	8	0
Future Vol, veh/h	0	1475	78	14	1737	26	175	26	0	8	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Free
Storage Length	320	-	150	285	-	0	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	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	0	1603	85	15	1888	28	190	28	0	9	9	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1888	0	0	1603	0	0	3526	3521	802	2734	3521	-
Stage 1	-	-	-	-	-	-	1603	1603	-	1918	1918	-
Stage 2	-	-	-	-	-	-	1923	1918	-	816	1603	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	-
Pot Cap-1 Maneuver	315	-	-	406	-	-	~ 3	~ 6	328	11	~ 6	0
Stage 1	-	-	-	-	-	-	~ 111	164	-	86	114	0
Stage 2	-	-	-	-	-	-	~ 86	114	-	338	164	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	315	-	-	406	-	-	-	~ 6	328	~ 7	~ 6	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 41	63	-	~ 7	~ 6	-
Stage 1	-	-	-	-	-	-	~ 111	164	-	86	110	-
Stage 2	-	-	-	-	-	-	~ 76	110	-	280	164	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1								
HCM LOS							-			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	-	315	-	-	406	-	-	7	-			
HCM Lane V/C Ratio	-	-	-	-	0.037	-	-	1.242	-			
HCM Control Delay (s)	-	0	-	-	14.2	-	-	\$ 1112.7	-			
HCM Lane LOS	-	A	-	-	B	-	-	F	-			
HCM 95th %tile Q(veh)	-	0	-	-	0.1	-	-	1.9	-			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Timings

5b. Build 2038 PM (Full Build-Out)

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↗↗	↰	↰	↗↗	↰	↰	↗	↰	↗
Traffic Volume (vph)	121	1333	55	292	1584	8	31	499	7	528
Future Volume (vph)	121	1333	55	292	1584	8	31	499	7	528
Lane Group Flow (vph)	126	1389	57	304	1650	8	32	779	7	650
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	15.0	49.0	49.0	23.0	57.0	57.0	48.0	48.0	48.0	48.0
Total Split (%)	12.5%	40.8%	40.8%	19.2%	47.5%	47.5%	40.0%	40.0%	40.0%	40.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.90	1.08	0.09	1.18	1.09	0.01	0.52	1.22	0.11	1.00
Control Delay	108.4	87.9	0.3	157.7	84.0	0.0	64.9	144.8	32.0	74.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.4	87.9	0.3	157.7	84.0	0.0	64.9	144.8	32.0	74.4
Queue Length 50th (ft)	98	~634	0	~282	~755	0	19	~730	4	~496
Queue Length 95th (ft)	#216	#773	0	#461	#894	0	#71	#972	17	#753
Internal Link Dist (ft)		2203			5188			2286		2133
Turn Bay Length (ft)	270		140	285		195	165		150	
Base Capacity (vph)	140	1282	652	258	1518	721	61	641	61	649
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	1.08	0.09	1.18	1.09	0.01	0.52	1.22	0.11	1.00

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 71 (59%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

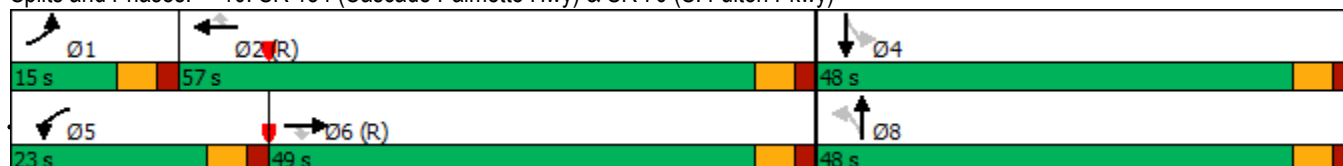
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5b. Build 2038 PM (Full Build-Out)

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	1333	55	292	1584	8	31	499	249	7	528	96
Future Volume (veh/h)	121	1333	55	292	1584	8	31	499	249	7	528	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	1389	0	304	1650	0	32	520	259	7	550	100
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	141	1288		260	1525		60	417	208	60	545	99
Arrive On Green	0.08	0.36	0.00	0.15	0.43	0.00	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	782	1178	587	693	1540	280
Grp Volume(v), veh/h	126	1389	0	304	1650	0	32	0	779	7	0	650
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	782	0	1765	693	0	1820
Q Serve(g_s), s	8.4	43.5	0.0	17.5	51.5	0.0	0.0	0.0	42.5	0.0	0.0	42.5
Cycle Q Clear(g_c), s	8.4	43.5	0.0	17.5	51.5	0.0	42.5	0.0	42.5	42.5	0.0	42.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.15
Lane Grp Cap(c), veh/h	141	1288		260	1525		60	0	625	60	0	645
V/C Ratio(X)	0.89	1.08		1.17	1.08		0.53	0.00	1.25	0.12	0.00	1.01
Avail Cap(c_a), veh/h	141	1288		260	1525		60	0	625	60	0	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	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	54.7	38.2	0.0	51.3	34.3	0.0	60.0	0.0	38.8	60.0	0.0	38.8
Incr Delay (d2), s/veh	45.7	49.0	0.0	109.8	48.7	0.0	8.8	0.0	123.9	0.9	0.0	37.5
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	9.2	36.4	0.0	23.4	41.7	0.0	2.0	0.0	55.8	0.4	0.0	32.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.4	87.3	0.0	161.1	82.9	0.0	68.8	0.0	162.7	60.9	0.0	76.3
LnGrp LOS	F	F		F	F		E	A	F	E	A	F
Approach Vol, veh/h	1515			1954			811			657		
Approach Delay, s/veh	88.4			95.1			159.0			76.1		
Approach LOS	F			F			F			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	57.0		48.0	23.0	49.0		48.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	51.5		42.5	17.5	43.5		42.5				
Max Q Clear Time (g_c+I1), s	10.4	53.5		44.5	19.5	45.5		44.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 101.0

HCM 6th LOS F

Notes

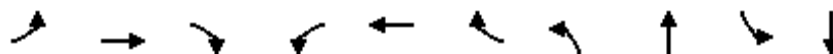
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5b. Build 2038 PM (Full Build-Out)

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	79	1610	82	376	1883	216	89	260	142	195
Future Volume (vph)	79	1610	82	376	1883	216	89	260	142	195
Lane Group Flow (vph)	86	1750	89	409	2047	235	97	595	154	289
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	15.0	39.5
Total Split (s)	15.0	64.0	64.0	24.0	73.0	73.0	15.0	47.0	15.0	47.0
Total Split (%)	10.0%	42.7%	42.7%	16.0%	48.7%	48.7%	10.0%	31.3%	10.0%	31.3%
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	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
v/c Ratio	0.57	1.29	0.12	1.50	1.25	0.30	0.32	1.17	0.94	0.57
Control Delay	39.1	175.5	1.0	272.7	135.2	0.6	34.0	140.4	93.9	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	175.5	1.0	272.7	135.2	0.6	34.0	140.4	93.9	49.5
Queue Length 50th (ft)	39	~1145	0	~492	~1335	0	62	~665	102	235
Queue Length 95th (ft)	90	#1282	7	m#343	m779	m1	105	#908	#250	335
Internal Link Dist (ft)		1551			5221			1155		1231
Turn Bay Length (ft)	295		155	325		160	65		135	
Base Capacity (vph)	164	1353	714	272	1633	791	312	508	163	510
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	1.29	0.12	1.50	1.25	0.30	0.31	1.17	0.94	0.57

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 146 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

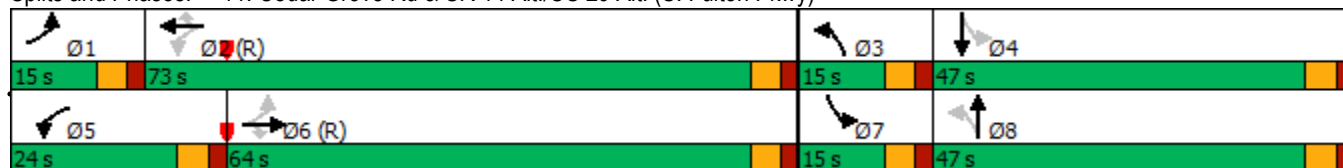
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5b. Build 2038 PM (Full Build-Out)

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	1610	82	376	1883	216	89	260	287	142	195	71
Future Volume (veh/h)	79	1610	82	376	1883	216	89	260	287	142	195	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	86	1750	0	409	2047	0	97	283	312	154	212	77
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	122	1364		271	1692		311	227	250	162	385	140
Arrive On Green	0.04	0.39	0.00	0.12	0.47	0.00	0.05	0.28	0.28	0.06	0.29	0.29
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	819	903	1795	1330	483
Grp Volume(v), veh/h	86	1750	0	409	2047	0	97	0	595	154	0	289
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	0	1723	1795	0	1813
Q Serve(g_s), s	4.3	58.5	0.0	18.5	70.9	0.0	5.7	0.0	41.5	9.3	0.0	20.2
Cycle Q Clear(g_c), s	4.3	58.5	0.0	18.5	70.9	0.0	5.7	0.0	41.5	9.3	0.0	20.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.52	1.00		0.27
Lane Grp Cap(c), veh/h	122	1364		271	1692		311	0	477	162	0	524
V/C Ratio(X)	0.71	1.28		1.51	1.21		0.31	0.00	1.25	0.95	0.00	0.55
Avail Cap(c_a), veh/h	163	1364		271	1692		334	0	477	162	0	524
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	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	36.9	45.8	0.0	51.5	39.6	0.0	37.1	0.0	54.3	41.5	0.0	45.1
Incr Delay (d2), s/veh	8.7	133.1	0.0	247.0	100.1	0.0	0.6	0.0	128.3	56.6	0.0	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	3.7	71.1	0.0	37.6	73.7	0.0	4.6	0.0	50.1	10.8	0.0	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	178.8	0.0	298.5	139.6	0.0	37.6	0.0	182.6	98.0	0.0	46.3
LnGrp LOS	D	F		F	F		D	A	F	F	A	D
Approach Vol, veh/h	1836			2456			692			443		
Approach Delay, s/veh	172.6			166.1			162.3			64.3		
Approach LOS	F			F			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	76.4	13.1	48.9	24.0	64.0	15.0	47.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	67.5	9.5	41.5	18.5	58.5	9.5	41.5				
Max Q Clear Time (g_c+I1), s	6.3	72.9	7.7	22.2	20.5	60.5	11.3	43.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 159.5

HCM 6th LOS F

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	401	1388	331	251	1795	913	231	1210	52	594	840	242
Future Volume (vph)	401	1388	331	251	1795	913	231	1210	52	594	840	242
Lane Group Flow (vph)	405	1402	334	254	1813	922	233	1222	53	600	848	244
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	38.5	38.5	15.0	42.5	42.5	15.0	53.5	53.5	15.0	55.5	55.5
Total Split (s)	19.0	60.5	60.5	16.0	57.5	57.5	18.0	53.5	53.5	20.0	55.5	55.5
Total Split (%)	12.7%	40.3%	40.3%	10.7%	38.3%	38.3%	12.0%	35.7%	35.7%	13.3%	37.0%	37.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	1.92	1.12	0.52	1.49	1.46	1.38	1.57	1.09	0.10	1.92	0.77	0.39
Control Delay	445.9	84.5	7.9	259.8	235.3	191.9	329.9	102.1	0.5	457.7	50.4	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	445.9	84.5	7.9	259.8	235.3	191.9	329.9	102.1	0.5	457.7	50.4	15.3
Queue Length 50th (ft)	~549	~840	94	~290	~1272	~329	~322	~705	0	~463	391	60
Queue Length 95th (ft)	m#388	m588	m56	m#193	m#864	m#671	#498	#846	2	#586	474	138
Internal Link Dist (ft)		5289			4732			1838			668	
Turn Bay Length (ft)	210		100	265		110	250		210	175		235
Base Capacity (vph)	211	1248	642	170	1238	669	148	1121	554	313	1104	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.92	1.12	0.52	1.49	1.46	1.38	1.57	1.09	0.10	1.92	0.77	0.39

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: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

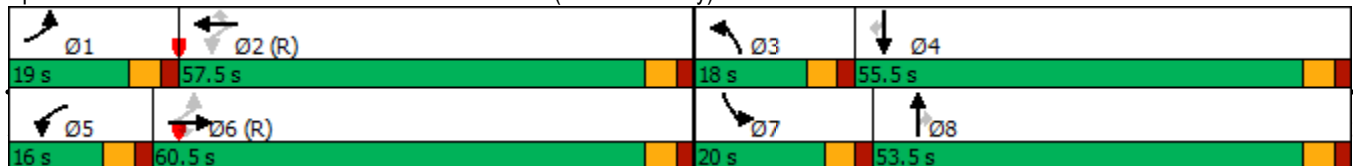
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
12: SR 92 & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	401	1388	331	251	1795	913	231	1210	52	594	840	242
Future Volume (veh/h)	401	1388	331	251	1795	913	231	1210	52	594	840	242
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1811	1870	1841	1885	1856	1885	1856	1811	1781	1767	1856
Adj Flow Rate, veh/h	405	1402	334	254	1813	922	233	1222	0	600	848	244
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, %	1	6	2	4	1	3	1	3	6	8	9	3
Cap, veh/h	210	1262	581	171	1242	545	150	1128		318	1119	524
Arrive On Green	0.09	0.37	0.37	0.07	0.35	0.35	0.08	0.32	0.00	0.10	0.33	0.33
Sat Flow, veh/h	1795	3441	1585	1753	3582	1572	1795	3526	1535	3291	3357	1572
Grp Volume(v), veh/h	405	1402	334	254	1813	922	233	1222	0	600	848	244
Grp Sat Flow(s),veh/h/ln	1795	1721	1585	1753	1791	1572	1795	1763	1535	1646	1678	1572
Q Serve(g_s), s	13.5	55.0	25.4	10.5	52.0	52.0	12.5	48.0	0.0	14.5	33.8	18.4
Cycle Q Clear(g_c), s	13.5	55.0	25.4	10.5	52.0	52.0	12.5	48.0	0.0	14.5	33.8	18.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	1262	581	171	1242	545	150	1128		318	1119	524
V/C Ratio(X)	1.93	1.11	0.57	1.49	1.46	1.69	1.56	1.08		1.89	0.76	0.47
Avail Cap(c_a), veh/h	210	1262	581	171	1242	545	150	1128		318	1119	524
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.4	47.5	38.1	43.7	49.0	49.0	68.8	51.0	0.0	67.8	44.6	39.5
Incr Delay (d2), s/veh	436.7	61.6	4.1	248.0	211.5	319.0	280.8	52.3	0.0	410.3	3.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	46.8	45.7	15.4	24.8	87.9	105.3	27.5	39.1	0.0	38.3	20.1	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	484.0	109.1	42.2	291.7	260.5	368.0	349.6	103.3	0.0	478.1	47.6	40.1
LnGrp LOS	F	F	D	F	F	F	F	F		F	D	D
Approach Vol, veh/h	2141				2989				1455			
Approach Delay, s/veh	169.6				296.3				142.7			
Approach LOS	F				F				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	57.5	18.0	55.5	16.0	60.5	20.0	53.5				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	13.5	52.0	12.5	50.0	10.5	55.0	14.5	48.0				
Max Q Clear Time (g_c+I1), s	15.5	54.0	14.5	35.8	12.5	57.0	16.5	50.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	216.7
HCM 6th LOS	F

Notes

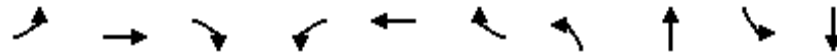
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5b. Build 2038 PM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	119	1858	92	164	2764	156	110	61	85	126
Future Volume (vph)	119	1858	92	164	2764	156	110	61	85	126
Lane Group Flow (vph)	121	1896	94	167	2820	159	112	155	87	319
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6			2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	41.5	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	97.5	97.5	82.5	82.5	82.5	52.5	52.5	52.5	52.5
Total Split (%)	10.0%	65.0%	65.0%	55.0%	55.0%	55.0%	35.0%	35.0%	35.0%	35.0%
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	Lead			Lag	Lag	Lag				
Lead-Lag Optimize?	Yes			Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.69	0.76	0.08	1.86	1.31	0.16	1.47	0.43	0.43	0.81
Control Delay	55.8	6.2	0.2	409.2	156.3	2.1	312.6	48.2	56.0	62.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	6.2	0.2	409.2	156.3	2.1	312.6	48.2	56.0	62.3
Queue Length 50th (ft)	76	119	0	~249	~1860	9	~152	121	76	258
Queue Length 95th (ft)	m43	m253	m2	m#173	m#1125	m3	#249	172	119	333
Internal Link Dist (ft)		5208			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	180	2504	1179	90	2160	980	116	542	312	577
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.76	0.08	1.86	1.31	0.16	0.97	0.29	0.28	0.55

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: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	1858	92	164	2764	156	110	61	91	85	126	186
Future Volume (veh/h)	119	1858	92	164	2764	156	110	61	91	85	126	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	121	1896	94	167	2820	159	112	62	93	87	129	190
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	142	2252	1037	97	1965	869	176	186	280	305	196	289
Arrive On Green	0.05	0.64	0.64	0.55	0.55	0.55	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1739	3497	1610	221	3554	1572	1077	659	989	1232	694	1022
Grp Volume(v), veh/h	121	1896	94	167	2820	159	112	0	155	87	0	319
Grp Sat Flow(s),veh/h/ln	1739	1749	1610	221	1777	1572	1077	0	1648	1232	0	1716
Q Serve(g_s), s	6.2	63.3	3.3	33.3	82.9	7.5	15.3	0.0	11.2	9.0	0.0	24.6
Cycle Q Clear(g_c), s	6.2	63.3	3.3	82.9	82.9	7.5	39.9	0.0	11.2	20.2	0.0	24.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.60
Lane Grp Cap(c), veh/h	142	2252	1037	97	1965	869	176	0	466	305	0	485
V/C Ratio(X)	0.85	0.84	0.09	1.72	1.44	0.18	0.64	0.00	0.33	0.29	0.00	0.66
Avail Cap(c_a), veh/h	158	2252	1037	97	1965	869	209	0	516	342	0	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	20.8	10.1	66.6	33.5	16.7	64.9	0.0	42.6	50.6	0.0	47.4
Incr Delay (d2), s/veh	31.0	4.0	0.2	363.9	198.9	0.5	4.7	0.0	0.4	0.5	0.0	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	9.6	31.7	2.0	24.2	129.5	4.9	7.8	0.0	8.1	5.0	0.0	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	24.8	10.3	430.5	232.4	17.1	69.6	0.0	43.0	51.1	0.0	49.9
LnGrp LOS	E	C	B	F	F	B	E	A	D	D	A	D
Approach Vol, veh/h	2111		3146			267			406			
Approach Delay, s/veh	27.2		232.0			54.2			50.2			
Approach LOS	C		F			D			D			
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	13.6	88.4	47.9		102.1		47.9					
Change Period (Y+Rc), s	5.5	5.5	5.5		5.5		5.5					
Max Green Setting (Gmax), s	9.5	77.0	47.0		92.0		47.0					
Max Q Clear Time (g_c+I1), s	8.2	84.9	26.6		65.3		41.9					
Green Ext Time (p_c), s	0.0	0.0	2.0		23.4		0.5					
Intersection Summary												
HCM 6th Ctrl Delay			138.6									
HCM 6th LOS			F									

Timings

5b. Build 2038 PM (Full Build-Out)

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	202	1216	553	33	2350	75	441	304	70	57	200
Future Volume (vph)	202	1216	553	33	2350	75	441	304	70	57	200
Lane Group Flow (vph)	208	1254	570	34	2423	77	455	313	72	59	497
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases	6			2			8			7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	6	6	6	2	2	2	8	8	8	7	4
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	28.5	30.5	30.5	30.5	47.5	47.5	47.5	15.0	54.5
Total Split (s)	73.0	73.0	73.0	73.0	73.0	73.0	62.0	62.0	62.0	15.0	77.0
Total Split (%)	48.7%	48.7%	48.7%	48.7%	48.7%	48.7%	41.3%	41.3%	41.3%	10.0%	51.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None
v/c Ratio	4.16	0.86	0.68	0.51	1.49	0.10	1.62	0.42	0.11	0.14	0.61
Control Delay	1466.5	35.4	19.7	12.3	242.7	0.6	325.7	35.8	8.1	22.1	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1466.5	35.4	19.7	12.3	242.7	0.6	325.7	35.8	8.1	22.1	32.9
Queue Length 50th (ft)	~374	366	124	12	~1717	6	~652	228	4	31	353
Queue Length 95th (ft)	m#511	571	291	m3	m#1356	m0	#874	319	38	58	476
Internal Link Dist (ft)		2942			4520			1090			834
Turn Bay Length (ft)	255		120	240		115	105		160	80	
Base Capacity (vph)	50	1463	840	67	1624	758	281	743	659	432	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	4.16	0.86	0.68	0.51	1.49	0.10	1.62	0.42	0.11	0.14	0.61

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

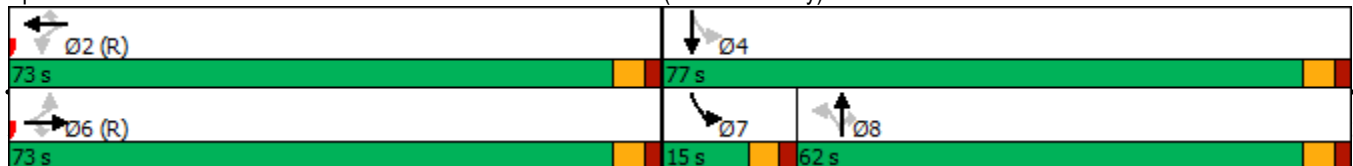
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5b. Build 2038 PM (Full Build-Out)

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	1216	553	33	2350	75	441	304	70	57	200	282
Future Volume (veh/h)	202	1216	553	33	2350	75	441	304	70	57	200	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	208	1254	570	34	2423	77	455	313	0	59	206	291
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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	48	1594	771	91	1743	777	237	705		376	314	443
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.38	0.38	0.00	0.03	0.44	0.44
Sat Flow, veh/h	131	3300	1598	260	3610	1610	879	1870	1560	1810	707	999
Grp Volume(v), veh/h	208	1254	570	34	2423	77	455	313	0	59	0	497
Grp Sat Flow(s),veh/h/ln	131	1650	1598	260	1805	1610	879	1870	1560	1810	0	1705
Q Serve(g_s), s	0.0	47.5	43.0	18.8	72.4	3.9	32.3	18.8	0.0	2.9	0.0	34.3
Cycle Q Clear(g_c), s	72.4	47.5	43.0	66.4	72.4	3.9	56.5	18.8	0.0	2.9	0.0	34.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h	48	1594	771	91	1743	777	237	705		376	0	757
V/C Ratio(X)	4.33	0.79	0.74	0.37	1.39	0.10	1.92	0.44		0.16	0.00	0.66
Avail Cap(c_a), veh/h	48	1594	771	91	1743	777	237	705		435	0	813
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	0.09	0.09	0.09	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	75.0	32.4	31.2	60.0	38.8	21.1	62.1	35.0	0.0	27.6	0.0	32.7
Incr Delay (d2), s/veh	1547.3	4.0	6.3	1.1	175.9	0.0	428.9	0.4	0.0	0.2	0.0	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	40.4	25.7	24.3	1.8	97.1	2.0	62.7	13.4	0.0	2.3	0.0	20.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1622.3	36.4	37.5	61.1	214.6	21.1	491.0	35.4	0.0	27.8	0.0	34.5
LnGrp LOS	F	D	D	E	F	C	F	D		C	A	C
Approach Vol, veh/h	2032			2534			768			556		
Approach Delay, s/veh	199.0			206.7			305.4			33.8		
Approach LOS	F			F			F			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	77.9			72.1			77.9			10.1		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	67.5			71.5			67.5			9.5		
Max Q Clear Time (g_c+I1), s	74.4			36.3			74.4			4.9		
Green Ext Time (p_c), s	0.0			3.5			0.0			0.0		

Intersection Summary

HCM 6th Ctrl Delay 200.6

HCM 6th LOS F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5b. Build 2038 PM (Full Build-Out)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	89	1068	202	134	2262	53	65	95	135	195	81
Future Volume (vph)	89	1068	202	134	2262	53	65	95	135	195	81
Lane Group Flow (vph)	95	1136	215	143	2406	56	0	170	144	207	214
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	75.5	75.5	16.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	50.3%	50.3%	10.7%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.63	0.62	0.23	0.54	1.18	0.07		0.64	0.30	0.93	0.46
Control Delay	55.4	17.2	5.1	18.2	115.4	4.7		59.5	12.0	97.3	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	55.4	17.2	5.1	18.2	115.4	4.7		59.5	12.0	97.3	36.4
Queue Length 50th (ft)	43	526	46	47	~1484	0		149	23	199	132
Queue Length 95th (ft)	m62	673	m110	97	#1797	24		208	72	278	189
Internal Link Dist (ft)		4520			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	163	1837	951	276	2043	776		377	632	316	628
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.58	0.62	0.23	0.52	1.18	0.07		0.45	0.23	0.66	0.34

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: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

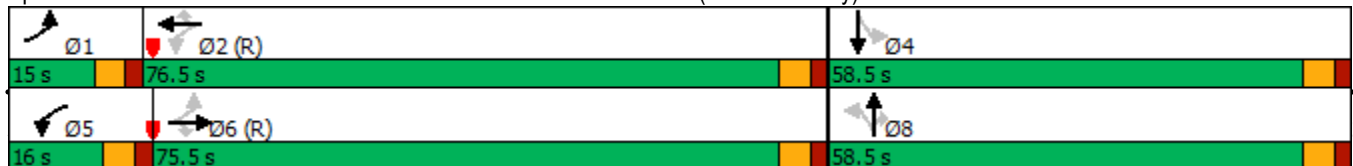
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary

5b. Build 2038 PM (Full Build-Out)

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1068	202	134	2262	53	65	95	135	195	81	120
Future Volume (veh/h)	89	1068	202	134	2262	53	65	95	135	195	81	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	95	1136	215	143	2406	0	69	101	0	207	86	128
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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	116	1838	897	247	2040		130	174		278	190	283
Arrive On Green	0.04	0.56	0.56	0.05	0.57	0.00	0.28	0.28	0.00	0.28	0.28	0.28
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	349	631	1585	1160	689	1026
Grp Volume(v), veh/h	95	1136	215	143	2406	0	170	0	0	207	0	214
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	980	0	1585	1160	0	1715
Q Serve(g_s), s	4.0	35.0	10.2	5.8	86.1	0.0	13.4	0.0	0.0	8.9	0.0	15.5
Cycle Q Clear(g_c), s	4.0	35.0	10.2	5.8	86.1	0.0	28.9	0.0	0.0	37.8	0.0	15.5
Prop In Lane	1.00		1.00	1.00		1.00	0.41		1.00	1.00		0.60
Lane Grp Cap(c), veh/h	116	1838	897	247	2040		304	0		278	0	473
V/C Ratio(X)	0.82	0.62	0.24	0.58	1.18		0.56	0.00		0.74	0.00	0.45
Avail Cap(c_a), veh/h	155	1838	897	275	2040		410	0		368	0	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.52	0.52	0.52	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.9	22.1	16.7	19.1	31.9	0.0	52.8	0.0	0.0	54.9	0.0	44.9
Incr Delay (d2), s/veh	12.6	0.8	0.3	2.5	86.1	0.0	1.6	0.0	0.0	5.7	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	16.8	5.9	3.7	79.4	0.0	9.9	0.0	0.0	12.6	0.0	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	22.9	17.0	21.6	118.0	0.0	54.4	0.0	0.0	60.6	0.0	45.6
LnGrp LOS	D	C	B	C	F		D	A		E	A	D
Approach Vol, veh/h	1446			2549			170			421		
Approach Delay, s/veh	24.0			112.6			54.4			53.0		
Approach LOS	C			F			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	91.6		46.9	13.4	89.7		46.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	10.5	70.0		53.0				
Max Q Clear Time (g_c+I1), s	6.0	88.1		39.8	7.8	37.0		30.9				
Green Ext Time (p_c), s	0.1	0.0		1.6	0.1	18.6		0.8				

Intersection Summary

HCM 6th Ctrl Delay 77.0

HCM 6th LOS E

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 161.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	109	672	835	2068	213
Future Vol, veh/h	66	109	672	835	2068	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	0	170	395	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	2	4	1	3	2
Mvmt Flow	69	115	707	879	2177	224

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	4031	1089	2177
Stage 1	2177	-	-
Stage 2	1854	-	-
Critical Hdwy	6.88	6.94	4.18
Critical Hdwy Stg 1	5.88	-	-
Critical Hdwy Stg 2	5.88	-	-
Follow-up Hdwy	3.54	3.32	2.24
Pot Cap-1 Maneuver	~ 2	211	~ 234
Stage 1	70	-	-
Stage 2	107	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	0	211	~ 234
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	107	-	-

Approach	EB	NB	SB
HCM Control Delay, s		\$ 425	0
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 234	-	-	211	-	-
HCM Lane V/C Ratio	3.023	-	-	0.544	-	-
HCM Control Delay (s)	\$ 953.1	-	-	40.7	-	-
HCM Lane LOS	F	-	-	E	-	-
HCM 95th %tile Q(veh)	63.4	-	-	2.9	-	-

Notes

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

Intersection						
Int Delay, s/veh	659					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	1167	65	824	1115	206
Future Vol, veh/h	85	1167	65	824	1115	206
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	5	0	1	1	3
Mvmt Flow	90	1241	69	877	1186	219
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1873	703	1405	0	-	0
Stage 1	1296	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.88	7	4.1	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.35	2.2	-	-	-
Pot Cap-1 Maneuver	~ 62	~ 373	492	-	-	-
Stage 1	217	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 53	~ 373	492	-	-	-
Mov Cap-2 Maneuver	~ 53	-	-	-	-	-
Stage 1	187	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, \$	1821.5		1		0	
HCM LOS	F					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	492		-	268	-	-
HCM Lane V/C Ratio	0.141		-	4.97	-	-
HCM Control Delay (s)	13.5		\$ 1821.5		-	-
HCM Lane LOS	B		-	F	-	-
HCM 95th %tile Q(veh)	0.5		-	136.6	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	84	10	1	83
Future Vol, veh/h	8	0	84	10	1	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	91	11	1	90

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	183	91	0	0	102
Stage 1	91	-	-	-	-
Stage 2	92	-	-	-	-
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	806	967	-	-	1490
Stage 1	933	-	-	-	-
Stage 2	932	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	805	967	-	-	1490
Mov Cap-2 Maneuver	805	-	-	-	-
Stage 1	933	-	-	-	-
Stage 2	931	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	805	1490
HCM Lane V/C Ratio	-	-	0.011	0.001
HCM Control Delay (s)	-	-	9.5	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	130	81	83	84	7
Future Vol, veh/h	11	130	81	83	84	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	12	141	88	90	91	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	361	95	99	0	-	0
Stage 1	95	-	-	-	-	-
Stage 2	266	-	-	-	-	-
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	638	962	1494	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	598	962	1494	-	-	-
Mov Cap-2 Maneuver	598	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.7	3.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1494	-	918	-	-	
HCM Lane V/C Ratio	0.059	-	0.167	-	-	
HCM Control Delay (s)	7.6	0	9.7	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.6	-	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	163	29	1	213
Future Vol, veh/h	23	1	163	29	1	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	177	32	1	232
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	411	177	0	0	209	0
Stage 1	177	-	-	-	-	-
Stage 2	234	-	-	-	-	-
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	597	866	-	-	1362	-
Stage 1	854	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	596	866	-	-	1362	-
Mov Cap-2 Maneuver	596	-	-	-	-	-
Stage 1	854	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.2	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	604		1362	-	
HCM Lane V/C Ratio	-	0.043		0.001	-	
HCM Control Delay (s)	-	11.2		7.6	0	
HCM Lane LOS	-	B		A	A	
HCM 95th %tile Q(veh)	-	0.1		0	-	

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	1	191	58	1	234
Future Vol, veh/h	45	1	191	58	1	234
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	49	1	208	63	1	254
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	464	208	0	0	271	0
Stage 1	208	-	-	-	-	-
Stage 2	256	-	-	-	-	-
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	556	832	-	-	1292	-
Stage 1	827	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	555	832	-	-	1292	-
Mov Cap-2 Maneuver	555	-	-	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.1	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	559	1292	-	
HCM Lane V/C Ratio	-	-	0.089	0.001	-	
HCM Control Delay (s)	-	-	12.1	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	15	0	1584	1147	37
Future Vol, veh/h	0	15	0	1584	1147	37
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	-	-	-	-
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	16	0	1722	1247	40
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	624	-	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	428	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	428	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	13.7	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT			
Capacity (veh/h)	-	428	-			
HCM Lane V/C Ratio	-	0.038	-			
HCM Control Delay (s)	-	13.7	-			
HCM Lane LOS	-	B	-			
HCM 95th %tile Q(veh)	-	0.1	-			

Intersection												
Int Delay, s/veh	43.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	58	3	12	15	3	61	9	1467	12	36	1092	34
Future Vol, veh/h	58	3	12	15	3	61	9	1467	12	36	1092	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	50	-	-	50	-	-
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	63	3	13	16	3	66	10	1595	13	39	1187	37

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2103	2912	612	2295	2924	804	1224	0	0	1608	0	0
Stage 1	1284	1284	-	1622	1622	-	-	-	-	-	-	-
Stage 2	819	1628	-	673	1302	-	-	-	-	-	-	-
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	~ 29	15	436	21	15	326	565	-	-	402	-	-
Stage 1	174	234	-	107	160	-	-	-	-	-	-	-
Stage 2	336	159	-	411	229	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 17	13	436	~ 15	13	326	565	-	-	402	-	-
Mov Cap-2 Maneuver	~ 17	13	-	~ 15	13	-	-	-	-	-	-	-
Stage 1	171	211	-	105	157	-	-	-	-	-	-	-
Stage 2	257	156	-	354	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, \$	1474.9	172.9	0.1	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	565	-	-	17	436	15	326	402	-	-
HCM Lane V/C Ratio	0.017	-	-	3.9	0.03	1.304	0.203	0.097	-	-
HCM Control Delay (s)	11.5	-	-	\$ 1762.4	13.5	\$ 695	18.8	14.9	-	-
HCM Lane LOS	B	-	-	F	B	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	8.9	0.1	3	0.7	0.3	-	-

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

Timings

24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a

5b. Build 2038 PM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	←	→	←	→	←	→	←	→	←
Traffic Volume (vph)	227	3	26	3	22	1094	100	921	98
Future Volume (vph)	227	3	26	3	22	1094	100	921	98
Lane Group Flow (vph)	247	28	28	187	24	1215	109	1001	107
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4		8		6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	15.0	28.5	28.5
Total Split (s)	46.0	46.0	46.0	46.0	59.0	59.0	15.0	74.0	74.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	49.2%	49.2%	12.5%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lag	Lag	Lead		
Lead-Lag Optimize?					Yes	Yes			
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.91	0.06	0.08	0.34	0.09	0.65	0.43	0.44	0.10
Control Delay	78.8	11.6	30.1	6.0	17.0	19.7	10.6	5.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	11.6	30.1	6.0	17.0	19.7	10.6	5.6	0.1
Queue Length 50th (ft)	184	2	16	2	7	246	14	76	0
Queue Length 95th (ft)	#288	23	37	52	m18	426	m21	m101	m0
Internal Link Dist (ft)		352		361		553		242	
Turn Bay Length (ft)	150		150		100		100		150
Base Capacity (vph)	342	560	464	657	281	1866	273	2273	1052
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.05	0.06	0.28	0.09	0.65	0.40	0.44	0.10

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

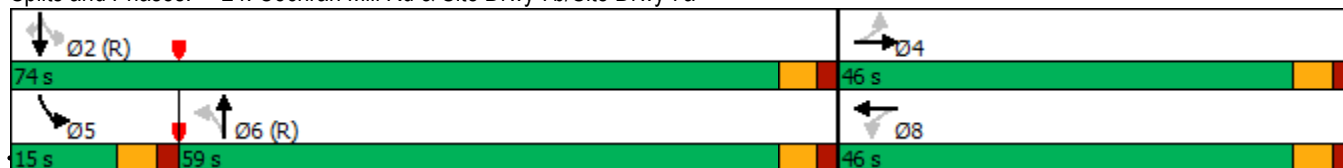
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a



HCM 6th Signalized Intersection Summary
24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	227	3	23	26	3	169	22	1094	24	100	921	98
Future Volume (veh/h)	227	3	23	26	3	169	22	1094	24	100	921	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	247	3	25	28	3	184	24	1189	26	109	1001	107
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	325	54	451	476	8	490	282	1794	39	371	2114	943
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	1.00	1.00	1.00	0.04	0.59	0.59
Sat Flow, veh/h	1196	173	1439	1382	25	1563	509	3555	78	1781	3554	1585
Grp Volume(v), veh/h	247	0	28	28	0	187	24	594	621	109	1001	107
Grp Sat Flow(s),veh/h/ln	1196	0	1611	1382	0	1589	509	1777	1856	1781	1777	1585
Q Serve(g_s), s	24.3	0.0	1.5	1.7	0.0	11.0	0.8	0.0	0.0	3.4	19.1	3.5
Cycle Q Clear(g_c), s	35.3	0.0	1.5	3.2	0.0	11.0	9.1	0.0	0.0	3.4	19.1	3.5
Prop In Lane	1.00		0.89	1.00		0.98	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	325	0	505	476	0	498	282	897	937	371	2114	943
V/C Ratio(X)	0.76	0.00	0.06	0.06	0.00	0.38	0.09	0.66	0.66	0.29	0.47	0.11
Avail Cap(c_a), veh/h	354	0	544	510	0	536	282	897	937	433	2114	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	0.0	28.8	29.9	0.0	32.1	0.6	0.0	0.0	12.1	13.7	10.6
Incr Delay (d2), s/veh	8.5	0.0	0.0	0.1	0.0	0.5	0.6	3.8	3.7	0.4	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.7	0.0	1.0	1.1	0.0	7.8	0.1	1.7	1.7	2.4	11.5	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	0.0	28.8	29.9	0.0	32.5	1.2	3.8	3.7	12.5	14.5	10.8
LnGrp LOS	D	A	C	C	A	C	A	A	A	B	B	B
Approach Vol, veh/h	275			215			1239			1217		
Approach Delay, s/veh	51.7			32.2			3.7			14.0		
Approach LOS	D			C			A			B		
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	76.9			43.1		10.8	66.1	43.1				
Change Period (Y+Rc), s	5.5			5.5		5.5	5.5	5.5				
Max Green Setting (Gmax), s	68.5			40.5		9.5	53.5	40.5				
Max Q Clear Time (g_c+I1), s	21.1			37.3		5.4	11.1	13.0				
Green Ext Time (p_c), s	18.4			0.3		0.1	20.8	1.3				
Intersection Summary												
HCM 6th Ctrl Delay				14.5								
HCM 6th LOS				B								

Intersection												
Int Delay, s/veh	10.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	54	3	10	13	3	59	6	1029	11	35	903	32
Future Vol, veh/h	54	3	10	13	3	59	6	1029	11	35	903	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	3	11	14	3	64	7	1118	12	38	982	35

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1651	2220	509	1707	2231	565	1017	0	0	1130	0	0
Stage 1	1076	1076	-	1138	1138	-	-	-	-	-	-	-
Stage 2	575	1144	-	569	1093	-	-	-	-	-	-	-
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	65	43	509	59	42	468	678	-	-	614	-	-
Stage 1	234	294	-	214	275	-	-	-	-	-	-	-
Stage 2	470	273	-	474	288	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 50	40	509	51	39	468	678	-	-	614	-	-
Mov Cap-2 Maneuver	~ 50	40	-	51	39	-	-	-	-	-	-	-
Stage 1	232	276	-	212	272	-	-	-	-	-	-	-
Stage 2	397	270	-	430	270	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s\$ 300.3		36	0.1	0.4
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	678	-	-	49	509	48	468	614	-	-
HCM Lane V/C Ratio	0.01	-	-	1.264	0.021	0.362	0.137	0.062	-	-
HCM Control Delay (s)	10.4	-	-	\$ 350.9	12.2	117.7	13.9	11.2	-	-
HCM Lane LOS	B	-	-	F	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	5.7	0.1	1.3	0.5	0.2	-	-

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

Timings
26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a

5b. Build 2038 PM (Full Build-Out)

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	162	3	34	3	22	718	99	732	96
Future Volume (vph)	162	3	34	3	22	718	99	732	96
Lane Group Flow (vph)	176	44	37	185	24	805	108	796	104
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		6		2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	40.0	40.0	40.0	40.0	80.0	80.0	80.0	80.0	80.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.89	0.12	0.13	0.39	0.06	0.62	0.32	0.32	0.09
Control Delay	86.5	11.6	36.2	7.6	8.0	13.7	3.7	1.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	11.6	36.2	7.6	8.0	13.7	3.7	1.5	0.2
Queue Length 50th (ft)	133	2	23	2	5	300	4	14	1
Queue Length 95th (ft)	205	30	49	56	19	539	8	22	0
Internal Link Dist (ft)		425		370		140		453	
Turn Bay Length (ft)	150		150		50		50		150
Base Capacity (vph)	270	489	389	585	427	1295	336	2472	1137
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.09	0.10	0.32	0.06	0.62	0.32	0.32	0.09

Intersection Summary

Cycle Length: 120

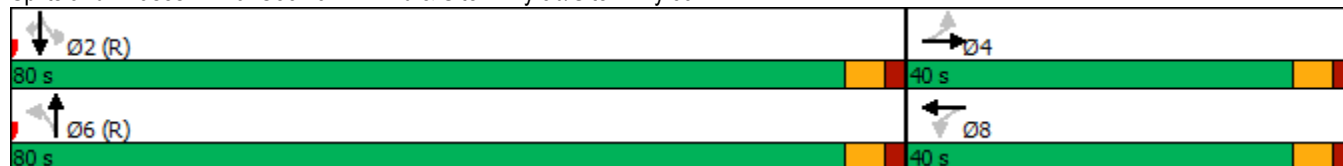
Actuated Cycle Length: 120

Offset: 20 (17%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a



HCM 6th Signalized Intersection Summary
26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a

5b. Build 2038 PM (Full Build-Out)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	3	38	34	3	167	22	718	23	99	732	96
Future Volume (veh/h)	162	3	38	34	3	167	22	718	23	99	732	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	176	3	41	37	3	182	24	780	25	108	796	104
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	255	28	389	386	7	407	461	1168	37	317	2302	1027
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.65	0.65	0.65	1.00	1.00	1.00
Sat Flow, veh/h	1199	109	1493	1362	26	1563	619	1802	58	677	3554	1585
Grp Volume(v), veh/h	176	0	44	37	0	185	24	0	805	108	796	104
Grp Sat Flow(s),veh/h/ln	1199	0	1602	1362	0	1589	619	0	1860	677	1777	1585
Q Serve(g_s), s	17.3	0.0	2.5	2.5	0.0	11.7	1.7	0.0	32.2	10.5	0.0	0.0
Cycle Q Clear(g_c), s	29.0	0.0	2.5	5.1	0.0	11.7	1.7	0.0	32.2	42.8	0.0	0.0
Prop In Lane	1.00		0.93	1.00		0.98	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	255	0	417	386	0	414	461	0	1205	317	2302	1027
V/C Ratio(X)	0.69	0.00	0.11	0.10	0.00	0.45	0.05	0.00	0.67	0.34	0.35	0.10
Avail Cap(c_a), veh/h	288	0	460	423	0	457	461	0	1205	317	2302	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	0.0	33.7	35.7	0.0	37.1	7.7	0.0	13.1	8.9	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.0	0.1	0.1	0.0	0.8	0.2	0.0	2.9	2.9	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.5	0.0	1.8	1.6	0.0	8.2	0.4	0.0	18.4	2.6	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	0.0	33.9	35.8	0.0	37.9	8.0	0.0	16.1	11.8	0.4	0.2
LnGrp LOS	E	A	C	D	A	D	A	A	B	B	A	A
Approach Vol, veh/h	220			222			829			1008		
Approach Delay, s/veh	50.9			37.5			15.8			1.6		
Approach LOS	D			D			B			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	83.2			36.8			83.2			36.8		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	74.5			34.5			74.5			34.5		
Max Q Clear Time (g_c+I1), s	44.8			31.0			34.2			13.7		
Green Ext Time (p_c), s	13.4			0.3			14.1			1.2		
Intersection Summary												
HCM 6th Ctrl Delay	15.0											
HCM 6th LOS	B											

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	3	10	10	3	22	6	719	6	13	778	13
Future Vol, veh/h	22	3	10	10	3	22	6	719	6	13	778	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	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	24	3	11	11	3	24	7	782	7	14	846	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1694	1684	853	1688	1688	786	860	0	0	789	0	0
Stage 1	881	881	-	800	800	-	-	-	-	-	-	-
Stage 2	813	803	-	888	888	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	73	94	359	74	94	392	781	-	-	831	-	-
Stage 1	341	365	-	379	397	-	-	-	-	-	-	-
Stage 2	372	396	-	338	362	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	92	359	68	92	392	781	-	-	831	-	-
Mov Cap-2 Maneuver	65	92	-	68	92	-	-	-	-	-	-	-
Stage 1	338	359	-	376	393	-	-	-	-	-	-	-
Stage 2	343	392	-	319	356	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	74		37.5		0.1		0.2					
HCM LOS	F		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	781	-	-	88	148	831	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.432	0.257	0.017	-	-				
HCM Control Delay (s)	9.6	-	-	74	37.5	9.4	-	-				
HCM Lane LOS	A	-	-	F	E	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	1.8	1	0.1	-	-				

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	547	557	4	7	20
Future Vol, veh/h	12	547	557	4	7	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	595	605	4	8	22
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	609	0	-	0	1228	607
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	621	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	970	-	-	-	197	496
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	536	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	970	-	-	-	193	496
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	536	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		16.1		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	970	-	-	-	353	
HCM Lane V/C Ratio	0.013	-	-	-	0.083	
HCM Control Delay (s)	8.8	0	-	-	16.1	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

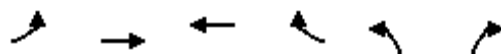
**Future 2038 “Build” Intersections Analysis (Full
Build-Out) with Improvements**

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

1: I-85 NB Ramps & Collinsworth Rd

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations	←←	→→	←←	→→	←←	→
Traffic Volume (vph)	826	728	718	985	564	547
Future Volume (vph)	826	728	718	985	564	547
Lane Group Flow (vph)	879	774	764	1048	600	582
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	30.0	58.3	28.3	28.3	31.7	31.7
Total Split (%)	33.3%	64.8%	31.4%	31.4%	35.2%	35.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.98	0.38	0.89	0.73	0.62	1.00
Control Delay	58.4	17.2	46.2	6.2	31.1	61.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	17.2	46.2	6.2	31.1	61.0
Queue Length 50th (ft)	282	177	220	11	151	~240
Queue Length 95th (ft)	#398	237	#324	66	207	#468
Internal Link Dist (ft)		760	1006			
Turn Bay Length (ft)	300			250	500	
Base Capacity (vph)	899	2056	862	1428	961	581
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.38	0.89	0.73	0.62	1.00

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Analysis - 5a. Build 2018 AM (Full Build-Out) - System & Site Improvements

1: I-85 NB Ramps & Collinsworth Rd

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	826	728	0	0	718	985	564	0	547	0	0	0
Future Volume (veh/h)	826	728	0	0	718	985	564	0	547	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1811	1856	0	0	1811	1811	1811	0	1811			
Adj Flow Rate, veh/h	879	774	0	0	764	0	600	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	6	3	0	0	6	6	6	0	6			
Cap, veh/h	911	2346	0	0	1143		710	0				
Arrive On Green	0.45	1.00	0.00	0.00	0.33	0.00	0.21	0.00	0.00			
Sat Flow, veh/h	3346	3618	0	0	3532	2701	3346	0	1535			
Grp Volume(v), veh/h	879	774	0	0	764	0	600	0	0			
Grp Sat Flow(s),veh/h/ln	1673	1763	0	0	1721	1351	1673	0	1535			
Q Serve(g_s), s	23.0	0.0	0.0	0.0	17.2	0.0	15.5	0.0	0.0			
Cycle Q Clear(g_c), s	23.0	0.0	0.0	0.0	17.2	0.0	15.5	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	911	2346	0	0	1143		710	0				
V/C Ratio(X)	0.96	0.33	0.00	0.00	0.67		0.84	0.00				
Avail Cap(c_a), veh/h	911	2346	0	0	1143		974	0				
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.59	0.59	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	24.1	0.0	0.0	0.0	25.8	0.0	34.0	0.0	0.0			
Incr Delay (d2), s/veh	15.4	0.2	0.0	0.0	3.1	0.0	5.1	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	11.3	0.1	0.0	0.0	11.0	0.0	10.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.2	0.0	0.0	28.9	0.0	39.1	0.0	0.0			
LnGrp LOS	D	A	A	A	C		D	A				
Approach Vol, veh/h	1653			764			600					
Approach Delay, s/veh	21.1			28.9			39.1					
Approach LOS	C			C			D					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	30.0	35.4					65.4	24.6				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	24.5	22.8					52.8	26.2				
Max Q Clear Time (g_c+I1), s	25.0	19.2					2.0	17.5				
Green Ext Time (p_c), s	0.0	2.2					11.4	1.6				
Intersection Summary												
HCM 6th Ctrl Delay				26.7								
HCM 6th LOS				C								

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

2: I-85 SB Ramps & Collinsworth Rd

08/31/2023



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	1380	441	304	1038	221	514
Future Volume (vph)	1380	441	304	1038	221	514
Lane Group Flow (vph)	1453	464	320	1093	233	541
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6				4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	51.0	51.0	16.0	67.0	23.0	23.0
Total Split (%)	56.7%	56.7%	17.8%	74.4%	25.6%	25.6%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.79	0.47	0.78	0.46	0.41	0.86
Control Delay	13.0	1.4	54.0	6.7	34.9	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	1.4	54.0	6.7	34.9	34.7
Queue Length 50th (ft)	164	0	102	93	59	95
Queue Length 95th (ft)	196	m7	m#132	m126	94	#181
Internal Link Dist (ft)	919			760		
Turn Bay Length (ft)		500	95		520	500
Base Capacity (vph)	1833	996	412	2402	642	681
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.47	0.78	0.46	0.36	0.79

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Analysis - 8 AM (Full Build-Out) - System & Site Improvements

2: I-85 SB Ramps & Collinsworth Rd

08/31/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1380	441	304	1038	0	0	0	0	221	0	514
Future Volume (veh/h)	0	1380	441	304	1038	0	0	0	0	221	0	514
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1767	1856	1811	0				1811	0	1722
Adj Flow Rate, veh/h	0	1453	0	320	1093	0				233	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	9	3	6	0				6	0	12
Cap, veh/h	0	2148		384	2692	0				319	0	
Arrive On Green	0.00	0.61	0.00	0.22	1.00	0.00				0.10	0.00	0.00
Sat Flow, veh/h	0	3618	1497	3428	3532	0				3346	0	2569
Grp Volume(v), veh/h	0	1453	0	320	1093	0				233	0	0
Grp Sat Flow(s),veh/h/ln	0	1763	1497	1714	1721	0				1673	0	1284
Q Serve(g_s), s	0.0	24.7	0.0	8.0	0.0	0.0				6.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	24.7	0.0	8.0	0.0	0.0				6.1	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2148		384	2692	0				319	0	
V/C Ratio(X)	0.00	0.68		0.83	0.41	0.00				0.73	0.00	
Avail Cap(c_a), veh/h	0	2148		400	2692	0				651	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	0.56	0.00	0.55	0.55	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	11.7	0.0	34.1	0.0	0.0				39.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	8.0	0.3	0.0				3.2	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	0.0	10.7	0.0	5.4	0.2	0.0				4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.7	0.0	42.2	0.3	0.0				42.8	0.0	0.0
LnGrp LOS	A	B		D	A	A				D	A	
Approach Vol, veh/h		1453			1413						233	
Approach Delay, s/veh		12.7			9.7						42.8	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		75.9		14.1	15.6	60.3						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		61.5		17.5	10.5	45.5						
Max Q Clear Time (g_c+I1), s		2.0		8.1	10.0	26.7						
Green Ext Time (p_c), s		19.6		0.5	0.1	14.3						

Intersection Summary

HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

3: Collinsworth Rd & Weldon Rd

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	32	511	278	863	1051
Future Volume (vph)	32	511	278	863	1051
Lane Group Flow (vph)	33	532	290	899	1111
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	3		1	6	2
Permitted Phases		3			
Detector Phase	3	3	1	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5
Total Split (s)	31.0	31.0	15.0	59.0	44.0
Total Split (%)	34.4%	34.4%	16.7%	65.6%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min
v/c Ratio	0.08	0.93	0.76	0.77	0.69
Control Delay	24.5	41.1	52.0	17.4	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	41.1	52.0	17.4	22.8
Queue Length 50th (ft)	14	162	91	372	268
Queue Length 95th (ft)	36	#352	m#141	489	346
Internal Link Dist (ft)	898			919	1309
Turn Bay Length (ft)		365	315		
Base Capacity (vph)	501	622	381	1172	1615
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.86	0.76	0.77	0.69

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Collinsworth Rd & Weldon Rd



HCM 6th Signalized Intersection Summary 8 AM (Full Build-Out) - System & Site Improvements

3: Collinsworth Rd & Weldon Rd

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	511	278	863	1051	15
Future Volume (veh/h)	32	511	278	863	1051	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	290	899	1095	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	56		355	1583	2448	36
Arrive On Green	0.03	0.00	0.21	1.00	0.68	0.68
Sat Flow, veh/h	1781	1585	3456	1870	3679	52
Grp Volume(v), veh/h	33	0	290	899	543	568
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1870	1777	1861
Q Serve(g_s), s	1.6	0.0	7.2	0.0	12.6	12.6
Cycle Q Clear(g_c), s	1.6	0.0	7.2	0.0	12.6	12.6
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	56		355	1583	1213	1271
V/C Ratio(X)	0.59		0.82	0.57	0.45	0.45
Avail Cap(c_a), veh/h	505		365	1583	1213	1271
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.78	0.78	1.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	35.0	0.0	6.5	6.5
Incr Delay (d2), s/veh	9.7	0.0	10.7	1.2	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.0	5.5	0.9	6.9	7.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	0.0	45.6	1.2	7.7	7.7
LnGrp LOS	D		D	A	A	A
Approach Vol, veh/h	33			1189	1111	
Approach Delay, s/veh	52.7			12.0	7.7	
Approach LOS	D			B	A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.7	67.0			81.7	8.3
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	9.5	38.5			53.5	25.5
Max Q Clear Time (g_c+I1), s	9.2	14.6			2.0	3.6
Green Ext Time (p_c), s	0.0	13.2			16.8	0.0

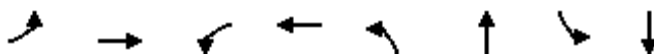
Intersection Summary

HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5c. Build 2038 AM (Full Build-Out) - System & Site Improvements
4: SR 14/US 29 (Main St) & Toombs St 08/31/2023

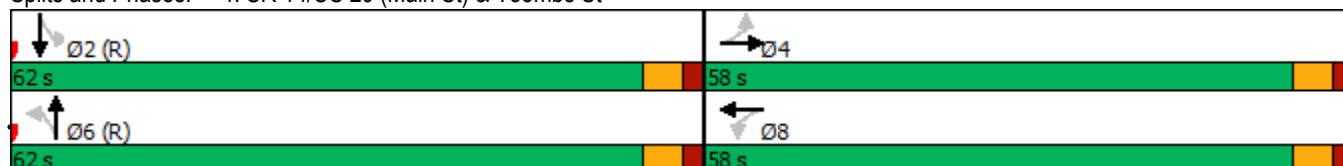


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	154	437	10	400	62	526	148	464
Future Volume (vph)	154	437	10	400	62	526	148	464
Lane Group Flow (vph)	0	730	0	583	0	667	0	784
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	58.0	58.0	58.0	58.0	62.0	62.0	62.0	62.0
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.7%	51.7%	51.7%	51.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		1.53		0.73		0.98		1.54
Control Delay		278.8		33.5		62.1		279.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		278.8		33.5		62.1		279.6
Queue Length 50th (ft)		~808		357		494		~856
Queue Length 95th (ft)		#1051		500		#760		#1099
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		477		802		680		509
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		1.53		0.73		0.98		1.54

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: 130
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary 5a. Build 2018 AM (Full Build-Out) - System & Site Improvements 4: SR 14/US 29 (Main St) & Toombs St 08/31/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	154	437	66	10	400	115	62	526	13	148	464	94
Future Volume (veh/h)	154	437	66	10	400	115	62	526	13	148	464	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1707	1900	1900	1900	1900	1752	1900	1900	1678	1900
Adj Flow Rate, veh/h	171	486	73	11	444	128	69	584	14	164	516	104
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, %	0	0	13	0	0	0	0	10	0	0	15	0
Cap, veh/h	139	319	47	37	617	175	83	584	14	101	236	46
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	233	728	107	14	1410	400	106	1240	29	138	501	98
Grp Volume(v), veh/h	730	0	0	583	0	0	667	0	0	784	0	0
Grp Sat Flow(s),veh/h/ln	1068	0	0	1824	0	0	1375	0	0	738	0	0
Q Serve(g_s), s	20.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	52.5	0.0	0.0	31.6	0.0	0.0	56.5	0.0	0.0	56.5	0.0	0.0
Prop In Lane	0.23		0.10	0.02		0.22	0.10		0.02	0.21		0.13
Lane Grp Cap(c), veh/h	504	0	0	829	0	0	680	0	0	384	0	0
V/C Ratio(X)	1.45	0.00	0.00	0.70	0.00	0.00	0.98	0.00	0.00	2.04	0.00	0.00
Avail Cap(c_a), veh/h	504	0	0	829	0	0	680	0	0	384	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	38.6	0.0	0.0	27.9	0.0	0.0	31.1	0.0	0.0	33.0	0.0	0.0
Incr Delay (d2), s/veh	212.2	0.0	0.0	2.7	0.0	0.0	30.0	0.0	0.0	478.9	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	69.7	0.0	0.0	20.4	0.0	0.0	33.1	0.0	0.0	104.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	250.8	0.0	0.0	30.6	0.0	0.0	61.1	0.0	0.0	511.8	0.0	0.0
LnGrp LOS	F	A	A	C	A	A	E	A	A	F	A	A
Approach Vol, veh/h		730			583			667			784	
Approach Delay, s/veh		250.8			30.6			61.1			511.8	
Approach LOS		F			C			E			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.0		58.0		62.0		58.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		56.5		52.5		56.5		52.5				
Max Q Clear Time (g_c+I1), s		58.5		54.5		58.5		33.6				
Green Ext Time (p_c), s		0.0		0.0		0.0		3.9				
Intersection Summary												
HCM 6th Ctrl Delay				232.6								
HCM 6th LOS				F								

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	47	78	40	651	830	26
Future Vol, veh/h	47	78	40	651	830	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	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	48	80	41	671	856	27

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1623	870	856	0	-	0
Stage 1	870	-	-	-	-	-
Stage 2	753	-	-	-	-	-
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	113	351	784	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	104	351	784	-	-	-
Mov Cap-2 Maneuver	104	-	-	-	-	-
Stage 1	376	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.8	0.6	0
HCM LOS	D		

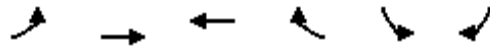
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	784	-	277	-	-
HCM Lane V/C Ratio	0.053	-	0.465	-	-
HCM Control Delay (s)	9.8	0	28.8	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.2	-	2.3	-	-

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

6: Hutchesons Ferry Rd & Cochran Mill Rd

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	101	369	217	641	671	91
Future Volume (vph)	101	369	217	641	671	91
Lane Group Flow (vph)	106	388	228	675	706	96
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		6	2		7	
Permitted Phases	6			2		7
Detector Phase	6	6	2	2	7	7
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	5.0	5.0
Minimum Split (s)	28.5	28.5	28.5	28.5	15.0	15.0
Total Split (s)	50.0	50.0	50.0	50.0	70.0	70.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.23	0.47	0.28	0.63	0.85	0.12
Control Delay	25.1	27.9	16.9	2.3	44.6	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	27.9	16.9	2.3	44.6	10.3
Queue Length 50th (ft)	51	214	78	0	544	16
Queue Length 95th (ft)	104	338	m123	m0	m631	m29
Internal Link Dist (ft)		2663	3004		3074	
Turn Bay Length (ft)	235			175		175
Base Capacity (vph)	465	820	820	1074	951	883
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.47	0.28	0.63	0.74	0.11

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

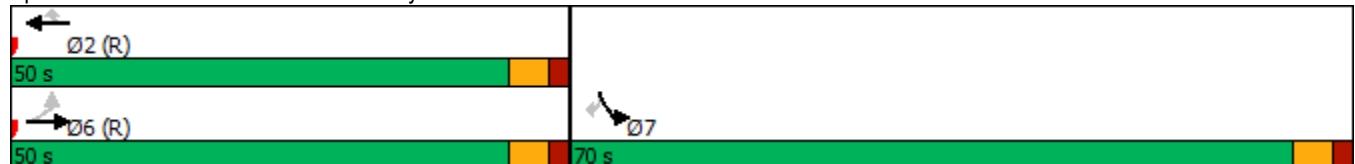
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

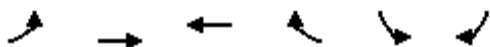
Splits and Phases: 6: Hutchesons Ferry Rd & Cochran Mill Rd



HCM 6th Signalized Intersection Analysis - 5a. Sunday 8 AM (Full Build-Out) - System & Site Improvements

6: Hutchesons Ferry Rd & Cochran Mill Rd

08/31/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	369	217	641	671	91
Future Volume (veh/h)	101	369	217	641	671	91
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	106	388	228	0	706	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	542	915	915		747	665
Arrive On Green	0.49	0.49	0.49	0.00	0.42	0.42
Sat Flow, veh/h	1153	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	106	388	228	0	706	96
Grp Sat Flow(s),veh/h/ln	1153	1870	1870	1585	1781	1585
Q Serve(g_s), s	7.1	16.1	8.5	0.0	45.7	4.5
Cycle Q Clear(g_c), s	15.6	16.1	8.5	0.0	45.7	4.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	542	915	915		747	665
V/C Ratio(X)	0.20	0.42	0.25		0.95	0.14
Avail Cap(c_a), veh/h	542	915	915		957	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	19.8	17.8	0.0	33.5	21.5
Incr Delay (d2), s/veh	0.8	1.4	0.7	0.0	15.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.5	11.3	6.6	0.0	29.2	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.2	21.2	18.5	0.0	48.6	21.6
LnGrp LOS	C	C	B		D	C
Approach Vol, veh/h		494	228		802	
Approach Delay, s/veh		21.6	18.5		45.4	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		64.2		55.8		64.2
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		44.5		64.5		44.5
Max Q Clear Time (g_c+I1), s		10.5		47.7		18.1
Green Ext Time (p_c), s		2.5		2.6		5.3
Intersection Summary						
HCM 6th Ctrl Delay			33.7			
HCM 6th LOS			C			

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

7: Cochran Mill Rd & Wilkerson Mill Rd

08/31/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰	↱	↰	↰	↱
Traffic Volume (vph)	390	129	600	397	116	465
Future Volume (vph)	390	129	600	397	116	465
Lane Group Flow (vph)	500	165	769	509	149	596
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		6			2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5	28.5
Total Split (s)	46.0	46.0	74.0	74.0	74.0	74.0
Total Split (%)	38.3%	38.3%	61.7%	61.7%	61.7%	61.7%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.91	0.29	0.69	0.47	0.62	0.54
Control Delay	61.3	10.6	16.7	3.5	30.9	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	10.6	16.7	3.5	30.9	16.4
Queue Length 50th (ft)	360	24	283	10	67	264
Queue Length 95th (ft)	404	54	335	38	98	281
Internal Link Dist (ft)	406		3613			459
Turn Bay Length (ft)		175		175	150	
Base Capacity (vph)	597	613	1113	1094	239	1113
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.27	0.69	0.47	0.62	0.54

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 7: Cochran Mill Rd & Wilkerson Mill Rd



HCM 6th Signalized Intersection Summary 2038 AM (Full Build-Out) - System & Site Improvements

7: Cochran Mill Rd & Wilkerson Mill Rd

08/31/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↱	↰	↰	↱
Traffic Volume (veh/h)	390	129	600	397	116	465
Future Volume (veh/h)	390	129	600	397	116	465
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	500	165	769	509	149	596
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	534	475	1138	964	205	1138
Arrive On Green	0.30	0.30	0.61	0.61	0.61	0.61
Sat Flow, veh/h	1781	1585	1870	1585	433	1870
Grp Volume(v), veh/h	500	165	769	509	149	596
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	433	1870
Q Serve(g_s), s	32.8	9.8	32.8	22.2	40.2	22.0
Cycle Q Clear(g_c), s	32.8	9.8	32.8	22.2	73.0	22.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	534	475	1138	964	205	1138
V/C Ratio(X)	0.94	0.35	0.68	0.53	0.73	0.52
Avail Cap(c_a), veh/h	601	535	1138	964	205	1138
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	1.00	1.00
Uniform Delay (d), s/veh	40.9	32.8	15.6	13.6	40.4	13.5
Incr Delay (d2), s/veh	21.0	0.4	3.2	2.1	20.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.6	6.7	19.4	12.2	9.2	13.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	61.9	33.3	18.8	15.6	60.5	15.2
LnGrp LOS	E	C	B	B	E	B
Approach Vol, veh/h	665		1278			745
Approach Delay, s/veh	54.8		17.6			24.3
Approach LOS	D		B			C
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	78.5		78.5		41.5	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	68.5		68.5		40.5	
Max Q Clear Time (g_c+I1), s	75.0		34.8		34.8	
Green Ext Time (p_c), s	0.0		17.7		1.2	
Intersection Summary						
HCM 6th Ctrl Delay			28.6			
HCM 6th LOS			C			

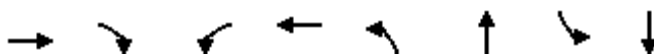
HCM 6th Signalized Intersection Summary

8: Cochran Mill Rd & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	615	207	1041	172	119	163	68	732	103	89	6
Future Volume (veh/h)	7	615	207	1041	172	119	163	68	732	103	89	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	699	0	1183	195	0	185	77	0	117	101	7
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	400	1016		1269	2484		266	391		285	362	25
Arrive On Green	0.29	0.29	0.00	0.37	0.70	0.00	0.07	0.07	0.00	0.21	0.21	0.21
Sat Flow, veh/h	1188	3554	1585	3456	3554	1585	1286	1870	2790	1322	1729	120
Grp Volume(v), veh/h	8	699	0	1183	195	0	185	77	0	117	0	108
Grp Sat Flow(s),veh/h/ln	1188	1777	1585	1728	1777	1585	1286	1870	1395	1322	0	1849
Q Serve(g_s), s	0.6	21.0	0.0	39.5	2.1	0.0	17.2	4.7	0.0	9.7	0.0	5.9
Cycle Q Clear(g_c), s	0.6	21.0	0.0	39.5	2.1	0.0	23.1	4.7	0.0	14.3	0.0	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	400	1016		1269	2484		266	391		285	0	387
V/C Ratio(X)	0.02	0.69		0.93	0.08		0.70	0.20		0.41	0.00	0.28
Avail Cap(c_a), veh/h	400	1016		1368	2484		270	397		290	0	393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	38.1	0.0	36.5	5.7	0.0	57.8	46.3	0.0	45.3	0.0	39.8
Incr Delay (d2), s/veh	0.1	3.8	0.0	11.2	0.1	0.0	7.4	0.2	0.0	0.9	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	0.3	14.1	0.0	24.2	1.2	0.0	10.6	4.0	0.0	5.7	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	41.9	0.0	47.7	5.8	0.0	65.3	46.6	0.0	46.3	0.0	40.2
LnGrp LOS	C	D		D	A		E	D		D	A	D
Approach Vol, veh/h		707			1378			262			225	
Approach Delay, s/veh		41.7			41.8			59.8			43.4	
Approach LOS		D			D			E			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		89.4		30.6	49.6	39.8		30.6				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		83.5		25.5	47.5	30.5		25.5				
Max Q Clear Time (g_c+I1), s		4.1		16.3	41.5	23.0		25.1				
Green Ext Time (p_c), s		2.3		0.5	2.5	3.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				43.8								
HCM 6th LOS				D								
Notes												
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Timings 5c. Build 2038 AM (Full Build-Out) - System & Site Improvements
9: Rivertown Rd & SR 70 (S. Fulton Pkwy) 08/31/2023



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑	↑	↑
Traffic Volume (vph)	1324	106	5	1258	69	7	23	30
Future Volume (vph)	1324	106	5	1258	69	7	23	30
Lane Group Flow (vph)	1455	116	5	1391	76	8	25	33
Turn Type	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases	6			2		8		4
Permitted Phases		6	2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	28.5	28.5	28.5	28.5	30.5	30.5	30.5	30.5
Total Split (s)	86.0	86.0	86.0	86.0	34.0	34.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	71.7%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.49	0.09	0.02	0.47	0.55	0.04	0.18	0.18
Control Delay	4.4	1.0	2.8	11.7	65.8	46.4	50.4	49.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	1.0	2.8	11.7	65.8	46.4	50.4	49.7
Queue Length 50th (ft)	154	2	1	506	57	6	18	24
Queue Length 95th (ft)	243	16	m2	616	105	20	44	54
Internal Link Dist (ft)	501			2203		1197		1391
Turn Bay Length (ft)		150	285		235		150	
Base Capacity (vph)	2965	1342	253	2962	325	442	332	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.09	0.02	0.47	0.23	0.02	0.08	0.07

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

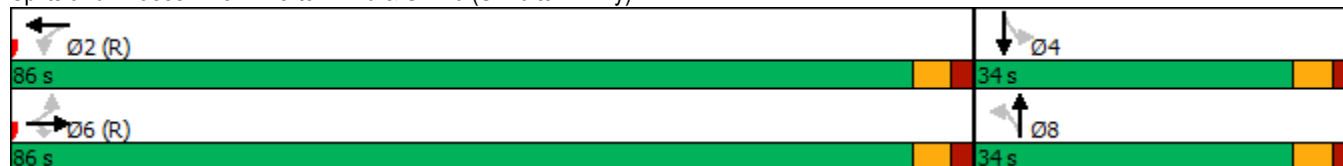
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

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

Splits and Phases: 9: Rivertown Rd & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Analysis - 8:00 AM (Full Build-Out) - System & Site Improvements 9: Rivertown Rd & SR 70 (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1324	106	5	1258	8	69	7	0	23	30	0
Future Volume (veh/h)	0	1324	106	5	1258	8	69	7	0	23	30	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1455	0	5	1382	9	76	8	0	25	33	0
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	60	2915		314	2969	19	158	164		178	164	0
Arrive On Green	0.00	0.82	0.00	1.00	1.00	1.00	0.09	0.09	0.00	0.09	0.09	0.00
Sat Flow, veh/h	389	3554	1585	365	3619	24	1376	1870	0	1407	1870	0
Grp Volume(v), veh/h	0	1455	0	5	678	713	76	8	0	25	33	0
Grp Sat Flow(s),veh/h/ln	389	1777	1585	365	1777	1866	1376	1870	0	1407	1870	0
Q Serve(g_s), s	0.0	14.9	0.0	0.3	0.0	0.0	6.5	0.5	0.0	2.0	2.0	0.0
Cycle Q Clear(g_c), s	0.0	14.9	0.0	15.2	0.0	0.0	8.5	0.5	0.0	2.5	2.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	60	2915		314	1458	1531	158	164		178	164	0
V/C Ratio(X)	0.00	0.50		0.02	0.47	0.47	0.48	0.05		0.14	0.20	0.00
Avail Cap(c_a), veh/h	60	2915		314	1458	1531	364	444		389	444	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	0.00	0.77	0.77	0.77	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	3.3	0.0	1.2	0.0	0.0	54.7	50.1	0.0	51.3	50.8	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.1	0.8	0.8	2.2	0.1	0.0	0.4	0.6	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	0.0	4.8	0.0	0.0	0.6	0.6	4.1	0.4	0.0	1.3	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.9	0.0	1.2	0.8	0.8	57.0	50.2	0.0	51.6	51.4	0.0
LnGrp LOS	A	A		A	A	A	E	D		D	D	A
Approach Vol, veh/h	1455			1396			84			58		
Approach Delay, s/veh	3.9			0.8			56.3			51.5		
Approach LOS	A			A			E			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	103.9			16.1			103.9			16.1		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	80.5			28.5			80.5			28.5		
Max Q Clear Time (g_c+I1), s	17.2			4.5			16.9			10.5		
Green Ext Time (p_c), s	28.5			0.2			31.8			0.2		
Intersection Summary												
HCM 6th Ctrl Delay				4.8								
HCM 6th LOS				A								

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	1240	28	201	1125	5	42	378	278	3	403	94
Future Volume (vph)	79	1240	28	201	1125	5	42	378	278	3	403	94
Lane Group Flow (vph)	84	1319	30	214	1197	5	45	402	296	3	429	100
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			8			4	
Permitted Phases			6			2	8		8	4		4
Detector Phase	1	6	6	5	2	2	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	17.0	61.0	61.0	16.0	60.0	60.0	43.0	43.0	43.0	43.0	43.0	43.0
Total Split (%)	14.2%	50.8%	50.8%	13.3%	50.0%	50.0%	35.8%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.56	0.74	0.04	0.68	0.64	0.01	0.56	0.81	0.52	0.03	0.86	0.20
Control Delay	61.4	31.3	3.8	64.2	24.1	0.0	64.3	53.8	15.3	30.3	59.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	31.3	3.8	64.2	24.1	0.0	64.3	53.8	15.3	30.3	59.1	6.8
Queue Length 50th (ft)	63	502	0	82	360	0	30	289	61	2	314	0
Queue Length 95th (ft)	117	627	m7	#133	479	0	#75	388	140	10	419	40
Internal Link Dist (ft)		2203			5188			2286			2133	
Turn Bay Length (ft)	270		140	285		195	165		250	150		250
Base Capacity (vph)	171	1780	832	322	1880	875	93	582	628	117	582	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.74	0.04	0.66	0.64	0.01	0.48	0.69	0.47	0.03	0.74	0.18

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 80

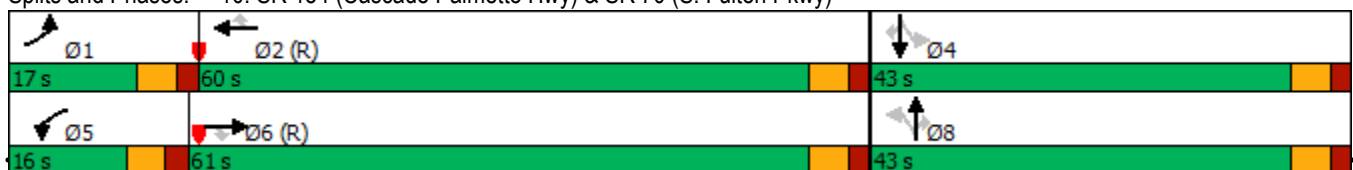
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection Analysis - Build 2018 AM (Full Build-Out) - System & Site Improvements 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	1240	28	201	1125	5	42	378	278	3	403	94
Future Volume (veh/h)	79	1240	28	201	1125	5	42	378	278	3	403	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	1319	0	214	1197	0	45	402	296	3	429	100
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	106	1758		270	1824		128	542	459	131	542	459
Arrive On Green	0.06	0.49	0.00	0.08	0.51	0.00	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	874	1870	1585	748	1870	1585
Grp Volume(v), veh/h	84	1319	0	214	1197	0	45	402	296	3	429	100
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	874	1870	1585	748	1870	1585
Q Serve(g_s), s	5.6	35.8	0.0	7.3	29.7	0.0	6.0	23.3	19.6	0.4	25.4	5.7
Cycle Q Clear(g_c), s	5.6	35.8	0.0	7.3	29.7	0.0	31.4	23.3	19.6	23.8	25.4	5.7
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	106	1758		270	1824		128	542	459	131	542	459
V/C Ratio(X)	0.79	0.75		0.79	0.66		0.35	0.74	0.64	0.02	0.79	0.22
Avail Cap(c_a), veh/h	171	1758		302	1824		148	584	495	148	584	495
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)	0.87	0.87	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	24.3	0.0	54.4	21.4	0.0	53.8	38.6	37.2	49.3	39.3	32.3
Incr Delay (d2), s/veh	10.7	2.6	0.0	12.2	1.9	0.0	1.6	4.7	2.6	0.1	6.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	19.9	0.0	6.3	17.1	0.0	2.4	16.2	12.0	0.1	17.7	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	27.0	0.0	66.6	23.3	0.0	55.4	43.3	39.8	49.4	46.2	32.6
LnGrp LOS	E	C		E	C		E	D	D	D	D	C
Approach Vol, veh/h		1403			1411			743			532	
Approach Delay, s/veh		29.3			29.9			42.6			43.6	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.7	67.1		40.2	14.9	64.9		40.2				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	11.5	54.5		37.5	10.5	55.5		37.5				
Max Q Clear Time (g_c+I1), s	7.6	31.7		27.4	9.3	37.8		33.4				
Green Ext Time (p_c), s	0.0	13.9		1.9	0.1	12.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay			33.8									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	84	1826	100	195	1561	125	83	161	358	237	239
Future Volume (vph)	84	1826	100	195	1561	125	83	161	358	237	239
Lane Group Flow (vph)	91	1985	109	212	1697	136	90	175	389	258	346
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		3	8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	43.5	15.0	39.5
Total Split (s)	15.0	76.5	76.5	15.0	76.5	76.5	15.0	43.5	43.5	15.0	43.5
Total Split (%)	10.0%	51.0%	51.0%	10.0%	51.0%	51.0%	10.0%	29.0%	29.0%	10.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
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
v/c Ratio	0.62	1.19	0.16	0.91	0.97	0.15	0.60	0.44	0.87	0.82	0.88
Control Delay	42.5	125.7	5.5	91.6	37.5	2.5	53.2	53.7	55.7	65.5	77.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	125.7	5.5	91.6	37.5	2.5	53.2	53.7	55.7	65.5	77.4
Queue Length 50th (ft)	37	~1225	6	166	908	2	64	148	248	200	318
Queue Length 95th (ft)	99	#1358	41	m#395	m#1073	m18	104	216	369	273	425
Internal Link Dist (ft)		1551			5221			1155			1231
Turn Bay Length (ft)	295		155	325		160	65			135	
Base Capacity (vph)	160	1675	693	232	1755	878	154	476	508	316	464
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	1.19	0.16	0.91	0.97	0.15	0.58	0.37	0.77	0.82	0.75

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 4 (3%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

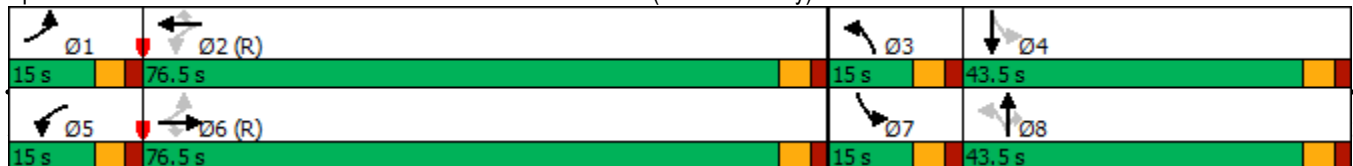
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Analysis - 8:00 AM (Full Build-Out) - System & Site Improvements
 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	1826	100	195	1561	125	83	161	358	237	239	79
Future Volume (veh/h)	84	1826	100	195	1561	125	83	161	358	237	239	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1618	1870	1796	1885	1633	1885	1885	1900	1870	1900
Adj Flow Rate, veh/h	91	1985	0	212	1697	0	90	175	0	258	260	86
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, %	4	2	19	2	7	1	18	1	1	0	2	0
Cap, veh/h	142	1857		161	1874		156	385		313	282	93
Arrive On Green	0.04	0.52	0.00	0.06	0.55	0.00	0.06	0.20	0.00	0.06	0.21	0.21
Sat Flow, veh/h	1753	3554	1372	1781	3413	1598	1555	1885	1598	1810	1345	445
Grp Volume(v), veh/h	91	1985	0	212	1697	0	90	175	0	258	0	346
Grp Sat Flow(s),veh/h/ln	1753	1777	1372	1781	1706	1598	1555	1885	1598	1810	0	1790
Q Serve(g_s), s	3.6	78.4	0.0	9.5	66.9	0.0	6.8	12.2	0.0	9.5	0.0	28.4
Cycle Q Clear(g_c), s	3.6	78.4	0.0	9.5	66.9	0.0	6.8	12.2	0.0	9.5	0.0	28.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	142	1857		161	1874		156	385		313	0	376
V/C Ratio(X)	0.64	1.07		1.32	0.91		0.58	0.45		0.82	0.00	0.92
Avail Cap(c_a), veh/h	188	1857		161	1874		165	478		313	0	454
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.3	35.8	0.0	50.4	30.3	0.0	46.2	52.4	0.0	53.9	0.0	58.0
Incr Delay (d2), s/veh	4.7	42.0	0.0	180.1	7.8	0.0	4.4	0.8	0.0	16.1	0.0	21.7
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	3.2	55.3	0.0	22.0	35.5	0.0	5.0	9.7	0.0	10.2	0.0	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	77.8	0.0	230.5	38.1	0.0	50.6	53.2	0.0	70.1	0.0	79.7
LnGrp LOS	D	F		F	D		D	D		E	A	E
Approach Vol, veh/h		2076			1909			265			604	
Approach Delay, s/veh		76.1			59.5			52.3			75.6	
Approach LOS		E			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	87.9	14.1	37.0	15.0	83.9	15.0	36.1				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	71.0	9.5	38.0	9.5	71.0	9.5	38.0				
Max Q Clear Time (g_c+I1), s	5.6	68.9	8.8	30.4	11.5	80.4	11.5	14.2				
Green Ext Time (p_c), s	0.1	2.0	0.0	1.1	0.0	0.0	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	68.2
HCM 6th LOS	E

Notes

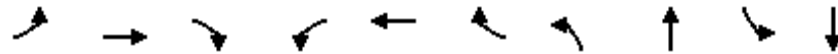
Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↑	↗	↖
Traffic Volume (vph)	164	2248	139	187	1806	62	94	65	135	122
Future Volume (vph)	164	2248	139	187	1806	62	94	65	135	122
Lane Group Flow (vph)	171	2342	145	195	1881	65	98	207	141	387
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	15.0	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	22.0	79.5	79.5	18.0	75.5	75.5	52.5	52.5	52.5	52.5
Total Split (%)	14.7%	53.0%	53.0%	12.0%	50.3%	50.3%	35.0%	35.0%	35.0%	35.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.76	0.85	0.16	0.79	0.70	0.08	1.63	0.48	0.70	0.85
Control Delay	48.6	37.2	15.0	49.8	42.8	14.3	381.3	34.1	70.2	61.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	37.2	15.0	49.8	42.8	14.3	381.3	34.1	70.2	61.2
Queue Length 50th (ft)	113	620	35	145	704	21	~138	115	128	306
Queue Length 95th (ft)	m143	m601	m53	m#255	m754	m32	#242	178	191	392
Internal Link Dist (ft)		1231			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	238	2746	886	247	2697	842	81	550	267	584
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.85	0.16	0.79	0.70	0.08	1.21	0.38	0.53	0.66

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: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Analysis - 5a. Sunday 8 AM (Full Build-Out) - System & Site Improvements
 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	2248	139	187	1806	62	94	65	133	135	122	250
Future Volume (veh/h)	164	2248	139	187	1806	62	94	65	133	135	122	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1663	1856	1856	1885	1826	1781	1870	1870	1767	1870	1900	1900
Adj Flow Rate, veh/h	171	2342	145	195	1881	65	98	68	139	141	127	260
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, %	16	3	3	1	5	8	2	2	9	2	0	0
Cap, veh/h	198	2499	776	205	2536	768	158	172	351	302	174	357
Arrive On Green	0.07	0.49	0.49	0.08	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1584	5066	1572	1795	4985	1510	997	548	1121	1175	556	1139
Grp Volume(v), veh/h	171	2342	145	195	1881	65	98	0	207	141	0	387
Grp Sat Flow(s),veh/h/ln	1584	1689	1572	1795	1662	1510	997	0	1669	1175	0	1695
Q Serve(g_s), s	8.0	65.4	7.7	11.5	44.7	3.3	14.6	0.0	14.6	16.0	0.0	30.5
Cycle Q Clear(g_c), s	8.0	65.4	7.7	11.5	44.7	3.3	45.0	0.0	14.6	30.6	0.0	30.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.67
Lane Grp Cap(c), veh/h	198	2499	776	205	2536	768	158	0	523	302	0	531
V/C Ratio(X)	0.86	0.94	0.19	0.95	0.74	0.08	0.62	0.00	0.40	0.47	0.00	0.73
Avail Cap(c_a), veh/h	265	2499	776	205	2536	768	158	0	523	302	0	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.5	35.8	21.2	48.3	29.1	18.9	65.9	0.0	40.4	52.4	0.0	45.8
Incr Delay (d2), s/veh	19.4	8.3	0.5	48.5	2.0	0.2	7.3	0.0	0.5	1.1	0.0	5.0
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	7.0	35.2	5.1	10.0	23.8	2.1	7.1	0.0	10.0	8.3	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	44.1	21.7	96.8	31.1	19.1	73.1	0.0	40.9	53.5	0.0	50.8
LnGrp LOS	D	D	C	F	C	B	E	A	D	D	A	D
Approach Vol, veh/h		2658			2141			305			528	
Approach Delay, s/veh		43.3			36.7			51.2			51.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.7	81.8		52.5	18.0	79.5		52.5				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	16.5	70.0		47.0	12.5	74.0		47.0				
Max Q Clear Time (g_c+I1), s	10.0	46.7		32.6	13.5	67.4		47.0				
Green Ext Time (p_c), s	0.2	19.9		2.4	0.0	6.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				42.0								
HCM 6th LOS				D								

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	2008	303	75	1180	127	652	342	31	91	242	231
Future Volume (vph)	193	2008	303	75	1180	127	652	342	31	91	242	231
Lane Group Flow (vph)	199	2070	312	77	1216	131	672	353	32	94	249	238
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	28.5	28.5	15.0	30.5	30.5	15.0	47.5	47.5	15.0	54.5	54.5
Total Split (s)	18.0	45.0	45.0	15.0	42.0	42.0	35.5	65.5	65.5	24.5	54.5	54.5
Total Split (%)	12.0%	30.0%	30.0%	10.0%	28.0%	28.0%	23.7%	43.7%	43.7%	16.3%	36.3%	36.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.63	0.96	0.42	0.49	0.77	0.22	0.96	0.63	0.06	0.32	0.77	0.61
Control Delay	29.2	38.1	11.5	29.7	43.3	13.2	84.4	50.0	0.2	31.5	74.6	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	38.1	11.5	29.7	43.3	13.2	84.4	50.0	0.2	31.5	74.6	26.9
Queue Length 50th (ft)	89	746	137	33	423	47	339	299	0	57	236	77
Queue Length 95th (ft)	m139	#991	m217	m53	#561	m87	#462	387	0	88	314	161
Internal Link Dist (ft)		2942			1319			1090			834	
Turn Bay Length (ft)	255		120	240		115	105		160	80		
Base Capacity (vph)	317	2148	735	171	1570	604	700	745	674	393	614	604
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.96	0.42	0.45	0.77	0.22	0.96	0.47	0.05	0.24	0.41	0.39

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: 145

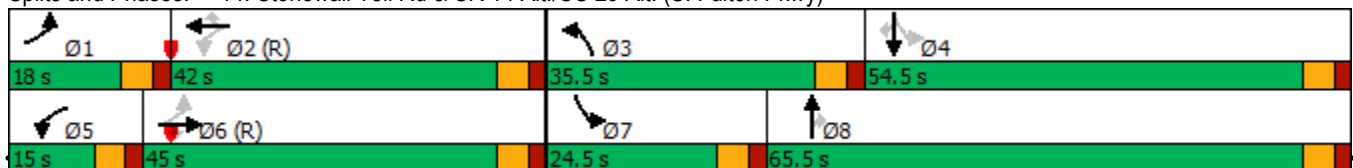
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Analysis - 8:00 AM (Full Build-Out) - System & Site Improvements
 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	2008	303	75	1180	127	652	342	31	91	242	231
Future Volume (veh/h)	193	2008	303	75	1180	127	652	342	31	91	242	231
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1841	1900	1752	1826	1900	1870	1826	1856	1885	1826
Adj Flow Rate, veh/h	199	2070	312	77	1216	131	672	353	0	94	249	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, %	4	2	4	0	10	5	0	2	5	3	1	5
Cap, veh/h	273	2379	727	128	2038	659	702	550		282	285	
Arrive On Green	0.08	0.47	0.47	0.04	0.43	0.43	0.20	0.29	0.00	0.06	0.15	0.00
Sat Flow, veh/h	1753	5106	1560	1810	4782	1547	3510	1870	1547	1767	1885	1547
Grp Volume(v), veh/h	199	2070	312	77	1216	131	672	353	0	94	249	0
Grp Sat Flow(s),veh/h/ln	1753	1702	1560	1810	1594	1547	1755	1870	1547	1767	1885	1547
Q Serve(g_s), s	9.3	54.6	20.0	3.6	29.3	8.0	28.4	24.6	0.0	6.7	19.4	0.0
Cycle Q Clear(g_c), s	9.3	54.6	20.0	3.6	29.3	8.0	28.4	24.6	0.0	6.7	19.4	0.0
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	273	2379	727	128	2038	659	702	550		282	285	
V/C Ratio(X)	0.73	0.87	0.43	0.60	0.60	0.20	0.96	0.64		0.33	0.87	
Avail Cap(c_a), veh/h	286	2379	727	178	2038	659	702	748		404	616	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	36.0	26.7	34.8	33.1	27.0	59.4	46.1	0.0	49.6	62.2	0.0
Incr Delay (d2), s/veh	8.7	4.7	1.8	4.4	1.3	0.7	23.9	1.3	0.0	0.7	8.2	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	7.7	30.0	12.3	2.9	16.5	5.5	21.1	17.1	0.0	5.4	15.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	40.7	28.6	39.2	34.4	27.7	83.2	47.4	0.0	50.3	70.4	0.0
LnGrp LOS	D	D	C	D	C	C	F	D		D	E	
Approach Vol, veh/h	2581			1424			1025			343		
Approach Delay, s/veh	38.8			34.1			70.9			64.9		
Approach LOS	D			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.9	69.4	35.5	28.2	10.9	75.4	14.1	49.6				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	12.5	36.5	30.0	49.0	9.5	39.5	19.0	60.0				
Max Q Clear Time (g_c+I1), s	11.3	31.3	30.4	21.4	5.6	56.6	8.7	26.6				
Green Ext Time (p_c), s	0.1	4.2	0.0	1.3	0.0	0.0	0.1	2.1				

Intersection Summary

HCM 6th Ctrl Delay	45.3
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5c. Build 2038 AM (Full Build-Out) - System & Site Improvements
 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	112	1900	173	139	1222	62	54	72	55	248	69
Future Volume (vph)	112	1900	173	139	1222	62	54	72	55	248	69
Lane Group Flow (vph)	122	2065	188	151	1328	67	0	137	60	270	204
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	76.5	76.5	15.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	51.0%	51.0%	10.0%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.54	1.18	0.23	0.73	0.74	0.09		0.40	0.18	0.91	0.40
Control Delay	37.3	128.8	30.0	56.5	30.6	6.4		45.9	9.3	83.9	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	37.3	128.8	30.0	56.5	30.6	6.4		45.9	9.3	83.9	30.4
Queue Length 50th (ft)	79	~1284	90	96	511	4		109	1	255	110
Queue Length 95th (ft)	m111	m#1385	m128	#277	702	33		158	34	344	167
Internal Link Dist (ft)		3114			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	235	1750	834	208	1805	720		433	408	381	626
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.52	1.18	0.23	0.73	0.74	0.09		0.32	0.15	0.71	0.33

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 149 (99%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

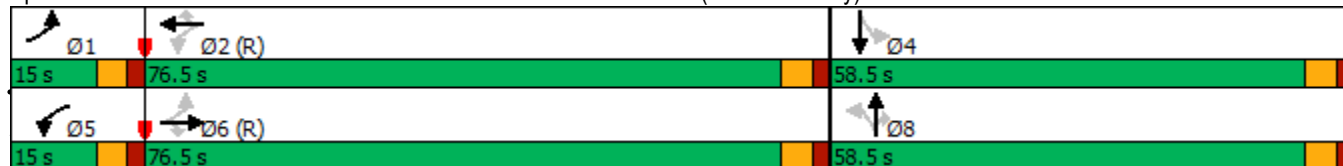
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Analysis - 5a. Build 2018 AM (Full Build-Out) - System & Site Improvements
 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	1900	173	139	1222	62	54	72	55	248	69	119
Future Volume (veh/h)	112	1900	173	139	1222	62	54	72	55	248	69	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1870	1693	1752	1485	1648	1870	1100	1781	1796	1870
Adj Flow Rate, veh/h	122	2065	0	151	1328	0	59	78	0	270	75	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	5	2	14	10	28	17	2	54	8	7	2
Cap, veh/h	256	1983		150	1974		187	234		339	458	
Arrive On Green	0.04	0.57	0.00	0.06	0.59	0.00	0.25	0.25	0.00	0.25	0.25	0.00
Sat Flow, veh/h	1781	3469	1585	1612	3328	1259	597	919	932	1258	1796	0
Grp Volume(v), veh/h	122	2065	0	151	1328	0	137	0	0	270	75	0
Grp Sat Flow(s),veh/h/ln	1781	1735	1585	1612	1664	1259	1516	0	932	1258	1796	0
Q Serve(g_s), s	4.3	85.8	0.0	9.5	40.5	0.0	7.6	0.0	0.0	22.7	4.9	0.0
Cycle Q Clear(g_c), s	4.3	85.8	0.0	9.5	40.5	0.0	12.5	0.0	0.0	35.1	4.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.43		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	256	1983		150	1974		421	0		339	458	
V/C Ratio(X)	0.48	1.04		1.01	0.67		0.33	0.00		0.80	0.16	
Avail Cap(c_a), veh/h	294	1983		150	1974		577	0		462	635	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.6	32.1	0.0	51.2	20.7	0.0	46.5	0.0	0.0	56.0	43.4	0.0
Incr Delay (d2), s/veh	1.4	31.9	0.0	75.1	1.9	0.0	0.4	0.0	0.0	6.8	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	3.0	53.1	0.0	13.6	21.1	0.0	7.6	0.0	0.0	15.7	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	64.0	0.0	126.3	22.5	0.0	47.0	0.0	0.0	62.8	43.6	0.0
LnGrp LOS	B	F		F	C		D	A		E	D	
Approach Vol, veh/h		2187			1479			137			345	
Approach Delay, s/veh		61.5			33.1			47.0			58.6	
Approach LOS		E			C			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	94.5		43.7	15.0	91.3		43.7				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	9.5	71.0		53.0				
Max Q Clear Time (g_c+I1), s	6.3	42.5		37.1	11.5	87.8		14.5				
Green Ext Time (p_c), s	0.1	18.0		1.1	0.0	0.0		0.7				
Intersection Summary												
HCM 6th Ctrl Delay				50.7								
HCM 6th LOS				D								

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5c. Build 2038 AM (Full Build-Out) - System & Site Improvements
 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps 08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	49	74	1110	1193	1043	243
Future Volume (vph)	49	74	1110	1193	1043	243
Lane Group Flow (vph)	54	81	1220	1311	1146	267
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	38.0	75.0	37.0	37.0
Total Split (%)	16.7%	16.7%	42.2%	83.3%	41.1%	41.1%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.37	0.39	1.02	0.45	0.88	0.35
Control Delay	45.4	15.1	60.6	3.5	33.7	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	15.1	60.6	3.5	33.7	5.7
Queue Length 50th (ft)	29	0	~355	101	299	8
Queue Length 95th (ft)	65	42	#517	141	m#436	m31
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	174	230	1197	2923	1305	770
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.35	1.02	0.45	0.88	0.35

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

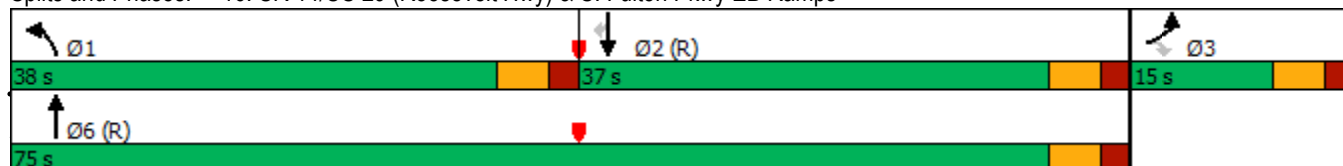
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection Simulation 2018 AM (Full Build-Out) - System & Site Improvements
 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps 08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	74	1110	1193	1043	243
Future Volume (veh/h)	49	74	1110	1193	1043	243
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1767	1781	1781	1870	1811	1885
Adj Flow Rate, veh/h	54	0	1220	1311	1146	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	8	8	2	6	1
Cap, veh/h	69		1189	2973	1426	
Arrive On Green	0.04	0.00	0.36	0.84	0.41	0.00
Sat Flow, veh/h	1682	1510	3291	3647	3532	1598
Grp Volume(v), veh/h	54	0	1220	1311	1146	0
Grp Sat Flow(s),veh/h/ln	1682	1510	1646	1777	1721	1598
Q Serve(g_s), s	2.9	0.0	32.5	8.6	26.3	0.0
Cycle Q Clear(g_c), s	2.9	0.0	32.5	8.6	26.3	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	69		1189	2973	1426	
V/C Ratio(X)	0.78		1.03	0.44	0.80	
Avail Cap(c_a), veh/h	178		1189	2973	1426	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.59	0.00
Uniform Delay (d), s/veh	42.7	0.0	28.7	1.9	23.1	0.0
Incr Delay (d2), s/veh	17.0	0.0	33.1	0.5	2.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.0	24.2	1.4	14.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.7	0.0	61.8	2.4	26.1	0.0
LnGrp LOS	E		F	A	C	
Approach Vol, veh/h	54			2531	1146	
Approach Delay, s/veh	59.7			31.0	26.1	
Approach LOS	E			C	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	38.0	42.8			80.8	9.2
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	32.5	31.5			69.5	9.5
Max Q Clear Time (g_c+I1), s	34.5	28.3			10.6	4.9
Green Ext Time (p_c), s	0.0	2.6			27.4	0.0

Intersection Summary

HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5c. Build 2038 AM (Full Build-Out) - System & Site Improvements
 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps 08/31/2023

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	211	618	50	1183	692
Future Volume (vph)	211	618	50	1183	692
Lane Group Flow (vph)	227	665	54	1272	906
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	46.0	46.0	44.0	44.0	44.0
Total Split (%)	51.1%	51.1%	48.9%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.30	0.95	0.31	0.81	0.59
Control Delay	17.5	45.7	20.1	24.9	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	45.7	20.1	24.9	20.3
Queue Length 50th (ft)	79	296	20	337	196
Queue Length 95th (ft)	130	#535	54	430	259
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	796	726	174	1567	1537
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.29	0.92	0.31	0.81	0.59

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

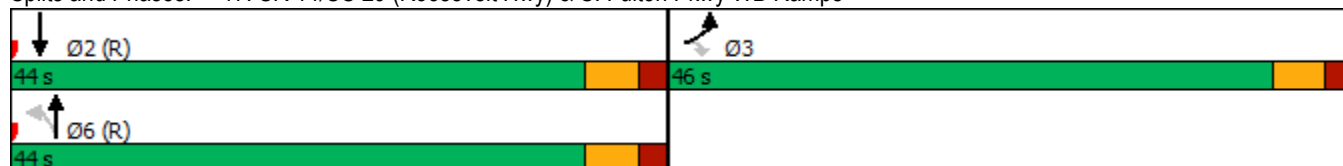
Natural Cycle: 70

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Analysis - Sunday 2018 AM (Full Build-Out) - System & Site Improvements
 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps 08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	211	618	50	1183	692	151
Future Volume (veh/h)	211	618	50	1183	692	151
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1767	1811	1856	1856	1811
Adj Flow Rate, veh/h	227	0	54	1272	744	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	9	6	3	3	6
Cap, veh/h	272		455	2556	2087	454
Arrive On Green	0.15	0.00	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1781	1497	596	3618	2972	627
Grp Volume(v), veh/h	227	0	54	1272	456	450
Grp Sat Flow(s),veh/h/ln	1781	1497	596	1763	1763	1743
Q Serve(g_s), s	11.1	0.0	3.3	14.0	8.6	8.6
Cycle Q Clear(g_c), s	11.1	0.0	12.0	14.0	8.6	8.6
Prop In Lane	1.00	1.00	1.00			0.36
Lane Grp Cap(c), veh/h	272		455	2556	1278	1264
V/C Ratio(X)	0.83		0.12	0.50	0.36	0.36
Avail Cap(c_a), veh/h	802		455	2556	1278	1264
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	6.8	5.3	4.6	4.6
Incr Delay (d2), s/veh	6.6	0.0	0.5	0.6	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.0	0.0	0.7	6.3	4.1	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	0.0	7.3	5.9	5.4	5.4
LnGrp LOS	D		A	A	A	A
Approach Vol, veh/h	227			1326	906	
Approach Delay, s/veh	43.6			6.0	5.4	
Approach LOS	D			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	70.8		70.8		19.2	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	38.5		38.5		40.5	
Max Q Clear Time (g_c+I1), s	10.6		16.0		13.1	
Green Ext Time (p_c), s	11.4		15.6		0.7	

Intersection Summary

HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	51	4	0	74
Future Vol, veh/h	8	0	51	4	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	55	4	0	80

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	135	55	0
Stage 1	55	-	-
Stage 2	80	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	859	1012	-
Stage 1	968	-	-
Stage 2	943	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	859	1012	-
Mov Cap-2 Maneuver	859	-	-
Stage 1	968	-	-
Stage 2	943	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	859	1545
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	9.2	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection

Int Delay, s/veh 4.4

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 2 51 108 53 78 3

Future Vol, veh/h 2 51 108 53 78 3

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length - - - - - -

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 2 55 117 58 85 3

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 379 87 88 0 - 0

Stage 1 87 - - - - -

Stage 2 292 - - - - -

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 623 971 1508 - - -

Stage 1 936 - - - - -

Stage 2 758 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 573 971 1508 - - -

Mov Cap-2 Maneuver 573 - - - - -

Stage 1 861 - - - - -

Stage 2 758 - - - - -

Approach EB NB SB

HCM Control Delay, s 9.1 5.1 0

HCM LOS A

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1508 - 946 - -

HCM Lane V/C Ratio 0.078 - 0.061 - -

HCM Control Delay (s) 7.6 0 9.1 - -

HCM Lane LOS A A A - -

HCM 95th %tile Q(veh) 0.3 - 0.2 - -

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	161	11	0	129
Future Vol, veh/h	23	1	161	11	0	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	175	12	0	140
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	315	175	0	0	187	0
Stage 1	175	-	-	-	-	-
Stage 2	140	-	-	-	-	-
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	678	868	-	-	1387	-
Stage 1	855	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	678	868	-	-	1387	-
Mov Cap-2 Maneuver	678	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.5	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	684	1387	-	
HCM Lane V/C Ratio	-	-	0.038	-	-	
HCM Control Delay (s)	-	-	10.5	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

Intersection

Int Delay, s/veh 1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	1	171	23	0	152
Future Vol, veh/h	47	1	171	23	0	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	51	1	186	25	0	165

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	351	186	0
Stage 1	186	-	-
Stage 2	165	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	646	856	-
Stage 1	846	-	-
Stage 2	864	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	646	856	-
Mov Cap-2 Maneuver	646	-	-
Stage 1	846	-	-
Stage 2	864	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	649	1360
HCM Lane V/C Ratio	-	-	0.08	-
HCM Control Delay (s)	-	-	11	0
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 0 4 0 965 1293 47

Future Vol, veh/h 0 4 0 965 1293 47

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 - - - -

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 4 0 1049 1405 51

Major/Minor Minor2 Major1 Major2

Conflicting Flow All - 703 - 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 0 380 0 - - 0

Stage 1 0 - 0 - - 0

Stage 2 0 - 0 - - 0

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver - 380 - - - -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach EB NB SB

HCM Control Delay, s 14.6 0 0

HCM LOS B

Minor Lane/Major Mvmt NBT EBLn1 SBT

Capacity (veh/h) - 380 -

HCM Lane V/C Ratio - 0.011 -

HCM Control Delay (s) - 14.6 -

HCM Lane LOS - B -

HCM 95th %tile Q(veh) - 0 -

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	22	2	4	4	2	22	9	921	9	47	1204	47
Future Vol, veh/h	22	2	4	4	2	22	9	921	9	47	1204	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	50	-	-	50	-	-
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	24	2	4	4	2	24	10	1001	10	51	1309	51
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1959	2468	680	1784	2488	506	1360	0	0	1011	0	0
Stage 1	1437	1437	-	1026	1026	-	-	-	-	-	-	-
Stage 2	522	1031	-	758	1462	-	-	-	-	-	-	-
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	38	30	393	52	29	512	501	-	-	681	-	-
Stage 1	140	197	-	251	310	-	-	-	-	-	-	-
Stage 2	506	309	-	365	192	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	32	27	393	45	26	512	501	-	-	681	-	-
Mov Cap-2 Maneuver	32	27	-	45	26	-	-	-	-	-	-	-
Stage 1	137	182	-	246	304	-	-	-	-	-	-	-
Stage 2	469	303	-	330	178	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	244.9		36.7		0.1		0.4					
HCM LOS	F		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	501	-	-	32	393	36	512	681	-	-		
HCM Lane V/C Ratio	0.02	-	-	0.815	0.011	0.181	0.047	0.075	-	-		
HCM Control Delay (s)	12.3	-	-	283.3	14.3	125.9	12.4	10.7	-	-		
HCM Lane LOS	B	-	-	F	B	F	B	B	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	2.8	0	0.6	0.1	0.2	-	-		

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↰	→	↰	→	↰	↗	↰	↗	↰
Traffic Volume (vph)	89	2	9	2	18	784	140	932	140
Future Volume (vph)	89	2	9	2	18	784	140	932	140
Lane Group Flow (vph)	97	12	10	74	20	881	152	1013	152
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4		8		6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	15.0	28.5	28.5
Total Split (s)	37.0	37.0	37.0	37.0	62.0	62.0	21.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	51.7%	51.7%	17.5%	69.2%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lag	Lag	Lead		
Lead-Lag Optimize?					Yes	Yes			
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.63	0.06	0.06	0.29	0.06	0.37	0.31	0.36	0.12
Control Delay	66.8	24.5	44.7	13.8	7.6	7.7	5.1	4.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	24.5	44.7	13.8	7.6	7.7	5.1	4.5	0.8
Queue Length 50th (ft)	73	1	7	1	4	92	22	100	0
Queue Length 95th (ft)	124	19	23	44	m10	164	48	162	16
Internal Link Dist (ft)		352		361		553		242	
Turn Bay Length (ft)	150		150		100		100		150
Base Capacity (vph)	346	435	366	470	356	2387	565	2796	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.03	0.03	0.16	0.06	0.37	0.27	0.36	0.12

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

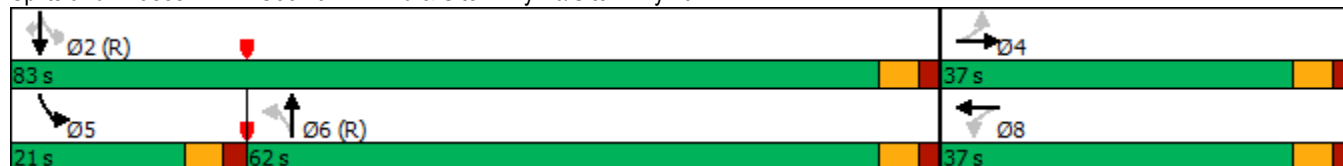
Offset: 35 (29%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Splits and Phases: 24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a



HCM 6th Signalized Intersection, 5a. Build 2018 AM (Full Build-Out) - System & Site Improvements
 24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	2	9	9	2	66	18	784	27	140	932	140
Future Volume (veh/h)	89	2	9	9	2	66	18	784	27	140	932	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	2	10	10	2	72	20	852	29	152	1013	152
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	180	36	180	237	6	206	391	2411	82	568	2756	1229
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	1.00	1.00	1.00	0.04	0.78	0.78
Sat Flow, veh/h	1326	271	1355	1402	43	1549	482	3506	119	1781	3554	1585
Grp Volume(v), veh/h	97	0	12	10	0	74	20	432	449	152	1013	152
Grp Sat Flow(s),veh/h/ln	1326	0	1626	1402	0	1592	482	1777	1849	1781	1777	1585
Q Serve(g_s), s	8.6	0.0	0.8	0.8	0.0	5.1	0.0	0.0	0.0	2.8	10.7	2.9
Cycle Q Clear(g_c), s	13.7	0.0	0.8	1.5	0.0	5.1	0.2	0.0	0.0	2.8	10.7	2.9
Prop In Lane	1.00		0.83	1.00		0.97	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	180	0	216	237	0	211	391	1222	1271	568	2756	1229
V/C Ratio(X)	0.54	0.00	0.06	0.04	0.00	0.35	0.05	0.35	0.35	0.27	0.37	0.12
Avail Cap(c_a), veh/h	352	0	427	419	0	418	391	1222	1271	723	2756	1229
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	0.0	45.5	46.1	0.0	47.3	0.0	0.0	0.0	4.2	4.2	3.3
Incr Delay (d2), s/veh	2.5	0.0	0.1	0.1	0.0	1.0	0.2	0.8	0.8	0.2	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	0.0	0.6	0.5	0.0	3.8	0.0	0.5	0.5	1.5	5.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	0.0	45.6	46.2	0.0	48.3	0.2	0.8	0.8	4.5	4.6	3.5
LnGrp LOS	E	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	109			84			901			1317		
Approach Delay, s/veh	54.9			48.1			0.8			4.5		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4		5		6		8		
Phs Duration (G+Y+Rc), s	98.6			21.4		10.6		88.0		21.4		
Change Period (Y+Rc), s	5.5			5.5		5.5		5.5		5.5		
Max Green Setting (Gmax), s	77.5			31.5		15.5		56.5		31.5		
Max Q Clear Time (g_c+I1), s	12.7			15.7		4.8		7.1		7.1		
Green Ext Time (p_c), s	21.3			0.3		0.3		14.2		0.4		
Intersection Summary												
HCM 6th Ctrl Delay	6.9											
HCM 6th LOS	A											

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	22	2	4	4	2	22	9	784	9	47	855	47
Future Vol, veh/h	22	2	4	4	2	22	9	784	9	47	855	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	2	4	4	2	24	10	852	10	51	929	51

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	1504	1939	490	1445	1959	431	980	0	0	862	0	0
Stage 1	1057	1057	-	877	877	-	-	-	-	-	-	-
Stage 2	447	882	-	568	1082	-	-	-	-	-	-	-
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	84	65	524	93	63	573	700	-	-	776	-	-
Stage 1	240	300	-	310	364	-	-	-	-	-	-	-
Stage 2	560	362	-	475	292	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	74	60	524	84	58	573	700	-	-	776	-	-
Mov Cap-2 Maneuver	74	60	-	84	58	-	-	-	-	-	-	-
Stage 1	237	280	-	306	359	-	-	-	-	-	-	-
Stage 2	526	357	-	437	273	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	69.8		21.8		0.1		0.5	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	700	-	-	73	524	73	573	776	-	-
HCM Lane V/C Ratio	0.014	-	-	0.357	0.008	0.089	0.042	0.066	-	-
HCM Control Delay (s)	10.2	-	-	79.5	11.9	59.1	11.6	10	-	-
HCM Lane LOS	B	-	-	F	B	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.4	0	0.3	0.1	0.2	-	-

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	66	2	13	2	33	669	140	583	140
Future Volume (vph)	66	2	13	2	33	669	140	583	140
Lane Group Flow (vph)	72	18	14	74	36	756	152	634	152
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		6		2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	33.0	33.0	33.0	33.0	87.0	87.0	87.0	87.0	87.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	72.5%	72.5%	72.5%	72.5%	72.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.55	0.10	0.10	0.34	0.06	0.49	0.29	0.21	0.11
Control Delay	66.3	22.7	48.3	15.5	0.7	1.3	1.4	0.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	22.7	48.3	15.5	0.7	1.3	1.4	0.2	0.2
Queue Length 50th (ft)	54	1	10	1	1	19	0	1	0
Queue Length 95th (ft)	99	23	30	45	m2	30	3	1	0
Internal Link Dist (ft)		425		370		140		453	
Turn Bay Length (ft)	150		150		50		50		150
Base Capacity (vph)	302	382	318	420	642	1553	530	2967	1351
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.05	0.04	0.18	0.06	0.49	0.29	0.21	0.11

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

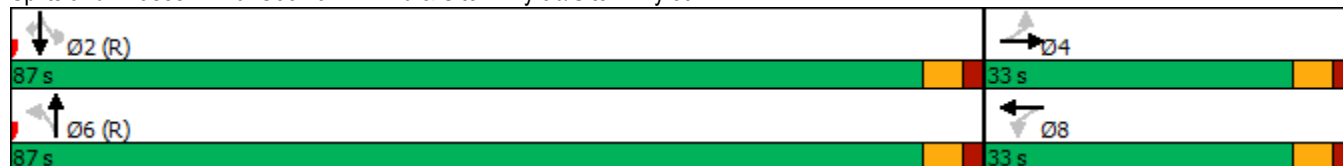
Offset: 28 (23%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

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

Splits and Phases: 26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a



HCM 6th Signalized Intersection Simulation 2038 AM (Full Build-Out) - System & Site Improvements
 26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	2	15	13	2	66	33	669	27	140	583	140
Future Volume (veh/h)	66	2	15	13	2	66	33	669	27	140	583	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	2	16	14	2	72	36	727	29	152	634	152
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	155	21	164	206	5	177	607	1418	57	522	2821	1258
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.79	0.79	0.79	1.00	1.00	1.00
Sat Flow, veh/h	1326	179	1433	1395	43	1549	689	1786	71	708	3554	1585
Grp Volume(v), veh/h	72	0	18	14	0	74	36	0	756	152	634	152
Grp Sat Flow(s),veh/h/ln	1326	0	1612	1395	0	1592	689	0	1858	708	1777	1585
Q Serve(g_s), s	6.4	0.0	1.2	1.1	0.0	5.2	1.4	0.0	17.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	11.6	0.0	1.2	2.3	0.0	5.2	1.4	0.0	17.0	23.3	0.0	0.0
Prop In Lane	1.00		0.89	1.00		0.97	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	155	0	185	206	0	182	607	0	1475	522	2821	1258
V/C Ratio(X)	0.47	0.00	0.10	0.07	0.00	0.41	0.06	0.00	0.51	0.29	0.22	0.12
Avail Cap(c_a), veh/h	307	0	370	366	0	365	607	0	1475	522	2821	1258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	47.6	48.6	0.0	49.3	2.7	0.0	4.3	2.1	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.2	0.1	0.0	1.5	0.2	0.0	1.3	1.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	0.0	0.9	0.7	0.0	3.9	0.3	0.0	8.3	0.9	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.9	0.0	47.8	48.7	0.0	50.8	2.9	0.0	5.6	3.5	0.2	0.2
LnGrp LOS	E	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	90			88			792			938		
Approach Delay, s/veh	55.1			50.5			5.5			0.7		
Approach LOS	E			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	100.8			19.2			100.8			19.2		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	81.5			27.5			81.5			27.5		
Max Q Clear Time (g_c+I1), s	25.3			13.6			19.0			7.2		
Green Ext Time (p_c), s	14.8			0.2			14.5			0.4		
Intersection Summary												
HCM 6th Ctrl Delay	7.5											
HCM 6th LOS	A											

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Traffic Vol, veh/h	9	2	4	4	2	9	9	711	9	19	573	19
Future Vol, veh/h	9	2	4	4	2	9	9	711	9	19	573	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	2	4	4	2	10	10	773	10	21	623	21
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1480	1479	634	1477	1484	778	644	0	0	783	0	0
Stage 1	676	676	-	798	798	-	-	-	-	-	-	-
Stage 2	804	803	-	679	686	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	104	126	479	104	125	396	941	-	-	835	-	-
Stage 1	443	453	-	380	398	-	-	-	-	-	-	-
Stage 2	377	396	-	441	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	121	479	99	121	396	941	-	-	835	-	-
Mov Cap-2 Maneuver	97	121	-	99	121	-	-	-	-	-	-	-
Stage 1	438	442	-	376	394	-	-	-	-	-	-	-
Stage 2	362	392	-	424	437	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	37.5		26		0.1		0.3					
HCM LOS	E		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	941	-	-	127	188	835	-	-				
HCM Lane V/C Ratio	0.01	-	-	0.128	0.087	0.025	-	-				
HCM Control Delay (s)	8.9	-	-	37.5	26	9.4	-	-				
HCM Lane LOS	A	-	-	E	D	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.4	0.3	0.1	-	-				

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	496	511	6	3	8
Future Vol, veh/h	18	496	511	6	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	20	539	555	7	3	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	562	0	-	0	1138	559
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	579	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1009	-	-	-	223	529
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	560	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1009	-	-	-	217	529
Mov Cap-2 Maneuver	-	-	-	-	217	-
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	560	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		14.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1009	-	-	-	380	
HCM Lane V/C Ratio	0.019	-	-	-	0.031	
HCM Control Delay (s)	8.6	0	-	-	14.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	

Timings 5c. Build 2038 AM (Full Build-Out) - System & Site Improvements
 29: SR 92 & S. Fulton Pkwy EB Ramps 08/31/2023



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↰↰	↰↰	↰	↰↰	↰↰
Traffic Volume (vph)	432	368	1318	192	772	1199
Future Volume (vph)	432	368	1318	192	772	1199
Lane Group Flow (vph)	470	400	1433	209	839	1303
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	7		6		5	2
Permitted Phases		4		6		
Detector Phase	7	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	31.5	28.5	28.5	15.0	28.5
Total Split (s)	31.5	31.5	42.5	42.5	26.0	68.5
Total Split (%)	31.5%	31.5%	42.5%	42.5%	26.0%	68.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.73	0.64	1.09	0.33	0.89	0.53
Control Delay	44.7	30.3	86.2	14.4	50.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	44.7	30.3	86.2	14.4	50.9	9.5
Queue Length 50th (ft)	146	93	~546	52	300	154
Queue Length 95th (ft)	189	139	#682	109	m236	m121
Internal Link Dist (ft)			1460			420
Turn Bay Length (ft)	100	100		100	175	
Base Capacity (vph)	892	814	1309	640	948	2481
Starvation Cap Reductn	0	0	0	0	0	600
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.49	1.09	0.33	0.89	0.69

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 120

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

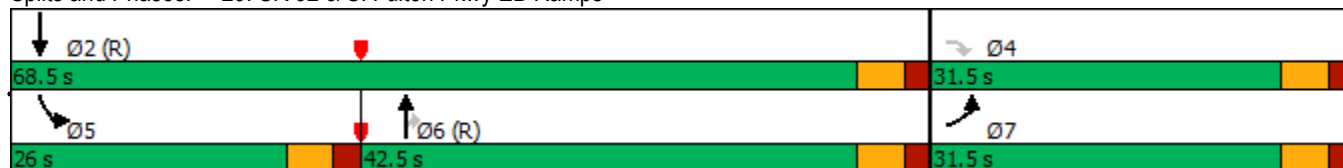
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 29: SR 92 & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection, Southbound 298 AM (Full Build-Out) - System & Site Improvements 29: SR 92 & S. Fulton Pkwy EB Ramps

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 					 		 	 	
Traffic Volume (veh/h)	432	0	368	0	0	0	0	1318	192	772	1199	0
Future Volume (veh/h)	432	0	368	0	0	0	0	1318	192	772	1199	0
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
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	0	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	470	0	0				0	1433	0	839	1303	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	2	2	0
Cap, veh/h	570	0					0	1653		708	2577	0
Arrive On Green	0.16	0.00	0.00				0.00	0.47	0.00	0.41	1.00	0.00
Sat Flow, veh/h	3456	0	2790				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	470	0	0				0	1433	0	839	1303	0
Grp Sat Flow(s),veh/h/ln	1728	0	1395				0	1777	1585	1728	1777	0
Q Serve(g_s), s	13.1	0.0	0.0				0.0	36.1	0.0	20.5	0.0	0.0
Cycle Q Clear(g_c), s	13.1	0.0	0.0				0.0	36.1	0.0	20.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	570	0					0	1653		708	2577	0
V/C Ratio(X)	0.82	0.00					0.00	0.87		1.18	0.51	0.00
Avail Cap(c_a), veh/h	898	0					0	1653		708	2577	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	40.4	0.0	0.0				0.0	24.0	0.0	29.5	0.0	0.0
Incr Delay (d2), s/veh	3.6	0.0	0.0				0.0	6.4	0.0	84.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.8	0.0	0.0				0.0	20.8	0.0	17.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	0.0	0.0				0.0	30.4	0.0	113.9	0.1	0.0
LnGrp LOS	D	A					A	C		F	A	A
Approach Vol, veh/h	470						1433			2142		
Approach Delay, s/veh	44.0						30.4			44.6		
Approach LOS	D						C			D		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	78.0			22.0			26.0			52.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	63.0			26.0			20.5			37.0		
Max Q Clear Time (g_c+I1), s	2.0			15.1			22.5			38.1		
Green Ext Time (p_c), s	26.2			1.3			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	39.5											
HCM 6th LOS	D											

Timings

5c. Build 2038 AM (Full Build-Out) - System & Site Improvements

30: SR 92 & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	111	619	291	1411	1859	350
Future Volume (vph)	111	619	291	1411	1859	350
Lane Group Flow (vph)	121	673	316	1534	2021	380
Turn Type	pm+pt	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases	8	8				2
Detector Phase	3	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	30.5	15.0	28.5	28.5	28.5
Total Split (s)	36.0	36.0	15.0	64.0	49.0	49.0
Total Split (%)	36.0%	36.0%	15.0%	64.0%	49.0%	49.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.22	1.24	0.97	0.74	1.31	0.46
Control Delay	27.3	151.3	78.9	9.9	172.9	8.5
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	27.3	151.3	78.9	10.4	172.9	8.5
Queue Length 50th (ft)	57	~497	112	138	~878	50
Queue Length 95th (ft)	103	#719	m#117	m134	#1017	122
Internal Link Dist (ft)				420	535	
Turn Bay Length (ft)		250	100			250
Base Capacity (vph)	539	543	326	2070	1539	829
Starvation Cap Reductn	0	0	0	187	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	1.24	0.97	0.81	1.31	0.46

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

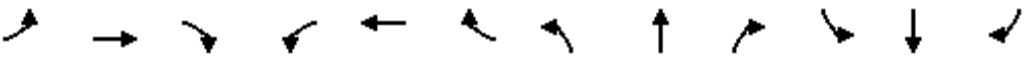
Queue shown is maximum after two cycles.

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

Splits and Phases: 30: SR 92 & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Analysis - 8 AM (Full Build-Out) - System & Site Improvements 30: SR 92 & S. Fulton Pkwy WB Ramps 08/31/2023

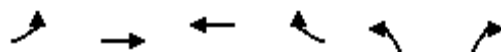
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	111	0	619	291	1411	0	0	1859	350
Future Volume (veh/h)	0	0	0	111	0	619	291	1411	0	0	1859	350
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				121	0	0	316	1534	0	0	2021	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	2	2	0	0	2	2
Cap, veh/h				154	0		328	2856	0	0	2323	
Arrive On Green				0.09	0.00	0.00	0.19	1.00	0.00	0.00	0.65	0.00
Sat Flow, veh/h				1781	0	1585	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				121	0	0	316	1534	0	0	2021	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1585
Q Serve(g_s), s				6.7	0.0	0.0	9.1	0.0	0.0	0.0	45.7	0.0
Cycle Q Clear(g_c), s				6.7	0.0	0.0	9.1	0.0	0.0	0.0	45.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				154	0		328	2856	0	0	2323	
V/C Ratio(X)				0.79	0.00		0.96	0.54	0.00	0.00	0.87	
Avail Cap(c_a), veh/h				543	0		328	2856	0	0	2323	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.09	0.09	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.8	0.0	0.0	40.3	0.0	0.0	0.0	13.9	0.0
Incr Delay (d2), s/veh				8.5	0.0	0.0	8.1	0.1	0.0	0.0	4.8	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				5.9	0.0	0.0	4.6	0.0	0.0	0.0	21.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.3	0.0	0.0	48.4	0.1	0.0	0.0	18.7	0.0
LnGrp LOS				D	A		D	A	A	A	B	
Approach Vol, veh/h					121			1850			2021	
Approach Delay, s/veh					53.3			8.3			18.7	
Approach LOS					D			A			B	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.0	70.9				85.9		14.1				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	43.5				58.5		30.5				
Max Q Clear Time (g_c+I1), s	11.1	47.7				2.0		8.7				
Green Ext Time (p_c), s	0.0	0.0				32.5		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				14.9								
HCM 6th LOS				B								
Notes												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

1: I-85 NB Ramps & Collinsworth Rd

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations	↔↔	↑↑	↑↑	↔↔	↔↔	↔
Traffic Volume (vph)	623	1306	943	237	508	326
Future Volume (vph)	623	1306	943	237	508	326
Lane Group Flow (vph)	656	1375	993	249	535	343
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases	6			2		8
Detector Phase	1	6	2	2	3	8
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	5.0	6.0
Minimum Split (s)	15.0	21.5	21.5	21.5	15.0	21.5
Total Split (s)	21.0	62.0	41.0	41.0	28.0	28.0
Total Split (%)	23.3%	68.9%	45.6%	45.6%	31.1%	31.1%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.80	0.59	0.65	0.19	0.73	0.83
Control Delay	21.7	12.0	23.4	2.8	38.9	41.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	12.0	23.4	2.8	38.9	41.7
Queue Length 50th (ft)	152	281	243	0	144	134
Queue Length 95th (ft)	m198	m320	318	25	193	#256
Internal Link Dist (ft)		760	1006			
Turn Bay Length (ft)	300			250	500	
Base Capacity (vph)	854	2338	1527	1331	841	461
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.59	0.65	0.19	0.64	0.74

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: I-85 NB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection, Southbound, 2018 PM (Full Build-Out) - System & Site Improvements 1: I-85 NB Ramps & Collinsworth Rd

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 	 	 					
Traffic Volume (veh/h)	623	1306	0	0	943	237	508	0	326	0	0	0
Future Volume (veh/h)	623	1306	0	0	943	237	508	0	326	0	0	0
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			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1841	1870	0	0	1856	1841	1841	0	1841			
Adj Flow Rate, veh/h	656	1375	0	0	993	0	535	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	4	2	0	0	3	4	4	0	4			
Cap, veh/h	928	2453	0	0	1764		637	0				
Arrive On Green	0.26	1.00	0.00	0.00	0.50	0.00	0.19	0.00	0.00			
Sat Flow, veh/h	3401	3647	0	0	3618	2745	3401	0	1560			
Grp Volume(v), veh/h	656	1375	0	0	993	0	535	0	0			
Grp Sat Flow(s),veh/h/ln	1700	1777	0	0	1763	1373	1700	0	1560			
Q Serve(g_s), s	8.4	0.0	0.0	0.0	17.6	0.0	13.7	0.0	0.0			
Cycle Q Clear(g_c), s	8.4	0.0	0.0	0.0	17.6	0.0	13.7	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	928	2453	0	0	1764		637	0				
V/C Ratio(X)	0.71	0.56	0.00	0.00	0.56		0.84	0.00				
Avail Cap(c_a), veh/h	1076	2453	0	0	1764		850	0				
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	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	9.7	0.0	0.0	0.0	15.6	0.0	35.3	0.0	0.0			
Incr Delay (d2), s/veh	0.8	0.4	0.0	0.0	1.3	0.0	5.7	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	3.0	0.2	0.0	0.0	10.3	0.0	10.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.5	0.4	0.0	0.0	16.9	0.0	41.0	0.0	0.0			
LnGrp LOS	B	A	A	A	B		D	A				
Approach Vol, veh/h	2031			993			535					
Approach Delay, s/veh	3.6			16.9			41.0					
Approach LOS	A			B			D					
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	17.1	50.5					67.6	22.4				
Change Period (Y+Rc), s	5.5	5.5					5.5	5.5				
Max Green Setting (Gmax), s	15.5	35.5					56.5	22.5				
Max Q Clear Time (g_c+I1), s	10.4	19.6					2.0	15.7				
Green Ext Time (p_c), s	1.2	9.1					27.1	1.2				

Intersection Summary

HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

2: I-85 SB Ramps & Collinsworth Rd

08/31/2023



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↔
Traffic Volume (vph)	813	711	475	1004	1132	665
Future Volume (vph)	813	711	475	1004	1132	665
Lane Group Flow (vph)	865	756	505	1068	1204	707
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			4
Detector Phase	6	6	5	2	7	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	6.0
Minimum Split (s)	21.5	21.5	15.0	21.5	15.0	21.5
Total Split (s)	35.0	35.0	15.0	50.0	40.0	40.0
Total Split (%)	38.9%	38.9%	16.7%	55.6%	44.4%	44.4%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.74	0.74	0.87	0.61	0.92	0.65
Control Delay	30.4	9.2	43.0	17.7	39.0	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	9.2	43.0	17.7	39.0	22.5
Queue Length 50th (ft)	174	95	125	176	325	154
Queue Length 95th (ft)	m216	m140	#182	255	#454	221
Internal Link Dist (ft)	919			760		
Turn Bay Length (ft)		500	95		520	500
Base Capacity (vph)	1176	1021	580	1763	1342	1113
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.74	0.87	0.61	0.90	0.64

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

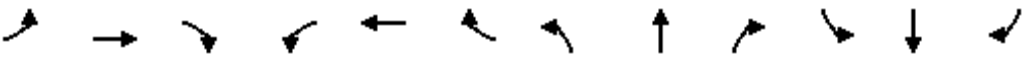
Splits and Phases: 2: I-85 SB Ramps & Collinsworth Rd



HCM 6th Signalized Intersection Simulation - 2038 PM (Full Build-Out) - System & Site Improvements

2: I-85 SB Ramps & Collinsworth Rd

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	813	711	475	1004	0	0	0	0	1132	0	665
Future Volume (veh/h)	0	813	711	475	1004	0	0	0	0	1132	0	665
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1841	1885	1856	0				1900	0	1841
Adj Flow Rate, veh/h	0	865	0	505	1068	0				1204	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	4	1	3	0				0	0	4
Cap, veh/h	0	1217		691	1795	0				1294	0	
Arrive On Green	0.00	0.34	0.00	0.21	1.00	0.00				0.37	0.00	0.00
Sat Flow, veh/h	0	3647	1560	3483	3618	0				3510	0	2745
Grp Volume(v), veh/h	0	865	0	505	1068	0				1204	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1560	1742	1763	0				1755	0	1373
Q Serve(g_s), s	0.0	19.0	0.0	8.6	0.0	0.0				29.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	19.0	0.0	8.6	0.0	0.0				29.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1217		691	1795	0				1294	0	
V/C Ratio(X)	0.00	0.71		0.73	0.60	0.00				0.93	0.00	
Avail Cap(c_a), veh/h	0	1217		691	1795	0				1346	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.35	0.00	0.68	0.68	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.7	0.0	16.5	0.0	0.0				27.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	2.7	1.0	0.0				11.4	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	0.0	9.9	0.0	4.7	0.4	0.0				20.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	27.0	0.0	19.2	1.0	0.0				38.7	0.0	0.0
LnGrp LOS	A	C		B	A	A				D	A	
Approach Vol, veh/h		865			1573						1204	
Approach Delay, s/veh		27.0			6.8						38.7	
Approach LOS		C			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		51.3		38.7	15.0	36.3						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		44.5		34.5	9.5	29.5						
Max Q Clear Time (g_c+I1), s		2.0		31.7	10.6	21.0						
Green Ext Time (p_c), s		17.0		1.5	0.0	5.0						
Intersection Summary												
HCM 6th Ctrl Delay			22.2									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

3: Collinsworth Rd & Weldon Rd

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	15	446	490	993	1258
Future Volume (vph)	15	446	490	993	1258
Lane Group Flow (vph)	17	501	551	1116	1428
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	3		1	6	2
Permitted Phases		3			
Detector Phase	3	3	1	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5
Total Split (s)	22.0	22.0	21.0	68.0	47.0
Total Split (%)	24.4%	24.4%	23.3%	75.6%	52.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min
v/c Ratio	0.06	0.95	0.92	0.85	0.86
Control Delay	31.0	44.4	62.4	14.9	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	44.4	62.4	14.9	28.0
Queue Length 50th (ft)	8	113	173	259	372
Queue Length 95th (ft)	26	#302	#264	#628	465
Internal Link Dist (ft)	898			919	1309
Turn Bay Length (ft)		365	315		
Base Capacity (vph)	324	542	599	1316	1665
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.92	0.92	0.85	0.86

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Collinsworth Rd & Weldon Rd



HCM 6th Signalized Intersection Summary 2018 PM (Full Build-Out) - System & Site Improvements

3: Collinsworth Rd & Weldon Rd

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	446	490	993	1258	13
Future Volume (veh/h)	15	446	490	993	1258	13
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	0	551	1116	1413	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	34		595	1606	2252	24
Arrive On Green	0.02	0.00	0.34	1.00	0.63	0.63
Sat Flow, veh/h	1781	1585	3456	1870	3696	38
Grp Volume(v), veh/h	17	0	551	1116	697	731
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1870	1777	1863
Q Serve(g_s), s	0.9	0.0	13.8	0.0	21.8	21.8
Cycle Q Clear(g_c), s	0.9	0.0	13.8	0.0	21.8	21.8
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	34		595	1606	1111	1165
V/C Ratio(X)	0.50		0.93	0.69	0.63	0.63
Avail Cap(c_a), veh/h	327		595	1606	1111	1165
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.74	0.74	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	28.9	0.0	10.4	10.4
Incr Delay (d2), s/veh	10.7	0.0	16.5	1.9	2.7	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	0.8	0.0	8.8	1.5	12.0	12.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.4	0.0	45.5	1.9	13.1	13.0
LnGrp LOS	D		D	A	B	B
Approach Vol, veh/h	17			1667	1428	
Approach Delay, s/veh	54.4			16.3	13.0	
Approach LOS	D			B	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	61.8			82.8	7.2
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	15.5	41.5			62.5	16.5
Max Q Clear Time (g_c+I1), s	15.8	23.8			2.0	2.9
Green Ext Time (p_c), s	0.0	13.5			27.9	0.0

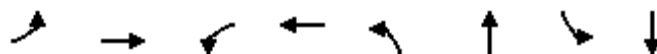
Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5d. Build 2038 PM (Full Build-Out) - System & Site Improvements
4: SR 14/US 29 (Main St) & Toombs St 08/31/2023

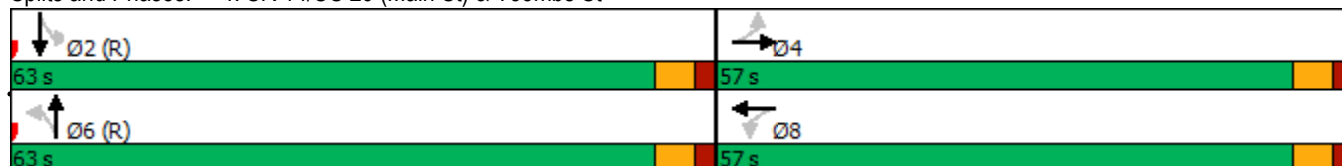


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕		↕		↕
Traffic Volume (vph)	128	509	33	509	68	516	171	758
Future Volume (vph)	128	509	33	509	68	516	171	758
Lane Group Flow (vph)	0	798	0	795	0	673	0	1176
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		6		2
Permitted Phases	4		8		6		2	
Detector Phase	4	4	8	8	6	6	2	2
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	21.5	21.5	23.5	23.5	23.5	23.5	21.5	21.5
Total Split (s)	57.0	57.0	57.0	57.0	63.0	63.0	63.0	63.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	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
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		1.85		1.08		1.08		1.98
Control Delay		415.4		89.0		90.8		469.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		415.4		89.0		90.8		469.8
Queue Length 50th (ft)		~962		~680		~583		~1428
Queue Length 95th (ft)		m#1147		#924		#817		#1692
Internal Link Dist (ft)		2854		686		974		1371
Turn Bay Length (ft)								
Base Capacity (vph)		432		738		623		594
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		1.85		1.08		1.08		1.98

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: 150
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: SR 14/US 29 (Main St) & Toombs St



HCM 6th Signalized Intersection Summary 4: SR 14/US 29 (Main St) & Toombs St

08/31/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	128	509	81	33	509	173	68	516	22	171	758	130
Future Volume (veh/h)	128	509	81	33	509	173	68	516	22	171	758	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1752	1900	1900	1900	1900	1811	1900	1900	1796	1900
Adj Flow Rate, veh/h	142	566	90	37	566	192	76	573	24	190	842	144
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, %	0	0	10	0	0	0	0	6	0	0	7	0
Cap, veh/h	87	251	38	53	527	175	86	549	22	101	314	53
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	121	584	90	50	1229	407	111	1145	46	138	655	111
Grp Volume(v), veh/h	798	0	0	795	0	0	673	0	0	1176	0	0
Grp Sat Flow(s),veh/h/ln	795	0	0	1686	0	0	1302	0	0	904	0	0
Q Serve(g_s), 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
Cycle Q Clear(g_c), s	51.5	0.0	0.0	51.5	0.0	0.0	57.5	0.0	0.0	57.5	0.0	0.0
Prop In Lane	0.18		0.11	0.05		0.24	0.11		0.04	0.16		0.12
Lane Grp Cap(c), veh/h	376	0	0	755	0	0	657	0	0	468	0	0
V/C Ratio(X)	2.12	0.00	0.00	1.05	0.00	0.00	1.02	0.00	0.00	2.51	0.00	0.00
Avail Cap(c_a), veh/h	376	0	0	755	0	0	657	0	0	468	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.7	0.0	0.0	34.7	0.0	0.0	30.8	0.0	0.0	32.7	0.0	0.0
Incr Delay (d2), s/veh	513.0	0.0	0.0	47.6	0.0	0.0	41.2	0.0	0.0	687.3	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	108.0	0.0	0.0	42.9	0.0	0.0	36.1	0.0	0.0	172.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	547.7	0.0	0.0	82.2	0.0	0.0	72.1	0.0	0.0	719.9	0.0	0.0
LnGrp LOS	F	A	A	F	A	A	F	A	A	F	A	A
Approach Vol, veh/h		798			795			673			1176	
Approach Delay, s/veh		547.7			82.2			72.1			719.9	
Approach LOS		F			F			E			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		57.0		63.0		57.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		57.5		51.5		57.5		51.5				
Max Q Clear Time (g_c+I1), s		59.5		53.5		59.5		53.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				406.0								
HCM 6th LOS				F								

Intersection

Int Delay, s/veh 3.1

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 38 87 49 804 848 36

Future Vol, veh/h 38 87 49 804 848 36

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Yield - None - Yield

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 94 94 94 94 94 94

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 40 93 52 855 902 38

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1880 921 902 0 - 0

Stage 1 921 - - - - -

Stage 2 959 - - - - -

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 78 328 754 - - -

Stage 1 388 - - - - -

Stage 2 372 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 68 328 754 - - -

Mov Cap-2 Maneuver 68 - - - - -

Stage 1 337 - - - - -

Stage 2 372 - - - - -

Approach EB NB SB

HCM Control Delay, s 42.1 0.6 0

HCM LOS E

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 754 - 224 - -

HCM Lane V/C Ratio 0.069 - 0.594 - -

HCM Control Delay (s) 10.1 0 42.1 - -

HCM Lane LOS B A E - -

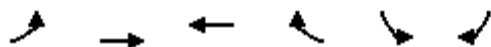
HCM 95th %tile Q(veh) 0.2 - 3.4 - -

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

6: Hutchesons Ferry Rd & Cochran Mill Rd

08/31/2023



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	257	354	744	767	123
Future Volume (vph)	96	257	354	744	767	123
Lane Group Flow (vph)	112	299	412	865	892	143
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		6	2		7	
Permitted Phases	6			2		7
Detector Phase	6	6	2	2	7	7
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	5.0	5.0
Minimum Split (s)	28.5	28.5	28.5	28.5	15.0	15.0
Total Split (s)	47.0	47.0	47.0	47.0	73.0	73.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	60.8%	60.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.52	0.44	0.61	0.81	0.93	0.16
Control Delay	41.9	32.2	28.7	6.1	38.7	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	32.2	28.7	6.1	38.7	6.6
Queue Length 50th (ft)	70	180	224	6	516	18
Queue Length 95th (ft)	128	249	m228	m6	#786	m26
Internal Link Dist (ft)		2663	3004		3074	
Turn Bay Length (ft)	235			175		175
Base Capacity (vph)	214	678	678	1066	995	928
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.44	0.61	0.81	0.90	0.15

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 80

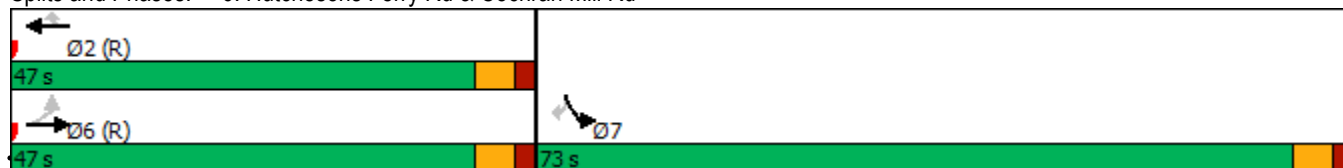
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

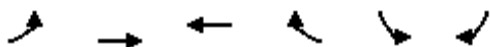
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hutchesons Ferry Rd & Cochran Mill Rd



HCM 6th Signalized Intersection Simulation 2018 PM (Full Build-Out) - System & Site Improvements 6: Hutchesons Ferry Rd & Cochran Mill Rd

08/31/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	257	354	744	767	123
Future Volume (veh/h)	96	257	354	744	767	123
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	299	412	0	892	143
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	270	727	727		926	824
Arrive On Green	0.39	0.39	0.39	0.00	0.52	0.52
Sat Flow, veh/h	974	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	112	299	412	0	892	143
Grp Sat Flow(s),veh/h/ln	974	1870	1870	1585	1781	1585
Q Serve(g_s), s	12.2	14.0	20.7	0.0	57.8	5.7
Cycle Q Clear(g_c), s	33.0	14.0	20.7	0.0	57.8	5.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	270	727	727		926	824
V/C Ratio(X)	0.41	0.41	0.57		0.96	0.17
Avail Cap(c_a), veh/h	270	727	727		1002	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	26.7	28.8	0.0	27.7	15.2
Incr Delay (d2), s/veh	4.6	1.7	3.2	0.0	19.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.8	10.5	14.6	0.0	35.8	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.3	28.4	32.0	0.0	47.1	15.3
LnGrp LOS	D	C	C		D	B
Approach Vol, veh/h		411	412		1035	
Approach Delay, s/veh		33.3	32.0		42.7	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		52.1		67.9		52.1
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		41.5		67.5		41.5
Max Q Clear Time (g_c+I1), s		22.7		59.8		35.0
Green Ext Time (p_c), s		4.1		2.6		1.9

Intersection Summary

HCM 6th Ctrl Delay	38.3
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

7: Cochran Mill Rd & Wilkerson Mill Rd

08/31/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰	↑	↑	↰	↑
Traffic Volume (vph)	418	159	573	442	115	685
Future Volume (vph)	418	159	573	442	115	685
Lane Group Flow (vph)	492	187	674	520	135	806
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		6			2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5	28.5
Total Split (s)	49.0	49.0	71.0	71.0	71.0	71.0
Total Split (%)	40.8%	40.8%	59.2%	59.2%	59.2%	59.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.88	0.31	0.61	0.47	0.45	0.73
Control Delay	56.7	9.2	17.1	4.3	23.8	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	9.2	17.1	4.3	23.8	29.0
Queue Length 50th (ft)	356	24	264	26	39	335
Queue Length 95th (ft)	431	64	337	54	110	516
Internal Link Dist (ft)	406		3613			459
Turn Bay Length (ft)		175		175	150	
Base Capacity (vph)	641	665	1105	1105	301	1105
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.28	0.61	0.47	0.45	0.73

Intersection Summary

Cycle Length: 120

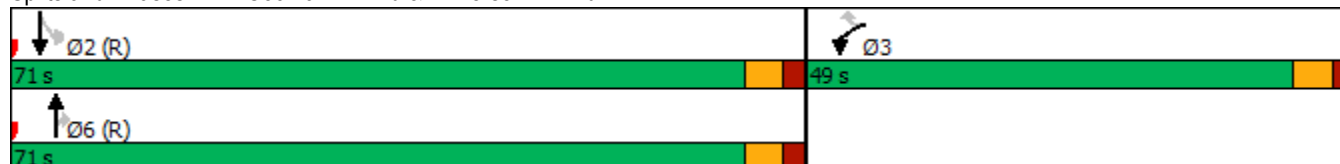
Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 7: Cochran Mill Rd & Wilkerson Mill Rd



HCM 6th Signalized Intersection Summary 2038 PM (Full Build-Out) - System & Site Improvements
 7: Cochran Mill Rd & Wilkerson Mill Rd 08/31/2023

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	418	159	573	442	115	685
Future Volume (veh/h)	418	159	573	442	115	685
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	492	187	674	520	135	806
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	531	473	1141	967	243	1141
Arrive On Green	0.30	0.30	0.61	0.61	0.61	0.61
Sat Flow, veh/h	1781	1585	1870	1585	469	1870
Grp Volume(v), veh/h	492	187	674	520	135	806
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	469	1870
Q Serve(g_s), s	32.1	11.3	26.4	22.8	29.6	35.4
Cycle Q Clear(g_c), s	32.1	11.3	26.4	22.8	55.9	35.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	531	473	1141	967	243	1141
V/C Ratio(X)	0.93	0.40	0.59	0.54	0.56	0.71
Avail Cap(c_a), veh/h	646	575	1141	967	243	1141
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	1.00	1.00
Uniform Delay (d), s/veh	40.8	33.5	14.3	13.6	31.3	16.0
Incr Delay (d2), s/veh	17.5	0.5	2.2	2.1	8.8	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	22.6	7.7	16.0	12.5	6.8	20.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.4	34.1	16.5	15.7	40.1	19.7
LnGrp LOS	E	C	B	B	D	B
Approach Vol, veh/h	679		1194			941
Approach Delay, s/veh	51.7		16.2			22.6
Approach LOS	D		B			C
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	78.7		78.7		41.3	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	65.5		65.5		43.5	
Max Q Clear Time (g_c+I1), s	57.9		28.4		34.1	
Green Ext Time (p_c), s	5.4		16.5		1.6	
Intersection Summary						
HCM 6th Ctrl Delay			26.9			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

8: Cochran Mill Rd & SR 70 (S. Fulton Pkwy)

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	204	183	901	887	137	250	100	1233	166	100	13
Future Volume (veh/h)	10	204	183	901	887	137	250	100	1233	166	100	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	224	0	990	975	0	275	110	0	182	110	14
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	220	984		1039	2215		355	533		356	463	59
Arrive On Green	0.28	0.28	0.00	0.30	0.62	0.00	0.09	0.09	0.00	0.28	0.28	0.28
Sat Flow, veh/h	577	3554	1585	3456	3554	1585	1267	1870	2790	1283	1626	207
Grp Volume(v), veh/h	11	224	0	990	975	0	275	110	0	182	0	124
Grp Sat Flow(s),veh/h/ln	577	1777	1585	1728	1777	1585	1267	1870	1395	1283	0	1833
Q Serve(g_s), s	1.7	5.8	0.0	33.7	17.1	0.0	25.9	6.5	0.0	15.3	0.0	6.2
Cycle Q Clear(g_c), s	1.7	5.8	0.0	33.7	17.1	0.0	32.1	6.5	0.0	21.8	0.0	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	220	984		1039	2215		355	533		356	0	522
V/C Ratio(X)	0.05	0.23		0.95	0.44		0.77	0.21		0.51	0.00	0.24
Avail Cap(c_a), veh/h	220	984		1051	2215		359	538		359	0	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	33.5	0.0	41.1	11.7	0.0	56.5	41.8	0.0	41.4	0.0	32.9
Incr Delay (d2), s/veh	0.4	0.5	0.0	17.5	0.6	0.0	10.0	0.2	0.0	1.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	4.5	0.0	22.5	9.9	0.0	14.9	5.5	0.0	8.4	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	34.0	0.0	58.6	12.4	0.0	66.5	42.0	0.0	42.6	0.0	33.1
LnGrp LOS	C	C		E	B		E	D		D	A	C
Approach Vol, veh/h	235			1965			385			306		
Approach Delay, s/veh	33.9			35.7			59.5			38.8		
Approach LOS	C			D			E			D		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	80.3			39.7		41.6	38.7		39.7			
Change Period (Y+Rc), s	5.5			5.5		5.5	5.5		5.5			
Max Green Setting (Gmax), s	74.5			34.5		36.5	32.5		34.5			
Max Q Clear Time (g_c+I1), s	19.1			23.8		35.7	7.8		34.1			
Green Ext Time (p_c), s	16.1			0.9		0.4	2.4		0.1			
Intersection Summary												
HCM 6th Ctrl Delay	39.0											
HCM 6th LOS	D											

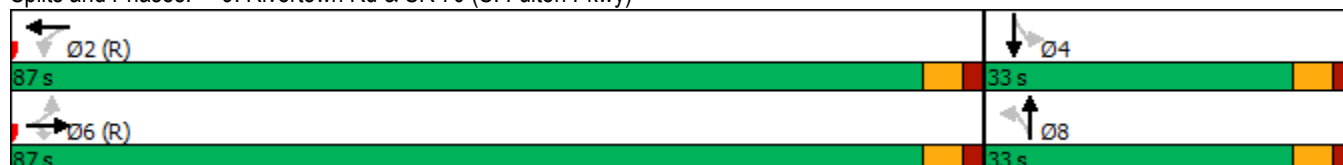
Timings 5d. Build 2038 PM (Full Build-Out) - System & Site Improvements
 9: Rivertown Rd & SR 70 (S. Fulton Pkwy) 08/31/2023

	→	↘	↙	←	↖	↑	↗	↓
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑↑	↑	↙	↑↑	↖	↑	↗	↑
Traffic Volume (vph)	1475	78	14	1737	175	26	8	8
Future Volume (vph)	1475	78	14	1737	175	26	8	8
Lane Group Flow (vph)	1603	85	15	1916	190	28	9	9
Turn Type	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases	6			2		8		4
Permitted Phases		6	2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	15.0	15.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	28.5	28.5	28.5	28.5	30.5	30.5	30.5	30.5
Total Split (s)	87.0	87.0	87.0	87.0	33.0	33.0	33.0	33.0
Total Split (%)	72.5%	72.5%	72.5%	72.5%	27.5%	27.5%	27.5%	27.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.62	0.07	0.09	0.74	0.78	0.09	0.04	0.03
Control Delay	8.8	3.1	7.1	22.3	67.3	39.3	38.0	37.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	3.1	7.1	22.3	67.3	39.3	38.0	37.6
Queue Length 50th (ft)	221	4	3	807	141	18	6	6
Queue Length 95th (ft)	315	m13	m5	m845	213	42	20	20
Internal Link Dist (ft)	501			2203		1197		1391
Turn Bay Length (ft)		150	285		235		150	
Base Capacity (vph)	2594	1178	158	2589	321	426	315	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.07	0.09	0.74	0.59	0.07	0.03	0.02

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Rivertown Rd & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection, Southbound 2098 PM (Full Build-Out) - System & Site Improvements 9: Rivertown Rd & SR 70 (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1475	78	14	1737	26	175	26	0	8	8	0
Future Volume (veh/h)	0	1475	78	14	1737	26	175	26	0	8	8	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1603	0	15	1888	28	190	28	0	9	9	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	60	2672		234	2695	40	274	293		259	293	0
Arrive On Green	0.00	0.75	0.00	0.75	0.75	0.75	0.16	0.16	0.00	0.16	0.16	0.00
Sat Flow, veh/h	234	3554	1585	317	3585	53	1406	1870	0	1382	1870	0
Grp Volume(v), veh/h	0	1603	0	15	934	982	190	28	0	9	9	0
Grp Sat Flow(s),veh/h/ln	234	1777	1585	317	1777	1861	1406	1870	0	1382	1870	0
Q Serve(g_s), s	0.0	24.5	0.0	2.7	33.0	33.3	15.9	1.5	0.0	0.7	0.5	0.0
Cycle Q Clear(g_c), s	0.0	24.5	0.0	27.2	33.0	33.3	16.4	1.5	0.0	2.2	0.5	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	60	2672		234	1336	1399	274	293		259	293	0
V/C Ratio(X)	0.00	0.60		0.06	0.70	0.70	0.69	0.10		0.03	0.03	0.00
Avail Cap(c_a), veh/h	60	2672		234	1336	1399	376	429		359	429	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	0.00	0.27	0.27	0.27	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	6.7	0.0	12.9	7.8	7.8	49.8	43.3	0.0	44.3	42.9	0.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.1	0.8	0.8	3.2	0.1	0.0	0.1	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	10.8	0.0	0.3	11.2	11.8	9.6	1.3	0.0	0.4	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.7	0.0	13.0	8.6	8.6	53.1	43.5	0.0	44.3	42.9	0.0
LnGrp LOS	A	A		B	A	A	D	D		D	D	A
Approach Vol, veh/h		1603			1931			218			18	
Approach Delay, s/veh		7.7			8.7			51.8			43.6	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		95.7		24.3		95.7		24.3				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		81.5		27.5		81.5		27.5				
Max Q Clear Time (g_c+I1), s		35.3		4.2		26.5		18.4				
Green Ext Time (p_c), s		37.6		0.0		34.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				10.9								
HCM 6th LOS				B								

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5d. Build 2038 PM (Full Build-Out) - System & Site Improvements
10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy) 08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	1333	55	292	1584	8	31	499	249	7	528	96
Future Volume (vph)	121	1333	55	292	1584	8	31	499	249	7	528	96
Lane Group Flow (vph)	126	1389	57	304	1650	8	32	520	259	7	550	100
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			8			4	
Permitted Phases			6			2	8		8	4		4
Detector Phase	1	6	6	5	2	2	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	21.5	21.5	15.0	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Total Split (s)	15.0	59.0	59.0	19.0	63.0	63.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	12.5%	49.2%	49.2%	15.8%	52.5%	52.5%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.89	0.87	0.08	0.81	0.97	0.01	0.52	0.92	0.43	0.11	0.97	0.19
Control Delay	95.2	34.9	7.3	69.0	47.3	0.0	67.1	63.6	13.1	35.9	73.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.2	34.9	7.3	69.0	47.3	0.0	67.1	63.6	13.1	35.9	73.6	9.3
Queue Length 50th (ft)	96	608	5	120	638	0	20	388	46	4	420	8
Queue Length 95th (ft)	m#213	681	m27	#184	#819	0	#71	#596	120	17	#647	48
Internal Link Dist (ft)		2203			5188			2286			2133	
Turn Bay Length (ft)	270		140	285		195	165		250	150		250
Base Capacity (vph)	141	1588	750	386	1695	796	62	566	605	62	566	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.87	0.08	0.79	0.97	0.01	0.52	0.92	0.43	0.11	0.97	0.18

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 71 (59%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 110

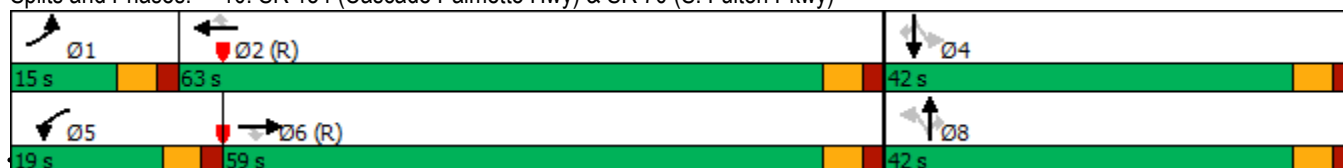
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy)



HCM 6th Signalized Intersection, Southbound 2098 PM (Full Build-Out) - System & Site Improvements 10: SR 154 (Cascade Palmetto Hwy) & SR 70 (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	1333	55	292	1584	8	31	499	249	7	528	96
Future Volume (veh/h)	121	1333	55	292	1584	8	31	499	249	7	528	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	1389	0	304	1650	0	32	520	259	7	550	100
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	141	1614		360	1703		71	569	482	85	569	482
Arrive On Green	0.08	0.45	0.00	0.10	0.48	0.00	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	782	1870	1585	693	1870	1585
Grp Volume(v), veh/h	126	1389	0	304	1650	0	32	520	259	7	550	100
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	782	1870	1585	693	1870	1585
Q Serve(g_s), s	8.4	42.0	0.0	10.4	54.2	0.0	1.7	32.2	16.3	1.2	34.8	5.6
Cycle Q Clear(g_c), s	8.4	42.0	0.0	10.4	54.2	0.0	36.5	32.2	16.3	33.3	34.8	5.6
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	141	1614		360	1703		71	569	482	85	569	482
V/C Ratio(X)	0.89	0.86		0.84	0.97		0.45	0.91	0.54	0.08	0.97	0.21
Avail Cap(c_a), veh/h	141	1614		389	1703		71	569	482	85	569	482
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)	0.75	0.75	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	29.3	0.0	52.8	30.4	0.0	59.7	40.2	34.7	56.3	41.2	31.0
Incr Delay (d2), s/veh	37.5	4.8	0.0	14.8	15.6	0.0	4.4	19.4	1.2	0.4	29.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.3	23.1	0.0	8.7	32.3	0.0	1.8	23.6	10.1	0.4	26.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.3	34.1	0.0	67.6	46.0	0.0	64.1	59.6	35.9	56.7	70.6	31.2
LnGrp LOS	F	C		E	D		E	E	D	E	E	C
Approach Vol, veh/h	1515			1954			811			657		
Approach Delay, s/veh	39.0			49.3			52.2			64.4		
Approach LOS	D			D			D			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	63.0		42.0	18.0	60.0		42.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	57.5		36.5	13.5	53.5		36.5				
Max Q Clear Time (g_c+I1), s	10.4	56.2		36.8	12.4	44.0		38.5				
Green Ext Time (p_c), s	0.0	1.3		0.0	0.1	7.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	48.6											
HCM 6th LOS	D											

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5d. Build 2038 PM (Full Build-Out) - System & Site Improvements
11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	79	1610	82	376	1883	216	89	260	287	142	195
Future Volume (vph)	79	1610	82	376	1883	216	89	260	287	142	195
Lane Group Flow (vph)	86	1750	89	409	2047	235	97	283	312	154	289
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6		5	2		3	8		7	4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0
Minimum Split (s)	15.0	29.5	29.5	15.0	26.5	26.5	15.0	43.5	43.5	15.0	39.5
Total Split (s)	15.0	64.5	64.5	27.0	76.5	76.5	15.0	43.5	43.5	15.0	43.5
Total Split (%)	10.0%	43.0%	43.0%	18.0%	51.0%	51.0%	10.0%	29.0%	29.0%	10.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	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	5.5
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
v/c Ratio	0.57	1.28	0.12	0.97	1.05	0.25	0.50	0.79	0.63	0.78	0.81
Control Delay	39.7	170.6	1.0	89.9	56.8	8.3	47.6	73.1	19.7	68.6	73.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	170.6	1.0	89.9	56.8	8.3	47.6	73.1	19.7	68.6	73.1
Queue Length 50th (ft)	31	~1139	0	340	~1136	25	71	267	67	117	264
Queue Length 95th (ft)	89	#1276	7	m#597	m#1405	m58	110	349	162	#175	348
Internal Link Dist (ft)		1551			5221			1155			1231
Turn Bay Length (ft)	295		155	325		160	65			135	
Base Capacity (vph)	168	1365	718	422	1942	922	197	476	583	197	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	1.28	0.12	0.97	1.05	0.25	0.49	0.59	0.54	0.78	0.63

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 146 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection, Sunday 2:08 PM (Full Build-Out) - System & Site Improvements 11: Cedar Grove Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	1610	82	376	1883	216	89	260	287	142	195	71
Future Volume (veh/h)	79	1610	82	376	1883	216	89	260	287	142	195	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1885	1900	1900	1885	1900	1885	1900	1796
Adj Flow Rate, veh/h	86	1750	0	409	2047	0	97	283	0	154	212	77
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, %	0	4	0	0	1	0	0	1	0	1	0	7
Cap, veh/h	120	1666		307	2088		173	321		188	236	86
Arrive On Green	0.04	0.48	0.00	0.14	0.58	0.00	0.06	0.17	0.00	0.06	0.18	0.18
Sat Flow, veh/h	1810	3497	1610	1810	3582	1610	1810	1885	1610	1795	1330	483
Grp Volume(v), veh/h	86	1750	0	409	2047	0	97	283	0	154	0	289
Grp Sat Flow(s),veh/h/ln	1810	1749	1610	1810	1791	1610	1810	1885	1610	1795	0	1813
Q Serve(g_s), s	3.6	71.5	0.0	21.5	83.4	0.0	6.6	22.0	0.0	9.5	0.0	23.4
Cycle Q Clear(g_c), s	3.6	71.5	0.0	21.5	83.4	0.0	6.6	22.0	0.0	9.5	0.0	23.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	120	1666		307	2088		173	321		188	0	321
V/C Ratio(X)	0.71	1.05		1.33	0.98		0.56	0.88		0.82	0.00	0.90
Avail Cap(c_a), veh/h	168	1666		307	2088		186	478		188	0	459
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.5	39.3	0.0	54.0	30.4	0.0	49.2	60.8	0.0	52.3	0.0	60.4
Incr Delay (d2), s/veh	8.2	36.5	0.0	169.5	15.6	0.0	3.2	12.3	0.0	24.1	0.0	15.6
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	3.1	48.6	0.0	38.6	46.4	0.0	5.6	17.0	0.0	4.3	0.0	17.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	75.8	0.0	223.5	46.0	0.0	52.5	73.1	0.0	76.5	0.0	76.0
LnGrp LOS	D	F		F	D		D	E		E	A	E
Approach Vol, veh/h		1836			2456			380			443	
Approach Delay, s/veh		74.3			75.6			67.8			76.1	
Approach LOS		E			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	92.9	13.9	32.1	27.0	77.0	15.0	31.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	71.0	9.5	38.0	21.5	59.0	9.5	38.0				
Max Q Clear Time (g_c+I1), s	5.6	85.4	8.6	25.4	23.5	73.5	11.5	24.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.2				

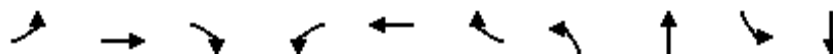
Intersection Summary

HCM 6th Ctrl Delay	74.6
HCM 6th LOS	E

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5d. Build 2038 PM (Full Build-Out) - System & Site Improvements
13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑	↱	↱
Traffic Volume (vph)	119	1858	92	164	2764	156	110	61	85	126
Future Volume (vph)	119	1858	92	164	2764	156	110	61	85	126
Lane Group Flow (vph)	121	1896	94	167	2820	159	112	155	87	319
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	35.5	35.5	15.0	41.5	41.5	50.5	50.5	52.5	52.5
Total Split (s)	15.0	77.5	77.5	20.0	82.5	82.5	52.5	52.5	52.5	52.5
Total Split (%)	10.0%	51.7%	51.7%	13.3%	55.0%	55.0%	35.0%	35.0%	35.0%	35.0%
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	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes				
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
v/c Ratio	0.68	0.64	0.10	0.69	0.91	0.16	1.47	0.40	0.43	0.81
Control Delay	63.7	13.0	2.0	17.1	43.1	14.0	312.6	34.9	56.0	62.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	13.0	2.0	17.1	43.1	14.0	312.6	34.9	56.0	62.3
Queue Length 50th (ft)	72	151	1	61	1072	74	~152	88	76	258
Queue Length 95th (ft)	m99	m469	m4	m71	m927	m92	#249	141	119	333
Internal Link Dist (ft)		1231			4825			1340		1142
Turn Bay Length (ft)	390		190	515		220	245		220	
Base Capacity (vph)	183	2958	981	265	3097	984	116	566	312	577
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.64	0.10	0.63	0.91	0.16	0.97	0.27	0.28	0.55

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: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

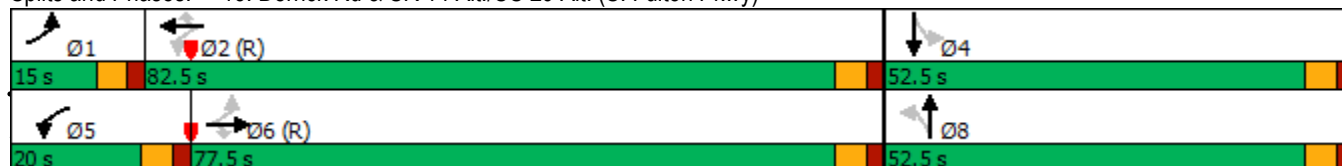
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection Summary 2018 PM (Full Build-Out) - System & Site Improvements
 13: Derrick Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	1858	92	164	2764	156	110	61	91	85	126	186
Future Volume (veh/h)	119	1858	92	164	2764	156	110	61	91	85	126	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1841	1900	1900	1870	1856	1900	1826	1900	1870	1900	1900
Adj Flow Rate, veh/h	121	1896	94	167	2820	159	112	62	93	87	129	190
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, %	5	4	0	0	2	3	0	5	0	2	0	0
Cap, veh/h	142	2777	890	209	2823	869	176	186	280	305	196	289
Arrive On Green	0.05	0.55	0.55	0.05	0.55	0.55	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1739	5025	1610	1810	5106	1572	1077	659	989	1232	694	1022
Grp Volume(v), veh/h	121	1896	94	167	2820	159	112	0	155	87	0	319
Grp Sat Flow(s),veh/h/ln	1739	1675	1610	1810	1702	1572	1077	0	1648	1232	0	1716
Q Serve(g_s), s	6.1	40.7	4.2	6.0	82.7	7.5	15.3	0.0	11.2	9.0	0.0	24.6
Cycle Q Clear(g_c), s	6.1	40.7	4.2	6.0	82.7	7.5	39.9	0.0	11.2	20.2	0.0	24.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.60
Lane Grp Cap(c), veh/h	142	2777	890	209	2823	869	176	0	466	305	0	485
V/C Ratio(X)	0.85	0.68	0.11	0.80	1.00	0.18	0.64	0.00	0.33	0.29	0.00	0.66
Avail Cap(c_a), veh/h	158	2777	890	285	2823	869	209	0	516	342	0	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.3	24.1	15.9	27.8	33.5	16.7	64.9	0.0	42.6	50.6	0.0	47.4
Incr Delay (d2), s/veh	31.0	1.4	0.2	10.8	16.7	0.5	4.7	0.0	0.4	0.5	0.0	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	9.6	21.6	2.7	6.8	44.8	4.9	7.8	0.0	8.1	5.0	0.0	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.3	25.5	16.2	38.5	50.1	17.1	69.6	0.0	43.0	51.1	0.0	49.9
LnGrp LOS	E	C	B	D	D	B	E	A	D	D	A	D
Approach Vol, veh/h		2111			3146			267			406	
Approach Delay, s/veh		28.0			47.9			54.2			50.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.6	88.4		47.9	13.7	88.4		47.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	77.0		47.0	14.5	72.0		47.0				
Max Q Clear Time (g_c+I1), s	8.1	84.7		26.6	8.0	42.7		41.9				
Green Ext Time (p_c), s	0.0	0.0		2.0	0.2	24.5		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			41.2									
HCM 6th LOS			D									

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	1216	553	33	2350	75	441	304	70	57	200	282
Future Volume (vph)	202	1216	553	33	2350	75	441	304	70	57	200	282
Lane Group Flow (vph)	208	1254	570	34	2423	77	455	313	72	59	206	291
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2		2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	15.0	28.5	28.5	15.0	30.5	30.5	15.0	47.5	47.5	15.0	54.5	54.5
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	26.5	60.5	60.5	20.5	54.5	54.5
Total Split (%)	10.0%	36.0%	36.0%	10.0%	36.0%	36.0%	17.7%	40.3%	40.3%	13.7%	36.3%	36.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	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	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	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	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.56	0.51	0.59	0.15	1.23	0.11	0.98	0.67	0.16	0.25	0.72	0.80
Control Delay	24.9	20.4	20.1	26.5	158.3	11.2	99.6	58.6	3.6	36.3	73.3	46.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	20.4	20.1	26.5	158.3	11.2	99.6	58.6	3.6	36.3	73.3	46.1
Queue Length 50th (ft)	112	397	428	21	~1011	0	231	287	0	40	196	145
Queue Length 95th (ft)	191	485	615	m27	m#958	m1	#345	369	20	68	264	238
Internal Link Dist (ft)		2942			1319			1090			834	
Turn Bay Length (ft)	255		120	240		115	105		160	80		
Base Capacity (vph)	369	2474	966	265	1968	698	466	683	631	313	614	614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.51	0.59	0.13	1.23	0.11	0.98	0.46	0.11	0.19	0.34	0.47

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: 145

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

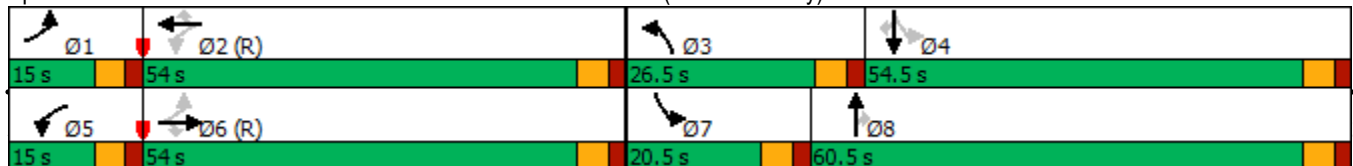
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection, Sunday 2:08 PM (Full Build-Out) - System & Site Improvements 14: Stonewall Tell Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Traffic Volume (veh/h)	202	1216	553	33	2350	75	441	304	70	57	200	282
Future Volume (veh/h)	202	1216	553	33	2350	75	441	304	70	57	200	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1737	1885	1900	1900	1900	1826	1870	1841	1900	1885	1870
Adj Flow Rate, veh/h	208	1254	570	34	2423	77	455	313	0	59	206	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	11	1	0	0	0	5	2	4	0	1	2
Cap, veh/h	174	2657	895	198	2709	841	472	429		198	241	
Arrive On Green	0.06	0.56	0.56	0.03	0.52	0.52	0.14	0.23	0.00	0.04	0.13	0.00
Sat Flow, veh/h	1781	4742	1598	1810	5187	1610	3374	1870	1560	1810	1885	1585
Grp Volume(v), veh/h	208	1254	570	34	2423	77	455	313	0	59	206	0
Grp Sat Flow(s),veh/h/ln	1781	1581	1598	1810	1729	1610	1687	1870	1560	1810	1885	1585
Q Serve(g_s), s	9.5	23.7	36.6	1.3	62.8	3.6	20.1	23.2	0.0	4.2	16.1	0.0
Cycle Q Clear(g_c), s	9.5	23.7	36.6	1.3	62.8	3.6	20.1	23.2	0.0	4.2	16.1	0.0
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	174	2657	895	198	2709	841	472	429		198	241	
V/C Ratio(X)	1.19	0.47	0.64	0.17	0.89	0.09	0.96	0.73		0.30	0.86	
Avail Cap(c_a), veh/h	174	2657	895	267	2709	841	472	686		310	616	
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	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.7	19.7	22.5	16.9	32.1	18.0	64.1	53.5	0.0	54.2	64.1	0.0
Incr Delay (d2), s/veh	129.4	0.6	3.4	0.4	5.1	0.2	32.1	2.4	0.0	0.8	8.5	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	19.7	13.0	20.3	1.0	33.6	2.5	16.0	16.6	0.0	3.5	12.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	176.2	20.3	26.0	17.3	37.2	18.2	96.2	55.9	0.0	55.0	72.6	0.0
LnGrp LOS	F	C	C	B	D	B	F	E		D	E	
Approach Vol, veh/h		2032			2534			768			265	
Approach Delay, s/veh		37.9			36.3			79.8			68.7	
Approach LOS		D			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	83.9	26.5	24.6	9.3	89.6	11.2	39.9				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	9.5	48.5	21.0	49.0	9.5	48.5	15.0	55.0				
Max Q Clear Time (g_c+I1), s	11.5	64.8	22.1	18.1	3.3	38.6	6.2	25.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.1	0.0	8.6	0.1	1.8				

Intersection Summary

HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)

08/31/2023

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	89	1068	202	134	2262	53	65	95	135	195	81
Future Volume (vph)	89	1068	202	134	2262	53	65	95	135	195	81
Lane Group Flow (vph)	95	1136	215	143	2406	56	0	170	144	207	214
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			8			4
Permitted Phases	6		6	2		2	8		8	4	
Detector Phase	1	6	6	5	2	2	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	30.5	30.5	15.0	32.5	32.5	58.5	58.5	58.5	57.5	57.5
Total Split (s)	15.0	75.5	75.5	16.0	76.5	76.5	58.5	58.5	58.5	58.5	58.5
Total Split (%)	10.0%	50.3%	50.3%	10.7%	51.0%	51.0%	39.0%	39.0%	39.0%	39.0%	39.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	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	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.63	0.62	0.23	0.54	1.18	0.07		0.64	0.30	0.93	0.46
Control Delay	65.7	20.1	6.8	18.2	115.4	4.7		59.5	12.0	97.3	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	65.7	20.1	6.8	18.2	115.4	4.7		59.5	12.0	97.3	36.4
Queue Length 50th (ft)	70	98	4	47	~1484	0		149	23	199	132
Queue Length 95th (ft)	140	331	84	97	#1797	24		208	72	278	189
Internal Link Dist (ft)		3114			3635			857			1252
Turn Bay Length (ft)	250		120	240		130			65	150	
Base Capacity (vph)	163	1837	951	276	2043	776		377	632	316	628
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.58	0.62	0.23	0.52	1.18	0.07		0.45	0.23	0.66	0.34

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: 150

Control Type: Actuated-Coordinated

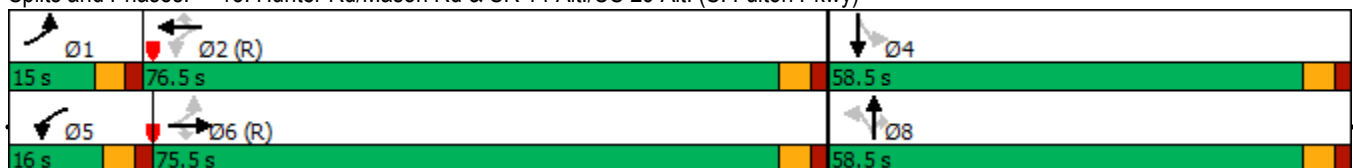
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy)



HCM 6th Signalized Intersection, Southbound 2018 PM (Full Build-Out) - System & Site Improvements
 15: Hunter Rd/Mason Rd & SR 14 Alt./US 29 Alt. (S. Fulton Pkwy) 08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1068	202	134	2262	53	65	95	135	195	81	120
Future Volume (veh/h)	89	1068	202	134	2262	53	65	95	135	195	81	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1722	1885	1648	1870	1544	1841	1707	1870	1678	1900	1826
Adj Flow Rate, veh/h	95	1136	0	143	2406	0	69	101	0	207	86	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, %	8	12	1	17	2	24	4	13	2	15	0	5
Cap, veh/h	116	1977		296	2178		153	207		275	451	
Arrive On Green	0.04	0.60	0.00	0.05	0.61	0.00	0.24	0.24	0.00	0.24	0.24	0.00
Sat Flow, veh/h	1697	3272	1598	1570	3554	1309	501	873	1585	1160	1900	0
Grp Volume(v), veh/h	95	1136	0	143	2406	0	170	0	0	207	86	0
Grp Sat Flow(s),veh/h/ln	1697	1636	1598	1570	1777	1309	1374	0	1585	1160	1900	0
Q Serve(g_s), s	4.0	31.6	0.0	5.2	91.9	0.0	12.0	0.0	0.0	15.1	5.4	0.0
Cycle Q Clear(g_c), s	4.0	31.6	0.0	5.2	91.9	0.0	17.4	0.0	0.0	32.5	5.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.41		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	116	1977		296	2178		360	0		275	451	
V/C Ratio(X)	0.82	0.57		0.48	1.10		0.47	0.00		0.75	0.19	
Avail Cap(c_a), veh/h	155	1977		330	2178		529	0		409	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	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.1	18.0	0.0	14.9	29.0	0.0	50.7	0.0	0.0	57.8	45.7	0.0
Incr Delay (d2), s/veh	21.9	1.2	0.0	1.2	54.6	0.0	1.0	0.0	0.0	4.3	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	7.6	16.7	0.0	3.1	67.8	0.0	9.5	0.0	0.0	12.5	4.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.0	19.2	0.0	16.1	83.6	0.0	51.7	0.0	0.0	62.1	45.9	0.0
LnGrp LOS	E	B		B	F		D	A		E	D	
Approach Vol, veh/h		1231			2549			170			293	
Approach Delay, s/veh		22.8			79.8			51.7			57.4	
Approach LOS		C			E			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	97.4		41.1	12.8	96.1		41.1				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	71.0		53.0	10.5	70.0		53.0				
Max Q Clear Time (g_c+I1), s	6.0	93.9		34.5	7.2	33.6		19.4				
Green Ext Time (p_c), s	0.1	0.0		1.1	0.1	17.3		0.9				

Intersection Summary

HCM 6th Ctrl Delay	60.6
HCM 6th LOS	E

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	109	672	835	2068	213
Future Volume (vph)	66	109	672	835	2068	213
Lane Group Flow (vph)	69	115	707	879	2177	224
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases		3				2
Detector Phase	3	3	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	28.5	28.5	28.5
Total Split (s)	15.0	15.0	21.0	75.0	54.0	54.0
Total Split (%)	16.7%	16.7%	23.3%	83.3%	60.0%	60.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.44	0.46	1.13	0.31	1.15	0.24
Control Delay	47.1	14.2	111.9	3.2	88.8	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	14.2	111.9	3.2	88.8	1.8
Queue Length 50th (ft)	38	0	~250	59	~768	5
Queue Length 95th (ft)	79	49	#367	81	m330	m0
Internal Link Dist (ft)	412			1462	1418	
Turn Bay Length (ft)		170	395			
Base Capacity (vph)	183	269	628	2811	1888	939
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.43	1.13	0.31	1.15	0.24

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

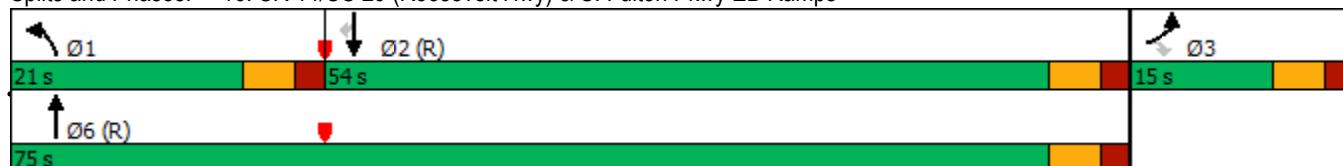
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection, Sunday 2:08 PM (Full Build-Out) - System & Site Improvements 16: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy EB Ramps

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	109	672	835	2068	213
Future Volume (veh/h)	66	109	672	835	2068	213
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1870	1841	1885	1856	1870
Adj Flow Rate, veh/h	69	0	707	879	2177	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	4	1	3	2
Cap, veh/h	89		586	2963	2094	
Arrive On Green	0.05	0.00	0.17	0.83	0.59	0.00
Sat Flow, veh/h	1753	1585	3401	3676	3618	1585
Grp Volume(v), veh/h	69	0	707	879	2177	0
Grp Sat Flow(s),veh/h/ln	1753	1585	1700	1791	1763	1585
Q Serve(g_s), s	3.5	0.0	15.5	5.1	53.4	0.0
Cycle Q Clear(g_c), s	3.5	0.0	15.5	5.1	53.4	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	89		586	2963	2094	
V/C Ratio(X)	0.78		1.21	0.30	1.04	
Avail Cap(c_a), veh/h	185		586	2963	2094	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.09	0.00
Uniform Delay (d), s/veh	42.2	0.0	37.3	1.8	18.3	0.0
Incr Delay (d2), s/veh	13.5	0.0	108.6	0.3	19.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	0.0	23.1	1.0	26.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.8	0.0	145.8	2.0	38.0	0.0
LnGrp LOS	E		F	A	F	
Approach Vol, veh/h	69			1586	2177	
Approach Delay, s/veh	55.8			66.1	38.0	
Approach LOS	E			E	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	58.9			79.9	10.1
Change Period (Y+Rc), s	5.5	5.5			5.5	5.5
Max Green Setting (Gmax), s	15.5	48.5			69.5	9.5
Max Q Clear Time (g_c+I1), s	17.5	55.4			7.1	5.5
Green Ext Time (p_c), s	0.0	0.0			14.9	0.0

Intersection Summary

HCM 6th Ctrl Delay	50.0
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings 5d. Build 2038 PM (Full Build-Out) - System & Site Improvements
 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps 08/31/2023



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	85	1167	65	824	1115
Future Volume (vph)	85	1167	65	824	1115
Lane Group Flow (vph)	90	1241	69	877	1405
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	3			6	2
Permitted Phases		3	6		
Detector Phase	3	3	6	6	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	28.5	28.5	28.5
Total Split (s)	53.0	53.0	37.0	37.0	37.0
Total Split (%)	58.9%	58.9%	41.1%	41.1%	41.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.10	1.52	0.82	0.70	1.14
Control Delay	11.0	263.2	87.4	25.9	101.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	263.2	87.4	25.9	101.0
Queue Length 50th (ft)	24	~1004	36	229	~492
Queue Length 95th (ft)	48	#1256	#119	298	#627
Internal Link Dist (ft)	922			1418	417
Turn Bay Length (ft)		200			
Base Capacity (vph)	916	816	84	1250	1235
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	1.52	0.82	0.70	1.14

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 140

Control Type: Actuated-Coordinated

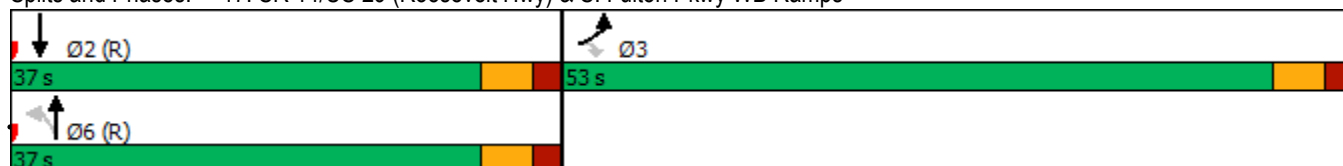
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection. Sunday 2:08 PM (Full Build-Out) - System & Site Improvements

17: SR 14/US 29 (Roosevelt Hwy) & S. Fulton Pkwy WB Ramps

08/31/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	1167	65	824	1115	206
Future Volume (veh/h)	85	1167	65	824	1115	206
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1826	1900	1885	1885	1856
Adj Flow Rate, veh/h	90	0	69	877	1186	219
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	5	0	1	1	3
Cap, veh/h	118		347	2902	2449	449
Arrive On Green	0.07	0.00	0.81	0.81	0.81	0.81
Sat Flow, veh/h	1753	1547	389	3676	3116	555
Grp Volume(v), veh/h	90	0	69	877	700	705
Grp Sat Flow(s),veh/h/ln	1753	1547	389	1791	1791	1785
Q Serve(g_s), s	4.5	0.0	6.1	5.5	11.0	11.1
Cycle Q Clear(g_c), s	4.5	0.0	17.2	5.5	11.0	11.1
Prop In Lane	1.00	1.00	1.00			0.31
Lane Grp Cap(c), veh/h	118		347	2902	1451	1447
V/C Ratio(X)	0.76		0.20	0.30	0.48	0.49
Avail Cap(c_a), veh/h	925		347	2902	1451	1447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.96	0.96	1.00	1.00
Uniform Delay (d), s/veh	41.3	0.0	5.4	2.1	2.7	2.7
Incr Delay (d2), s/veh	9.6	0.0	1.2	0.3	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	0.9	1.4	3.2	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.9	0.0	6.6	2.4	3.8	3.9
LnGrp LOS	D		A	A	A	A
Approach Vol, veh/h	90			946	1405	
Approach Delay, s/veh	50.9			2.7	3.8	
Approach LOS	D			A	A	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	78.4		78.4		11.6	
Change Period (Y+Rc), s	5.5		5.5		5.5	
Max Green Setting (Gmax), s	31.5		31.5		47.5	
Max Q Clear Time (g_c+I1), s	13.1		19.2		6.5	
Green Ext Time (p_c), s	13.8		7.7		0.2	

Intersection Summary

HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	84	10	1	83
Future Vol, veh/h	8	0	84	10	1	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	91	11	1	90
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	183	91	0	0	102	0
Stage 1	91	-	-	-	-	-
Stage 2	92	-	-	-	-	-
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	806	967	-	-	1490	-
Stage 1	933	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	805	967	-	-	1490	-
Mov Cap-2 Maneuver	805	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.5	0		0.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	805	1490	-	
HCM Lane V/C Ratio	-	-	0.011	0.001	-	
HCM Control Delay (s)	-	-	9.5	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection

Int Delay, s/veh 5

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 11 130 81 83 84 7

Future Vol, veh/h 11 130 81 83 84 7

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length - - - - - -

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 12 141 88 90 91 8

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 361 95 99 0 - 0

Stage 1 95 - - - - -

Stage 2 266 - - - - -

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 638 962 1494 - - -

Stage 1 929 - - - - -

Stage 2 779 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 598 962 1494 - - -

Mov Cap-2 Maneuver 598 - - - - -

Stage 1 871 - - - - -

Stage 2 779 - - - - -

Approach EB NB SB

HCM Control Delay, s 9.7 3.7 0

HCM LOS A

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1494 - 918 - -

HCM Lane V/C Ratio 0.059 - 0.167 - -

HCM Control Delay (s) 7.6 0 9.7 - -

HCM Lane LOS A A A - -

HCM 95th %tile Q(veh) 0.2 - 0.6 - -

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	1	163	29	1	213
Future Vol, veh/h	23	1	163	29	1	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	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	25	1	177	32	1	232

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	411	177	0
Stage 1	177	-	-
Stage 2	234	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	597	866	-
Stage 1	854	-	-
Stage 2	805	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	596	866	-
Mov Cap-2 Maneuver	596	-	-
Stage 1	854	-	-
Stage 2	804	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	604	1362
HCM Lane V/C Ratio	-	-	0.043	0.001
HCM Control Delay (s)	-	-	11.2	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection

Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	1	191	58	1	234
Future Vol, veh/h	45	1	191	58	1	234
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	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	49	1	208	63	1	254

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	464	208	0
Stage 1	208	-	-
Stage 2	256	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	556	832	-
Stage 1	827	-	-
Stage 2	787	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	555	832	-
Mov Cap-2 Maneuver	555	-	-
Stage 1	827	-	-
Stage 2	786	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	559	1292
HCM Lane V/C Ratio	-	-	0.089	0.001
HCM Control Delay (s)	-	-	12.1	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection

Int Delay, s/veh 0.1

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 0 15 0 1584 1147 37

Future Vol, veh/h 0 15 0 1584 1147 37

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 - - - -

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 16 0 1722 1247 40

Major/Minor Minor2 Major1 Major2

Conflicting Flow All - 624 - 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 0 428 0 - - 0

Stage 1 0 - 0 - - 0

Stage 2 0 - 0 - - 0

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver - 428 - - - -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach EB NB SB

HCM Control Delay, s 13.7 0 0

HCM LOS B

Minor Lane/Major Mvmt NBT EBLn1 SBT

Capacity (veh/h) - 428 -

HCM Lane V/C Ratio - 0.038 -

HCM Control Delay (s) - 13.7 -

HCM Lane LOS - B -

HCM 95th %tile Q(veh) - 0.1 -

Intersection												
Int Delay, s/veh	43.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↕↕		↕	↕↕	
Traffic Vol, veh/h	58	3	12	15	3	61	9	1467	12	36	1092	34
Future Vol, veh/h	58	3	12	15	3	61	9	1467	12	36	1092	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	50	-	-	50	-	-
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	63	3	13	16	3	66	10	1595	13	39	1187	37
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2103	2912	612	2295	2924	804	1224	0	0	1608	0	0
Stage 1	1284	1284	-	1622	1622	-	-	-	-	-	-	-
Stage 2	819	1628	-	673	1302	-	-	-	-	-	-	-
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	~ 29	15	436	21	15	326	565	-	-	402	-	-
Stage 1	174	234	-	107	160	-	-	-	-	-	-	-
Stage 2	336	159	-	411	229	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 17	13	436	~ 15	13	326	565	-	-	402	-	-
Mov Cap-2 Maneuver	~ 17	13	-	~ 15	13	-	-	-	-	-	-	-
Stage 1	171	211	-	105	157	-	-	-	-	-	-	-
Stage 2	257	156	-	354	207	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1474.9		172.9		0.1		0.5					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	565	-	-	17	436	15	326	402	-	-		
HCM Lane V/C Ratio	0.017	-	-	3.9	0.03	1.304	0.203	0.097	-	-		
HCM Control Delay (s)	11.5	-	-	\$ 1762.4	13.5	\$ 695	18.8	14.9	-	-		
HCM Lane LOS	B	-	-	F	B	F	C	B	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	8.9	0.1	3	0.7	0.3	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	227	3	26	3	22	1094	100	921	98
Future Volume (vph)	227	3	26	3	22	1094	100	921	98
Lane Group Flow (vph)	247	28	28	187	24	1215	109	1001	107
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4		8		6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	15.0	28.5	28.5
Total Split (s)	46.0	46.0	46.0	46.0	59.0	59.0	15.0	74.0	74.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	49.2%	49.2%	12.5%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lag	Lag	Lead		
Lead-Lag Optimize?					Yes	Yes			
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.91	0.06	0.08	0.34	0.09	0.65	0.43	0.44	0.10
Control Delay	78.8	11.6	30.1	6.0	18.3	21.8	18.3	23.7	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	11.6	30.1	6.0	18.3	21.8	18.3	23.7	9.5
Queue Length 50th (ft)	184	2	16	2	8	286	59	370	35
Queue Length 95th (ft)	#288	23	37	52	m18	426	m89	m415	m59
Internal Link Dist (ft)		352		361		553		242	
Turn Bay Length (ft)	150		150		100		100		150
Base Capacity (vph)	342	560	464	657	281	1866	273	2273	1052
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.05	0.06	0.28	0.09	0.65	0.40	0.44	0.10

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

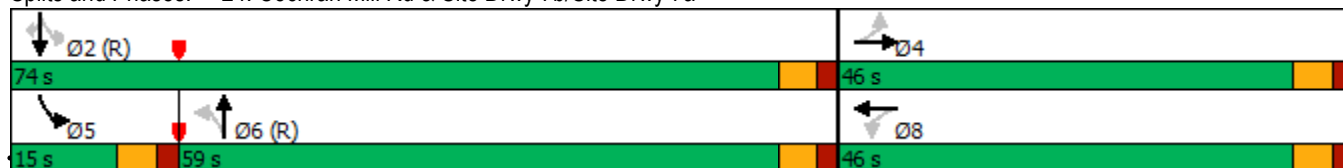
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a



HCM 6th Signalized Intersection, Southbound 24th St (Full Build-Out) - System & Site Improvements

24: Cochran Mill Rd & Site Drwy 7b/Site Drwy 7a

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	227	3	23	26	3	169	22	1094	24	100	921	98
Future Volume (veh/h)	227	3	23	26	3	169	22	1094	24	100	921	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	247	3	25	28	3	184	24	1189	26	109	1001	107
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	325	54	451	476	8	490	316	1792	39	372	2114	943
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	1.00	1.00	1.00	0.09	1.00	1.00
Sat Flow, veh/h	1196	173	1439	1382	25	1563	509	3555	78	1781	3554	1585
Grp Volume(v), veh/h	247	0	28	28	0	187	24	594	621	109	1001	107
Grp Sat Flow(s),veh/h/ln	1196	0	1611	1382	0	1589	509	1777	1856	1781	1777	1585
Q Serve(g_s), s	24.3	0.0	1.5	1.7	0.0	11.0	0.0	0.0	0.0	3.5	0.0	0.0
Cycle Q Clear(g_c), s	35.3	0.0	1.5	3.2	0.0	11.0	0.0	0.0	0.0	3.5	0.0	0.0
Prop In Lane	1.00		0.89	1.00		0.98	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	325	0	505	476	0	498	316	896	936	372	2114	943
V/C Ratio(X)	0.76	0.00	0.06	0.06	0.00	0.38	0.08	0.66	0.66	0.29	0.47	0.11
Avail Cap(c_a), veh/h	354	0	544	510	0	536	316	896	936	433	2114	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	0.0	28.8	29.9	0.0	32.1	0.0	0.0	0.0	11.5	0.0	0.0
Incr Delay (d2), s/veh	8.5	0.0	0.0	0.1	0.0	0.5	0.5	3.9	3.7	0.4	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.7	0.0	1.0	1.1	0.0	7.8	0.1	1.7	1.7	2.2	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	0.0	28.8	29.9	0.0	32.5	0.5	3.9	3.7	12.0	0.8	0.2
LnGrp LOS	D	A	C	C	A	C	A	A	A	B	A	A
Approach Vol, veh/h	275			215			1239			1217		
Approach Delay, s/veh	51.7			32.2			3.7			1.7		
Approach LOS	D			C			A			A		
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	76.9			43.1		10.9	66.0	43.1				
Change Period (Y+Rc), s	5.5			5.5		5.5	5.5	5.5				
Max Green Setting (Gmax), s	68.5			40.5		9.5	53.5	40.5				
Max Q Clear Time (g_c+I1), s	2.0			37.3		5.5	2.0	13.0				
Green Ext Time (p_c), s	20.3			0.3		0.1	22.7	1.3				
Intersection Summary												
HCM 6th Ctrl Delay	9.4											
HCM 6th LOS	A											

Intersection												
Int Delay, s/veh	10.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕↖		↖	↕↗	
Traffic Vol, veh/h	54	3	10	13	3	59	6	1029	11	35	903	32
Future Vol, veh/h	54	3	10	13	3	59	6	1029	11	35	903	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	150	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	3	11	14	3	64	7	1118	12	38	982	35
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1651	2220	509	1707	2231	565	1017	0	0	1130	0	0
Stage 1	1076	1076	-	1138	1138	-	-	-	-	-	-	-
Stage 2	575	1144	-	569	1093	-	-	-	-	-	-	-
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	65	43	509	59	42	468	678	-	-	614	-	-
Stage 1	234	294	-	214	275	-	-	-	-	-	-	-
Stage 2	470	273	-	474	288	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 50	40	509	51	39	468	678	-	-	614	-	-
Mov Cap-2 Maneuver	~ 50	40	-	51	39	-	-	-	-	-	-	-
Stage 1	232	276	-	212	272	-	-	-	-	-	-	-
Stage 2	397	270	-	430	270	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$ 300.3			36		0.1		0.4					
HCM LOS	F		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	678	-	-	49	509	48	468	614	-	-		
HCM Lane V/C Ratio	0.01	-	-	1.264	0.021	0.362	0.137	0.062	-	-		
HCM Control Delay (s)	10.4	-	-	\$ 350.9	12.2	117.7	13.9	11.2	-	-		
HCM Lane LOS	B	-	-	F	B	F	B	B	-	-		
HCM 95th %tile Q(veh)	0	-	-	5.7	0.1	1.3	0.5	0.2	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a

08/31/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	162	3	34	3	22	718	99	732	96
Future Volume (vph)	162	3	34	3	22	718	99	732	96
Lane Group Flow (vph)	176	44	37	185	24	805	108	796	104
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		6		2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	31.5	31.5	30.5	30.5	28.5	28.5	28.5	28.5	28.5
Total Split (s)	40.0	40.0	40.0	40.0	80.0	80.0	80.0	80.0	80.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.89	0.12	0.13	0.39	0.06	0.62	0.32	0.32	0.09
Control Delay	86.5	11.6	36.2	7.6	4.1	6.0	3.7	1.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	11.6	36.2	7.6	4.1	6.0	3.7	1.4	0.2
Queue Length 50th (ft)	133	2	23	2	2	74	4	14	1
Queue Length 95th (ft)	205	30	49	56	m6	148	8	21	0
Internal Link Dist (ft)		425		370		140		453	
Turn Bay Length (ft)	150		150		50		50		150
Base Capacity (vph)	270	489	389	585	427	1295	336	2472	1137
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.09	0.10	0.32	0.06	0.62	0.32	0.32	0.09

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

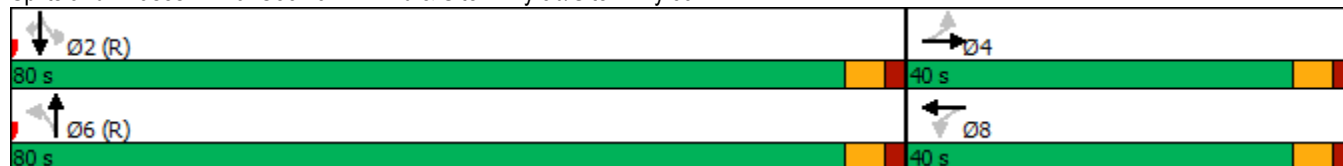
Offset: 20 (17%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Splits and Phases: 26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a



HCM 6th Signalized Intersection, Southbound 2038 PM (Full Build-Out) - System & Site Improvements 26: Cochran Mill Rd & Site Drwy 9b/Site Drwy 9a

08/31/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	3	38	34	3	167	22	718	23	99	732	96
Future Volume (veh/h)	162	3	38	34	3	167	22	718	23	99	732	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	176	3	41	37	3	182	24	780	25	108	796	104
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	255	28	389	386	7	407	461	1168	37	317	2302	1027
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.65	0.65	0.65	1.00	1.00	1.00
Sat Flow, veh/h	1199	109	1493	1362	26	1563	619	1802	58	677	3554	1585
Grp Volume(v), veh/h	176	0	44	37	0	185	24	0	805	108	796	104
Grp Sat Flow(s),veh/h/ln	1199	0	1602	1362	0	1589	619	0	1860	677	1777	1585
Q Serve(g_s), s	17.3	0.0	2.5	2.5	0.0	11.7	1.7	0.0	32.2	10.5	0.0	0.0
Cycle Q Clear(g_c), s	29.0	0.0	2.5	5.1	0.0	11.7	1.7	0.0	32.2	42.8	0.0	0.0
Prop In Lane	1.00		0.93	1.00		0.98	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	255	0	417	386	0	414	461	0	1205	317	2302	1027
V/C Ratio(X)	0.69	0.00	0.11	0.10	0.00	0.45	0.05	0.00	0.67	0.34	0.35	0.10
Avail Cap(c_a), veh/h	288	0	460	423	0	457	461	0	1205	317	2302	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	0.0	33.7	35.7	0.0	37.1	7.7	0.0	13.1	8.9	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.0	0.1	0.1	0.0	0.8	0.2	0.0	2.9	2.9	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.5	0.0	1.8	1.6	0.0	8.2	0.4	0.0	18.4	2.6	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	0.0	33.9	35.8	0.0	37.9	8.0	0.0	16.1	11.8	0.4	0.2
LnGrp LOS	E	A	C	D	A	D	A	A	B	B	A	A
Approach Vol, veh/h		220			222			829			1008	
Approach Delay, s/veh		50.9			37.5			15.8			1.6	
Approach LOS		D			D			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.2		36.8		83.2		36.8				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		74.5		34.5		74.5		34.5				
Max Q Clear Time (g_c+I1), s		44.8		31.0		34.2		13.7				
Green Ext Time (p_c), s		13.4		0.3		14.1		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	22	3	10	10	3	22	6	719	6	13	778	13
Future Vol, veh/h	22	3	10	10	3	22	6	719	6	13	778	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	3	11	11	3	24	7	782	7	14	846	14

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1694	1684	853	1688	1688	786	860	0	0	789	0	0
Stage 1	881	881	-	800	800	-	-	-	-	-	-	-
Stage 2	813	803	-	888	888	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	73	94	359	74	94	392	781	-	-	831	-	-
Stage 1	341	365	-	379	397	-	-	-	-	-	-	-
Stage 2	372	396	-	338	362	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	65	92	359	68	92	392	781	-	-	831	-	-
Mov Cap-2 Maneuver	65	92	-	68	92	-	-	-	-	-	-	-
Stage 1	338	359	-	376	393	-	-	-	-	-	-	-
Stage 2	343	392	-	319	356	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	74	37.5	0.1	0.2
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	781	-	-	88	148	831	-
HCM Lane V/C Ratio	0.008	-	-	0.432	0.257	0.017	-
HCM Control Delay (s)	9.6	-	-	74	37.5	9.4	-
HCM Lane LOS	A	-	-	F	E	A	-
HCM 95th %tile Q(veh)	0	-	-	1.8	1	0.1	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	547	557	4	7	20
Future Vol, veh/h	12	547	557	4	7	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	595	605	4	8	22
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	609	0	-	0	1228	607
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	621	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	970	-	-	-	197	496
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	536	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	970	-	-	-	193	496
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	536	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		16.1		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	970	-	-	-	353	
HCM Lane V/C Ratio	0.013	-	-	-	0.083	
HCM Control Delay (s)	8.8	0	-	-	16.1	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

Timings 5d. Build 2038 PM (Full Build-Out) - System & Site Improvements
 29: SR 92 & S. Fulton Pkwy EB Ramps 08/31/2023



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↖	↖↖	↗↗	↖	↖↖	↗↗
Traffic Volume (vph)	401	331	1441	52	594	1091
Future Volume (vph)	401	331	1441	52	594	1091
Lane Group Flow (vph)	436	360	1566	57	646	1186
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	7		6		5	2
Permitted Phases		4		6		
Detector Phase	7	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	31.5	28.5	28.5	15.0	28.5
Total Split (s)	31.5	31.5	46.5	46.5	22.0	68.5
Total Split (%)	31.5%	31.5%	46.5%	46.5%	22.0%	68.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.71	0.57	1.08	0.08	0.77	0.47
Control Delay	45.0	24.0	78.2	2.0	52.1	2.5
Queue Delay	0.0	0.0	8.6	0.0	0.0	0.2
Total Delay	45.0	24.0	86.7	2.0	52.1	2.7
Queue Length 50th (ft)	136	65	~590	0	230	53
Queue Length 95th (ft)	177	110	#726	12	m196	m46
Internal Link Dist (ft)			1460			420
Turn Bay Length (ft)	100	100		100	175	
Base Capacity (vph)	892	840	1450	700	843	2515
Starvation Cap Reductn	0	0	0	0	0	518
Spillback Cap Reductn	0	0	100	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.43	1.16	0.08	0.77	0.59

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: SR 92 & S. Fulton Pkwy EB Ramps



HCM 6th Signalized Intersection, Southbound 298 PM (Full Build-Out) - System & Site Improvements 29: SR 92 & S. Fulton Pkwy EB Ramps

08/31/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱		↰↱					↰↱	↰	↰↱	↰↱	
Traffic Volume (veh/h)	401	0	331	0	0	0	0	1441	52	594	1091	0
Future Volume (veh/h)	401	0	331	0	0	0	0	1441	52	594	1091	0
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
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	0	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	436	0	0				0	1566	0	646	1186	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				0	2	2	2	2	0
Cap, veh/h	535	0					0	1831		570	2613	0
Arrive On Green	0.15	0.00	0.00				0.00	0.52	0.00	0.33	1.00	0.00
Sat Flow, veh/h	3456	0	2790				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	436	0	0				0	1566	0	646	1186	0
Grp Sat Flow(s),veh/h/ln	1728	0	1395				0	1777	1585	1728	1777	0
Q Serve(g_s), s	12.2	0.0	0.0				0.0	38.2	0.0	16.5	0.0	0.0
Cycle Q Clear(g_c), s	12.2	0.0	0.0				0.0	38.2	0.0	16.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	535	0					0	1831		570	2613	0
V/C Ratio(X)	0.82	0.00					0.00	0.86		1.13	0.45	0.00
Avail Cap(c_a), veh/h	898	0					0	1831		570	2613	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	40.9	0.0	0.0				0.0	21.0	0.0	33.5	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0				0.0	5.4	0.0	62.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.2	0.0	0.0				0.0	20.9	0.0	12.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	0.0	0.0				0.0	26.4	0.0	95.7	0.1	0.0
LnGrp LOS	D	A					A	C		F	A	A
Approach Vol, veh/h	436						1566			1832		
Approach Delay, s/veh	44.0						26.4			33.8		
Approach LOS	D						C			C		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	79.0			21.0			22.0			57.0		
Change Period (Y+Rc), s	5.5			5.5			5.5			5.5		
Max Green Setting (Gmax), s	63.0			26.0			16.5			41.0		
Max Q Clear Time (g_c+I1), s	2.0			14.2			18.5			40.2		
Green Ext Time (p_c), s	22.5			1.3			0.0			0.8		

Intersection Summary

HCM 6th Ctrl Delay	31.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Timings

5d. Build 2038 PM (Full Build-Out) - System & Site Improvements

30: SR 92 & S. Fulton Pkwy WB Ramps

08/31/2023



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	251	913	231	1611	1434	242
Future Volume (vph)	251	913	231	1611	1434	242
Lane Group Flow (vph)	273	992	251	1751	1559	263
Turn Type	pm+pt	Perm	Prot	NA	NA	Perm
Protected Phases	3		1	6	2	
Permitted Phases	8	8				2
Detector Phase	3	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	5.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	30.5	15.0	28.5	28.5	28.5
Total Split (s)	45.0	45.0	15.0	55.0	40.0	40.0
Total Split (%)	45.0%	45.0%	15.0%	55.0%	40.0%	40.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.39	1.47	0.77	1.00	1.28	0.39
Control Delay	23.7	242.7	61.1	35.0	161.4	9.0
Queue Delay	0.0	0.0	0.0	14.4	0.0	0.0
Total Delay	23.7	242.7	61.1	49.4	161.4	9.0
Queue Length 50th (ft)	122	~843	89	~295	~665	30
Queue Length 95th (ft)	191	#1090	m93	m284	#803	91
Internal Link Dist (ft)				420	535	
Turn Bay Length (ft)		250	100			250
Base Capacity (vph)	699	677	326	1751	1221	673
Starvation Cap Reductn	0	0	0	76	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	1.47	0.77	1.05	1.28	0.39

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

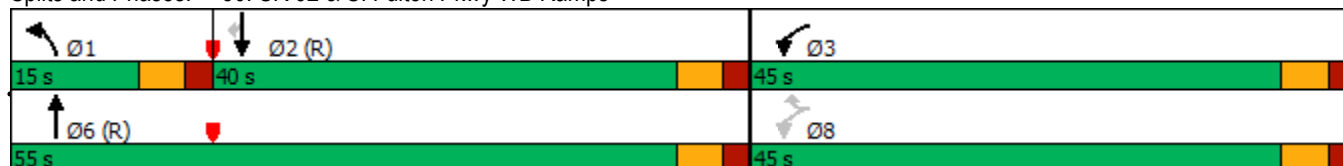
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 30: SR 92 & S. Fulton Pkwy WB Ramps



HCM 6th Signalized Intersection Analysis - 5:00 PM (Full Build-Out) - System & Site Improvements

30: SR 92 & S. Fulton Pkwy WB Ramps

08/31/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰		↱	↰↱	↰↱			↰↱	↰
Traffic Volume (veh/h)	0	0	0	251	0	913	231	1611	0	0	1434	242
Future Volume (veh/h)	0	0	0	251	0	913	231	1611	0	0	1434	242
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
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				273	0	0	251	1751	0	0	1559	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	2	2	0	0	2	2
Cap, veh/h				315	0		311	2535	0	0	2019	
Arrive On Green				0.18	0.00	0.00	0.18	1.00	0.00	0.00	0.57	0.00
Sat Flow, veh/h				1781	0	1585	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				273	0	0	251	1751	0	0	1559	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1585
Q Serve(g_s), s				14.9	0.0	0.0	7.0	0.0	0.0	0.0	33.7	0.0
Cycle Q Clear(g_c), s				14.9	0.0	0.0	7.0	0.0	0.0	0.0	33.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				315	0		311	2535	0	0	2019	
V/C Ratio(X)				0.87	0.00		0.81	0.69	0.00	0.00	0.77	
Avail Cap(c_a), veh/h				704	0		328	2535	0	0	2019	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	0.00	0.09	0.09	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				40.0	0.0	0.0	40.2	0.0	0.0	0.0	16.6	0.0
Incr Delay (d2), s/veh				7.2	0.0	0.0	1.3	0.1	0.0	0.0	2.9	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				11.4	0.0	0.0	3.4	0.1	0.0	0.0	17.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				47.2	0.0	0.0	41.5	0.1	0.0	0.0	19.5	0.0
LnGrp LOS				D	A		D	A	A	A	B	
Approach Vol, veh/h					273			2002			1559	
Approach Delay, s/veh					47.2			5.3			19.5	
Approach LOS					D			A			B	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	14.5	62.3				76.8		23.2				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	34.5				49.5		39.5				
Max Q Clear Time (g_c+I1), s	9.0	35.7				2.0		16.9				
Green Ext Time (p_c), s	0.0	0.0				34.4		0.8				

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Traffic Volume Worksheets

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

1. Collinsworth @ I-85 NB Ramp

A.M. Peak Hour

Condition	I-85 Northbound Off-Ramp				I-85 Northbound On-Ramp				Collinsworth Road				Collinsworth Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	286	0	351	637	0	0	0	0	351	438	0	789	0	435	632	1067
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	343	0	421	764	0	0	0	0	421	526	0	947	0	522	758	1280
Nearby Merrill Park DRI (#3488) Trips in 2032:	71	0	0	71	0	0	0	0	230	38	0	268	0	28	0	28
No-Build 2038 Volumes:	517	0	547	1064	0	0	0	0	777	722	0	1499	0	707	985	1692
Phase 1 New Trips:	2	0	0	2	0	0	0	0	6	1	0	7	0	0	0	0
Phase 2 New Trips:	45	0	0	45	0	0	0	0	43	5	0	48	0	11	0	11
Total (Phases 1+2) New Trips:	47	0	0	47	0	0	0	0	49	6	0	55	0	11	0	11
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	345	0	421	766	0	0	0	0	427	527	0	954	0	522	758	1280
Future 2038 (Full Build-Out) Traffic Volumes:	564	0	547	1111	0	0	0	0	826	728	0	1554	0	718	985	1703

P.M. Peak Hour

Condition	I-85 Northbound Off-Ramp				I-85 Northbound On-Ramp				Collinsworth Road				Collinsworth Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	240	0	209	449	0	0	0	0	192	806	0	998	0	573	152	725
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	288	0	251	539	0	0	0	0	230	967	0	1197	0	688	182	870
Nearby Merrill Park DRI (#3488) Trips in 2032:	99	0	0	99	0	0	0	0	214	35	0	249	0	40	0	40
No-Build 2038 Volumes:	473	0	326	799	0	0	0	0	513	1292	0	1805	0	934	237	1171
Phase 1 New Trips:	4	0	0	4	0	0	0	0	6	1	0	7	0	1	0	1
Phase 2 New Trips:	31	0	0	31	0	0	0	0	104	13	0	117	0	8	0	8
Total (Phases 1+2) New Trips:	35	0	0	35	0	0	0	0	110	14	0	124	0	9	0	9
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	292	0	251	543	0	0	0	0	236	968	0	1204	0	689	182	871
Future 2038 (Full Build-Out) Traffic Volumes:	508	0	326	834	0	0	0	0	623	1306	0	1929	0	943	237	1180

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

2. Collinsworth @ I-85 SB Ramp

A.M. Peak Hour

Condition	I-85 Southbound On-Ramp				I-85 Southbound Off-Ramp				Collinsworth Road				Collinsworth Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	142	0	161	303	0	677	206	883	195	564	0	759
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	170	0	193	363	0	812	247	1059	234	677	0	911
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	170	170	0	269	96	365	0	100	0	100
No-Build 2038 Volumes:	0	0	0	0	221	0	421	642	0	1325	417	1742	304	980	0	1284
Phase 1 New Trips:	0	0	0	0	0	0	3	3	0	7	3	10	0	2	0	2
Phase 2 New Trips:	0	0	0	0	0	0	90	90	0	48	21	69	0	56	0	56
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	93	93	0	55	24	79	0	58	0	58
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	170	0	196	366	0	819	250	1069	234	679	0	913
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	221	0	514	735	0	1380	441	1821	304	1038	0	1342

P.M. Peak Hour

Condition	I-85 Southbound On-Ramp				I-85 Southbound Off-Ramp				Collinsworth Road				Collinsworth Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	726	0	230	956	0	282	363	645	304	528	0	832
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	871	0	276	1147	0	338	436	774	365	634	0	999
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	236	236	0	250	89	339	0	137	0	137
No-Build 2038 Volumes:	0	0	0	0	1132	0	595	1727	0	689	656	1345	475	961	0	1436
Phase 1 New Trips:	0	0	0	0	0	0	8	8	0	7	3	10	0	5	0	5
Phase 2 New Trips:	0	0	0	0	0	0	62	62	0	117	52	169	0	38	0	38
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	70	70	0	124	55	179	0	43	0	43
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	871	0	284	1155	0	345	439	784	365	639	0	1004
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	1132	0	665	1797	0	813	711	1524	475	1004	0	1479

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

3. Collinsworth @ Weldon Rd

A.M. Peak Hour

Condition	SBS Eastern Drwy				Collinsworth Road				Weldon Road				Collinsworth Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	1	6	7	389	3	7	399	20	322	3	345	30	148	283	461
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	1	7	8	467	4	8	479	24	386	4	414	36	178	340	554
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	365	0	0	365	0	0	0	0	0	0	269	269
No-Build 2038 Volumes:	0	1	9	10	972	5	10	987	31	502	5	538	47	231	711	989
Phase 1 New Trips:	0	0	0	0	10	0	0	10	0	0	0	0	0	0	5	5
Phase 2 New Trips:	0	0	0	0	69	0	0	69	0	0	0	0	0	0	147	147
Total (Phases 1+2) New Trips:	0	0	0	0	79	0	0	79	0	0	0	0	0	0	152	152
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	1	7	8	477	4	8	489	24	386	4	414	36	178	345	559
Future 2038 (Full Build-Out) Traffic Volumes:	0	1	9	10	1051	5	10	1066	31	502	5	538	47	231	863	1141

P.M. Peak Hour

Condition	SBS Eastern Drwy				Collinsworth Road				Weldon Road				Collinsworth Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	5	3	22	30	474	0	8	482	7	264	0	271	9	305	325	639
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	6	4	26	36	569	0	10	579	8	317	0	325	11	366	390	767
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	339	0	0	339	0	0	0	0	0	0	373	373
No-Build 2038 Volumes:	8	5	34	47	1079	0	13	1092	10	412	0	422	14	476	880	1370
Phase 1 New Trips:	0	0	0	0	10	0	0	10	0	0	0	0	0	0	13	13
Phase 2 New Trips:	0	0	0	0	169	0	0	169	0	0	0	0	0	0	100	100
Total (Phases 1+2) New Trips:	0	0	0	0	179	0	0	179	0	0	0	0	0	0	113	113
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	6	4	26	36	579	0	10	589	8	317	0	325	11	366	403	780
Future 2038 (Full Build-Out) Traffic Volumes:	8	5	34	47	1258	0	13	1271	10	412	0	422	14	476	993	1483

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

4. Main St @ Toombs St

A.M. Peak Hour

Condition	SR 14/US 29 (Main Street)				SR 14/US 29 (Main Street)				Toombs Street				Toombs Street			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	5	329	8	342	24	286	6	316	25	66	8	99	7	38	22	67
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	6	395	10	411	29	343	7	379	30	79	10	119	8	46	26	80
Nearby Merrill Park DRI (#3488) Trips in 2032:	30	12	0	42	110	18	85	213	115	255	40	410	0	188	81	269
No-Build 2038 Volumes:	38	526	13	577	148	464	94	706	154	358	53	565	10	248	115	373
Phase 1 New Trips:	1	0	0	1	0	0	0	0	0	10	2	12	0	5	0	5
Phase 2 New Trips:	23	0	0	23	0	0	0	0	0	69	11	80	0	147	0	147
Total (Phases 1+2) New Trips:	24	0	0	24	0	0	0	0	0	79	13	92	0	152	0	152
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	7	395	10	412	29	343	7	379	30	89	12	131	8	51	26	85
Future 2038 (Full Build-Out) Traffic Volumes:	62	526	13	601	148	464	94	706	154	437	66	657	10	400	115	525

P.M. Peak Hour

Condition	SR 14/US 29 (Main Street)				SR 14/US 29 (Main Street)				Toombs Street				Toombs Street			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	6	319	14	339	45	475	8	528	14	59	10	83	21	86	39	146
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	7	383	17	407	54	570	10	634	17	71	12	100	25	103	47	175
Nearby Merrill Park DRI (#3488) Trips in 2032:	42	18	0	60	101	17	117	235	106	238	37	381	0	262	112	374
No-Build 2038 Volumes:	51	516	22	589	171	758	130	1059	128	330	53	511	33	396	173	602
Phase 1 New Trips:	2	0	0	2	0	0	0	0	0	10	2	12	0	13	0	13
Phase 2 New Trips:	15	0	0	15	0	0	0	0	0	169	26	195	0	100	0	100
Total (Phases 1+2) New Trips:	17	0	0	17	0	0	0	0	0	179	28	207	0	113	0	113
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	9	383	17	409	54	570	10	634	17	81	14	112	25	116	47	188
Future 2038 (Full Build-Out) Traffic Volumes:	68	516	22	606	171	758	130	1059	128	509	81	718	33	509	173	715

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

5. Toombs @ Hutchesons Ferry

A.M. Peak Hour

Condition	-				Hutchesons Ferry Road				Water Works Road				Toombs Street			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	210	0	17	227	30	50	0	80	0	26	140	166
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	252	0	20	272	36	60	0	96	0	31	168	199
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	410	0	0	410	0	0	0	0	0	0	258	258
No-Build 2038 Volumes:	0	0	0	0	738	0	26	764	47	78	0	125	0	40	476	516
Phase 1 New Trips:	0	0	0	0	12	0	0	12	0	0	0	0	0	0	6	6
Phase 2 New Trips:	0	0	0	0	80	0	0	80	0	0	0	0	0	0	169	169
Total (Phases 1+2) New Trips:	0	0	0	0	92	0	0	92	0	0	0	0	0	0	175	175
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	264	0	20	284	36	60	0	96	0	31	174	205
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	830	0	26	856	47	78	0	125	0	40	651	691

P.M. Peak Hour

Condition	-				Hutchesons Ferry Road				Water Works Road				Toombs Street			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	167	0	23	190	24	56	0	80	0	32	213	245
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	200	0	28	228	29	67	0	96	0	38	256	294
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	381	0	0	381	0	0	0	0	0	0	341	341
No-Build 2038 Volumes:	0	0	0	0	641	0	36	677	38	87	0	125	0	49	674	723
Phase 1 New Trips:	0	0	0	0	12	0	0	12	0	0	0	0	0	0	15	15
Phase 2 New Trips:	0	0	0	0	195	0	0	195	0	0	0	0	0	0	115	115
Total (Phases 1+2) New Trips:	0	0	0	0	207	0	0	207	0	0	0	0	0	0	130	130
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	212	0	28	240	29	67	0	96	0	38	271	309
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	848	0	36	884	38	87	0	125	0	49	804	853

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
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6. Hutchesons Ferry @ Cochran

A.M. Peak Hour

Condition	-				Cochran Mill Road				Hutchesons Ferry Road				Hutchesons Ferry Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	37	0	10	47	5	171	0	176	0	111	24	135
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	44	0	12	56	6	205	0	211	0	133	29	162
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	522	0	69	591	82	102	0	184	0	44	428	472
No-Build 2038 Volumes:	0	0	0	0	579	0	85	664	90	369	0	459	0	217	466	683
Phase 1 New Trips:	0	0	0	0	12	0	1	13	0	0	0	0	0	0	6	6
Phase 2 New Trips:	0	0	0	0	80	0	5	85	11	0	0	11	0	0	169	169
Total (Phases 1+2) New Trips:	0	0	0	0	92	0	6	98	11	0	0	11	0	0	175	175
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	56	0	13	69	6	205	0	211	0	133	35	168
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	671	0	91	762	101	369	0	470	0	217	641	858

P.M. Peak Hour

Condition	-				Cochran Mill Road				Hutchesons Ferry Road				Hutchesons Ferry Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	27	0	13	40	8	119	0	127	0	162	48	210
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	32	0	16	48	10	143	0	153	0	194	58	252
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	518	0	88	606	74	71	0	145	0	102	539	641
No-Build 2038 Volumes:	0	0	0	0	560	0	109	669	87	257	0	344	0	354	614	968
Phase 1 New Trips:	0	0	0	0	12	0	1	13	1	0	0	1	0	0	15	15
Phase 2 New Trips:	0	0	0	0	195	0	13	208	8	0	0	8	0	0	115	115
Total (Phases 1+2) New Trips:	0	0	0	0	207	0	14	221	9	0	0	9	0	0	130	130
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	44	0	17	61	11	143	0	154	0	194	73	267
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	767	0	123	890	96	257	0	353	0	354	744	1098

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

7. Cochran @ Wilkerson Mill

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Wilkerson Mill Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	28	5	33	47	39	0	86	0	0	0	0	7	0	24	31
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	34	6	40	56	47	0	103	0	0	0	0	8	0	29	37
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	379	380	759	31	310	0	341	0	0	0	0	376	0	81	457
No-Build 2038 Volumes:	0	423	388	811	104	371	0	475	0	0	0	0	386	0	119	505
Phase 1 New Trips:	0	6	0	6	1	13	0	14	0	0	0	0	0	0	0	0
Phase 2 New Trips:	0	171	9	180	11	81	0	92	0	0	0	0	4	0	10	14
Total (Phases 1+2) New Trips:	0	177	9	186	12	94	0	106	0	0	0	0	4	0	10	14
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	40	6	46	57	60	0	117	0	0	0	0	8	0	29	37
Future 2038 (Full Build-Out) Traffic Volumes:	0	600	397	997	116	465	0	581	0	0	0	0	390	0	129	519

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Wilkerson Mill Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	42	7	49	14	53	0	67	0	0	0	0	7	0	58	65
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	50	8	58	17	64	0	81	0	0	0	0	8	0	70	78
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	375	426	801	80	392	0	472	0	0	0	0	398	0	53	451
No-Build 2038 Volumes:	0	440	436	876	102	475	0	577	0	0	0	0	408	0	144	552
Phase 1 New Trips:	0	16	0	16	1	12	0	13	0	0	0	0	0	0	1	1
Phase 2 New Trips:	0	117	6	123	12	198	0	210	0	0	0	0	10	0	14	24
Total (Phases 1+2) New Trips:	0	133	6	139	13	210	0	223	0	0	0	0	10	0	15	25
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	66	8	74	18	76	0	94	0	0	0	0	8	0	71	79
Future 2038 (Full Build-Out) Traffic Volumes:	0	573	442	1015	115	685	0	800	0	0	0	0	418	0	159	577

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
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8. S. Fulton @ Cochran Mill

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				SR 70 (South Fulton Parkway)				SR 70 (South Fulton Parkway)			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	31	7	14	52	1	14	1	16	0	394	61	455	9	110	2	121
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	37	8	17	62	1	17	1	19	0	473	73	546	11	132	2	145
Nearby Merrill Park DRI (#3488) Trips in 2032:	96	19	345	460	0	14	0	14	0	0	71	71	255	0	0	255
No-Build 2038 Volumes:	144	29	367	540	1	36	1	38	0	615	166	781	269	172	3	444
Phase 1 New Trips:	0	7	0	7	61	14	3	78	2	0	0	2	0	0	30	30
Phase 2 New Trips:	19	32	365	416	41	39	2	82	5	0	41	46	772	0	86	858
Total (Phases 1+2) New Trips:	19	39	365	423	102	53	5	160	7	0	41	48	772	0	116	888
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	37	15	17	69	62	31	4	97	2	473	73	548	11	132	32	175
Future 2038 (Full Build-Out) Traffic Volumes:	163	68	732	963	103	89	6	198	7	615	207	829	1041	172	119	1332

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				SR 70 (South Fulton Parkway)				SR 70 (South Fulton Parkway)			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	73	12	14	99	5	16	3	24	2	131	36	169	13	568	2	583
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	88	14	17	119	6	19	4	29	2	157	43	202	16	682	2	700
Nearby Merrill Park DRI (#3488) Trips in 2032:	89	18	322	429	0	20	0	20	0	0	99	99	354	0	0	354
No-Build 2038 Volumes:	203	36	344	583	8	45	5	58	3	204	155	362	375	887	3	1265
Phase 1 New Trips:	0	17	0	17	59	13	3	75	4	0	0	4	0	0	76	76
Phase 2 New Trips:	47	47	889	983	99	42	5	146	3	0	28	31	526	0	58	584
Total (Phases 1+2) New Trips:	47	64	889	1000	158	55	8	221	7	0	28	35	526	0	134	660
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	88	31	17	136	65	32	7	104	6	157	43	206	16	682	78	776
Future 2038 (Full Build-Out) Traffic Volumes:	250	100	1233	1583	166	100	13	279	10	204	183	397	901	887	137	1925

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
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9. S. Fulton @ Rivertown Rd

A.M. Peak Hour

Condition	Rivertown Road				Rivertown Road				SR 70 (South Fulton Parkway)				SR 70 (South Fulton Parkway)			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	28	4	0	32	15	19	0	34	0	344	52	396	3	91	5	99
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	34	5	0	39	18	23	0	41	0	413	62	475	4	109	6	119
Nearby Merrill Park DRI (#3488) Trips in 2032:	14	0	0	14	0	0	0	0	0	326	19	345	0	241	0	241
No-Build 2038 Volumes:	58	7	0	65	23	30	0	53	0	863	100	963	5	383	8	396
Phase 1 New Trips:	0	0	0	0	0	0	0	0	0	60	1	61	0	29	0	29
Phase 2 New Trips:	11	0	0	11	0	0	0	0	0	401	5	406	0	846	0	846
Total (Phases 1+2) New Trips:	11	0	0	11	0	0	0	0	0	461	6	467	0	875	0	875
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	34	5	0	39	18	23	0	41	0	473	63	536	4	138	6	148
Future 2038 (Full Build-Out) Traffic Volumes:	69	7	0	76	23	30	0	53	0	1324	106	1430	5	1258	8	1271

P.M. Peak Hour

Condition	Rivertown Road				Rivertown Road				SR 70 (South Fulton Parkway)				SR 70 (South Fulton Parkway)			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	93	17	0	110	5	5	0	10	0	88	29	117	9	482	17	508
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	112	20	0	132	6	6	0	12	0	106	35	141	11	578	20	609
Nearby Merrill Park DRI (#3488) Trips in 2032:	20	0	0	20	0	0	0	0	0	303	18	321	0	334	0	334
No-Build 2038 Volumes:	166	26	0	192	8	8	0	16	0	441	64	505	14	1085	26	1125
Phase 1 New Trips:	1	0	0	1	0	0	0	0	0	59	1	60	0	75	0	75
Phase 2 New Trips:	8	0	0	8	0	0	0	0	0	975	13	988	0	577	0	577
Total (Phases 1+2) New Trips:	9	0	0	9	0	0	0	0	0	1034	14	1048	0	652	0	652
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	113	20	0	133	6	6	0	12	0	165	36	201	11	653	20	684
Future 2038 (Full Build-Out) Traffic Volumes:	175	26	0	201	8	8	0	16	0	1475	78	1553	14	1737	26	1777

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
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10. S. Fulton @ SR 154

A.M. Peak Hour

Condition	SR 154 (Cascade Palmetto Highway) Northbound				SR 154 (Cascade Palmetto Highway) Southbound				SR 70 (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	4	230	56	290	2	249	5	256	7	347	7	361	38	84	3	125
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	5	276	67	348	2	299	6	307	8	416	8	432	46	101	4	151
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	19	191	210	0	14	28	42	38	287	0	325	141	212	0	353
No-Build 2038 Volumes:	7	378	278	663	3	403	36	442	48	828	10	886	201	343	5	549
Phase 1 New Trips:	1	0	0	1	0	0	2	2	4	54	2	60	0	26	0	26
Phase 2 New Trips:	34	0	0	34	0	0	56	56	27	358	16	401	0	756	0	756
Total (Phases 1+2) New Trips:	35	0	0	35	0	0	58	58	31	412	18	461	0	782	0	782
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	6	276	67	349	2	299	8	309	12	470	10	492	46	127	4	177
Future 2038 (Full Build-Out) Traffic Volumes:	42	378	278	698	3	403	94	500	79	1240	28	1347	201	1125	5	1331

P.M. Peak Hour

Condition	SR 154 (Cascade Palmetto Highway) Northbound				SR 154 (Cascade Palmetto Highway) Southbound				SR 70 (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	3	308	45	356	4	326	8	338	11	91	9	111	61	453	5	519
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	4	370	54	428	5	391	10	406	13	109	11	133	73	544	6	623
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	18	179	197	0	20	40	60	35	268	0	303	197	295	0	492
No-Build 2038 Volumes:	5	499	249	753	7	528	53	588	52	410	14	476	292	1002	8	1302
Phase 1 New Trips:	3	0	0	3	0	0	5	5	4	52	2	58	0	67	0	67
Phase 2 New Trips:	23	0	0	23	0	0	38	38	65	871	39	975	0	515	0	515
Total (Phases 1+2) New Trips:	26	0	0	26	0	0	43	43	69	923	41	1033	0	582	0	582
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	7	370	54	431	5	391	15	411	17	161	13	191	73	611	6	690
Future 2038 (Full Build-Out) Traffic Volumes:	31	499	249	779	7	528	96	631	121	1333	55	1509	292	1584	8	1884

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

11. S. Fulton @ Cedar Grove

A.M. Peak Hour

Condition	Cedar Grove Road Northbound				Cedar Grove Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	28	103	229	360	152	153	26	331	26	665	36	727	125	338	80	543
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	34	124	275	433	182	184	31	397	31	798	43	872	150	406	96	652
Nearby Merrill Park DRI (#3488) Trips in 2032:	28	0	0	28	0	0	28	28	38	403	38	479	0	297	0	297
No-Build 2038 Volumes:	72	161	358	591	237	239	68	544	78	1440	94	1612	195	825	125	1145
Phase 1 New Trips:	0	0	0	0	0	0	0	0	1	50	1	52	0	25	0	25
Phase 2 New Trips:	11	0	0	11	0	0	11	11	5	336	5	346	0	711	0	711
Total (Phases 1+2) New Trips:	11	0	0	11	0	0	11	11	6	386	6	398	0	736	0	736
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	34	124	275	433	182	184	31	397	32	848	44	924	150	431	96	677
Future 2038 (Full Build-Out) Traffic Volumes:	83	161	358	602	237	239	79	555	84	1826	100	2010	195	1561	125	1881

P.M. Peak Hour

Condition	Cedar Grove Road Northbound				Cedar Grove Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	26	167	184	377	91	125	14	230	19	236	21	276	241	592	138	971
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	31	200	221	452	109	150	17	276	23	283	25	331	289	710	166	1165
Nearby Merrill Park DRI (#3488) Trips in 2032:	40	0	0	40	0	0	40	40	35	374	35	444	0	413	0	413
No-Build 2038 Volumes:	80	260	287	627	142	195	62	399	65	742	68	875	376	1336	216	1928
Phase 1 New Trips:	1	0	0	1	0	0	1	1	1	49	1	51	0	63	0	63
Phase 2 New Trips:	8	0	0	8	0	0	8	8	13	819	13	845	0	484	0	484
Total (Phases 1+2) New Trips:	9	0	0	9	0	0	9	9	14	868	14	896	0	547	0	547
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	32	200	221	453	109	150	18	277	24	332	26	382	289	773	166	1228
Future 2038 (Full Build-Out) Traffic Volumes:	89	260	287	636	142	195	71	408	79	1610	82	1771	376	1883	216	2475

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

12. S. Fulton @ SR 92

A.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	150	628	123	901	495	697	191	1383	244	634	171	1049	71	389	397	857
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	180	754	148	1082	594	836	229	1659	293	761	205	1259	85	467	476	1028
Nearby Merrill Park DRI (#3488) Trips in 2032:	57	0	0	57	0	0	28	28	38	288	77	403	0	212	0	212
No-Build 2038 Volumes:	291	980	192	1463	772	1087	326	2185	419	1277	344	2040	111	819	619	1549
Phase 1 New Trips:	2	0	0	2	0	0	1	1	2	46	3	51	0	22	0	22
Phase 2 New Trips:	45	0	0	45	0	0	23	23	11	304	21	336	0	643	0	643
Total (Phases 1+2) New Trips:	47	0	0	47	0	0	24	24	13	350	24	387	0	665	0	665
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	182	754	148	1084	594	836	230	1660	295	807	208	1310	85	489	476	1050
Future 2038 (Full Build-Out) Traffic Volumes:	338	980	192	1510	772	1087	350	2209	432	1627	368	2427	111	1484	619	2214

P.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	75	776	33	884	381	538	119	1038	216	215	132	563	161	644	585	1390
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	90	931	40	1061	457	646	143	1246	259	258	158	675	193	773	702	1668
Nearby Merrill Park DRI (#3488) Trips in 2032:	79	0	0	79	0	0	39	39	36	268	71	375	0	295	0	295
No-Build 2038 Volumes:	196	1210	52	1458	594	840	225	1659	373	603	276	1252	251	1300	913	2464
Phase 1 New Trips:	4	0	0	4	0	0	2	2	2	44	3	49	0	57	0	57
Phase 2 New Trips:	31	0	0	31	0	0	15	15	26	741	52	819	0	438	0	438
Total (Phases 1+2) New Trips:	35	0	0	35	0	0	17	17	28	785	55	868	0	495	0	495
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	94	931	40	1065	457	646	145	1248	261	302	161	724	193	830	702	1725
Future 2038 (Full Build-Out) Traffic Volumes:	231	1210	52	1493	594	840	242	1676	401	1388	331	2120	251	1795	913	2959

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

13. S. Fulton @ Derrick Rd

A.M. Peak Hour

Condition	Derrick Road Northbound				Derrick Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	44	42	85	171	87	78	144	309	89	1082	73	1244	120	645	40	805
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	53	50	102	205	104	94	173	371	107	1298	88	1493	144	774	48	966
Nearby Merrill Park DRI (#3488) Trips in 2032:	14	0	0	14	0	0	14	14	19	230	19	268	0	170	0	170
No-Build 2038 Volumes:	83	65	133	281	135	122	239	496	158	1917	133	2208	187	1176	62	1425
Phase 1 New Trips:	0	0	0	0	0	0	0	0	1	43	1	45	0	21	0	21
Phase 2 New Trips:	11	0	0	11	0	0	11	11	5	288	5	298	0	609	0	609
Total (Phases 1+2) New Trips:	11	0	0	11	0	0	11	11	6	331	6	343	0	630	0	630
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	53	50	102	205	104	94	173	371	108	1341	89	1538	144	795	48	987
Future 2038 (Full Build-Out) Traffic Volumes:	94	65	133	292	135	122	250	507	164	2248	139	2551	187	1806	62	2055

P.M. Peak Hour

Condition	Derrick Road Northbound				Derrick Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	52	39	58	149	54	81	101	236	56	577	38	671	105	1320	100	1525
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	62	47	70	179	65	97	121	283	67	692	46	805	126	1584	120	1830
Nearby Merrill Park DRI (#3488) Trips in 2032:	20	0	0	20	0	0	20	20	18	214	18	250	0	236	0	236
No-Build 2038 Volumes:	101	61	91	253	85	126	177	388	105	1114	78	1297	164	2295	156	2615
Phase 1 New Trips:	1	0	0	1	0	0	1	1	1	42	1	44	0	54	0	54
Phase 2 New Trips:	8	0	0	8	0	0	8	8	13	702	13	728	0	415	0	415
Total (Phases 1+2) New Trips:	9	0	0	9	0	0	9	9	14	744	14	772	0	469	0	469
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	63	47	70	180	65	97	122	284	68	734	47	849	126	1638	120	1884
Future 2038 (Full Build-Out) Traffic Volumes:	110	61	91	262	85	126	186	397	119	1858	92	2069	164	2764	156	3084

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

14. S. Fulton @ Stonewall Tell

A.M. Peak Hour

Condition	Stonewall Tell Road Northbound				Stonewall Tell Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	402	219	20	641	58	155	115	328	91	976	178	1245	48	293	82	423
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	482	263	24	769	70	186	138	394	109	1171	214	1494	58	352	98	508
Nearby Merrill Park DRI (#3488) Trips in 2032:	14	0	0	14	0	0	28	28	38	173	19	230	0	127	0	127
No-Build 2038 Volumes:	641	342	31	1014	91	242	207	540	180	1695	297	2172	75	585	127	787
Phase 1 New Trips:	0	0	0	0	0	0	1	1	2	41	1	44	0	20	0	20
Phase 2 New Trips:	11	0	0	11	0	0	23	23	11	272	5	288	0	575	0	575
Total (Phases 1+2) New Trips:	11	0	0	11	0	0	24	24	13	313	6	332	0	595	0	595
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	482	263	24	769	70	186	139	395	111	1212	215	1538	58	372	98	528
Future 2038 (Full Build-Out) Traffic Volumes:	652	342	31	1025	91	242	231	564	193	2008	303	2504	75	1180	127	1382

P.M. Peak Hour

Condition	Stonewall Tell Road Northbound				Stonewall Tell Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	264	195	45	504	37	128	145	310	88	226	334	648	21	1109	48	1178
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	317	234	54	605	44	154	174	372	106	271	401	778	25	1331	58	1414
Nearby Merrill Park DRI (#3488) Trips in 2032:	20	0	0	20	0	0	39	39	36	161	18	215	0	177	0	177
No-Build 2038 Volumes:	432	304	70	806	57	200	265	522	174	513	539	1226	33	1907	75	2015
Phase 1 New Trips:	1	0	0	1	0	0	2	2	2	40	1	43	0	51	0	51
Phase 2 New Trips:	8	0	0	8	0	0	15	15	26	663	13	702	0	392	0	392
Total (Phases 1+2) New Trips:	9	0	0	9	0	0	17	17	28	703	14	745	0	443	0	443
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	318	234	54	606	44	154	176	374	108	311	402	821	25	1382	58	1465
Future 2038 (Full Build-Out) Traffic Volumes:	441	304	70	815	57	200	282	539	202	1216	553	1971	33	2350	75	2458

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

15. S. Fulton @ Mason Rd

A.M. Peak Hour

Condition	Hunter Road Northbound				Mason Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	18	46	35	99	159	44	60	263	56	939	95	1090	89	353	40	482
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	22	55	42	119	191	53	72	316	67	1127	114	1308	107	424	48	579
Nearby Merrill Park DRI (#3488) Trips in 2032:	14	0	0	14	0	0	14	14	19	134	19	172	0	99	0	99
No-Build 2038 Volumes:	43	72	55	170	248	69	108	425	106	1599	167	1872	139	650	62	851
Phase 1 New Trips:	0	0	0	0	0	0	0	0	1	39	1	41	0	19	0	19
Phase 2 New Trips:	11	0	0	11	0	0	11	11	5	262	5	272	0	553	0	553
Total (Phases 1+2) New Trips:	11	0	0	11	0	0	11	11	6	301	6	313	0	572	0	572
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	22	55	42	119	191	53	72	316	68	1166	115	1349	107	443	48	598
Future 2038 (Full Build-Out) Traffic Volumes:	54	72	55	181	248	69	119	436	112	1900	173	2185	139	1222	62	1423

P.M. Peak Hour

Condition	Hunter Road Northbound				Mason Road Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	23	61	87	171	125	52	58	235	37	172	109	318	86	1089	34	1209
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	28	73	104	205	150	62	70	282	44	206	131	381	103	1307	41	1451
Nearby Merrill Park DRI (#3488) Trips in 2032:	20	0	0	20	0	0	20	20	18	125	18	161	0	137	0	137
No-Build 2038 Volumes:	56	95	135	286	195	81	111	387	75	393	188	656	134	1836	53	2023
Phase 1 New Trips:	1	0	0	1	0	0	1	1	1	38	1	40	0	49	0	49
Phase 2 New Trips:	8	0	0	8	0	0	8	8	13	637	13	663	0	377	0	377
Total (Phases 1+2) New Trips:	9	0	0	9	0	0	9	9	14	675	14	703	0	426	0	426
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	29	73	104	206	150	62	71	283	45	244	132	421	103	1356	41	1500
Future 2038 (Full Build-Out) Traffic Volumes:	65	95	135	295	195	81	120	396	89	1068	202	1359	134	2262	53	2449

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

16. Roosvlt @ S. Fulton EB Ramp

A.M. Peak Hour

Condition	SR 14/US 29 (Roosevelt Highway) Northbound				SR 14/US 29 (Roosevelt Highway) Southbound				SR 14 Alt./US 29 Alt. (South Fulton Pkw) Eastbound Ramps Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	712	765	0	1477	0	668	156	824	23	0	39	62	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	854	918	0	1772	0	802	187	989	28	0	47	75	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	1110	1193	0	2303	0	1043	243	1286	36	0	61	97	0	0	0	0
Phase 1 New Trips:	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0
Phase 2 New Trips:	0	0	0	0	0	0	0	0	11	0	11	22	0	0	0	0
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	0	0	13	0	13	26	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	854	918	0	1772	0	802	187	989	30	0	49	79	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	1110	1193	0	2303	0	1043	243	1286	49	0	74	123	0	0	0	0

P.M. Peak Hour

Condition	SR 14/US 29 (Roosevelt Highway) Northbound				SR 14/US 29 (Roosevelt Highway) Southbound				SR 14 Alt./US 29 Alt. (South Fulton Pkw) Eastbound Ramps Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	431	535	0	966	0	1326	137	1463	24	0	52	76	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	517	642	0	1159	0	1591	164	1755	29	0	62	91	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	672	835	0	1507	0	2068	213	2281	38	0	81	119	0	0	0	0
Phase 1 New Trips:	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0
Phase 2 New Trips:	0	0	0	0	0	0	0	0	26	0	26	52	0	0	0	0
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	0	0	28	0	28	56	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	517	642	0	1159	0	1591	164	1755	31	0	64	95	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	672	835	0	1507	0	2068	213	2281	66	0	109	175	0	0	0	0

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

17. Roosvlt @ S. Fulton WB Ramp

A.M. Peak Hour

Condition	SR 14/US 29 (Roosevelt Highway) Northbound				SR 14/US 29 (Roosevelt Highway) Southbound				SR 14 Alt./US 29 Alt. (South Fulton Pkwy) Westbound Ramps Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	17	758	0	775	0	443	82	525	135	0	396	531	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	20	910	0	930	0	532	98	630	162	0	475	637	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	26	1183	0	1209	0	692	127	819	211	0	618	829	0	0	0	0
Phase 1 New Trips:	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
Phase 2 New Trips:	23	0	0	23	0	0	23	23	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	24	0	0	24	0	0	24	24	0	0	0	0	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	21	910	0	931	0	532	99	631	162	0	475	637	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	50	1183	0	1233	0	692	151	843	211	0	618	829	0	0	0	0

P.M. Peak Hour

Condition	SR 14/US 29 (Roosevelt Highway) Northbound				SR 14/US 29 (Roosevelt Highway) Southbound				SR 14 Alt./US 29 Alt. (South Fulton Pkwy) Westbound Ramps Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	31	528	0	559	0	715	121	836	54	0	748	802	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	37	634	0	671	0	858	145	1003	65	0	898	963	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	48	824	0	872	0	1115	189	1304	85	0	1167	1252	0	0	0	0
Phase 1 New Trips:	2	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0
Phase 2 New Trips:	15	0	0	15	0	0	15	15	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	17	0	0	17	0	0	17	17	0	0	0	0	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	39	634	0	673	0	858	147	1005	65	0	898	963	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	65	824	0	889	0	1115	206	1321	85	0	1167	1252	0	0	0	0

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

18. Cochran Mill @ Drwy 1

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Site Driveway 1			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	9	0	9	0	16	0	16	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	11	0	11	0	19	0	19	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	19	0	19	0	14	0	14	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	33	0	33	0	39	0	39	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	2	4	6	0	1	0	1	0	0	0	0	8	0	0	8
Phase 2 New Trips:	0	16	0	16	0	34	0	34	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	0	18	4	22	0	35	0	35	0	0	0	0	8	0	0	8
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	13	4	17	0	20	0	20	0	0	0	0	8	0	0	8
Future 2038 (Full Build-Out) Traffic Volumes:	0	51	4	55	0	74	0	74	0	0	0	0	8	0	0	8

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Site Driveway 1			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	16	0	16	0	24	0	24	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	19	0	19	0	29	0	29	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	18	0	18	0	20	0	20	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	43	0	43	0	58	0	58	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	2	10	12	1	2	0	3	0	0	0	0	8	0	0	8
Phase 2 New Trips:	0	39	0	39	0	23	0	23	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	0	41	10	51	1	25	0	26	0	0	0	0	8	0	0	8
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	21	10	31	1	31	0	32	0	0	0	0	8	0	0	8
Future 2038 (Full Build-Out) Traffic Volumes:	0	84	10	94	1	83	0	84	0	0	0	0	8	0	0	8

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

19. Cochran Mill @ Drwy 2

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 2				-			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	9	0	9	0	16	0	16	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	11	0	11	0	19	0	19	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	19	0	19	0	14	0	14	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	33	0	33	0	39	0	39	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	6	0	6	0	9	0	9	0	0	0	0	0	0	0	0
Phase 2 New Trips:	108	14	0	122	0	30	3	33	2	0	51	53	0	0	0	0
Total (Phases 1+2) New Trips:	108	20	0	128	0	39	3	42	2	0	51	53	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	17	0	17	0	28	0	28	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	108	53	0	161	0	78	3	81	2	0	51	53	0	0	0	0

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 2				-			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	16	0	16	0	24	0	24	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	19	0	19	0	29	0	29	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	18	0	18	0	20	0	20	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	43	0	43	0	58	0	58	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	12	0	12	0	10	0	10	0	0	0	0	0	0	0	0
Phase 2 New Trips:	74	35	0	109	0	21	2	23	4	0	125	129	0	0	0	0
Total (Phases 1+2) New Trips:	74	47	0	121	0	31	2	33	4	0	125	129	0	0	0	0
Pass-by Trips (Phase 2):	7	-7	0	0	0	-5	5	0	7	0	5	12	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	31	0	31	0	39	0	39	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	81	83	0	164	0	84	7	91	11	0	130	141	0	0	0	0

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

20. Cochran Mill @ Drwy 3

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Site Driveway 3			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	9	0	9	0	16	0	16	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	11	0	11	0	19	0	19	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	19	0	19	0	14	0	14	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	33	0	33	0	39	0	39	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	5	11	16	0	8	0	8	0	0	0	0	23	0	1	24
Phase 2 New Trips:	0	123	0	123	0	82	0	82	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	0	128	11	139	0	90	0	90	0	0	0	0	23	0	1	24
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	16	11	27	0	27	0	27	0	0	0	0	23	0	1	24
Future 2038 (Full Build-Out) Traffic Volumes:	0	161	11	172	0	129	0	129	0	0	0	0	23	0	1	24

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Site Driveway 3			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	16	0	16	0	24	0	24	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	19	0	19	0	29	0	29	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	18	0	18	0	20	0	20	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	43	0	43	0	58	0	58	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	11	29	40	1	9	0	10	0	0	0	0	23	0	1	24
Phase 2 New Trips:	0	109	0	109	0	146	0	146	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	0	120	29	149	1	155	0	156	0	0	0	0	23	0	1	24
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	30	29	59	1	38	0	39	0	0	0	0	23	0	1	24
Future 2038 (Full Build-Out) Traffic Volumes:	0	163	29	192	1	213	0	214	0	0	0	0	23	0	1	24

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

21. Cochran Mill @ Drwy 4

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Site Driveway 4			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	9	0	9	0	16	0	16	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	11	0	11	0	19	0	19	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	19	0	19	0	14	0	14	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	33	0	33	0	39	0	39	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	15	23	38	0	31	0	31	0	0	0	0	47	0	1	48
Phase 2 New Trips:	0	123	0	123	0	82	0	82	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	0	138	23	161	0	113	0	113	0	0	0	0	47	0	1	48
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	26	23	49	0	50	0	50	0	0	0	0	47	0	1	48
Future 2038 (Full Build-Out) Traffic Volumes:	0	171	23	194	0	152	0	152	0	0	0	0	47	0	1	48

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				-				Site Driveway 4			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	16	0	16	0	24	0	24	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	19	0	19	0	29	0	29	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	18	0	18	0	20	0	20	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	43	0	43	0	58	0	58	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	39	58	97	1	30	0	31	0	0	0	0	45	0	1	46
Phase 2 New Trips:	0	109	0	109	0	146	0	146	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	0	148	58	206	1	176	0	177	0	0	0	0	45	0	1	46
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	58	58	116	1	59	0	60	0	0	0	0	45	0	1	46
Future 2038 (Full Build-Out) Traffic Volumes:	0	191	58	249	1	234	0	235	0	0	0	0	45	0	1	46

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
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22. Cochran Mill @ RIRO 5

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 5 (RIRO)				-			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	52	0	52	0	86	0	86	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	62	0	62	0	103	0	103	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	460	0	460	0	341	0	341	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	541	0	541	0	475	0	475	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	7	0	7	0	14	0	14	0	0	0	0	0	0	0	0
Phase 2 New Trips:	0	417	0	417	0	804	47	851	0	0	4	4	0	0	0	0
Total (Phases 1+2) New Trips:	0	424	0	424	0	818	47	865	0	0	4	4	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	69	0	69	0	117	0	117	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	0	965	0	965	0	1293	47	1340	0	0	4	4	0	0	0	0

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 5 (RIRO)				-			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	99	0	99	0	67	0	67	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	119	0	119	0	80	0	80	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	429	0	429	0	472	0	472	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	584	0	584	0	576	0	576	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	17	0	17	0	13	0	13	0	0	0	0	0	0	0	0
Phase 2 New Trips:	0	983	0	983	0	563	32	595	0	0	10	10	0	0	0	0
Total (Phases 1+2) New Trips:	0	1000	0	1000	0	576	32	608	0	0	10	10	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	-5	5	0	0	0	5	5	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	136	0	136	0	93	0	93	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	0	1584	0	1584	0	1147	37	1184	0	0	15	15	0	0	0	0

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

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23. Cochran Mill @ Drwys 6ab

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 6B				Site Driveway 6A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	52	0	52	0	86	0	86	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	62	0	62	0	103	0	103	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	460	0	460	0	341	0	341	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	541	0	541	0	475	0	475	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	7	0	7	0	14	0	14	0	0	0	0	0	0	0	0
Phase 2 New Trips:	9	373	9	391	47	715	47	809	22	2	4	28	4	2	22	28
Total (Phases 1+2) New Trips:	9	380	9	398	47	729	47	823	22	2	4	28	4	2	22	28
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	69	0	69	0	117	0	117	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	9	921	9	939	47	1204	47	1298	22	2	4	28	4	2	22	28

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 6B				Site Driveway 6A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	99	0	99	0	67	0	67	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	119	0	119	0	80	0	80	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	429	0	429	0	472	0	472	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	584	0	584	0	576	0	576	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	17	0	17	0	13	0	13	0	0	0	0	0	0	0	0
Phase 2 New Trips:	6	876	6	888	32	510	32	574	54	3	10	67	10	3	54	67
Total (Phases 1+2) New Trips:	6	893	6	905	32	523	32	587	54	3	10	67	10	3	54	67
Pass-by Trips (Phase 2):	3	-10	6	-1	4	-7	2	-1	4	0	2	6	5	0	7	12
Future 2028 (Phase 1) Traffic Volumes:	0	136	0	136	0	93	0	93	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	9	1467	12	1488	36	1092	34	1162	58	3	12	73	15	3	61	79

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

24. Cochran Mill @ Drwys 7ab

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 7B				Site Driveway 7A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	52	0	52	0	86	0	86	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	62	0	62	0	103	0	103	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	460	0	460	0	341	0	341	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	541	0	541	0	475	0	475	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	7	0	7	0	14	0	14	0	0	0	0	0	0	0	0
Phase 2 New Trips:	18	236	27	281	140	443	140	723	89	2	9	100	9	2	66	77
Total (Phases 1+2) New Trips:	18	243	27	288	140	457	140	737	89	2	9	100	9	2	66	77
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	69	0	69	0	117	0	117	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	18	784	27	829	140	932	140	1212	89	2	9	100	9	2	66	77

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 7B				Site Driveway 7A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	99	0	99	0	67	0	67	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	119	0	119	0	80	0	80	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	429	0	429	0	472	0	472	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	584	0	584	0	576	0	576	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	17	0	17	0	13	0	13	0	0	0	0	0	0	0	0
Phase 2 New Trips:	12	510	18	540	96	339	96	531	216	3	21	240	21	3	162	186
Total (Phases 1+2) New Trips:	12	527	18	557	96	352	96	544	216	3	21	240	21	3	162	186
Pass-by Trips (Phase 2):	10	-17	6	-1	4	-7	2	-1	11	0	2	13	5	0	7	12
Future 2028 (Phase 1) Traffic Volumes:	0	136	0	136	0	93	0	93	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	22	1094	24	1140	100	921	98	1119	227	3	23	253	26	3	169	198

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

25. Cochran Mill @ Drwys 8ab

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 8B				Site Driveway 8A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	52	0	52	0	86	0	86	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	62	0	62	0	103	0	103	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	460	0	460	0	341	0	341	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	541	0	541	0	475	0	475	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	7	0	7	0	14	0	14	0	0	0	0	0	0	0	0
Phase 2 New Trips:	9	236	9	254	47	366	47	460	22	2	4	28	4	2	22	28
Total (Phases 1+2) New Trips:	9	243	9	261	47	380	47	474	22	2	4	28	4	2	22	28
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	69	0	69	0	117	0	117	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	9	784	9	802	47	855	47	949	22	2	4	28	4	2	22	28

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 8B				Site Driveway 8A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	99	0	99	0	67	0	67	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	119	0	119	0	80	0	80	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	429	0	429	0	472	0	472	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	584	0	584	0	576	0	576	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	17	0	17	0	13	0	13	0	0	0	0	0	0	0	0
Phase 2 New Trips:	6	433	6	445	32	317	32	381	54	3	10	67	10	3	54	67
Total (Phases 1+2) New Trips:	6	450	6	462	32	330	32	394	54	3	10	67	10	3	54	67
Pass-by Trips (Phase 2):	0	-5	5	0	3	-3	0	0	0	0	0	0	3	0	5	8
Future 2028 (Phase 1) Traffic Volumes:	0	136	0	136	0	93	0	93	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	6	1029	11	1046	35	903	32	970	54	3	10	67	13	3	59	75

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

26. Cochran Mill @ Drwys 9ab

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 9B				Site Driveway 9A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	52	0	52	0	86	0	86	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	62	0	62	0	103	0	103	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	460	0	460	0	341	0	341	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	541	0	541	0	475	0	475	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	7	0	7	0	14	0	14	0	0	0	0	0	0	0	0
Phase 2 New Trips:	33	121	27	181	140	94	140	374	66	2	15	83	13	2	66	81
Total (Phases 1+2) New Trips:	33	128	27	188	140	108	140	388	66	2	15	83	13	2	66	81
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	69	0	69	0	117	0	117	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	33	669	27	729	140	583	140	863	66	2	15	83	13	2	66	81

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 9B				Site Driveway 9A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	99	0	99	0	67	0	67	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	119	0	119	0	80	0	80	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	429	0	429	0	472	0	472	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	584	0	584	0	576	0	576	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	17	0	17	0	13	0	13	0	0	0	0	0	0	0	0
Phase 2 New Trips:	22	122	18	162	96	146	96	338	162	3	38	203	31	3	162	196
Total (Phases 1+2) New Trips:	22	139	18	179	96	159	96	351	162	3	38	203	31	3	162	196
Pass-by Trips (Phase 2):	0	-5	5	0	3	-3	0	0	0	0	0	0	3	0	5	8
Future 2028 (Phase 1) Traffic Volumes:	0	136	0	136	0	93	0	93	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	22	718	23	763	99	732	96	927	162	3	38	203	34	3	167	204

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

27. Cochran Mill @ Drwys 10ab

A.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 10B				Site Driveway 10A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	52	0	52	0	86	0	86	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	62	0	62	0	103	0	103	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	460	0	460	0	341	0	341	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	541	0	541	0	475	0	475	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	7	0	7	0	14	0	14	0	0	0	0	0	0	0	0
Phase 2 New Trips:	9	163	9	181	19	84	19	122	9	2	4	15	4	2	9	15
Total (Phases 1+2) New Trips:	9	170	9	188	19	98	19	136	9	2	4	15	4	2	9	15
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	69	0	69	0	117	0	117	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	9	711	9	729	19	573	19	611	9	2	4	15	4	2	9	15

P.M. Peak Hour

Condition	Cochran Mill Road				Cochran Mill Road				Site Driveway 10B				Site Driveway 10A			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	99	0	99	0	67	0	67	0	0	0	0	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	119	0	119	0	80	0	80	0	0	0	0	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	429	0	429	0	472	0	472	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	0	584	0	584	0	576	0	576	0	0	0	0	0	0	0	0
Phase 1 New Trips:	0	17	0	17	0	13	0	13	0	0	0	0	0	0	0	0
Phase 2 New Trips:	6	118	6	130	13	189	13	215	22	3	10	35	10	3	22	35
Total (Phases 1+2) New Trips:	6	135	6	147	13	202	13	228	22	3	10	35	10	3	22	35
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	136	0	136	0	93	0	93	0	0	0	0	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	6	719	6	731	13	778	13	804	22	3	10	35	10	3	22	35

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

28. Wilkerson Mill @ Drwy 11

A.M. Peak Hour

Condition	-				Site Driveway 11				Wilkerson Mill Road				Wilkerson Mill Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	0	0	0	0	0	52	0	52	0	31	0	31
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	0	0	0	0	0	62	0	62	0	37	0	37
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	411	0	411	0	457	0	457
No-Build 2038 Volumes:	0	0	0	0	0	0	0	0	0	492	0	492	0	505	0	505
Phase 1 New Trips:	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Phase 2 New Trips:	0	0	0	0	3	0	8	11	18	3	0	21	0	6	6	12
Total (Phases 1+2) New Trips:	0	0	0	0	3	0	8	11	18	4	0	22	0	6	6	12
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	0	0	0	0	0	63	0	63	0	37	0	37
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	3	0	8	11	18	496	0	514	0	511	6	517

P.M. Peak Hour

Condition	-				Site Driveway 11				Wilkerson Mill Road				Wilkerson Mill Road			
	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	0	0	0	0	0	21	0	21	0	65	0	65
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	0	0	0	0	0	25	0	25	0	78	0	78
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	506	0	506	0	451	0	451
No-Build 2038 Volumes:	0	0	0	0	0	0	0	0	0	539	0	539	0	552	0	552
Phase 1 New Trips:	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1
Phase 2 New Trips:	0	0	0	0	7	0	20	27	12	7	0	19	0	4	4	8
Total (Phases 1+2) New Trips:	0	0	0	0	7	0	20	27	12	8	0	20	0	5	4	9
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	0	0	0	0	0	26	0	26	0	79	0	79
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	7	0	20	27	12	547	0	559	0	557	4	561

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

29. SR 92 @ S. Fulton EB Ramps

A.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	778	123	901	495	768	0	1263	244	0	171	415	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	934	148	1082	594	922	0	1516	293	0	205	498	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	57	0	57	0	0	0	0	38	0	77	115	0	0	0	0
No-Build 2038 Volumes:	0	1271	192	1463	772	1199	0	1971	419	0	344	763	0	0	0	0
Phase 1 New Trips:	0	2	0	2	0	0	0	0	2	0	3	5	0	0	0	0
Phase 2 New Trips:	0	45	0	45	0	0	0	0	11	0	21	32	0	0	0	0
Total (Phases 1+2) New Trips:	0	47	0	47	0	0	0	0	13	0	24	37	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	936	148	1084	594	922	0	1516	295	0	208	503	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	0	1318	192	1510	772	1199	0	1971	432	0	368	800	0	0	0	0

P.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	851	33	884	381	699	0	1080	216	0	132	348	0	0	0	0
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	1021	40	1061	457	839	0	1296	259	0	158	417	0	0	0	0
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	79	0	79	0	0	0	0	36	0	71	107	0	0	0	0
No-Build 2038 Volumes:	0	1406	52	1458	594	1091	0	1685	373	0	276	649	0	0	0	0
Phase 1 New Trips:	0	4	0	4	0	0	0	0	2	0	3	5	0	0	0	0
Phase 2 New Trips:	0	31	0	31	0	0	0	0	26	0	52	78	0	0	0	0
Total (Phases 1+2) New Trips:	0	35	0	35	0	0	0	0	28	0	55	83	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	1025	40	1065	457	839	0	1296	261	0	161	422	0	0	0	0
Future 2038 (Full Build-Out) Traffic Volumes:	0	1441	52	1493	594	1091	0	1685	401	0	331	732	0	0	0	0

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

30. SR 92 @ S. Fulton WB Ramps

A.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	150	872	0	1022	0	1192	191	1383	0	0	0	0	71	0	397	468
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	180	1046	0	1226	0	1430	229	1659	0	0	0	0	85	0	476	561
Nearby Merrill Park DRI (#3488) Trips in 2032:	57	38	0	95	0	0	28	28	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	291	1398	0	1689	0	1859	326	2185	0	0	0	0	111	0	619	730
Phase 1 New Trips:	0	2	0	2	0	0	1	1	0	0	0	0	0	0	0	0
Phase 2 New Trips:	0	11	0	11	0	0	23	23	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	0	13	0	13	0	0	24	24	0	0	0	0	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	180	1048	0	1228	0	1430	230	1660	0	0	0	0	85	0	476	561
Future 2038 (Full Build-Out) Traffic Volumes:	291	1411	0	1702	0	1859	350	2209	0	0	0	0	111	0	619	730

P.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	75	992	0	1067	0	919	119	1038	0	0	0	0	161	0	585	746
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	90	1190	0	1280	0	1103	143	1246	0	0	0	0	193	0	702	895
Nearby Merrill Park DRI (#3488) Trips in 2032:	79	36	0	115	0	0	39	39	0	0	0	0	0	0	0	0
No-Build 2038 Volumes:	196	1583	0	1779	0	1434	225	1659	0	0	0	0	251	0	913	1164
Phase 1 New Trips:	4	2	0	6	0	0	2	2	0	0	0	0	0	0	0	0
Phase 2 New Trips:	31	26	0	57	0	0	15	15	0	0	0	0	0	0	0	0
Total (Phases 1+2) New Trips:	35	28	0	63	0	0	17	17	0	0	0	0	0	0	0	0
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	94	1192	0	1286	0	1103	145	1248	0	0	0	0	193	0	702	895
Future 2038 (Full Build-Out) Traffic Volumes:	231	1611	0	1842	0	1434	242	1676	0	0	0	0	251	0	913	1164

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

31. S. Fulton @ EB Ramps

A.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	0	0	341	341	0	634	415	1049	0	389	0	389
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	0	0	409	409	0	761	498	1259	0	467	0	467
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	85	85	0	288	115	403	0	212	0	212
No-Build 2038 Volumes:	0	0	0	0	0	0	617	617	0	1277	762	2039	0	819	0	819
Phase 1 New Trips:	0	0	0	0	0	0	2	2	0	46	5	51	0	22	0	22
Phase 2 New Trips:	0	0	0	0	0	0	68	68	0	304	32	336	0	643	0	643
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	70	70	0	350	37	387	0	665	0	665
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	0	0	411	411	0	807	503	1310	0	489	0	489
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	0	0	687	687	0	1627	799	2426	0	1484	0	1484

P.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	0	0	0	0	194	194	0	215	348	563	0	644	0	644
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	0	0	0	0	233	233	0	258	418	676	0	773	0	773
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	118	118	0	268	107	375	0	295	0	295
No-Build 2038 Volumes:	0	0	0	0	0	0	421	421	0	603	650	1253	0	1300	0	1300
Phase 1 New Trips:	0	0	0	0	0	0	6	6	0	44	5	49	0	57	0	57
Phase 2 New Trips:	0	0	0	0	0	0	46	46	0	741	78	819	0	438	0	438
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	52	52	0	785	83	868	0	495	0	495
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	0	0	0	0	239	239	0	302	423	725	0	830	0	830
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	0	0	0	0	473	473	0	1388	733	2121	0	1795	0	1795

23-060 Merrill Park Chattahoochee Hills DRI (#4004)
Traffic Volumes

A&R Engineering
August 2023

32. S. Fulton @ WB Ramps

A.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	618	618	0	0	0	0	0	634	0	634	0	389	468	857
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	742	742	0	0	0	0	0	761	0	761	0	467	562	1029
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	288	0	288	0	212	0	212
No-Build 2038 Volumes:	0	0	965	965	0	0	0	0	0	1277	0	1277	0	819	731	1550
Phase 1 New Trips:	0	0	0	0	0	0	0	0	0	46	0	46	0	22	0	22
Phase 2 New Trips:	0	0	0	0	0	0	0	0	0	304	0	304	0	643	0	643
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	0	0	0	350	0	350	0	665	0	665
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	742	742	0	0	0	0	0	807	0	807	0	489	562	1051
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	965	965	0	0	0	0	0	1627	0	1627	0	1484	731	2215

P.M. Peak Hour

Condition	SR 92 Northbound				SR 92 Southbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Eastbound				SR 14 Alt./US 29 Alt. (South Fulton Parkway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2023 Traffic Counts:	0	0	414	414	0	0	0	0	0	215	0	215	0	644	746	1390
Growth Factor (%):	4	4	4		4	4	4		4	4	4		4	4	4	
No-Build 2028 Volumes:	0	0	497	497	0	0	0	0	0	258	0	258	0	773	895	1668
Nearby Merrill Park DRI (#3488) Trips in 2032:	0	0	0	0	0	0	0	0	0	268	0	268	0	295	0	295
No-Build 2038 Volumes:	0	0	646	646	0	0	0	0	0	603	0	603	0	1300	1164	2464
Phase 1 New Trips:	0	0	0	0	0	0	0	0	0	44	0	44	0	57	0	57
Phase 2 New Trips:	0	0	0	0	0	0	0	0	0	741	0	741	0	438	0	438
Total (Phases 1+2) New Trips:	0	0	0	0	0	0	0	0	0	785	0	785	0	495	0	495
Pass-by Trips (Phase 2):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2028 (Phase 1) Traffic Volumes:	0	0	497	497	0	0	0	0	0	302	0	302	0	830	895	1725
Future 2038 (Full Build-Out) Traffic Volumes:	0	0	646	646	0	0	0	0	0	1388	0	1388	0	1795	1164	2959